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## COMING ATTRACTIONS

Audiophiles have been waiting for it with bated breath; manufacturers and retailers with acute anxiety; yes, the April issue of *Stereophile* will contain a completely updated "Recommended Components." Briefly describing more than 300 turntables, tonearms, cartridges, CD players, preamplifiers, power amplifiers, tuners, tape recorders, and accessories, all of which we can vouch for on sonic grounds, "Recommended Components" distills the wisdom of the magazine's contributors into one easily digestible, take-with-you-to-the-store package.

The Audio Anarchist, Sam Tellig, has been listening to amplifiers, specifically the Krell KSA-80 and the B&K ST-140. His report on this comparison will appear in April, while the equipment report section of the magazine features Larry Archibald on a \$12,000 loudspeaker from Altec Lansing, yours truly on some more affordable bookshelf speakers, as well as Linn's new EKOS tonearm, Dick Olsher on Talisman's Virtuoso Boron high-output cartridge, Don Scott on recent FM tuners, and Bill Sommerwerck on surround-sound processors and Dolby stereo decoders. The April issue will also include the index to every review and article that appeared in *Stereophile* in 1988 that was promised for this issue. (Sorry.)

On the music side, Dick Olsher will be talking to recordist Peter McGrath, who has been engineering some stunningly natural recordings for Harmonia Mundi USA; Gordon Emerson talks with cellist Janos Starker; and Mort Frank reviews two new Beethoven symphony cycles, from Bernard Haitink and Riccardo Muti.

Finally, don't forget that *Stereophile's* next high-end hi-fi show, to be held at the Dunfey San Mateo hotel near the San Francisco International airport, takes place from April 21 to 23. We will be publishing a preview to what will be happening at the show—which we hope will feature public demonstrations of the Infinity IRS V, Wilson WATT/WHOW combination, and the Martin-Logan Statement—in next month's issue.



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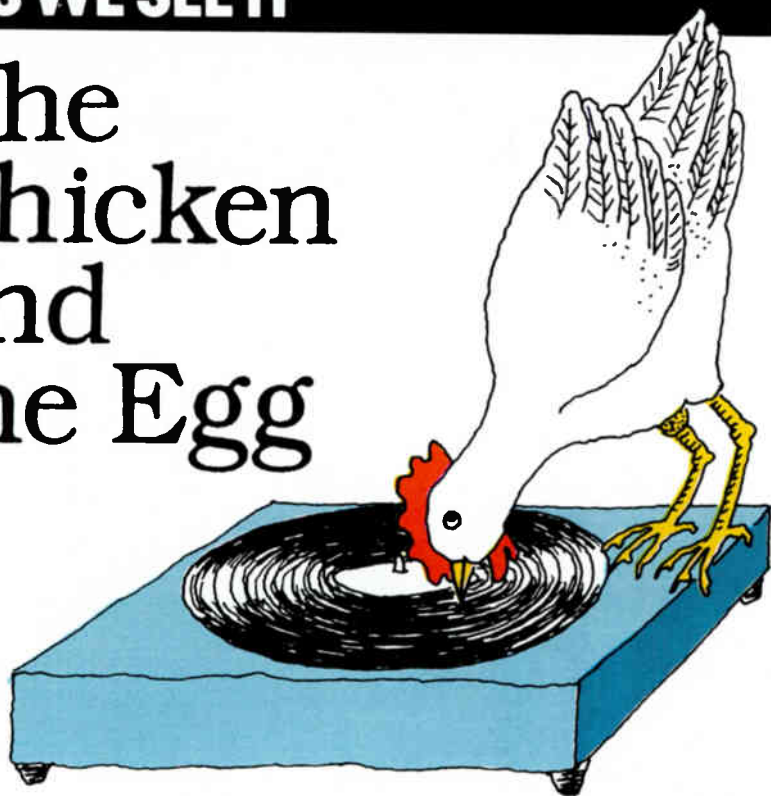
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# The Chicken and the Egg



*John Atkinson*

**I**t is inarguable that the quality of magnetically recorded sound has improved immeasurably in the last 101 years. 101 years? Yes, according to a fascinating account in last May's issue of the *Journal of the Audio Engineering Society*, it was in 1888 that the Cincinnati-based engineer Oberlin Smith experimented with recording information on steel wire by drawing it across the corner of an electromagnet around which a coil had been wound. Smith only carried out experiments without producing a practical recording system, and it wasn't until 1898 that the Dane, Valdemar Poulsen, was granted a German patent for a "Method for the reception of news, signals, and the like." For some reason, the magnetic recording of *music* didn't seem to be a high priority, probably because it was obvious that the technology didn't begin to rival Edi-

son's and Berliner's mechanical grooves on technical grounds. (Those were the days: the cassette still doesn't begin to rival the LP when it comes to quality, yet it has now become the main medium for recorded music.) Only in 1936 did AEG and BASF (then a division of the IG Farbenindustrie chemical giant) record Sir Thomas Beecham and the LPO in concert in a program of Vaughan Williams, Delius, Mozart, and Rimsky-Korsakov on tape. (In conjunction with BASF, Chandos released a limited-edition "50th Anniversary of Tape Recording" cassette of this concert in 1984; it is well worth seeking out.)

By the time of WW II, recording on tape was commonplace in Germany, and Richard Lehnert reviews a 1944 Munich tape of *Der Fliegende Holländer*, transferred to mono CD by Rodolphe, in this month's record-review section. The

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recorded balance is remarkably true to Wagner's music, but, as Richard points out, the sound suffers from the ills you would expect from what was still an early technology. Midrange climaxes are distorted, highs are grating, and there is an abundance of dropouts. These days, you would think such technical deficiencies to be a thing of the past, of course.

Of course? Let me digress. My wife is a ballet nut and is determined to educate me in the dance. So far she has dragged me along to two performances by the Albuquerque-based South West Ballet company and one by the Paul Taylor Dance Company. I am gradually learning to differentiate the good from the bad, but as I started from a very low base of knowledge—none—at least some of the time I forget the subtleties of the dance and enjoy the music, courtesy of the New Mexico Symphony (a transfigured ensemble since the dynamic Neil Stulberg took over as Music Director). Imagine my horror, therefore, when we discovered as we took our seats for the most recent performance that the company was to dance to music from a *cassette!* This in the 1500-seater auditorium that serves as home to the Symphony!

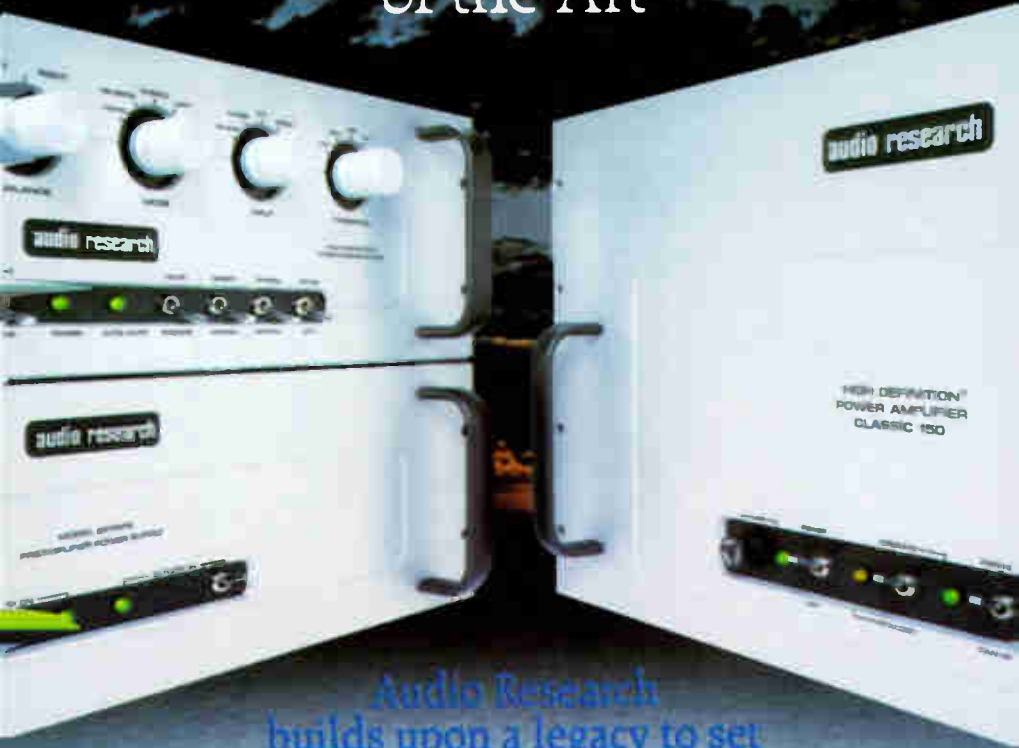
The ballet was by Balanchine, the music by Tchaikovsky (the third piano concerto) via the house PA system—two huge (and presumably expensive) enclosures either side of the stage and another flying over the proscenium arch. We were treated to some of the most abysmal reproduced sound I had ever heard. It could have been used to demonstrate everything that could be wrong with a 1989 music reproduction system: the soundstage was nonexistent, everything coming from a single point in space (I think this is technically referred to as "mono"); the noise level competed with low-level instruments for your attention; clarinets sounded like oboes, oboes sounded like screaming cats; violins screeched to the point where you wished that Stradivarius had devoted himself to some other craft; some piano notes sounded as if accompanied by an out-of-tune xylophone, others as if the hammers were made of sponge rubber; there were no highs or lows; and at levels above *mezzoforte*, the sound degenerated into a roar of clipping distortion. A more comprehensive example of noise, distortion, resonant coloration, and tonal imbalance would be hard to imagine. The 1944 recording, even in mono, is a paradigm of excellence by comparison.

The puzzle was that my wife and I seemed

to be the only ones in the audience who even noticed this sonic travesty, let alone be bothered by it. Yes, I am regularly exposed to very high quality sound; witness my review of the new Accuphase CD player in this issue. But no, I don't think that my sensibilities have been fine-tuned by exposure to the highest of high-end components to such a point that perfectly respectable reproduced sound quality fails to satisfy. It also wasn't just that I was expecting the real thing, live music. Rather, I am sure that everyone else in that audience just heard what they recognized as "reproduced" music. These people, persistently exposed to the very poorest standard of quality—TV and radio sound (FM, not just AM)—heard a sound in the auditorium that was no different in kind from what they *expected* reproduced music to sound like. I am convinced that the public has been trained to anticipate so little quality from recorded sound that they are now not bothered by the fact that they often receive *no* quality whatsoever.

An unfortunate fact of modern life, you must be thinking, but what relevance does it have to *Stereophile* readers? Well, when you talk to professional audio engineers, it is hard not to be convinced that we have reached a plateau where the fundamental performance of nearly all aspects of the recording/reproduction chain is so good that any further improvement would be unnecessary. Improvement might even be undesirable in that it would increase costs without bestowing any perceived benefit. Occasionally, therefore, particularly when I read a letter like the one from Donald Bisbee that kicks off this month's "Letters" column, complaining about the unpleasant fact that those components our writers find to be the best-sounding are also the most expensive, I wonder if audiophiles *have* become unnecessarily fussy about sound quality. But when I have an experience like that recent ballet performance, I become even more convinced that to strive for the best possible performance, no matter what the ultimate cost, is the only acceptable philosophy for any kind of audio engineer. When I hear an engineer promulgating the idea that audiophiles are suffering from some kind of mass self-delusion, an opinion that appears to be commonly held among the establishment audio-engineering community, I remind myself that it's those very same engineers who are responsible for the kind of sound that has lowered the American public's expectations of

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quality. Whenever you are told by an engineer or audio writer that something is probably good enough, or that no one will notice a system's problems, or it is not worth spending more money, or that audiophiles have unnecessarily high expectations, reach for a rope.

Except that hangin' is too good for 'em.

I am sure that in Oberlin Smith's time, it was felt that if only the technical problem of the recording process could be overcome, then everything would be perfect. But even with perfect recording equipment, questions arise as to how it is used, as I endeavored to describe in this space last November. That "As We See It" essay outlined opposing philosophies concerning how to record classical music. First, and one to which I adhere in my own recordings, is to treat the recording process as documentary, where the recordist attempts to capture as faithfully as possible on a two-channel recorder such aspects as instrumental timbre and balance, the ideal relationship between the direct sound of the instruments and their associated reverberation, and the positional information necessary for an accurate stereo image to be reconstructed. (You can see from Barbara Jahn's interview with Riccardo Chailly in this issue how much a world-class conductor likes this philosophy.)

Second, and a philosophy which has dominated the world of classical recording since the early '60s, is to record the orchestra as though it were a giant rock band. Every instrument or, at best, group of instruments is given its own microphone; the engineer tries to minimize the acoustic leakage from one mic to another; the output of each mic is fed to a separate track on a multitrack recorder; and for the mixdown to stereo, the engineer assigns a precise position along the line joining the two loudspeakers to each track. Artificial reverberation and tonal equalization are often added, to "sweeten" the sound, and, just as with a typical rock recording, the producer "balances" the level of all the tracks to produce what to his or her ears is the "best" sound.

I tried to explain the reasons behind this recording philosophy in Vol. II No. II, pointing out that its protagonists regard the recording of classical music as a different art form from the live performance of the same music. Fundamentally, however, I have to say that such a stripping down of a musical event to its bare essentials at the time of the sessions and

attempting to put it back together again during the mix is doomed to failure. Think of the Second Law of Thermodynamics—think of Humpty Dumpty!

An interesting letter this month from Hank R. Bernstein comments on one of the conclusions I drew in last November's essay: that it is possible to judge the quality of a hi-fi component using music that has no original reference; rock or jazz using electric instruments, for example. Mr. Bernstein feels very strongly that this is fundamentally unsound in that the reviewer is then unable to communicate any real description of the component's sound to a reader: "In the end all that reviewer can tell me is that he liked or disliked what he heard: that the sound of the electric guitar seemed to come from a proper position on the stage, that the effect was quite dramatic as the sound was made to cascade across the listening stage at some propitious musical moment, that the component under consideration reproduced these engineered effects well, or better than brand X component which he had reviewed or listened to the month before."

Without the absolute reference standard of unamplified acoustic music in its performance venue, a standard suggested by J. Gordon Holt in last October's "As We See It," Mr. Bernstein suggests that the reviewer's conclusions are useless to the reader. He goes on to say that, with the absolute sound used as a reference, however, the reviewer *can* offer the reader observations about reproduced sound that are meaningful: "He may tell me that the music is recessed, as if I were in Row R instead of Row D; that the timbre of the cellos is true but that the sound of massed strings is a bit more brittle than what one would hear in live performance."

In broad principle, I would not take issue with any of Mr. Bernstein's reasoning. However, I have to point out from a practical standpoint that a reviewer who assesses components solely on whether they help a system more or less closely resemble the sound of live, unamplified music will paradoxically very quickly fall into error! This, of course, is not because the absolute sound of live music is *not* something to which we all aspire, but because it is almost never available in the context of recorded music except in very broad background terms.

If this sounds confusing, let me examine the implications of the statement that it is more useful to the reader to be offered the observation

that a component makes a classical recording sound as if the listener were "in Row R instead of Row D" at a live performance. As a piece of anecdotal information, describing what happened when a component was inserted in a "reference" system, this statement can't be criticized. However, as a value judgment it falls short of the mark, for it assumes that the record used to form the observation has within its grooves the ability for a perfect system to reproduce the sound of live music in the listener's room.

'Tain't so, fella. Only if a classical record has been made with everyone involved—from musicians to recording engineer to producer to cutting engineer—concerned with the accurate preservation of every aspect of the original sound and performance, will this assumption be correct. Otherwise, the listener has to use a recording that is no different in kind from a multitrack rock recording to judge the sound of a component, and that record will have probably been considerably altered from the "sound of live unamplified music" in just about every way. Attempting to use the absolute sound—love that phrase!—as a reference, you may think that you can make value judgments about a hi-fi component because you already know what a classical recording should sound like—the real thing. In actuality, as the recording doesn't have that potential, you need first to assess its quality by listening to it through components that you need already to know the sound of when compared with the sound of live music. You need knowledge of the chicken before you can assess the quality of the egg, but you only have access to the quality of the chicken if first you know all about the egg.

Confused? Consider the statement that a component makes the sound "recessed" when compared with the real thing. There are two, not one, value judgments that can be drawn: the first is Mr. Bernstein's: *ie*, that the component makes the sound more recessed; the second is that the component more accurately allows the intrinsically more recessed sound within the grooves of the LP to be reproduced. Which is correct? You have no way of knowing. Read Robert Levine's review, for example, of the new Michael Tilson Thomas recording of Mahler's Symphony 3 on CBS Masterworks in this issue, where he notes that it "sounds as if each solo instrumentalist . . . had a separate microphone on his lap," resulting in "the most crisp, spotless Third imaginable." I suggest that

a reviewer using this recording to assess the quality of components would downgrade neutral-sounding components on the grounds that they made the sound less like the sound of live music; *ie*, it would sound too bright. Components that *are* intrinsically too dull will be unjustifiably upgraded for the opposite reason.

This causal dichotomy holds true for every aspect of sound reproduction, not just tonal balance. (Visitors to either of *Stereophile's* 1987 hi-fi shows will remember that I devoted a whole hour's lecture to just how a recording's ability to create a stereo soundstage is altered by the microphone technique used!) The conclusion must be obvious: use only those classical records in listening tests that have been made according to philosophy #1 above. Use program material that is intrinsically neutral in tonal balance, that has the instrumental balance that the composer intended, that is uncolored, and that has the capability to create a true stereo image.

OK, name some records that you *know* conform to this standard.

Name *one*.

Difficult, isn't it? In fact, I can only think of one commercial orchestral recording that gets close to this ideal, Sheffield Lab's *Firebird*, with Erich Leinsdorf conducting the LA Phil (CD 24), and even that is flawed: it was recorded in what I feel was an unsuitable acoustic, too dry and with too small a volume for such a dynamic work. In fact, you have to realize that recording engineers, even when they aim for honesty in recording, are always forced to compromise some areas of reproduction in favor of others. Les Berkley, for example, reviews a new Hungaroton production of Alessandro Scarlatti's oratorio *Judith* this month, where the engineers chose to use microphones that were timbrally accurate. However, they also used a mic technique, probably dictated by the very natures of those microphones, that destroyed any sense of a real soundstage. Many of the Wilson and Reference Recordings are similarly timbrally accurate, at the expense of the stereo

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<sup>1</sup> I was intrigued to read in the November/December 1988 issue of *The Absolute Sound* that pianist and educator James Boyk is offering a commercial cassette, realized by some of his students at Caltech, which appears to be based on my series of lectures on how different stereo microphone techniques affect the reproduced soundstage. Readers interested in acquiring this tape should contact Mr. Boyk at Performance Recordings, 2135 Holmby Avenue, Los Angeles, CA 90025-5915. Tel: (213) 475-8261.

image, while recordings that aim to preserve the accuracy of the soundstage nearly always seem to require the use of microphones that color instrumental tone quality, sometimes more than a little. And many recordings, particularly those made with large numbers of microphones, both add coloration *and* destroy any semblance of a realistic-sounding stereo image.

What I am trying to lead you toward is a recognition that it is too simplistic—and pompous—to insist that equipment reviewers unthinkingly adopt the dialectic involving logically inconsistent comparisons to live sound. This inevitably leads to the reviewer becoming trapped in an endless loop. Rather, it is more fruitful for reviewers to base their value judgments on specific recordings that they already *know* have a particular character in one area of reproduction. A reviewer's initial task is one of diagnosis, and *any* recording is appropriate for use, not just those that can be compared to live sound, if it aids the reviewer in this phase of the review. (How else could you justify the use of non-musical test signals, for instance?)

The Clannad *Magical Ring* album that I mentioned last November, and that Mr. Bernstein suggests I abandon as a test record on the grounds that it doesn't have a verifiable source sound, is such an album. While it would be pointless to use this recording to examine a component's departure from tonal neutrality, I use it specifically to examine a system's ability to throw a well-defined soundstage with width and depth. The fact that it has no absolute referent is irrelevant in this respect: a system's imaging ability can be benchmarked with *any* recording that contains pure intensity-stereo information, and in actual fact, panpotted multi-mono rock recordings tend to be *more* informative than a typical classical recording, as almost none of the latter are recorded so as to encode this information. (The only exceptions are recordings made in a pure, coincident-figure-of-eight manner or in a variant of the M-S technique, and these are rare beasts indeed.) In addition to the intensity-stereo lateral imaging contained on *Magical Ring*, the fact that its producer has used sophisticated artificial reverberation enables a good system to present considerable image depth. There is no need for a comparison with live "images" here; the fact that the recording possesses the requisite information makes it a sufficiently sensitive test. If I hear the attributes of specific lateral

image position and well-defined image depth with *Magical Ring*, I then know that any classical recording will reproduce with the maximum image specificity of which it is capable. The reverse, Mr. Bernstein—if, say, I use a typical orchestral recording from one of the major companies as my benchmark record—will not be true.

Similarly, I use Wilson, Reference, Water Lily Acoustics, and Sheffield Lab classical recordings to assess departures from tonal neutrality, pink noise to look for the presence of resonant problems, pretty much any modern rock album to assess the ability of amplifiers and speakers to present tight, well-defined midbass, good organ recordings and sinewave sweeps to investigate low-frequency extension, drum and percussion recordings to investigate "jump factor" and overall dynamics, in fact *any* recording where I can break the logical judgmental loop due to the fact that I have independent knowledge of how the recording *should* sound. As an aside, it is for this reason that I regard it as essential for reviewers to be actively involved in making their own recordings, because this gives them that knowledge absolutely. (Though, as has recently been pointed out with respect to Dick Olsher's use of his recordings of his wife's voice, this removes the capability of readers to repeat his test). Which of all these parameters is most important I believe to be a personal choice, associated with the listener's musical taste. J. Gordon Holt, for example, would agree with Mr. Bernstein's apparent feeling that it should be tonal neutrality; as would Peter Mitchell, who, when asked by Bud Fried at the 1989 WCES (full report in this issue), replied that "good frequency response is a 'necessary but not sufficient condition' for great sound. Other things are important, but if the frequency response is irregular, the other qualities don't matter because the speaker won't reproduce the real sound of music."

But the most important thing for a reviewer is to use as wide a range of recordings as possible in order to frame value judgments which can be communicated intact to someone else. As, again, Peter Mitchell pointed out in a recent "Industry Update" feature (December 1988, p.47), merely to compare the sound of a component with the reviewer's memories of live sound can lead to error *unless he or she uses a sufficiently varied selection of recordings.*

So where does my idea, as expressed in

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November, of the reviewer using his visceral response fit into this neat framework of diagnosis and judgment? And how *does* live music fit into it?

As follows: The whole business of diagnosis described above seems designed to allow the reviewer more to get a handle on what a component is doing *wrong* than on what it does right. The latter, however, is more important—the fundamental purpose of a hi-fi system is to enable its owner to enjoy music in the home—and the listener who is sensitive to the music has a shortcut to discovering it. But in order for a listener to become musically sensitive, it is incumbent on him or her to regularly experience the real thing. How can you make yourself receptive to Mahler's music, as opposed to the sound of Mahler's scoring, if you don't expose yourself to the music as the composer originally intended it to be heard? If, then, a listener who regularly attends live music finds that a component somehow destroys his or her ability to enjoy the music—and this is true of *all* kinds of music—then all else is irrelevant, even tonal accuracy. As J. Gordon Holt emphasized many years ago, a component must have the ability to allow the music to raise goosebumps

on the listener's arm. Mr. Bernstein states that a reviewer must provide his reader with an intelligibly stated standard by which he will judge components coming before him. Ultimately it's goosebumps, Mr. Bernstein. Goosebumps.

### A change for Mr. T

Finally, I would like to take this opportunity to welcome the irrepressible Sam Tellig back to *Stereophile* in a new guise. Having written about affordable equipment for the magazine since 1982, when in what was the *second* official Audio Cheapskate column in Vol. 5 No.10<sup>2</sup> he offered some thoughts on good moving-magnet pickup cartridges, Sam felt that it was time to expand his horizons. In his new role of the Audio Anarchist, he will be wandering farther afield in search of sonic excellence (though I am sure his fundamentally cheap nature will shine through). In this issue, he reports on his experience with four of the latest CD players, ranging from the inexpensive Magnavox CDB582 to a \$2500 Onkyo. Welcome back, Sam! **S**

<sup>2</sup> It didn't seem strange in those innocent days that the *first* official Cheapskate column was not to appear until the summer of 1983, in Vol.6 No.2.

## How good is the conrad-johnson PV8 preamplifier?

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Duncan & Adrienne Hartley  
High Performance Review/Dec 88

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# LETTERS

We regret that resources do not permit us to reply individually to letters, particularly those requesting advice about particular equipment purchases. Were we to do this, a significant service charge would have to be assessed—and we don't have time to do it anyway! Although all letters are read and noted, only those of general interest are selected for publication.

## Stereofools?

Editor:

Must *Stereophile* make a *Stereofool* of itself by constantly recommending grossly overpriced products?

Merely *increasing* the price of an item will *not* make it sound any better! So how come on p. 71 of the December '88 issue I read about Mandrake phono leads that cost £500 per meter (or \$1 per mm!)?

Even if these wires are custom-made out of exotic (superconducting?) material, can you explain how you can put \$1000 into a meter of thin wire? And just what a difference in sound it actually makes?

I doubt that anyone at your magazine could really hear the difference between these and other cables even if they could see them. This kind of "sound improvement" is 1% *inspiration* and 99% *desperation*, written by people who know as little about cables (as in Dick Olsher's recent review) as they do about money.

**Donald Bisbee**  
Columbus, OH

## Why no affordable products?

Editor:

You spend entirely too much text and too many reviewer hours evaluating the latest versions of contenders for penultimate component honors, while leaving too many of your readers in the dark about the performance (often enough even the existence) of components they could actually afford to bring home.

Thus we see re-reviews of the Quad ESLs *ad infinitum*, the CAL Aria and Versa Dynamics turntable *ad nauseam*, and of the same ol' products by Rowland, ARC, Krell, etc., *ad yawnum*. And we wait—is it two years now? Or longer?—for a review of the Systemdek; the Spondors are dropped from the "Recommended" list because of lack of recent auditioning, and you apparently have never heard of the affordable preamps from Bryston and Belles. (Come on, Sam!)

Both of the latter manufacturers, local rumor

has it, make economy preamps that will run all over the comparable Adcom, Hafler, NAD, and Carver models abounding at our local mid-fi chains in terms of soundstaging, smoothness, detail, and transparency. Yet these are not reviewed in *Stereophile*, or mentioned with intent to review, much less recommended. I'd love to see you substantiate or undercut the credibility of the rumor.

I don't criticize your reviewing a sizable amount of expensive equipment. It's nice, even if I can't afford it, to know how close certain equipment can come to the sound of live music, what the state of the art actually is. Unfortunate though it may be, the best designs and parts cost lots of money and (apparently) allow recorded music to sound much more "real" than the equipment I find affordable. Nor would I even think of denying those who can afford to buy the state of the art their opportunity to learn what new contestants have entered the arena. And I do think you cover affordable equipment reasonably well.

But really, the kind of people who can afford the WAMM system can also afford to take the time (Lord knows their dealers will welcome *their* visits) to listen to whether some manufacturer's latest version of its kilobuck amp is actually an improvement or not. And you can spend the space you would've given to the review of the revision in telling me whether it's worth going to the trouble of borrowing that economy amp or preamp for a home comparison with an Adcom (or other "cheap" piece).

In other words, we who have less money are the ones who more urgently need your help to narrow (because, in the end, it still comes down to our listening) the field of choices. Is it worth a drive to Iowa or Chicago from Minneapolis to hear the cheapest Thiels? I think so, because of your writing. But the Systemdek? I don't know yet . . .

Thanks for, like, letting me share your space, and for keeping *Stereophile* interesting.

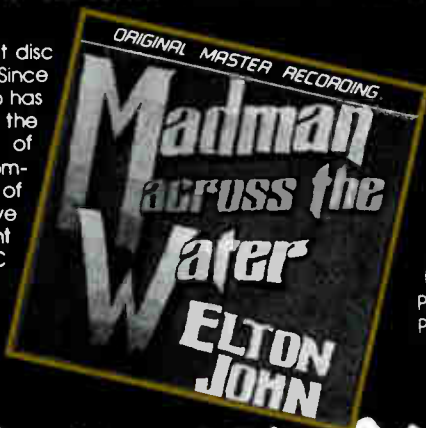
**Doug Stevens**  
Minneapolis, MN

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## 40 times better?

Editor:

Is the \$8000 Sony CDP-R1/DAS-R1 combination reviewed by JGH in December 40 times better than a \$200 Magnavox? And why can't we have a Cheapskate column in *every* issue?

**Jim Griggs**

Volcano, HI

## State-of-the-art?

Editor:

With reference to J. Gordon Holt's review of the \$8000 Sony CD player, the CDP-R1 is by no means state-of-the-art when it comes to tracking. My Philips 880 and my Technics 770 both track all 50 bands of the Verany disc with only a handful of clicks, and a Magnavox 460 I used to have did the same. Seems single-beam lasers are better trackers than multiple-beam devices.

**Bernard A. Engholm**

Carlsbad, CA

## Frustrating?

Editor:

*Stereophile* is truly the most frustrating magazine I have read in the field of audio in 49 years. I am renewing against my better judgment, with hope that you will find something in audio gear that is good and *reasonably priced*. But I doubt it.

*Audio*, *High Fidelity*, *Stereo Review*, and musician magazines (varied assortments) have been more enjoyable reading, more satisfying, and more helpful.

**Frank Lidonni**

Brooklyn, NY

## So much for speaker placement?

Editor:

I read with enjoyment Mr. Lewis Lipnick's review of the Martin-Logan Sequels in the December 1988 issue of *Stereophile*. Mr. Lipnick did his usual precise job of describing the physical and musical attributes of yet another interesting piece of stereo gear. Well done!

In his review, Mr. Lipnick used one column to describe the care he took in placing the speakers for the best sound. In great contrast to that, I was amused to notice (on p.182 of the same issue) an advertisement from GNP in Pasadena that showed the same Martin-Logan Sequels parked snugly at each end of a large cabinet, with their backs to the wall. So much for speaker placement.

I felt a tweak's mild superiority at such crass behavior until I recognized that my own speakers had been placed in my own living room with far greater concern for looks than for sound optimization. Apparently, I find room aesthetics at least as important to me as musical aesthetics.

I do recognize that I am writing to *Stereophile* and not to *Home Entertainment*. I am just wondering—which is the path most taken? Anybody care to take any bets? Are you good speaker manufacturers listening?

Anyway, thanks for the best stereo magazine. I am looking forward with great anticipation to the coming of your High-End show to my city in April.

**Stephen Pratt**

San Francisco, CA

## JA's idiosyncrasy?

Editor:

I enjoy reading John Atkinson's reviews, commentaries, and the like; it seems we share many of the same likes when it comes to equipment reviews, and his reports are very informative (sometimes over my head!) and are for the most part clearly written, with enough wit to keep the reading enjoyable. I have one gripe, though. Do you—John—know what it has to do with? You mean you can't guess? Do you want a hint? Do you know that I've already given you some? Yes, it's those blasted rhetorical questions of yours that keep popping up like mushrooms all over the place in your writing! In the December '88 issue, I counted four in the "Coming Attractions" report alone, and that's out of four paragraphs, with two in just the first paragraph. I won't take up your time going through other writings; suffice it to say one need only look for the sign of the "?". It's probably not so strange, but this "style" seems to have crept into the writings of others on the reviewing staff of late. At least I don't remember it quite as much even just several issues ago. No big deal . . . but just thought I'd bring it to your attention. Maybe I'll end with a rhetorical question of my own: Who edits the editor?!

**Stew Glick**

Springwater, NY

*Richard Lebnert. And I edit him.*

—JA

## Whither records?

Editor:

Having been a reader for almost two years now

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and enjoying the magazine, I have recently been bitten by the *used* record-collecting bug! Could you inform me of the best places to write to (newsletters, stores, etc.) for information about and purchase of used classical and jazz records.

**Ken Clybor**  
Wheeling, IL

Try our two "In Search of Black Diamonds" surveys, in Vol. 11 No. 1 (San Francisco area) and Vol. 11 No. 4 (NYC). *Immortal Performances Records and Tapes*, 1404 W. 30th St., Austin, TX 78703, conducts record auctions by mail. *Recollections*, of 2743 Eighth Street, Berkeley, CA 94710 (Tel: (415) 548-7786), publishes an excellent catalog of rare secondhand classical and jazz LPs. It might also be worth contacting *Music By The Sea*, 542 Coast Highway 101, Leucadia, CA 92024, who conduct a busy mail-order record service. *Stereophile* will also be happy to print short letters from readers who know of good dealers in used classical and jazz records, particularly in the Los Angeles, Chicago, Boston, Philadelphia, and Atlanta areas.

—RL

## Whither Gordon?

Editor:

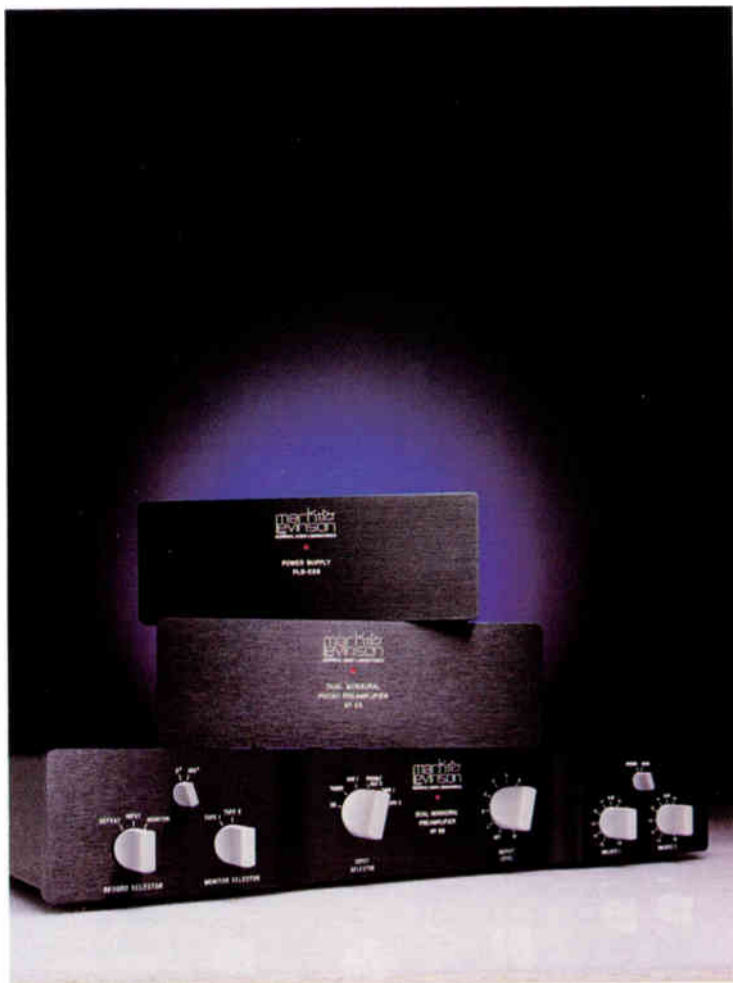
I've noted with only passing interest the occasional outcries from long-time *Stereophile* readers over the relegation of J. Gordon Holt to an emeritus status as "Founder and Chief Tester." The obvious implication seen by these alarmists is the insidious transformation of the publication into some hideous mutation which no longer holds true to the principles of journalistic integrity—or whatever. Up to now I've not had any real concerns even remotely related to such paranoia. After all, a monthly format with lots of equipment and music reviews is enough to keep most casual readers happy.

With the December issue, however, a single, one-sentence footnote has me wondering. In Richard Schneider's review of the Blomstedt/San Francisco Symphony recording of Hindemith's *Matbis der Maler, Trauermusik*, and *Symphonic Metamorphoses*, the reviewer makes note of the fact that the other London recording recently done by the same assemblage is a combination of both the fourth and fifth Symphonies by Carl Nielsen. A footnote pops up with the initials JA: "A brief listen to the Nielsen 4 at Lewis Lipnick's leads me to suggest that it is worth avoiding."

Now, I'm not always a cautious shopper when it comes to purchases of new recordings. Most tend to hit the shelves of the retailers well in advance of most reviews. So occasional impulse buys are an adjunct to my usual pattern of careful attention to well-considered and responsible reviews. In the case of the Nielsen pairing, however, I held off obtaining it even though it was performed by a local orchestra and conducted by a man who had done some impressive work in Dresden. What I did was to read three favorable reviews in national publications and to listen to recommendations from people who are in the habit of engaging in critically comparative auditions of various recorded works. When I finally got the CD and played it, my reaction was, "Why did I bother waiting? This is a fine recording." Yes, there are a couple of spots where overzealous multi-miking results in minor distractions. But the overall performance is dynamic and beautifully wrought. Moreover, in comparison with the parsimonious Karajan/Berlin Philharmonic recording of the Fourth *only*, this disc has one of the most coherent performances of the Fifth that I've heard. A distinct bonus, especially when the latter piece can easily be allowed to wander and completely lose any semblance of interpretive focus.

So what's my beef, aside from disagreeing with JA? To a large extent it's the fact that I don't even know what I'm disagreeing with. A one-sentence put-down certainly is unenlightening and, frankly, somewhat irresponsible. My primary gripe, however, is that the job of reviewing hasn't been properly left to the reviewer. One reason I don't read *TAS* with any regularity is the constant opinionated potshots with which Harry Pearson peppers his publication under the guise of footnotes. Even worse is the nauseating toadyism engaged in by virtually all *TAS* writers ("Oh, you're so right, Mr. Pearson, your guru-ship! Pardon me for having an independent thought!"). I don't think I want to see *Stereophile* go down that road. I would certainly think that the editor who allows Dick Olsher to indulge himself in metaphysical meanderings on speaker cables can leave the music reviewers alone.

That said, I do have a comment for the *real* reviewer, Richard Schneider. I don't agree that there are no other "viable *Matbis* rivals." The fine 1960s recording by Constantin Silvestri and the Philharmonia Orchestra (Angel S



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35643) comes to mind immediately. Perhaps more relevant, however, is the 1973 performance by the London Symphony conducted by Jascha Horenstein, now available in a remastered CD version (Chandos CHAN 8533).

While I'm on a roll, Mr. Editor, Sir, why can't we see consistent appearances of the Audio Cheapskate? Can't Sam Tellig meet a deadline? I can't believe he's running out of inexpensive equipment to audition.

**Jim McClanahan**

Clovis, CA

*With hindsight, Mr. McClanahan is right that my footnote appeared to be an unsupported put-down. I had eagerly anticipated Blomstedt's London recordings after becoming enamored of his superb Ein Heldenleben with the Dresden Staatskapelle for Denon (33C37-7561). But I was so deeply disappointed by the Nielsen 4 recording, in particular by the leaden, unmagical beginning to the first movement, that discretion abandoned me and I launched into print.*

—JA

## The presence of Polk

Editor:

This must be the first of 1000 letters regarding the advertisement on the inside front cover of the December '88 issue of *Stereophile*. You've sold out! It is irksome to think that you allow *that* company to advertise in *Stereophile*. I've listened to *his* speakers, and, like many other audiophiles, do not believe in gimmick products.

I've always considered, until this day, the products advertised in your magazine to be the state of the art in audio, *not in promotion*. You've let me down.

**Kevin Szymanski**

Cleveland, OH

## The condemnation of Carver

Editor:

Upon seeing Carver advertisements once again in *Stereophile* magazine, I was prompted to comment on Carver products and general perceptions. At first I was skeptical (or worse) of Bob Carver and his "inventions." Before ever even "bothering" to audition any Carver products, I had several excuses of why they did not merit the effort (not sold at the local high-end salons, advertising that appeared to contain more puffery than substance, inconsistent or incomplete specifications listed in the advertisements, too much gimmickry).

One day I decided to "waste some time" and

audition various Carver components. I did not like everything that I heard, but I did like a few products very much. It was surprising how different each amp sounded; there were also reception differences in the tuners, and sound-stage differences with the preamps. And remember, these were only Carver components.

The point of this letter is that not all Carver products (or others, for that matter) should be condemned because a portion of the entire product line is lacking in some area. I believe that Carver's marketing strategy has also turned people away from their products. Instead of blasting a product (Carver or otherwise) unjustly, spend some time evaluating the product based on *its* individual merits. You may even surprise yourself, just as I did.

**R. D. Nickolett, II**

West Allis, WI

## Carver & LP sound

Editor:

I was very pleased to see a Carver ad in the December issue. I realize that there were differences between *Stereophile* and Bob Carver. Bob Carver, King of Kontroversy, Master of Understatement; ads you love to love and love to hate (I hate the labels but love the audacity). It's a wonder the Silver Seven wasn't called the Astounding Amplifier. But seriously, what had all this to do with *omitting* these products from product reviews? What happened to scientific objectivity? If these products are crap, then print that, but don't censor this stuff by *omission*. This is the worst sin to inflict on your readers—a great disservice! I am not a Carver fan (no chance to form an opinion), nor am I in his employ, but I feel frustrated about deliberate withholding of information/opinion, whether good or bad, about these products.

Incidentally, that "smooth-blended" LP sound is *phony!* And who wants to listen to the scratches and pops on top of that? I suspect that much of the snob appeal of LPs comes from the enormous financial investment in them. Sure, CD sound isn't perfect, and I fully expect that when solid-state-ROM with multi-hundred-kilohertz sampling rates comes down to mass-production, the CD collectors will be throwing rocks at that new-tech sound.

**R. Gloria**

Granada Hills, CA

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<sup>1</sup> Yes, I attend several live classical concerts a year.

## Thiel & service

Editor:

Please consider this a paean not only to the sound of the Thiel CS3.5 speakers, but also to the soundness of Thiel's service arrangements.

I found that the tweeter of one and the mid-range of my other speaker were collapsed. While they could be pulled out with a vacuum cleaner, there were apparently permanent creases. A phone call was made to Thiel on a Friday afternoon, and the receptionist said that I would be called back. Having dealt with other electronic equipment concerns, I was amazed when a fellow named Dave returned my call a short time after 5pm and apologized for making me wait two hours.

After he asked the obvious question, "Do you have cats and kids?"; I felt that sinking feeling which accompanies another decision to spend quite a bit of money to repair damage from the onslaughts of small beings. Although the answer to his question was "Yes," without hesitation Dave said that Thiel would honor the 10-year warranty. He offered to send replacement drivers, as well as pay for local labor since the dealer where I had purchased the speakers two years ago was quite a distance from me. When assured that I could handle the labor myself, he gave explicit directions and spent some extra time patiently and eagerly answering other questions for me. I received the drivers by UPS second-day air. He only stipulated that I return the damaged drivers.

A company like this deserves to be recognized and, in this small way, rewarded with good publicity. Thank you for your attention, Thiel, and *Stereophile* for introducing me to their products.

**Robert Lichtenstein, Ph.D.**  
Chester, NJ

## Thiel & Carver

Editor:

As I was thumbing through the newly arrived *Stereophile* (Vol.11 No.12), like I always do when it arrives, to see what goodies await within, I got a jolt. What was this? An advertisement from Carver Corporation. No, it couldn't be, because JA had written in Vol.10 No.5 that no further advertising would be accepted from Carver Corp. But there it was. What's the explanation? Is this a one-time-only phenomenon, or has the feud between Carver and *Stereophile* been resolved? Could it be that this feud led

Bob to design his new Silver Seven tube amp? LA did suggest, in Vol.10 No.3, "... I still await Bob Carver's assault on state-of-the-art amplifier design, based on his perceptions of musical reality. . . Come on, Bob, show us the best you can do in amplifiers." It would seem that he took you guys seriously by doing just that. Will you now reciprocate by reporting on this new amplifier? I, for one, would like to see what you think of the Silver Seven. Can it really be as good as the ads say? And what about some of the other Carver equipment, such as the ribbon loudspeaker? Is it really an audiophile product?

Now to another subject. In the Letters section (Vol.11 No.12), Ben A. Tupper described the poor performance of the Thiel CS3.5 on low organ pedal (serious breakup), and JA responded that this is "... common to any speaker that uses EQ to extend low-frequency response." I re-read the report on the speaker in Vol.10 No.1 by Anthony H. Cordesman. He raved about the bass performance of this speaker ("... its full-bass range is actually deeper, better controlled, and more dynamic than most sub-woofer systems"). But in a footnote, JA seemed to back off from that a bit by saying that the woofer was working hard near the lower end of its range. Was that a way of hinting at poor deep-bass response at high volume? If so, why not come out and say it plainly? If this speaker really breaks up as badly as Mr. Tupper says, I would consider it a serious weakness that any report should address in no uncertain terms (yes, I do listen to a lot of organ). And is the statement about the compromised low-frequency response of speakers with EQ really true? What's the story here?

**Gene D. Robinson**  
Harrisonburg, VA

## Margins of Reality

Editor:

Mr. Wong's rambling and largely irrelevant diatribe, "Pseudoscience vs Reality" (November 1988)—unfortunately typical of much of the skeptical commentary on this difficult topic—betrays any familiarity with the book he declaims, or any respect for the scientific objectivity he defends. Categorical dismissal of evidence inconsistent with personal belief systems can hardly advance the scientific dialogue on any issue, however complex, and he offers only a few substantive points that merit any response:

First, the main concerns of the book *Margins of Reality* are not "religion, magic, and various mysteries," but the summary, for an informed lay audience, of more than a decade of extensive engineering research on the interaction of human consciousness with various physical devices, systems, and processes, with particular attention to the demonstrable anomalous aspects of such interactions. By actual page count, more than 80% of the text is devoted to technical discussion of the experiments and theoretical models, and their directly pursuant consequences. The remainder is simply an attempt to set these results and their scientific implications within a broader historical and philosophical context. Indeed, if the book has any special character compared to others in the field, it is that it is rooted in experimental fact.

Second, Mr. Wong's intuition notwithstanding, the benchmark experiments are indeed microelectric in nature. The primary noise source is a commercial microelectric board based on thermal electron migration across a reverse-biased solid-state junction. Obviously some of the downstream circuitry involves larger-scale signals to count and display the effects, but this is hardly a compromise of the basic process. While we have not specifically included 5V doorbells in our assortment of feedback modes, very similar effects have been obtained on various pseudorandom circuits, on a macroscopic random mechanical cascade, and on certain analog optical and mechanical devices.

Third, the experimental results displayed in the book are not "selected" in the pejorative sense Mr. Wong implies. They are quite representative samples of a huge database that is summarized in the appendix, and has been presented in full in an extensive sequence of archival publications and supplementary technical reports, fully referenced in the book's bibliographies. In particular, seven referenced publications, totaling 170 pages, have appeared in "reputable" (*sic*) engineering, physics, and psychology journals, while some 25 technical reports, totaling over 2000 pages, have been distributed to a mailing list of over 1300. These reports contain every shred of data—positive, negative, or inconclusive—acquired in this program to the date of issue. A listing of these reports, as well as the reports themselves, is available to any interested respondent.

If Mr. Wong would now care to *read* the book he has critiqued in the abstract, or to inform himself of the details of our technology, protocols, and results, we would welcome his objective comments on any specific issues.

**Robert G. Jahn, Brenda J. Dunne**  
Princeton University, Princeton, NJ

## Price & Reality

Editor:

After reading Tom Wong's letter "Pseudoscience vs Reality" in Vol. II No. II, which responded to my letter "Margins of Reality" in Vol. II No. 7, I telephoned Mr. Wong to ask whether he had even seen the book *Margins of Reality*, which his letter had criticized so violently.

He hadn't, and said that this didn't matter because my letter had described the book quite well. I bought some extra copies and sent him one. Subsequently he 'phoned, and we had a pleasant conversation. The dogmatic tone evident in his letter was now moderated, and he agreed that he would read the book thoroughly.

Incidentally, Tom Wong's call had interrupted my reading of the Nov. 22 *New York Times*. I returned to the front page of that Tuesday "Science Times" section and saw this headline: "3 Scientists Say Travel in Time Isn't So Far Out."

I thought to myself, here on the one hand is Tom Wong, who cannot conceive the possibility of minds affecting microelectronic events, and here on the other hand are respected members of the academic establishment publishing a paper (in *Physical Review Letters*) with a complex mathematical analysis to establish the possibility of "wormholes" in space that would permit time travel and upset the apparent laws of causality.

The *Times* says this paper was written by Drs. Kip S. Thorne and Ulvi Yurtsever of the California Institute of Technology, and Dr. Michael S. Morris of the University of Wisconsin, after a year of study and consultation with other astrophysicists. Dr. Robert M. Wald of the University of Chicago told the *Times* that "handles" similar to the above-mentioned "wormholes" are known to exist on the quantum level, and that "events within the 'quantum foam' can be manipulated. . . producing effects observable in . . . the everyday world we can see and touch." And Dr. Thorne wrote that the possibility of time and space travel through such wormholes depends on whether the

"averaged weak energy conditions" can be violated, which might be determined by a program of experiments. It is interesting that, in *Margins of Reality*, authors Jahn and Dunne also turn to quantum theory to explain psi phenomena.

Time travel through wormholes seems more outré than psi influence on random microelectronic events, yet always it is psi that most raises the hackles of the technical/academic establishment. In 1956, the magazine *Astounding Science Fiction* published an article on the Hieronymous Machine, a Peter-Belt-reminiscent psi device that had been granted a US Patent (#2,482,773). Reacting to reader's comments, *ASF's* then-Editor, the celebrated John W. Campbell,<sup>2</sup> wrote in the March 1957 issue:

"Our Western culture is the *only* culture that does not accept the reality of psi powers in one form or another. . . [it] has rejected psi powers as part of reality for about two centuries or so [and] is very, very sure they are impossible,

<sup>2</sup> It was reading the great John W. Campbell's editorials in the '50s—yes, I *am* that old—that stimulated my interest in magazine editing as a way of life. And am I alone in thinking that though *Astounding* may have become more "modern" when it metamorphosed into *Analog* in the early '60s, it also lost a certain something? —JA

[and is sure that] the history of the preceding 100,000 years is all wrong."

Tom Wong's letter suggested I cancel my *Stereophile* subscription, buy a \$499 (or perhaps \$299) rack system, and upgrade it by psi. Now he may suggest that I discard the rack and use a wormhole to visit Beethoven playing his "Hammerklavier" sonata.<sup>3</sup>

**Edison Price**  
New York, NY

## Reality & Wong

Editor:

After reading JA's comment following my letter "Pseudoscience vs Reality" in Vol.11 No.11, I was a little startled to learn that, contrary to my letter, Mr. John Crabbe was far from joking when he made the allusion to a possible psychokinetic process affecting the behavior of audio circuitry as a possible explanation for people hearing differences when there should

<sup>3</sup> And, of course, to church in Leipzig on Sundays to hear Johann Sebastian play the organ. Maybe *Stereophile* should sign an exclusive contract with NASA (for I assume it will be they who will monopolize wormhole travel, the government being the only organization capable of funding the creation of the necessary rotating black hole) to offer such tours to its readers. —JA





be none, and *vice versa*. I may have been under the naive impression that any *primary* hypothesis should be the most probable and normative explanation, not the most improbable and paranormal. Or perhaps, this time, Mr. Crabbe reached a little too deep into the bottom of his hypothesis barrel. Even the infamous Enid Lumley at *TAS* would probably keep this one to herself in the ultra-lunatic fringe. This whole affair parallels somewhat loosely what Isaac Asimov once lamented: What's obvious to one person isn't always so obvious to another.

I'm also more and more convinced that besides consistently churning out "inconclusive results," the scientific investigation into the paranormal is also consistently involved in scandals concerning its propriety. According to a book titled *A Skeptic's Handbook of Parapsychology*, edited by Paul Kurtz, Chairman of the Committee for the Scientific Investigation of Claims of the Paranormal (CSICOP), parapsychological research, even on the rare occasion when results are claimed, is riddled with flawed scientific protocol, personal bias, data manipulation, and outright fraud (mostly in the test subjects). So many graphic examples of

research deficiencies are given in this book (including the particular REG psychokinetic experiments that Mr. Price was raving about—see postscript) that, after a reading, even committed occultists would probably have to squint harder than Clint Eastwood to see their mystical and religious auras—if they don't lose grips trying to read something too concrete and factual for their minds. After a thorough historic analysis of spiritualists, mediums, and psychics, Paul Kurtz made this concluding remark: "The same psychological processes seem to be present in our age and earlier ages. There is often willful deceit and fraud on the part of psychics or mediums, and the hunger to believe in a spiritualistic or paranormal universe and super psychics on the part of credulous believers. The more things change, the more they stay the same!" It's quite understandable why parapsychology still has a hard time making the ranks among other sciences.

JAs comment that "one man's pseudoscience is another's belief structure" was, perhaps, too tempered. In rough street slang, how about: one man's *bullshit* is another's wasted time and money—or should it be one woman's, when referring to a certain actress who is laughing

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all the way to the bank for her various advocacies in the name of metaphysics. Evidently, with even light weight BS garnering such market potential, there must be hordes of real suckers for star appeal and fantasy, with reason and realism not even taking a back seat in their minds. Figuratively speaking, human cognitive functions must be taking permanent residence in the hearts of some people rather than their brains. But, sorry, no apology; I'm confident that being judgmental, in this case, is a demonstration of moral resolve—not prejudice.

Actually, my gripe is really toward people of high visibility who are *seriously* dogmatic on matters that are clearly wrong, illogical, stupid, ambiguous, or (bear with me) one-dimensional. Riled by all these easy targets, I sometimes feel like a skeptic who has been turned into a hitman, pitted against the suppliers of unchecked ammunition destined to the terrorist nation of charlatans, and sanctioned by what seems to be the law's deliberate policy of vagueness on these issues.

In anticipation of those who will argue that what's wrong, stupid, or illogical is *never* obvious or "black and white," please pardon my omission of any immediate or graphic illustration to the contrary. Truthfully, what's really important isn't in the arguing or disagreeing itself, but, as Isaac Asimov once wrote: "We owe it to ourselves as respectable human beings, as thinking human beings, to do what we can to make humanity rational."

Certainly, there are those who believe that groups such as the Flat Earth Society are merely under another "belief structure," and that those who believe the Holocaust never occurred are just expressing their honest opinions. Perhaps I'm really vehemently opposed to the "L" word (spelled "l-i-b-e-r-a-l-i-s-m") and can't get over the self-evident fact that there are still plain lies and half-truths in this free (and responsible?) country, and that everything isn't merely a harmless "matter of opinion." We may have uncensored pluralism galore, but no real consensus to even separate night from day. By now, it's undeniable that I'm not an adherent of social relativism, either.

In Charles L. Reid's book, *Choice and Action: An Introduction to Ethics*, he wrote: "One argument against sociological or descriptive relativism is that the appearance of dissimilarities is diminished by noticing how some apparent disagreements in *values* are really dis-

agreements over questions of *fact*" (my emphases). Then logically, any apparent disagreement in value this subjectivist (yours truly) has with JA could be diminished by some universalizable facts. I'm confident we can both agree on one fact: We want *Stereophile* to improve and continue to be a magazine of the highest journalistic integrity!?

**Tom Wong**

Alhambra, CA

PS: On the night of November 7, 1988, Mr. Edison Price called me from New York City to question whether I had actually read the book *Margins of Reality* that I criticized in my aforementioned letter to *Stereophile*. I gave him an honest answer, and we exchanged addresses and telephone numbers. However, I would like to point out that reading or not reading Mr. Price's book is not really germane to my criticism of his book-recommendation letter to this magazine. I thought I was very clear when using his references to the book and, if not, I make no apology for expressing my opinion of pseudoscientific practices and their protagonists in general.

### **More of a frontal assault?**

Editor:

Mr. Atkinson's rebuff of Mr. Holt's argument ("As We See It," November and October '88, respectively) seemed more a frontal assault than a well-reasoned reply. But for whatever reason, the reply misses the point. Taken by itself, Mr. Atkinson's position is simple enough, and undoubtedly quite correct. People, singly as consumers and hobbyists, or collectively sitting on a "relatively formal listening" jury, can and will make value judgments about the quality and likeability of the reproduced sound they hear. I've done that every time I've purchased a new component. I assume everyone else has, too.

But the position of a reviewer is distinctly different from my own as consumer and hobbyist. The reviewer must provide his reader with an intelligibly stated standard by which he, the reviewer, will judge all components coming before him. Your magazine rejects number crunching as the objective standard. In its place, Mr. Holt suggests that the standard is unamplified acoustic music in its performance venue. Though not without some faults which Mr. Atkinson highlights, it is a standard with which I can live. Certainly it is far superior



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to a "standard" based solely on each reviewer's unique visceral response.

Even if the purely visceral reviewer is able to recreate his evaluation two months later and still arrive at the same conclusion (which is by no means a necessity), his reasons and results are useless to me, the reader. Whether his listening material is "totally artificial" rock or a solo violin, I shall be no better informed. In the end, all that reviewer can tell me is that he liked or disliked what he heard: that the sound of the electric guitar seemed to come from a proper position on the stage, that the effect was quite dramatic as the sound was made to cascade across the listening stage at some propitious musical moment, that the component under consideration reproduced these engineered effects well, or better than the Brand X component he reviewed or listened to the month before. At best, all I, the reader, can do with such a review is to reconstruct the reviewer's test and see if I agree. Unfortunately, I haven't the time, the facilities, or availability of components to do that. While I will surely listen to components I might buy, I use reviews to help narrow the field.

Mr. Holt, on the other hand, offers me observations about reproduced sound which can fit a reference I already have. He may tell me that the music is recessed, as if I were in Row R instead of Row D; that the timbre of the cellos is true, but that the sound of massed strings is a bit more brittle than what one would hear in live performance. I may not agree with his conclusions once I hear the component under consideration (any more than I might agree with the visceral reviewer). *But*—and it's a big "but"—over a short time I can learn what the more objective reviewer considers the standard, and thereafter more fairly judge his reviews and the components he considers. I may learn that what JGH says sound like real violas to me sound a bit flat, or that what JA (if I may make so bold) says sound like real violins to me sound a bit bright. But with that information I can evaluate their reviews and thereby more fairly judge the components they critique.

The main point of Mr. Holt's October article was that manufacturers have forsaken the standard of live music as the goal to be achieved by sound reproduction. I agree, the new sound of components and source material is too glitzy, too bright, too piercing to be pleasant.

Mr. Atkinson counters by asserting that re-

cordings themselves are an art form, and perhaps he is right (though the quality of that art form may not be all he asserts it to be). Yet reference to a new art form creates more problems than it solves.

Consider the position of a reviewer of modern design art (which others may call graphic or commercial art). Modern design art has only itself as a reference. Each piece must stand or fall exclusively on how it makes the viewer feel. All a reviewer of any such piece can tell his audience is how the work affected him and why he believes he was thus affected. Even if he compares the subject work to another painting previously reviewed and seen by the reader, that reader is no better informed. Every work stands alone, every work is its own standard. Even if the reviewer and I agree that of all the myriad possibilities we only like modern design paintings which fall within the boundaries of possibilities A-G, I still can judge nothing by his review. He may think it fits within A-G and I may not. There is no outside standard by which to measure. So, as a reader looking for guidance, should I travel to a faraway city to see painting X or hear component Y, I am still left adrift.

There is a wonderful record of modern music by Kreiger (CRI SD 483) featuring electrically produced sounds miraculously propelled around the room. I have listened to this record on many systems and enjoyed it on each. But which system brings out the sound closest to the composer's intent, I have no way of knowing. There is a wonderful record by Arturo Delmoni called *Songs My Mother Taught Me* (Northstar DS0004), featuring a violin and piano. The latter is a record by which I can fairly judge a system or component because I know what it's supposed to sound like—and for me, sounding like live is what it's all about.

I intend no disrespect when I suggest that Mr. Atkinson abandon *Magical Ring* as a test record and use only records with a verifiable source sound. Even if no source material or reproduction equipment can ever fully realize the original, and even if the hall acoustics are as unknown as the brand of fiddle, at least I have a reference, one which has stood the test of time and is likely to survive into the future. For himself, I'm sure Mr. Atkinson will never buy a component or system which makes *Magical Ring* sound bad. But that, of course, is a decision he makes as hobbyist and consumer,

not as a reviewer. **Hank R. Bernstein**  
Warwick, MD

See "As We See It," p. 5, for further discussion  
on this thorny subject. —JA

### Not Class A Cable?

Editor:

After reading *TAS* for 8 years, I like *Stereophile*. I am tired, however, of seeing the speaker cable report each month. And I don't agree with Mr. Olsher's giving the TARA Labs cable a Class A rating. I listened to them at a GNP dealer in California, where they sounded good, but when I went back to the MIT Shotgun I was back in Class A. More bass, more air. Even both dealers at the same time said the TARA Labs was not Class A speaker cable. That's what I hate about those guys at *TAS*—they're always right. So I A-B'd some Radio Shack 18-gauge solid-core cable with the original Monster. In the bass, Monster won. The upper mids and highs on the Radio Shack won. So I tied them together—bingo! Lows-mids-highs jump out of a system like you would not believe. I give it a Class B or C. Just twist the 18 gauge on the Monster tightly. It took me three days to break the cables in. Stranded and solid sounds good. Together. No matter what the engineers say.

**Bill Glenn**  
Ridgecrest, CA

### Speakers, fans, & DC

Editor:

Congratulations on your fine and thoroughly entertaining publication. Not only do I enjoy the excellent equipment reviews, I use them as practical guides for purchases and recommendations. I believe I have greatly benefited from your reviewers' attention-getting commentary on component performance on an, er... absolute scale, as well as on more mundane issues like cost-performance. For example, several *Stereophile* recommendations I have purchased are Celestion loudspeakers, the VPI HW19 II (ET-2 arm), and the PS Audio 4.6 preamp (with optional power supply). I side with JA about the SL600s: although they may not be the last word in analytical detail, they are consistently the most musical speakers I have ever had the pleasure to enjoy (for almost four years now), and have served my catholic musical tastes extremely well (subwoofered at 80Hz, I might add).

I also find each issue filled with some remarkable letters from readers who are passionate about one or another aspect of a reviewer's praise or pan of a product or musical performance. The variety of commentary reminds me of the sort of random musings one finds on public walls; "gramofitti," if you will. Now, it looks like it's my turn to jump into the mire.

In his Vol. 11 No. 6 review of the DCM Time Frame TF1000 loudspeaker, I noted JA's description of a constant-velocity stream of air, capable of being produced only by a fan, as representative of an acoustic "DC" component. The reader most likely would infer from this that a loudspeaker is not capable of reproducing a voltage step function, which has a DC component. This reminded me of an article which appeared in a late 1977 edition of *Audio*. The topic then centered around the behavior of air as a transmission medium. Discussing a homebrew acoustical polarity meter, the author described air as a "capacitive" medium which time-differentiates waveforms, producing, for example, positive and negative pressure spikes instead of squarewaves from a loudspeaker being fed a squarewave signal. As proof, he cited his experience with attempting to reproduce a 120Hz squarewave from an un baffled 8" loudspeaker, and concluded that this was not possible due to the capacitor effect (*sic*) of the air.

What he completely failed to consider is that the low-frequency response of a real, piston-type loudspeaker, un baffled, looks exactly like a perfect differentiator, with a farfield pressure response (*vs* frequency) of +6dB/octave (above its fundamental resonance).<sup>4</sup> As a result, because this system radiates greater power at high frequencies than at low frequencies, the waveform takes on a "spiked" characteristic attributable to the high-frequency leading and trailing edges of a squarewave. But, more to the matter at hand, the corollary conclusion erroneously drawn was that a loudspeaker could never produce a "DC" component, because a capacitor (the air) will not pass DC.

This brings me back to the point of the following, rather lengthy, discussion, and that is, what is "DC" in an acoustical sense? Is it a constant-velocity mass flow, or ambient air pressure, or neither? Part of the confusion here is the sloppy manner in which both acousti-

<sup>4</sup> *Acoustics*, Beranek, McGraw-Hill (1954), p. 210.

cians and lay persons use acoustic terminology. What, for example, is meant by "particle velocity," "acoustic pressure," and "sound"? It wouldn't do here to take the time required to develop the acoustic wave equation and the Navier-Stokes fluid flow equations in order to point out their substantial differences. Let me begin, instead, by resorting to a simple description of what happens in a simple, one-dimensional plane acoustic wave.

Air is an elastic, compressible fluid. Two things immediately derive from this: 1) The restoring force responsible for propagating a wave in air is simply the nondirectional elastic opposition created when a fluid is compressed. The wave propagates by virtue of the continuous, homogeneous nature of the air, which allows energy to be transferred from one molecule to another. 2) Because fluids cannot support shear loads, sound waves in air are necessarily longitudinal waves; the molecules transmitting the wave move back and forth (oscillate) in the direction of wave propagation, producing alternating regions of compression (higher than static air density) and rarefaction (lower density).

A *plane wave* is the simplest type of motion propagated through fluids, and worthy of discussion here as it represents the type of wavefront associated with any sound source at large acoustic distances from that source. A plane wave may readily be produced in a fluid confined by a rigid structure, such as a pipe, by the action of a vibrating piston (*eg*, loudspeaker) placed at one end of the pipe. If this pipe is constant in cross-section and infinitely long (or terminated by a perfect absorber), the relationships between particle velocity of an elemental mass of air, the density change, and resultant pressure change can be obtained by use of the one-dimensional acoustic wave equation.

In a nutshell, the wave equation indicates that the particle velocity of a volume element (an imaginary deformable box) containing air molecules is the direct result of acceleration of that elemental mass due to an imbalance of forces (a pressure gradient), which in turn is due to compression of the air by the loudspeaker. If the loudspeaker were a piston with unlimited stroke and constant velocity, the instantaneous particle velocity would eventually equal that of the piston itself. But since the loudspeaker reverses its direction, and produces a rarefaction for every compression, the

air particles in the elemental mass reverse their direction and move through their equilibrium point to some new value of displacement. And so the cycle continues as long as the piston oscillates. The *average* (actually root-mean-square) particle velocity is that value associated with the oscillatory movement of the elemental air mass about its undistributed, or rest, position.

On the average, there is no net change in the mass of the particle element, but because the volume of the element changes due to the compressible nature of the air, there occurs a change in air density above or below the static ambient value, and a corresponding change in pressure above or below its static value of about 14.7 lbs/in<sup>2</sup>, multiplied by a constant related to the specific heat nature of diatomic gases. The root-mean-square of this oscillating pressure change is the value of *acoustic pressure*.<sup>5</sup> This is *not* the same as dynamic (momentum-induced) pressure generated by a moving fluid, such as could be assumed from JA's use of the fan analogy. For that, we need the aforementioned Navier-Stokes equation.

As a result of all this mechanical activity, the energy radiated by the loudspeaker is propagated to infinity by the wave motion in the air, and eventually converted to heat by molecular friction. Sound radiation, therefore, is a *damping* mechanism which removes energy from vibrating structures. But if sound is energy transmitted by wave motion of a mechanical medium, wherein is the "sound" produced by a static value of local air pressure, *ie*, "DC"? Returning to the discussion of the Time Window, it would appear that the only sound associated with the reproduction of a voltage step function is that radiated at the instantaneous occurrence of the function.<sup>6</sup> This leads to another question, namely, what happens to the energy delivered to a loudspeaker supplied with a DC voltage? The answer would seem to be that it is all dissipated as heat within the voice-coil. But there's an additional term that should be mentioned. If that loudspeaker were radiating into a perfectly sealed, constant-volume enclosure, the air-pressure rise in the enclosure due to the incremental change in vol-

<sup>5</sup> Conversion to sound pressure level (Lp or SPL) is a logarithmic operation using the sound pressure associated with human hearing sensitivity as a reference value, with the answer in decibels.

<sup>6</sup> The mathematician Dirac had a few things to say about step functions; where is he when we need him?

ume produced by the speaker, minus thermal losses, could be considered an energy source upon removal of voltage from the speaker. In that sense, air can act as a capacitor-like energy-storage medium, but not in an acoustical sense.

Stephen Coyne is basically correct in his letter in *Stereophile* Vol.11 No.11 in stating that "DC" is represented by a semipermanent change in the barometric pressure, but I disagree slightly with a couple of his points: 1) Whether or not a speaker itself can produce DC is not a function of the room in which it resides; rather, as I see it, it is related to its ability to produce a net permanent change in air volume (hence the density) of an enclosed air space (a constant control volume). Clearly, per Mr. Coyne's discussion of driver displacement due to an applied voltage or current, this is possible with any airtight infinite baffle or acoustic suspension system in a room. It is just as clearly not possible with reflex-loaded drivers or dipole panel radiators, as the net volume change within the control volume is zero. In actual application, of course, the "control volume" of a listening room is not acoustically defined at zero frequency because of a typical room's inability to support a static pressure differential with respect to surrounding rooms. Mr. Coyne stated it more simply: rooms are "leaky."

2) The air-particle displacement due to an acoustic plane wavefront is very small, even at high sound-pressure levels. Air molecules, under vibration due to an acoustic pressure gradient, simply do not move several feet except in the immediate vicinity of extremely non-linear events such as rocket engine burns or warhead explosions. Also, for a given sound-pressure level, mean particle displacement is independent of frequency and wavelength. This is probably not intuitive to anyone who has observed the relative cone displacements of a woofer producing 30Hz and a tweeter producing 5kHz. But it must be remembered that the majority of the particle motion in the nearfield of a small piston radiator (small compared to the wavelength of the sound radiated) is not related to radiated acoustic power, or to sound pressure in the farfield. Rather, it is the reactive component of fluid motion which returns its stored energy to the driver during the completion of the pressure cycle.<sup>7</sup>

As if I haven't gone on long enough, let me

offer one more counter to the "fan" analogy. Per my earlier discussion, sound pressure is produced only if, due to the particle velocity, there results an incremental change in elemental volume with no net mass flow. A fan, perforce, produces a mass flow or it ain't a fan. Further, JA is correct in stating that, *ceteris paribus*, acoustic particle velocity is proportional to piston velocity, but particle velocity is not *per se* the determinant of intensity, sound power radiation. Acoustic power, and correspondingly intensity, are products of the in-phase components of pressure and velocity. In the near-field of a loudspeaker (*ie*,  $[2Pi \times r / \lambda]$ ) is much less than 1, where  $r$  is the distance from the source) the velocity component can be very large, but the phase shift between velocity and pressure is also large. The result is that only a small percentage of the available air velocity contributes to the radiated power, and pressure in the farfield. This is easy to see by observing the large cone displacements (and hence, velocities) associated with an unbaffled direct radiator, which at low frequencies produces only a minute amount of radiated power.

To conclude, I believe it's important to examine some of these issues if only to increase our general awareness of the science (and art) of sound reproduction.

Dan Lilley  
Indianapolis, IN

## DC, speakers, & fans

Editor:

Speakers hypothetically *can* produce DC if DC is defined as a standard acoustical (longitudinal, pressure) wave of infinite period and infinitesimal frequency.

The perspective of Stephen Coyne's letter (published Vol.11 No.11) is absolutely correct in that if a speaker cone in an airtight enclosure becomes displaced from its resting position in an airtight room, then the pressure in that room will rise above or fall below its initial pressure, and will stay at the altered pressure until the cone returns to its initial position.

The fan-produced airstream is a poor analogy to a DC wave, because wave motion itself does not result in a net transport of mass (matter) in the direction of wave propagation. The airstream itself certainly transports matter, and if the molecules of air impact an eardrum or other pressure sensor, pressure will be detected because of the conversion of air-molecule

<sup>7</sup> But don't bother to tell that to Pioneer's ad agency.



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momentum into force over the area of the sensor, but so would force exerted by a finger or a weight. That same pressure sensor would respond equivalently to the DC wave produced by a displaced speaker cone. Just because all mechanisms elicit a response from the sensor doesn't mean all mechanisms are the same.

According to Colloms, in *High Performance Loudspeakers*, the force on the speaker coil is  $F = Bli$ , where  $B$  is the flux density,  $l$  is the length of wire in the flux, and  $i$  is the current. So, a DC current (resulting from a DC voltage) causes a force that is constant until the wire of the coil starts to come out of the gap. Equilibrium occurs when the force divided by the cone area equals the external pressure. At that point, the cone displacement is constant, as is the pressure in the room.

A more rigorous way of describing what JA was taught might be that voltage *change*, (or, rather, current change) leads to a diaphragm position change, which leads to a change in position of air molecules (particles). This change in position requires acceleration and velocity. It forces molecules together (if the diaphragm moves into the room) and creates a localized region of higher-than-ambient pressure. If the voltage reverses, as in a signal with frequency greater than zero, the molecules adjacent to the diaphragm are pulled apart, and a low-pressure region is established behind the high-pressure region, etc., etc., and the sequence of alternating high-pressure and low-pressure regions propagates into the room according to the physics of diffraction.

In the case of a step voltage and current, the initial voltage change causes a broad-band high-pressure (or low-pressure) pulse to be propagated, followed by a constant maintenance of pressure (high or low)—a DC pressure. Particles initially move as a consequence of diaphragm movement, but after the initial pressure transition, they have no net movement (just random, thermal motion). Using your own words, the particles move only as voltage or current *changes*. If the voltage alternates, particles move back and forth; if the voltage is constant, particles don't move.

**Ernest Feleppa, Ph.D.**  
New York, NY

*I think my misunderstanding arose from a consideration of the fact that a DC voltage applied to a drive-unit produces a constant-*

*velocity motion until, as indicated by Dr. Feleppa, the voice-coil moves out of the magnet gap. But the fact remains that a loud-speaker which acts as a high-pass filter of some order or another, depending on its principle of operation, cannot reproduce the sonic equivalent of a DC voltage step.* —JA

## Phase noise?

Editor:

I have been much intrigued by an advertisement for MIT cables, printed in your July 1988 issue (pp.54, 55) and doubtless in other issues. In this ad, two graphs purport to show "phase noise" performance of MIT's MI-330 cable compared with an anonymous brand of solid-core cable. In my very considerable experience of testing audio cables, using pulse and sine-wave methods up to 250MHz, I have never seen anything like the illustrated effects, so I set about trying to duplicate them.

Somewhat misleadingly, there is no scale shown directly on the graphs, but those familiar with digital storage oscilloscopes will notice the datum and cursor markers and values (A, T, dA, and dT), from which I deduce that the scale on both is 50mV per division vertical and 200ns per division horizontal.

Further, there is no clue as to the transmitting and terminating impedances at the ends of the cables, which, especially at these frequencies (up to 30MHz at least), is vital information for interpreting the graphs. My guess is that the pulse is sent from a low impedance, roughly equal to the characteristic impedance of the cable, and is being received in a high impedance.

I therefore set up a test using a variable pulse generator (output impedance 50 ohms, rise-time 5ns), and two oscilloscopes, one a 100MHz, 400Ms/s digital storage, and the other a 250MHz analog. Cables tested were two types: RG58 coaxial (50 ohm characteristic impedance) and QED 79 speaker cable (PVC insulation, about 80 ohm characteristic impedance), both samples about 1.2m long.

With signals of a couple of volts or so, I saw nothing remarkable except a bit of ringing due to the mistermination and the poor dielectric of the QED cable. With the QED cable only, however, when I lowered the signal level to the 150mV or so of the MIT tests, I found all sorts of pulse trains, principally consisting of up to 1µs of 20MHz at up to 60mV peak-to-peak

I have to say that the AE-1 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*

The AE-1 is not just beating around the bush – the speakers are a revelation. Their dynamic performance is in advance of anything I've heard before.

...And what a product. Few new companies in the hi-fi field can boast a speaker that leapfrogs existing references and sets new standards of technical and musical excellence.

*David Praker, Hi-Fi Answers, Mar 1988.*

The AE-1 has an 88dB/W sensitivity, and is designed to handle – and I mean *handle* – something like 200W. But those are just numbers – the reality is quite extraordinary.

...As astonishing as the dynamics of the AE-1 are, so too is its bass extension, which has depth and fullness quite out of line for a speaker this size.

*Alvin Gold, Stereophile, Aug 1988.*



**(((AE)))**  
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amplitude. "Good heavens," I thought, "this must be the phase noise MIT is going on about." I figured this must be due to some funny characteristic of PVC dielectric.

I then noticed that the pulse trains followed a cyclic pattern, the pattern repeating every 25.6 $\mu$ s. This rang warning bells, since 4' cables do not do things on a timescale of 25 $\mu$ s. At first I suspected I was picking up a radio station, but turning off the DSO killed the signal completely and left clean pulses from the generator (still with ringing, of course). Clearly, the interference was radio-frequency emissions from the DSO. This ties in with the fact that the shielded cable did not pick it up. I was now left with a signal which, try as I might, did not show the "pretransient noise" shown on the MIT graphs.

Since MIT is presumably not claiming that something is happening before the signal arrives at their oscilloscope, the noise they show must start as the first part of the signal arrives, the main part arriving after a delay of over 100ns, equivalent to 20m of cable. So three conclusions suggest themselves:

1) MIT is suffering from some form of RFI

problem, as described above;

2) Just to the left of the graphs, the signal has just undergone a step change and the phase noise is the resultant ringing—undesirable, but a well-understood effect and easily cured by impedance matching;

3) MIT really has found a cable so bad that it suffers from nonuniform dispersion and delay exceeding 100ns/m, and some interesting properties besides.

Can MIT comment and perhaps elucidate their tests? I also find their comments on time alignment and phase correctness very hard to swallow; I can demonstrate phase-correct signal transmission down 20m of RG 58 at 60MHz, so I am not quite sure what MIT cable is supposed to add to the fund of human knowledge. Likewise the other cable firms advertising "low phase shift" and "intertransient silence."

**Richard L. Black**

Sevenoaks, Kent, UK

*We sent a copy of Mr. Black's letter to Bruce Brisson of MIT for comment, but we didn't receive a reply in time to appear in this issue.*

—JA

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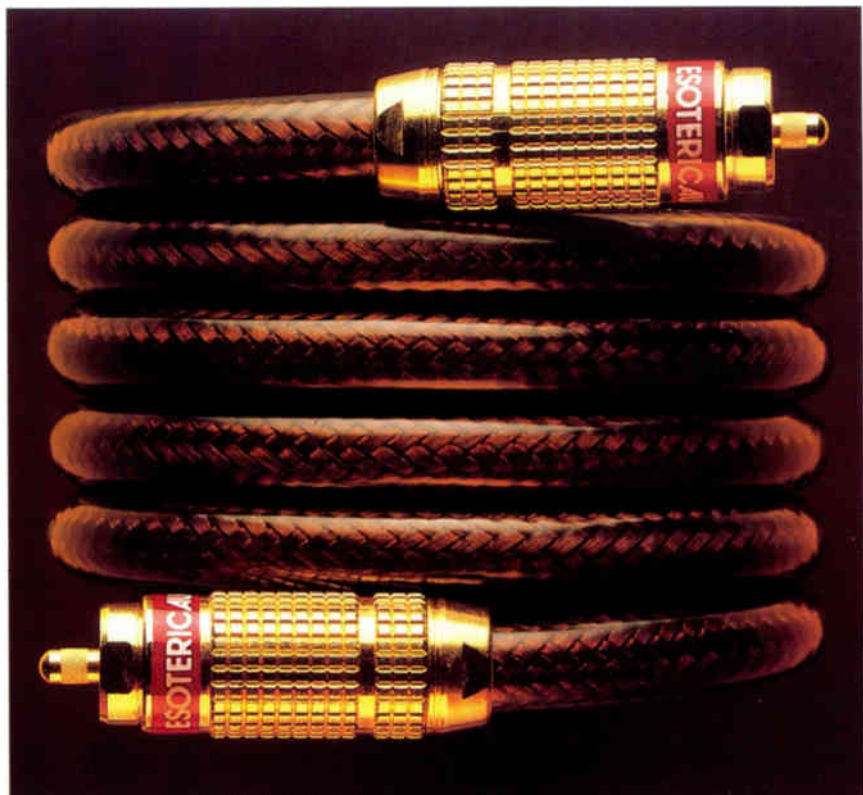
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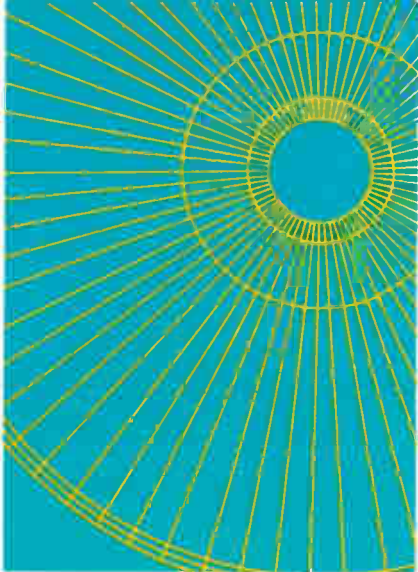
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# UPDATE



## USA: Peter W. Mitchell

Tandy's home-recordable CD, discussed in this space last July, is proceeding toward its commercial introduction about a year from now. The patented dye polymer coating that is the basis of the re-recordable CD was developed by Optical Data Inc. (ODI), a Tandy-owned subsidiary in Oregon. Teijin Ltd., a major Japanese synthetic materials manufacturer, has been licensed by ODI to produce blank discs for the system, and according to *Infoworld* (a computer industry newspaper), Teijin is working with Japanese hardware manufacturers to produce the disk-drive mechanisms. The technology has also been licensed by Philips/DuPont Optical (PDO), owner of giant CD pressing plants in North Carolina and Europe.

After delaying and strangling the marketing of DAT recorders, major record companies are now gearing up to oppose the recordable CD. In any case, ODI expects the new medium to be a big success in computers, where each \$5 blank CD will be able to store up to 500 megabytes of data, equivalent to a dozen hard disks or hundreds of floppy disks. So in the long run, even if the record industry finds a way to block the sale of audio-only CD recorders, computer-CD recorders (and perhaps video CD recorders) will be readily available, and separate adaptors will enable them to handle audio signals.

## CES: The View From a Spectrum Analyzer

An especially bountiful crop of new loud-

speakers sprouted at this year's Winter Consumer Electronics Show in Las Vegas. Elsewhere in this issue you'll find CES reports by the usual crew of *Stereophile* reviewers and editors. I decided to join the reporting fray this year, but with a gimmick. In addition to listening to loudspeakers, I did a quick measurement of frequency response using pink noise and a portable Ivi IE-30A real-time spectrum analyzer. Such measurements usually correlate well with my own perceptions of a speaker's tonal accuracy; it will be interesting to see whether they illuminate the comments of other listeners.

The Ivi displays the response on an array of LEDs, with a horizontal resolution of one-third octave and a vertical resolution that can be set to 1, 2, or 3dB. The 1dB setting is the most useful, since differences of 1dB can be heard, but I used the 2dB setting (with a total range of  $\pm 12$ dB) in order to be sure of encompassing the amplitude range of every speaker. In addition to the 13 curves shown here, some other measurements were taken but were erased from the analyzer's memory before being copied onto paper.

Each speaker was measured at a distance of 1 to 1.5 meters on-axis, close enough to minimize room effects, though I suspect the 60Hz peak in many of the curves may be a room problem. Because of the need to do the measurement quickly without obstructing the flow of CES dealer traffic into the demo rooms, pink noise was fed to both speakers in a pair, and either the left or right speaker was measured—the one whose response appeared less likely to be affected by reflections from walls and furniture. Inevitably the microphone picked up some off-axis output from the other speaker in the pair, especially at low frequencies where most speakers are omnidirectional; this accounts for the elevated bass and low midrange in some of the curves.

In speakers with vertically arrayed drivers, the response often varies drastically with height. Most of the CES demo rooms were set up with rows of upright chairs, putting listeners' ears higher than a soft sofa or easy chair would. Noticing my measurement, a couple of manufacturers specifically mentioned that their speakers were optimized for a height of 36"; but when demonstrating with chairs that yield a higher listener position, it's up to them to raise or tilt their speakers to compensate. Since my goal here was to measure what people heard, the

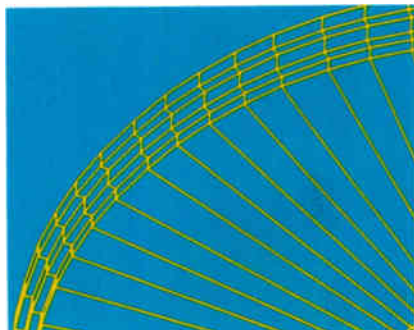
mike was held at the height at which we listened.

The TDL representative asserted that since his speaker is dead flat in the top octave, the droop above 10kHz in the analyzer's curve must be an error in my measuring microphone. I can't rule out that possibility, since the mike hasn't been back to the factory for recalibration in over a year. So these curves are best viewed as a measure of relative, not absolute, response.

The main thing to look for: a smooth curve that can be fitted to a straight line, especially in the midrange, with up-and-down deviations of no more than 2dB. A slight downward tilt reflects the low-frequency reinforcement provided by off-axis sound from the other speaker in the pair. But many speakers exhibited a more pronounced tilt, reflecting a tendency of speaker designers to favor a mellower, more "musical" tonal balance that offsets the brightness of recordings.

For convenience, the flattest curves are plotted first. Subjective comments are based on tests with a few familiar CDs (including one recorded by Brad Meyer and myself, Titanic 162, with James Johnson playing Bach on the Fletrop organ at Harvard's Busch-Reisinger Museum). I also checked each speaker's deep bass using one of the Pierre Verany test CDs (PV-784031) described here in September. Track 20 of this disc contains rapidly warbled sinewave tones at regularly spaced frequencies from 16Hz up.

One caveat should be noted: I considered excluding PSB from the following report, since I occasionally write for the company. (Like Len Feldman and Martin Colloms, I derive part of my income from consulting and writing for manufacturers.) But since I had no part in designing PSB's speakers and have no direct stake in their success, it seems fairer to mention potential conflicts of interest than to exclude products that might interest readers.





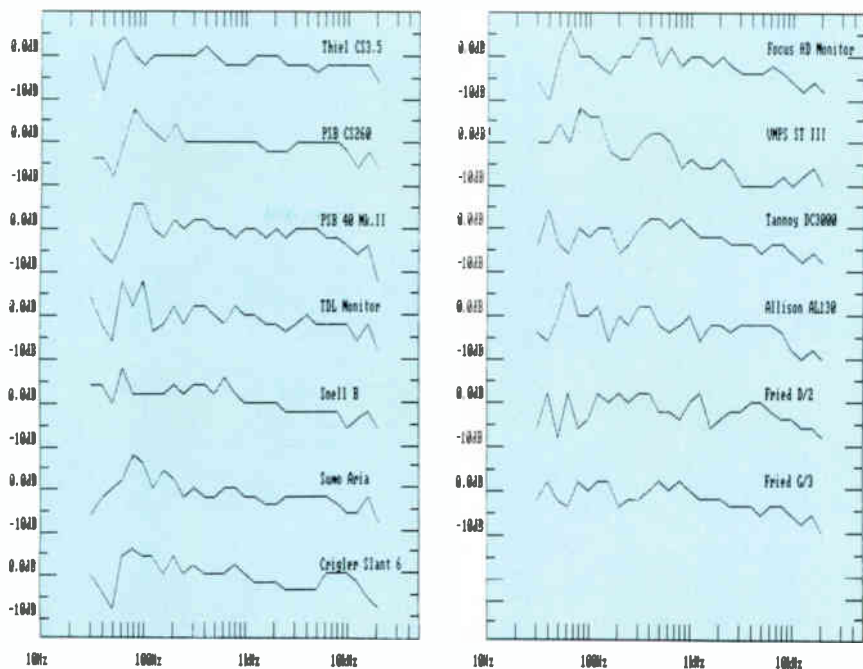


Fig. 1 1/3-octave response of 13 loudspeakers, measured at the UCES

**Thiel CS3.5** (\$2450/pr): The featured speaker in the Thiel room, and my first opportunity to test it. Exceptionally flat response, with sound to match: clear and detailed, with excellent imaging. The 3.5's only important limitation is its inability to handle deep bass at high levels, necessary to reproduce Mahler climaxes. At levels above 90dB, severe distortion set in below 50Hz. Reportedly this will be remedied in the CS5.

**PSB CS 260** (\$1100/pr) and **PSB 40 Mk.II** (\$400/pr): Both models have transparent, airy imaging, with accurate string tone and remarkable resolution of detail in complex sounds. Distortion was noted below 50Hz in the CS (formerly Cirrus) 260. The lack of deep bass in the budget-priced 40 Mk.II is disguised by a subjectively pleasing midbass hump.

**TDL Monitor** (\$4600/pr): An impressive English transmission-line system with superbly balanced sound, excellent definition of complex textures, and moderately airy imaging. Highs extended rather than sweet. Good dynamics and very clean bass, with low distortion down to 25Hz and useful output to 16Hz. Slimmer than the TDL Reference Standard that made a strong impression at the New York *Stereo-*

*ophile* show.

**Snell B** (\$3500/pr) and **Snell K/II** (\$465/pr): The prototype B made a powerful initial impression, though the speaker needs refinement and is several months away from production. Bass was awesomely deep and clean, subjectively flat to 16Hz at high levels without distortion. The treble was a bit too bright and crisply etched for my taste; interestingly, this is *not* reflected in the on-axis analyzer curve. The K/II (curve not shown), a new version of Snell's smallest and cheapest speaker, was demonstrated behind large grille frames and produced a pleasingly large sonic image. But its tonal balance was too lean; apparently it needs the bass support of near-the-wall installation.

**Sumo Aria** (\$3000/pr): Large panel speakers driven by a voice-coil, designed by Canadian Paul Burton (not to be confused with Paul Barton of PSB, also Canadian). Gorgeously musical sound, with liquid midrange and sweet highs. Burton's own curves show the 10kHz droop, 16kHz peak, and a midrange irregularity that he expects to iron out soon. Subjectively the speaker's only important flaw was its inability to play loud. Claimed sensitivity is 86dB, but that seems optimistic; loud peaks appeared to

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**Crigler Bros. Slant Six** (\$1700/pr): Whoever the Crigler brothers of Mobile, Alabama may be, they know how to make a good-sounding speaker. The Slant Six is a basic two-way with a highly refined crossover in a slant-front box of triangular cross-section that can be mounted on stands or installed on a matching woofer cabinet. The sound was open, clear, and airy with good depth, smooth treble, and a slight thickening of low-midrange textures. The optional woofer delivered undistorted bass down to 25Hz. The measured response varied drastically with height, being somewhat irregular at head height in the demo room (as shown); in another measurement taken a few inches lower (not shown) the response was much flatter.

**Focus High Definition monitor** (\$1450/pr): Great imaging, with lots of air and depth, accompanied by extended (but not peaky) highs. The balance was a bit bright, but the clarity of soundstage was impressive. The 8" bass-reflex woofer produced usable bass down to 31Hz with moderate distortion.

**VMPS Super Tower III** (\$4700/pr): The speakers were near one end of a relatively long room, and chairs were set up at the opposite end where boundary reinforcement yielded powerful bass fundamentals down to 20Hz. But at that distance the tonal balance was so mellow that vocals and midrange details lacked definition. At a mid-room position 8' from the speakers, the midbass was still overly rich, but the sound became impressively smooth and clear, with a crisp and extended top end.

**Tannoy DC3000** (\$1800/pr): This "dual concentric" design (like KEF's Uni-Q, with tweeter mounted in the center of the woofer) produced mixed results. The bottom end was clean and solid down to 25Hz, and the highs were clear, smooth, and sweet, but midrange textures were dark and unclear.

**Allison AL130** (\$1100/pr) and **Allison AL110** (\$340/pr): The AL130 is the largest, and the AL110 the next-to-smallest, of six conventional-looking boxes designed for people who don't like the prisms and other unconventional shapes that earlier Allison speakers employed to optimize the coupling of woofer output to room boundaries. While the AL130's bass was impressively distortion-free and its imaging was good, its midbass seemed recessed and violins a bit pinched. The budget-priced AL110

(curve not shown) struck me as a fine speaker for beginners, with impressive air and depth, well-balanced sound, and imaging that is surprisingly unimpaired by shelf-mounting close to a wall.

**3a Midi Master** (curve not shown): Another height-sensitive design. In the CES demo, seated listeners were aligned with a crossover suckout, and the speakers sounded somewhat hollow. Analyzer curves revealed much flatter responses at both higher and lower positions.

**Fried D/2** (\$4000/pr assembled, \$1100 kit), **G/3** (\$2400/pr), **R/4** (\$1050/pr): Irving "Bud" Fried demonstrated the imaging and dynamics of the D/2 system: focus and dynamic punch were impressive, but at high levels the deep-bass output was accompanied by grille noise. The G/3 sounded more lifelike overall, and the analyzer revealed a smoother response curve. The R/4 speakers (curve not shown) sounded muddled and unimpressive with their backs parallel to the wall, but the analyzer revealed their on-axis response to be uncommonly flat; and when we toed them in toward the stereo seat, their imaging and tonal accuracy improved dramatically.

At the end, Bud Fried asked whether I am one of those people who think that frequency response is a speaker's most important parameter. My response used the language of a college logic course: good frequency response is a "necessary but not sufficient condition" for great sound. Other things are important, but if the frequency response is irregular, the other qualities don't matter because the speaker won't reproduce the real sound of music.

## Digital radio again

In November '88, this column described ICT's plan to compress eight stereo programs of digitally encoded audio into one video channel for nationwide distribution via satellite relays and local cable-TV systems. ICT reserved a room at the January CES but didn't show up. Instead, a widely rumored competitor, Digital Radio Laboratories of Lomita, CA, turned out to be real and perhaps more advanced than ICT. DRL, like ICT, proposes to sell a \$200 tuner that would receive and unscramble the cable signal, select a digital broadcast, and decode it.

DRL promises 16 commercial-free stereo programs (32 channels) for only \$6/month, with sound quality that may be a bit better than the ICT system's. DRL's CES demo used a DAT

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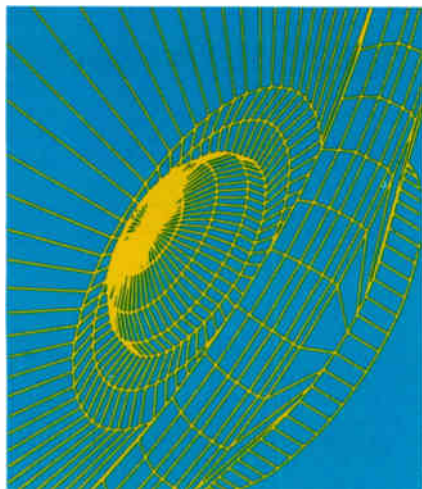
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tape as its source, but Brad Meyer brought a DAT dub of familiar CDs that enabled us to check DRL's transmission scheme with both high-level and low-level sounds. As far as we could tell, DRL's method of combining 16 programs of digital audio into one video channel causes no detectable change in sound at either high or low levels—unlike ICT's scheme, which in a previous test seemed to add some low-level noise and slight high-level congestion.

While ICT reportedly uses digital data compression to reduce the average word length by 60%, DRL uses both data compression and special modulation techniques to accommodate a bit rate greater than the channel bandwidth. The secret is in how the video signal is "modulated" by the ones and zeroes in the digital code. It is analogous to the problem of using a modem to transmit computer code through the 3000Hz bandwidth of a voice-grade telephone line. Until recently, modems used simple modulation methods and could transmit only 1200 (or at most 2400) bits per second, but more complex modulation schemes let new modems send 9600 bits/s over the same phone line. DRL's system evidently sends 32 channels of 16-bit digital code (a total of 22 megabits/s) through a 6MHz video channel.

Experimental digital broadcasts are scheduled for this spring in the Los Angeles area. But since DRL has neither a warehouse full of tuners to sell nor firm contracts with cable companies to carry the signal, nationwide digital radio service is unlikely to begin before 1990.

Next month: news about FMX.



## UK: Ken Kessler

Empire-building is back in the British psyche. Despite a diminution of this country's political clout over the last 50 years, the UK is fighting back with financial territorialism—if such a thing exists. Along with the near-daily reports we receive about British purchases of foreign companies (especially American), there's been some serious action in the hi-fi sector.


I wouldn't say that the conglomerates which are appearing in the UK are some hyper-patriotic response to 20 years' worth of taunts about Japan's market supremacy. If it is, so much the better—it's always nice to see patriotism leading to something constructive—but it's much more sensible to put it down to good business sense. But if the build-up of alliances is a direct response to Japanese domination, then we have a long way to go; not one of the British hi-fi empires is even within spitting distance of the size of a Toshiba or Matsushita. (That's not to say that our *non*-hi-fi electronics firms can't compete. Amstrad is growing like a weed, while GEC, Thorn-EMI, and a few others can count an awful lot of zeroes to the right of the first digit.)

What's been happening is that the healthiest British companies, both manufacturers and distributors, are buying up complementary firms, both healthy ones and smaller firms that have hit choppy waters. And in addition to adding more names to the company directories, these firms are turning over figures that will forever silence detractors of the British hi-fi scene. I can report to you from recently published figures (see Table One) that the UK specialist sector can boast nearly 20 "declared" companies doing over £1 million per annum. Remember, that's pounds, not lira, Deutschmarks, or dollars, and I'm talking real hi-fi, not clock-radios or computers. More to the point is the run-down of the heavies, with ten companies turning over £3m, and more than half of those over £5m. Do the conversions to local currency (1.8:1, \$:£) and you'll be a bit more impressed.

Of more relevance to hi-fi consumers are the takeovers, because it means that previously small and/or weak companies now have the backing of bigger operations. The credibility which is a by-product of such alliances can only help the marketing men in the export territories. The run-down goes something like this, with speculative remarks being strictly my own fevered imaginings:

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company AGI controls Boothroyd-Stuart, which manufactures Meridian products. Meridian has always been regarded as an innovative company concerned with style, domestic acceptability, and ergonomic advancement. It is, in effect, one of very few rivals for Bang & Olufsen who, whatever you may feel about their products, created and now own a very lucrative market niche. (B&O's UK turnover in 1987 was over £25m, which is quite amazing when you consider that the UK is the best place on earth for affordable homegrown hi-fi, and that the hi-fi press has done nothing to further B&O's cause.) Meridian has had a shaky past, a blend of rave reviews, reasonable sales, and the usual run of supply and reliability problems, but it has managed to maintain the esteem of the industry. Although relative autonomy has been maintained, you can assume that KEF will whip Meridian into shape, while KEF will benefit from the company's expertise in electronics. Meridian is now refining one of the most advanced, multi-room remote-control systems on offer, so they just might emerge as the classy alternative to the Danish high-tech mid-fi market standard. (Incidentally, from February 1, Meridian, previously imported to the US by Madrigal, will be in charge of their own distribution in this country.)

The Goodmans axis is the current European industry leader for both turnover and brand acquisition, but it should be pointed out that a substantial portion of Goodmans' £18m+ turnover comes from badge-engineered low-fi imports, including midi-systems and portables, as well from the manufacture of OEM in-car drive-units for the major automobile manufacturers. The Goodmans name still graces domestic loudspeaker systems of their own making, but the company has also acquired Mordaunt-Short and Tannoy, both healthy companies in their own right. You might find it puzzling that a speaker maker as established as Goodmans would want two more speaker lines, but the companies are complementary. Tannoy, for example, does very well in the professional sector (studios, public address systems, etc.), while Mordaunt-Short has cachet in the hi-fi sector which both Tannoy and Goodmans lack. The latest company to join the fold is Creek, one of the darlings of the specialist press. Creek has a solid reputation for integrated amplifiers, sort of like Naim for the poor, with a loyal following for its conservative, high value-for-money

**TABLE ONE**  
Selected UK companies'  
turnovers for 1987

Company	1987 turnover	
	(£)	(\$)
Goodmans	£18,364,573	(\$33,974,500)
B&W Loudspeakers	£11,110,869	(\$20,555,100)
KEF	£9,967,267	(\$18,439,400)
Elac/TDL	£7,288,004	(\$13,482,800)
Celestion		
International	£6,879,620	(\$12,727,300)
Mission Electronics	£6,562,908	(\$12,141,400)
Linn Products	£5,537,000 <sup>1</sup>	(\$10,243,400)
Tannoy	£5,254,845	(\$9,721,500)
Quad Electro-acoustics	£4,395,722	(\$8,132,100)
Wharfedale	£3,957,012	(\$7,320,500)
Mordaunt-Short Musical (British)	£1,907,941	(\$3,529,700)
Fidelity	£1,881,562	(\$3,480,900)
QED	£1,714,205	(\$3,171,300)
Swisstone (Rogers)	£1,557,272	(\$2,881,000)
A&R Cambridge (Arcam)	£1,405,627	(\$2,600,400)
Monitor Audio	£1,356,955	(\$2,510,400)
Boothroyd-Stuart (Meridian)	£1,134,593	(\$2,099,000)
Heybrook	£1,081,678	(\$2,001,100)
Spendor	£718,416	(\$1,329,100)
SME	£697,110	(\$1,289,700)
Goldring	£399,716	(\$739,500)

Figures are quoted from the MBA Report on the *British Hi-Fi Industry* as quoted in Vol. 2 No.4 of the healthy radical UK trade magazine *Private Eye-Fi* (published by John S. Vizor & Associates, PO Box 68, Stratford-upon-Avon, CV37 8QU, UK. Tel: 011-44-789-87666). US dollar equivalents have been calculated at £1 = \$1.85 and have been rounded off to the nearest \$100.

products. Creek will be operating under the aegis of Mordaunt-Short, who first demonstrated their interest in a line of electronics with last year's Mordaunt-Short-built integrated amplifier. As M-S's Chris Short is one of the canniest, most intelligent men in the entire industry, he could turn Creek into a world-beater.

One of the hottest of all the multi-make concerns is also the hardest to describe. The Hi-Fi Markets/Natural Sound Systems axis has its fingers in distribution, retail, and now manufacturing, but I'm damned if I know what company belongs to which division. A bit of history is in order, provided I can climb the family tree.

In a nutshell, Hi-Fi Markets is the house that NAD built. More precisely, NAD is the house that Hi-Fi Markets built, if you accept that NAD's global success began in the UK. Headed by Malcolm Blockley, who helped to establish Marantz and other makes in the UK, Hi-Fi Mar-

<sup>1</sup> 1986 figure.

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kets started out by creating a network of independent dealers who received, in exchange for a membership fee, protected lines to stock in their shops. Given exclusive access to makes such as NAD and Boston Acoustics, the retailers were then spared the vicious cost-cutting endemic to the UK, thus assuring them of decent margins on at least some of their lines. Additionally, the buying power for a network of 150+ outlets enabled Hi-Fi Markets to supply the network with discounts on other, non-exclusive lines. Hi-Fi Markets also supports the dealers with lots of advertising, point-of-sale material, and other incentives, and it turned out to be good business for those who joined and knew how to make the most of the relationship.

What really made the company, though, was the runaway success of NAD, which it distributed and publicized with an effectiveness yet unmatched by any other brand in the budget sector. Hi-Fi Markets remains the UK distributor, but it is linked to Natural Sound Systems, which distributes other lines of electronics including Onkyo. Additionally, Blockley runs Sansui Electronics UK Ltd. This, you might think, is madness, distributing three competing lines, but events have proven otherwise. For starters, NAD no longer owns the entry-level sector; Rotel and other makes have chipped away at its monopoly. More important, though, is the upgrade market, the thousands of customers who bought NAD 3020s years ago and are now ready to move up a step.

NAD has been less than successful when it comes to moving upmarket in the UK, its more expensive products failing to win hearts the way the still-running '3020 did a decade ago. With Sansui, which has always maintained street credibility in the budget-to-mid sector, and with Onkyo—never successfully distributed here until NSS took it on—Hi-Fi Markets/NSS can cover the affordable sector three ways.

The company's latest acquisition is yet another line of electronics, one which will not only allow Hi-Fi Markets/NSS to move even further upmarket, but which will also add the requisite amount of Britishness needed to attract the still large xenophobic market. I also heard that Malcolm Blockley has long wanted to have a UK manufacturing base, so this move satisfies another need. The acquisition is Cambridge Audio, and therein lies another tale.

Because of a set of unfortunate circum-

stances I'd rather not publicize, despite having a promising product line, Cambridge went into receivership. In what appears to be record time, Hi-Fi Markets beat all comers in picking up Cambridge, and there were quite a few prestigious makes looking at this innovative company. Cambridge had made its mark as a producer of world-class CD players, including the innovative CD2, and highly regarded, affordable amplifiers, the products of top designer Stan Curtis. As seems to be an integral part of being a small British company, supply and reliability problems plagued Cambridge, but none could deny the brand's potential. With a hard-as-nails boss like Blockley at the helm, Cambridge might finally realize its full potential, especially as Curtis's services have been retained. And because Cambridge products sell in the sector just above NAD, Onkyo, and Sansui, Hi-Fi Markets can now cover another sector without stepping on its own toes. Best of all, it means that the future of Cambridge is virtually assured, and that owners of existing models needn't worry about back-up. Distribution of Cambridge products in the US remains in the capable hands of Celestion Industries Inc. of 49 Doug Brown Way, Holliston, MA 01746.

The real ace-in-the-hole in UK potential is Blockley's captive PR person, one Andy Giles. Beyond any doubt the best public-relations wizard in the industry, Giles is capable of marketing just about any product that lands on his desk, and has been instrumental in both Hi-Fi Markets' and Natural Sound Systems' past successes. Cambridge, prior to the change of ownership, had pretty good marketing, but nothing like that which Giles can provide. Plans are already afoot for new models, as well as the long-awaited delivery of the Mk.II version of the flagship CD player (though this will not now reach the US until the Fall).

The race is now on for empire-building on a grand scale, with the conglomerates—now that Hi-Fi Markets manufactures in the UK—likely to enjoy much of their growth through exports. I'll let you know who buys what next, but I reckon we have a long way to go before this game of Monopoly is finished. **S**



Here's the current list of exhibitors and manufacturers displaying and demonstrating at the Bay Area High End HI-FI show.

A&S Speakers  
Access to Music  
Acoustat  
Acoustic Energy  
Apogee  
Aragon  
Arcici  
Audiob Difference  
Audio Excellence  
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Audioquest  
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California Audio Labs  
Cardas  
Carver  
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Celestion  
Chesky Records  
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DB Audio  
dbx  
Denon  
Discrete Technology  
Dynavector  
Elite Electronics  
Energy

Entec  
Epik  
Euphonic Technology  
Focal  
Forté  
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Harmonia Mundi  
Image  
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KEF  
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Linn  
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Magnepan  
Mark Levinson  
Marnie Acoustics  
Martin-Logan  
May Audio Marketing  
MB Quart  
Merlin  
Mirage  
Mission  
Mod Squad  
Mondial  
Monitor  
Moore Frankland  
MS Brasfield  
Muse Electronics  
Museatex  
NAD  
Naim  
Nelson-Reed  
Nikko  
Nitty Gritty  
Onkyo  
Performance Audio  
Perreaux

Phantom Acoustics  
Pioneer Elite  
Proton  
PS Audio  
PSB Speakers  
Quad  
Reference Recordings  
Rotel  
Shadow  
Sonographe  
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# THE AUDIO ANARCHIST

Sam Tellig

I once told Larry Archibald it might be worth, say, a 10% loss in sound quality with CD not to have to jump up and turn over the damned record. Sometimes a CD saves you from popping up twice—Mahler's Fifth or Bruckner's Seventh on a single disc instead of three LP sides—or three times—Mozart's *Magic Flute* on three CDs instead of 6 LP sides. That might be worth a 15% sacrifice.

I don't know that you will need to lose even 10%. Unless, of course, you have a turntable like a Versa Dynamics 2.0 or a Goldmund Reference.

Now, if only the cost of CDs would come down.

That may happen soon. *The New York Times* reports a growing CD glut. (Goody-goody. Goody got it and he has to get rid of it.) Joe Epstein, of Berkshire Record Outlet, hints of impending CD cut-outs. (How do you "cut out" a CD? Gouge a hole in the edge of the disc?) *The Wall Street Journal* reports that GE has developed a new resin, which will make it possible for CDs to be molded quicker—that should worsen the glut! And sale prices for "full-price" CDs have already dropped to as little as \$9.99 per disc in New York.

There's more encouraging news.

Designers such as Dan D'Agostino, of Krell, and John Bicht, of Versa Dynamics, are turning their attention to CD. Both Dan and John are looking into transports—or rather, the whole "front end" retrieval system, which includes the laser assembly. Audiophiles may be paying as much attention to CD transports as to turntables... and perhaps as much money! Expect to see top-loading players with innovative clamping and damping mechanisms, which may obviate the need for such devices as CD Rings!

---

1 The problem with CD Rings is you can't always remove them without disc damage if you change your mind... or change players and then change your mind. We need to see hard evidence—tests, not testimonials—as to what CD Rings do or do not do when used with a variety of players. You might try piggybacking a CD-Ringed disc—or a ringed Mod Squad CD Damper—on top a naked disc. Warning: this will not work in all players, and might jam some. If my ears are not mistaken, you get an effect similar to ringing each individual disc without actually having to do so.

The transport does make a difference—or, to put it another way, not all digital outs are created equal. Recently, at Definitive Hi-Fi in Mamaroneck, NY, a few of us Thursday night 'philes were listening to CDs through Mike Moffat's Theta outboard digital processor. We tried different players. There were differences. It's hard to say something definitive (ouch), but subjectively it appears that sturdier players retrieve the encoded data with fewer errors. Sony transports sounded particularly good.

Now, some promising players.

These players—from Magnavox, Adcom, Yamaha, and Onkyo—are in four different price ranges. Strictly speaking, none is competitive with any of the others, so all comparisons will be "unfair." But what the hell? What's interesting is what you can get for your money, and whether it's worth spending the money for a more expensive player. If you're expecting a survey of players in a particular price range, forget it. No one could listen to them all, anyway. More interesting to make unfair comparisons. And more in the spirit of *The Audio Anarchist*.

Most of my listening took place through the line stage of the Forte Model 2 preamplifier. Three of the players, all except the Magnavox CDB582, had variable outputs, so I auditioned these directly into a Threshold SA/3 or B&K ST-140 power amp. Interestingly, the B&K amplifier was better at revealing differences than the Threshold. Interconnects were Discrete Technology Platinum and the very promising new Audio Prism Ultima (\$160 retail for a 1m pair). Speaker cable was \$5.75/yard Naim Cable, which sounds at least as good as, if not better than, some very costly cables with bull-shit stories attached to them. Speakers were Martin-Logan Sequels.

I ran the dropout tests of the second Pierre Verany test disc on each machine. I also tested a couple of damaged discs in each player. Then I sent all the machines to Santa Fe, except for the Onkyo, which weighs 60 pounds. Santa Fe already has another DX-G10. So the Onkyo DX-G10 they measured is not the DX-G10 I heard. [See "Follow-Up" in this issue.—JA]



**Magnavox CDB582 CD player**

### **Magnavox CDB582: \$249**

This machine is basic and uncluttered—no frivolous features like Favorite Track Selection, unless you count the headphone jack with no volume control. It comes with an uncluttered wireless remote, but lacks digital out. The transport looks improved over previous generations of inexpensive Philips-made players, and the drawer lets you use 3" CDs without adaptors.

Soundstaging was good, but not spectacular. It shrank during tough-sledding passages, like the fourth movement of Tchaikovsky's *Manfred* (get Riccardo Chailly's stunning performance—London 421 441-2). At the same time, dynamics became compressed—as they do, say, on a cheap receiver. Bass extension was good for a player in this price category, but the bass was not particularly tight.

Resolution of low-level detail was fair—I have yet to hear a Philips-made machine with really great resolution. I think the Philips fog helps explain why modified Magnavoxes have enjoyed such popularity.

But it wasn't the fog that bothered me so much. My sample of the CDB582, furnished from a dealer and not via North American Philips, exhibited a roughness and coarseness on strings that I don't recall hearing with, say, the Magnavox CDB650. And, as of early January, you could still find CDB650s around, here and there, in small quantities, for around \$270. That is a *buy!*

One aspect of the 582's performance was truly outstanding: its ability to track. The 582 played through track 35 of Disc 2 of the Pierre Verany test disc set—these tracks simulate dropouts. Anything beyond track 27 is beyond "standard values but inside the theoretical [*sic*] correction capabilities of CD players." The 582 even played track 36 without glitching too much. There are only 38 basic tracks. Moreo-

ver, the 582 played four out of five damaged discs in my collection, including two discs no other player has been able to flawlessly track.

If only the sound quality had been a bit (or even two bits . . . hell, I don't know) better, I could recommend this machine most enthusiastically at the piddling price. Maybe I got a bum one—you expect sample-to-sample variations at this price point. I should also say, in fairness to Philips, that I have not heard a better machine at the price (I have seen the 582 selling for as low as \$179.95), and I have heard far worse. You may have better luck.

### **Adcom GCD-575: \$599**

I got two samples of this machine—early production and late production. Late production is better, I think—the sound is smoother. Victor Campos of Adcom told me about the changes, most having to do with tighter tolerances and a few parts upgrades.

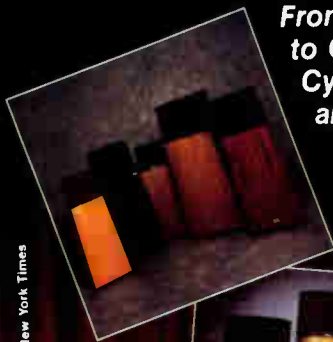
Never mind the tech stuff, this is a very good-sounding player for the money—devastating to most of the competition at the price in that once I heard the Adcom, most of the other players were unacceptable. What makes the Adcom so devastating is its low-level resolution—*ie*, clarity. This is from a 16-bit Philips DAC with 4x oversampling. I wonder why I haven't heard this resolution from Magnavox and Philips machines.

Soundstaging is very good, and imaging is excellent. Ambience retrieval, too, is most impressive—just short of the very best you can get with a CD player and far better than what you might expect for the price. Instruments are very clearly localized, and there is air around them—they don't exist in a void, as they do with some CD players.

There are limits to the performance, of course. Dynamics are somewhat reined in. When you

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## *Stereophile* Vol. 11, No. 8

"So the bottom line is quite favorable: the Walsh 5 is a full-range speaker that is quite clean and images very well." "Soundstaging is another strength and joy, and at their best the 5s can set up a very palpable illusion of the original performing space." "In its present incarnation, it is one of the few dynamic speakers that my jaded electrostatic taste buds could live with." — Dick Olsher

## *Audio* 6-88

"The Walsh 5 is one of the cleanest speakers available. . . I perceived remarkable depth and spaciousness to music well recorded in a concert hall. This spaciousness did not result in a vague mass of sound: image location is sharply defined and accurately placed. . . They are a masterpiece of the speaker designer's art."<sup>2</sup>

## *Stereo Review* 1-88

"The sound of the Ohm Sound Cylinders was smooth, balance and thoroughly enjoyable, well beyond what anyone would expect from such a small, light speaker. Its dispersion was subjectively complete, and we were never aware of the speakers as distinct sound sources, no matter how much we moved around the room. . . these speakers certainly offer impressive value for their price and size."<sup>3</sup>

## *New York Times* 3-88

"... the various frequencies emerge in their natural phase relationship—more than in conventional designs. To what extent this accounts for the speakers' fine sound may be debatable, there is no question that the Ohm Sound Cylinders represent an excellent bargain, with a clarity and richness of sound rarely found in a speaker of this size."<sup>4</sup>

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For Those Who  
to Listen



### Adcom GCD-575 CD player

get to the fourth movement of Tchaikovsky's *Manfred*, this machine, like many, gives up—it cannot deal in a totally satisfactory way with the dynamics.

Parts quality looks good for the price, except for the drawer mechanism, made by Sony, which looks like it belongs on a cheap machine. Every time I used the drawer, I thought it might break—but it didn't. Even more disturbing was the poor shock resistance. This player skipped when I walked up to it! And I had it on a Mission Isoplat with a VPI Magic Brick on top. (The Adcom is shipped with no transport screws. Maybe that's a mistake.)

Adcom is known for innovation. The GCD-575 has, in effect, its own built-in line amp, which gives a variable output of up to 5.3V, with an output impedance of 100 ohms. You control the output level with a conveniently located volume control on the lower-right corner of the front panel. The Adcom GCD-575 can probably drive any power amplifier directly. You could have a dynamite duo: GCD-575 and GFA-535 power amp for under \$1000 list.

Another novel feature is AFPC (Analog Frequency/Phase Contour). Switching this gives you a dip in the presence region, boosting frequencies below 1kHz by about 1dB, cutting frequencies above 1kHz by an increasing amount to -3.2db at 20kHz. This is akin to a slight LF boost upward with the Quad 34 preamp's tilt control. I found this feature occasionally useful, but it's no substitute for adequate weight in the bass.

The Adcom sports a polarity reversal switch that works via remote. Julian Hirsch says he couldn't hear any difference with the switch in or out. I bet *you* can! When the setting was right, there was more air around the instruments. More space.

What causes me to hesitate about this player is the flimsy factor—the rickety drawer and the player's exceptionally poor resistance to shock (this on the two samples I had, plus another sample I examined... as well as on Julian

Hirsch's test sample). Sonically the Adcom GCD-575 is a winner at the price, but not so good that I would be tempted to switch from something like a Magnavox CDB650. I suppose my real complaint is that Adcom did not choose to build this player to a higher price point.

### Yamaha CDX-1110U: \$1199

This machine (at \$1199 list) is one of the new generation of Yamaha "hi-bit" or "pseudo" 18-bit players, as the competition calls them. I've been trying to sort out the technical claims—Yamaha's *vs* the competition's (*ie*, those manufacturers who offer players with "true" 18-bit DACs). I have failed.

Briefly, an oversampling digital filter generates additional bits beyond the 16 bits of the basic CD format. In the Yamaha scheme, 18 bits from the oversampling filter's output are wired through switches to the inputs of a 16-bit DAC. When the two upper bits are not being used, which is most of the time, the 18 bits are shifted so the two unused bits are ignored and the 16 lower bits are used instead. The analog gain then needs to be reduced by 12dB accordingly.

The question is whether this "bit-switching" causes distortion. Onkyo, in a "white paper," contends that it can, while Yamaha, not surprisingly, contends that it doesn't. On the contrary, says Yamaha, their bit-switching scheme actually acts as a dynamic noise reducer. A cynic might wonder whether Yamaha uses this scheme because 16-bit DACs are cheaper than 18-bit DACs. But I'm not the Audio Cynic—just the Audio Anarchist.

Yamaha's poop sheet makes a big fuss over the fact that the machine delivers such a low level of digital signal leakage that no analog filter is needed to clean up the digital mess... ah, noise. But Yamaha supplies a filter anyway—via a second pair of output jacks. This is weird, because analog-out from the player sounds much better with just the digital filter, just as Yamaha says it does. According to Yamaha, there is virtually no phase shift with just the digital filter.

How Hi is your Fi?



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**Yamaha CDX-1110U CD player**

I hear a clearer, cleaner, more focused sound. Why, then, spend money on the extra analog filter and extra pair of jacks? Inscrutable! If they didn't do this, maybe they could afford to put in a pair of true 18-bit DACs. Ah... but Yamaha claims that the bit-shifting is sonically beneficial. You can see how easy it is to get bogged down.

Let's not, for we would then lose sight of the fact that this is a superb-sounding player—probably the most analogue player I have yet heard.

Why so analogue?

The Yamaha CDX1110 has ambience aplenty—the kind of life, light, and air that analog freaks have been craving. There is a bloom around instruments—especially noticeable with an amplifier which itself has plenty of bloom, like the B&K ST-140. (Through the Threshold SA/3, all the CD players tended to sound more alike.) Whether or not this spaciousness is specious—a partial byproduct of the bit-shifting process—I don't know and don't care. It's lovely. Enjoy it!

This spaciousness is combined with an exquisitely smooth, sweet, and delicate high end—rather like a really neat high-end cartridge! Again, lovely.

Sounds too good to be true, huh?

Well, on the downside, the Yamaha CDX1110 does not have all the low-end body and low-end punch of some more expensive players. And there is something vaguely uncertain about the way notes emerge from the silences.

In the December 1988 issue of *Hi-Fi News & Record Review*, Paul Miller writes about machines that do not offer a totally quiet background. You can't hear hiss, but there's a vague sense that something is "going on" in the background.

Paul wasn't talking about the Yamaha, and

it would be unfair to single out this excellent machine for special criticism when the same comment might be made about many, if not most, other CD players. But I did find this sense of something "going on," and I can't help but wonder whether or not it has something to do with bit-shifting. It especially makes me nervous when Yamaha talks about the bit-shifting scheme operating like a dynamic noise reducer. Noise reduction is probably one reason why I so passionately hate cassettes—it takes away from the certainty and the solidity of the music.

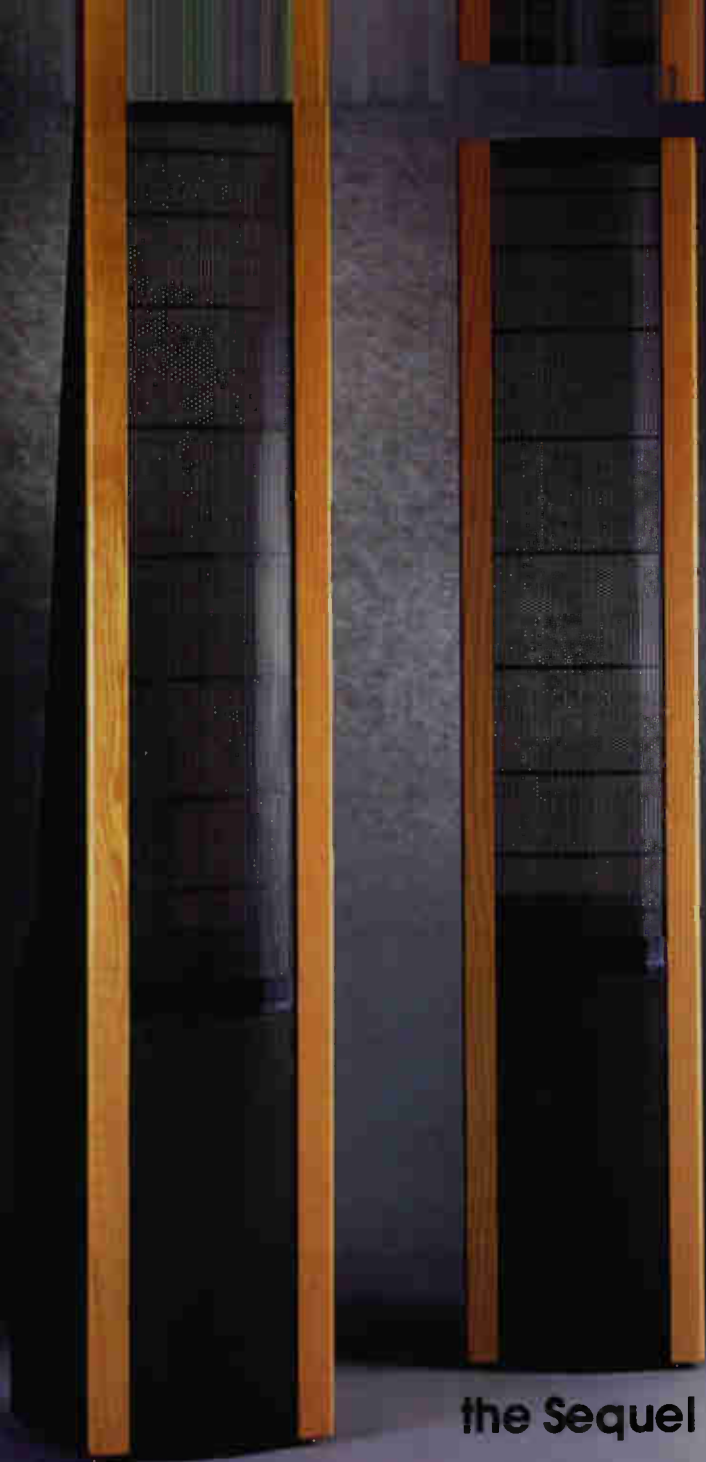
All this may be moot, of course, if Yamaha goes to true 18-bit DACs in their next generation of players. Meanwhile, this does not take away from what Yamaha has achieved right now. This is one fine-sounding player. It might even be the best I have heard to date at *any* price.

Tracking, if you are keeping track, is excellent. The CDX1110 tracked through track 35 of Disc 2 of the Pierre Verany test set with nary a glitch, hiccup, or warble.

And the CDX1110 has one unusual feature I must mention: the analog outputs are not fixed, they are variable. And the volume control, conveniently adjustable from the remote control, is said to operate in the digital domain—a benefit, says Yamaha, of all this shifting bit business. So maybe it is a boon rather than a bane.

Incidentally, I preferred the Yamaha with my discs naked—no rings. I felt the rings were rolling off the exquisite highs.<sup>2</sup>

<sup>2</sup> If you decide to de-ring your discs, use a razor blade to gently pry up the ring along the outer circumference of the disc—enough so you can slide scissors underneath and cut. Now, holding the disc firmly in its jewel box with a handkerchief, slowly peel off the ring. Remove any residue adhesive with the gentle masking tape sold in paint departments. Do not use solvents. De-ringing is not always successful. If you like the way CD Rings sound with your present player, leave them on.



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Onkyo DX-G10 CD player

## Onkyo DX-G10: \$2500

"This is a CD player?" asked my UPS delivery man. "I thought it was a Threshold or a Krell or something."

The Onkyo DX-G10 weighs 60 pounds! And lists for \$2500.

It is by far the biggest, heaviest CD player I have had in my system. And it's beautifully made, too. Elegant, uncluttered design—Yamaha could certainly take some lessons. Piano-black side panels—beautiful. Welcome features include a large knob for variable forward and reverse—why didn't someone else think of that? The Onkyo DX-G10 has another terrific feature: you can dim or turn off the display with a push of a button on the remote. What a blessing to those of us who often listen in the dark.

Sonically, this player—which has true 18-bit DACs with 8x oversampling—is most impressive. Dynamics are particularly rewarding. This player can really open up and let it rip on passages like the final movement of the *Manfred*. The bass is firm and tight. Instruments are precisely localized, and, unlike the Yamaha, emerge from a background of silence.

The DX-G10 strikes me as having the creamy-textured smoothness I have come to associate with Onkyo products. The sound is unfatiguing, quite lovely at times, and yet it can become uninvolving. Never irritable, just bland. I just wish there were more air and sparkle, more life.

There were times when I really loved this player's solidity in reproducing the dynamics of a piano. But even there I missed a satisfying sense of the acoustical environment in which that piano was located. Have we got some phase shift going on here?

Features on this player include a polarity switch to change absolute phase (useful), and the aforementioned display dimmer. All the controls functioned flawlessly except for one glitch. Sometimes, unpredictably, a disc would

not load—the display gave a reading of zeros and the machine would not play. I had to shut off the machine, clearing the microprocessor. This worked every time—I was then able to play the disc. A minor glitch, but still not a problem I should have encountered in a \$2500 machine. The DX-G10 tracked up to Track 31 of Disc 2 of the Pierre Verany test disc set, started to hiccup on Tracks 32 and 33, and faltered badly on Track 34. The Magnavox CDB582 did much better at one-tenth the price.

This is a good player—beautifully built and exquisitely designed. I wish I had found it less lacking in life, light, and sparkle. As it is, I must tell you that I preferred the Yamaha at less than half the price.

## Conclusions

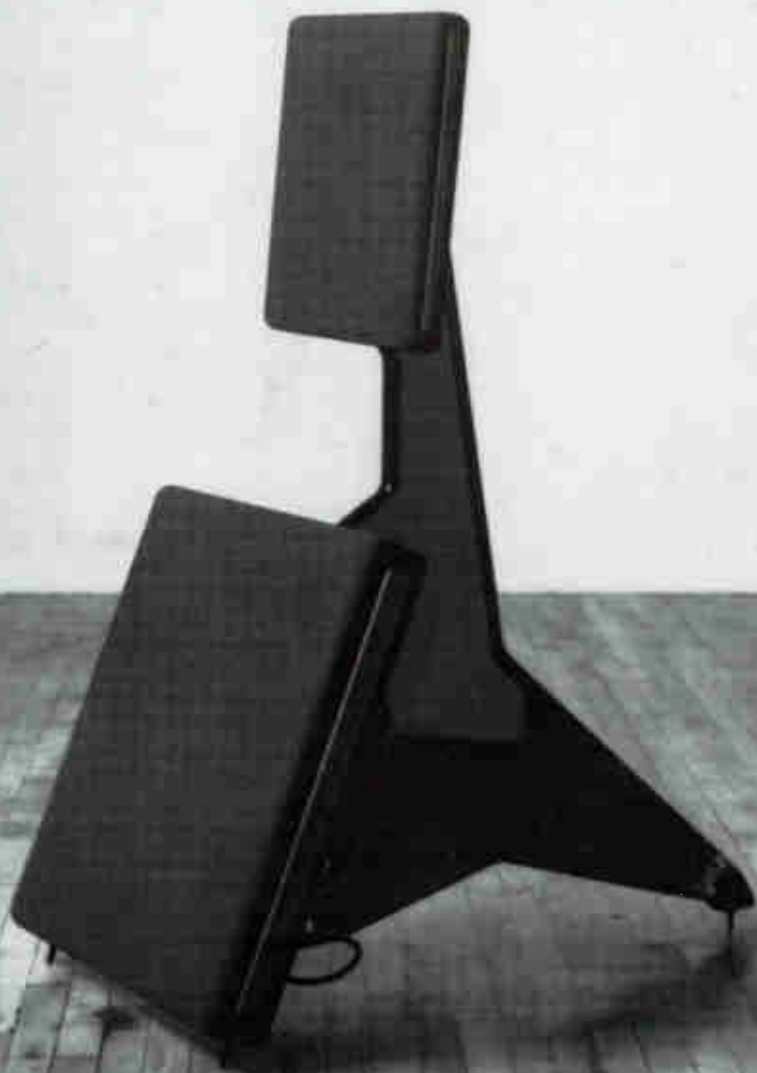
Each of these four players is attractive in some ways—the price of the Magnavox, the clarity of the Adcom, the sweetness and spaciousness of the Yamaha, the authority and dynamics of the Onkyo.

But none of them completely blows me away, although the Yamaha did pass my ultimate test: I was never once tempted during a listening session to turn the player off and listen to LPs! All the other machines ultimately had me fleeing to my turntable. On the other hand, I still like my turntable set-up better than the Yamaha CDX-1110.

I don't think you will go wrong with the Yamaha, assuming that its DACs are properly trimmed. (I would try to find a dealer who could verify for me that they are—that way he will have earned his 40 points.) But if you already have a CD player and don't have to buy a new one, you might just sit tight.

You might wait for interesting CD transports and black boxes (outboard decoder units) to come on the market. Wait, too, for manufacturers to provide individual calibration charts

# Zero Stored Energy



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showing that each player's DACs are linear. Wait for the whole shifty bit business to settle down. Wait and see what Dan D'Agostino and John Bicht come up with. Or Stan Warren, Paul McGowan, or John Beyer. If 1988 was the year of the kludge, then 1989 could be the year of the black box—CD separates.

Or you could be like my friend Frank. He imagines that he's purchased certain products—right now he's imagining that he bought a pair of hard-to-get English speakers which he has read a review of but hasn't heard. This is ideal, since the speakers can sound better and better as Frank imagines more and more. When he tires of these speakers and gets excited about

something else, he doesn't have to trade them in. He only needs to start imagining the next product. (Sometimes he actually gets to hear a product, which spoils everything. He then has to read the reviews to latch on to something else. You can see why Frank likes products which are unavailable. He's "owned" a Finial now for several years.)

Why not take a cue from Frank? Imagine that you own one of these four CD players—take your choice. Cut out a picture of it and place it next to your present player. Then, several months from now, when the imagined player has been superseded by another model, cut out that player and pretend you own it, too. **S**



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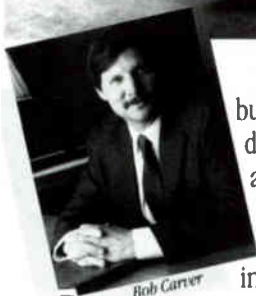
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# What's A Transfer F



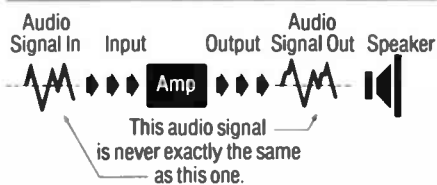
Bob Carver

Good question, but before I get deeply into the answer, let me tell you a little bit about amplifiers in general.

Every amplifier known to humankind changes the audio signal just a little bit as it passes through from input to output. This is because, simply, no amplifier is absolutely perfect, and each must, because it exists in the real world, slightly modify the audio as it goes through.

Most modern amplifiers change and modify the audio signal very little, but all do it, and the subtle changes, different in each

amplifier design, are responsible for the characteristic 'sound' or 'sonic signature' of different designs. And each is ever so subtly unique.



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# unction?

By Bob Carver



**Does that mean a dirt cheap amplifier can be made to sound the same as a \$5,000 reference amp?**

I wish it were so, but no, not by a long shot. In order to successfully give an amplifier a specific transfer function, the basic design must have fundamental performance characteristics that equal or exceed the reference amplifier from which the original transfer function was obtained.

For example, the 'dirt cheap' amp must have a lower noise floor than the reference; it must have instantaneous current and voltage rise time speeds as fast or faster; it must have an intrinsic input impedance equal to or greater than the reference.

Its output voltage swing must be greater, its phase shift must be less, and of course, its output power must be at least as much. Then, and only then, can the reference transfer function be successfully cloned into the 'copy-cat' amp, and unfortunately, the 'dirt cheap' amp becomes not so dirt cheap anymore.

Output current, heat sink metal, output voltage, and power... that's where most of the money is in an amplifier design.

**But, Bob, how can your new M-4.0t amplifier at \$799 possibly deliver almost as much output current into 2 ohms as the big Krell?**

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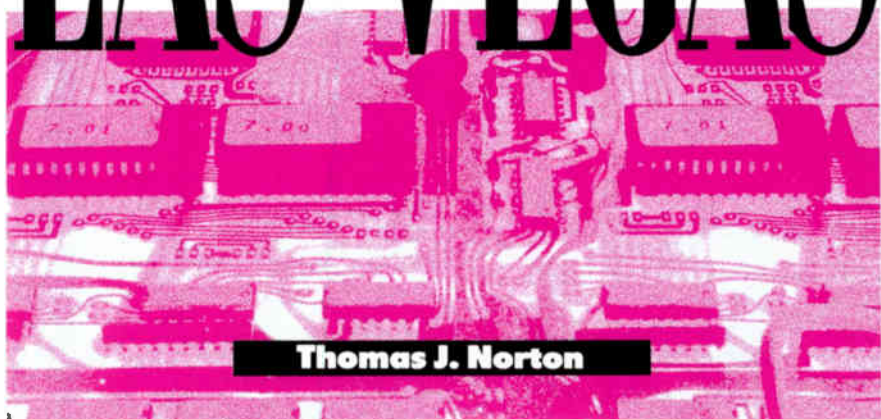
*Bob Carver*

P.S. If you'd like to know more about my transfer functions, write to Carver Corporation, in care of me, at P.O. Box 1237, Lynnwood, WA 98046.

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# LAS VEGAS



**Thomas J. Norton**

**L**as Vegas! Swarming crowds! Bright lights! Showgirls! Excitement! Music! This must be the fabled Las Vegas Strip! No, it's the Las Vegas Convention Center during the 1989 Winter Consumer Electronics Show.

Actually, like all CESes, the winter affair is spread out among several venues: the Convention Center, home to everything from digital watches to video; the adjoining Hilton Hotel, holding more of the same; the Sahara Hotel, embracing the "Adult" Video vendors; and the Riviera Hotel, hosting Specialty Audio exhibitors. There's actually a good deal of overlap: some audio products were to be found in the "Zoo" (the, ah, affectionate name for the Convention Center), and some video products were shown in the Riviera. To my knowledge, however, no audio manufacturers confused "esoteric" with "erotic" and set up shop in the Sahara.

It's not exactly a well-kept secret that Specialty Audio, once the glamor-child of the CES, is now the orphan. At the Summer CES in Chicago it had been squeezed into the tiny rooms at the McCormick Center Hotel. The rooms at the Riviera in Las Vegas, on the other hand, while still far from ideal, are definitely superior to those in the McCormick. The Winter CES is

now, in this writer's opinion, the premier CES for auditioning new audio products. Unfortunately, a massive remodeling and expansion at the Riviera is beginning, and will reach full steam shortly; by 1991 it will be the largest privately owned hotel in the world—its main building, at 42 stories, will be the tallest in Nevada. I have no firsthand knowledge as to whether or not this will interfere with next year's CES; it would be a first-class calamity if CES moved Specialty Audio back to the Sahara. Their one show there, in 1986, was a sonic disaster.

I should have known what I was letting myself in for when I agreed to cover loudspeakers for this show report. Every year there are more new loudspeaker designs than those in almost any other product category. Inevitably, I must have missed something. I'm reasonably certain I saw everything of (audio) significance at the "Zoo." Time limitations prevented me from checking out the exhibitors at the Golden Nugget, a downtown hotel where a small gaggle of manufacturers hold their own little mini-show each year, but JA managed to cover it. I'm certain I at least stuck my head into every room in the Riviera. But there were the inevitable overcrowded rooms, over-loud rooms, and excru-



ciating rooms. I made a note to return to all but the latter two categories (from which I fled in sheer panic), but there is never enough time at a CES, so I didn't get back to some. So, apologies to those I missed. Before I begin, a few "housekeeping" notes: with rare exceptions, I'll only cover new products. All prices quoted are per pair unless otherwise stated, and availability dates and prices of products not yet on the market should be considered tentative—the manufacturer's best estimate as of early January 1989.

Every show, it seems, sees the establishment of a "trend" in loudspeaker design. This show was no exception: the trend was the three-piece loudspeaker system. That is, two satellites and a (non)!-subwoofer. You already know about such systems from Bose and Cambridge Soundworks<sup>2</sup> (unless you just returned from a long visit with your guru in Tibet). Now we also have systems from AR, Boston Acoustics, and Design Acoustics. The Bose, Boston Acoustics, and AR systems all appear to be variations on a theme by KEF (Models 104 and 107) after an idea by Elipson. Specifically, they incorporate a totally enclosed woofer or woofers connected to the outside world by vented ports. They are, in essence, tuned resonators, their success dependent upon the designer's skill. None of them (save the KEF, which also incorporates external equalization) is in any way competitive with a true subwoofer. But, I suppose, they fill some perceived market need.

But on to the stuff you *really* want to know about. Here, in no particular order, is the scoop on the latest from the wonderful, wacky world of loudspeakers. (There were, as usual, a couple of *really* wacky ones, which I'll get to in due course.)

**B&W** introduced the Matrix 802 Series 2. Much as the older 802 paralleled the 801, the new Matrix 802 uses two 200mm bass drivers, in contrast to the Matrix 801's single 300mm woofer, and claims a bass extension down to 27Hz in contrast to its larger sibling's 20Hz (with B&W's bass alignment filter). The \$3600 802 Matrix appears to use the same mid- and high-frequency drivers as its big brother, and is 3dB more sensitive. (That noise you hear in the background is *Stereophile's* own Bill Sommerwerck grinding his teeth and bashing his

head against the wall. Last year he bought six—count 'em—six 801 Matrices (three pair) to use in his surround-sound system. He could have saved \$\$\$, and left himself some room to actually cohabit his listening room with his loudspeakers, had the 802 Matrix been available at the time.)

**Hales Audio** is not a name likely to be familiar to most audiophiles—certainly it wasn't to me. Their System Two is their first effort (in the manner of Versa Dynamics, their System One will come later). It consists of two 7" woofers mounted symmetrically (above and below) an inverted, Kevlar-dome tweeter. A cutaway mock-up of the loudspeaker cabinet revealed a very solidly constructed, heavily braced (and well-finished) system with good-quality crossover parts. The drivers, too, are quality units—the woofers appeared to be Dynaudios, the tweeter a Focal. The price struck me as rather on the high side at \$2300, but the sound was very well balanced. In short, a new company with a new product worthy of attention.

**SOTA** is already on the market with their \$1595 Panorama loudspeakers. Here they an-



*Thomas J. Norton,  
Dick Olsher, and  
John Atkinson  
report on the 1989  
Winter Consumer  
Electronics Show*

1 See DO's subwoofer review in the January 1989 issue.

2 Actually, the Cambridge Soundworks is a four-piece system, with two subwoofers.

nounced a less expensive stablemate with a more conventionally shaped cabinet, the Vista. Retailing for \$995, it has a 7" Kevlar-cone woofer and  $\frac{3}{4}$ " tweeter. The introduction was rather low-key, however, and the Vista was not to be heard in the SOTA suite—where the Panorama had appropriated the sonic duties.

**Acoustic Research** was on hand with their full range of loudspeakers (including the aforementioned STC 660 three-piece system). The AR display, in fact, was the design highlight of the show. The entire room was set up to resemble an old-time Western town, complete with horses (not real ones, alas), and the whole AR staff gussied-up as mean, gun-totin' hombres. Along one wall of this large room was a row of Western storefronts, each one a demo room. As I moseyed into the local saloon (or was it the General Store—I can't recall) I was confronted by the upcoming AR Spirit Series. It's a line of six models, all save the largest designed for stand-mounting. They don't look particularly impressive, but are supposedly designed with attention to detail: frameless grilles, 36cm thick,

dual-density front baffle, and direct-driven woofers in the two-ways (designed for a smooth, natural rolloff, thus eliminating the need for crossover components in the woofer circuits). One of the smaller models was on demo (I believe it was the least expensive), but sounded well-balanced and reasonably open for such a small, probably inexpensive design. I say "probably" because no prices have been set as yet. The whole line was designed in the UK by David Berriman, and originally made for AR's European market. The US versions will be manufactured here. Availability is expected by summer.

The AR exhibit was in one of several large display areas on the Riviera's lobby level. Close by the AR suite were two rooms which were highlights of the show. In one, **Fosgate/Audio-nics** combined their surround-sound system with projection television from Barco Electronics. The stunner here was the showing of an extended NHK (Japanese) High-Definition Television video tape on a large screen—I'd guess perhaps 9'x15'. Whereas in most projection TV setups with surround sound, the sound clearly dominates, in this demo I recall little about the sound—the picture was so stunning that it shut out everything else. Alas, the compatible HDTV systems I have seen don't come close in quality to this dedicated design, and our FCC has mandated that any system chosen for the US *must* be compatible with existing NTSC sets. The only way you'll ever see the real McCoy in your home is via fiber-optic cable, a possibility being pursued in some quarters.

Two rooms down from Fosgate/Barco, **Wilson Audio** was making a stunning impression in more ways than one. The primary attraction here was the introduction of the Series VI WAMM. The general configuration remains the same—WAMM groupies will recognize it immediately—but the design changes are considerable. First of all, the midrange enclosures (located above and below the tweeter module) are now larger, built with sloping front baffles for time alignment, and made of the same mineral-loaded material used in the WATT. When I first saw the WATT at a Winter CES a few years back, I commented to Dave that he should use a pair of WATTs as midrange drivers in an updated WAMM. The new midrange boxes aren't WATTs (they're smaller and more rectangular), but *are* cut from the same cloth. Perhaps they could be called mini-WATTs. Or perhaps



**AR Spirit speakers are designed in the UK by ex-journalist David Berriman.**

"WATeTs"?<sup>3</sup> In any event, the internal design of these midrange systems is also changed, as is the crossover of the complete system. The front baffle of the mid-woofer cabinet (not the separate subwoofers) is also made of the WATT's cabinet material. The never-svelte WAMM is now even more weighty—2000 pounds for the four-piece system. A ton of fun. Price? If you have to ask . . . OK, so it's \$80,000 (including Dave Wilson's personal setup services). The sound? Easily the most imposing at the show, and in many (but not all) ways the best. But it depended on where you were seated. I listened from the back row, which I was told held the "reviewer" seats. A friend who attended the demo twice (and sat in both the back and front rows) reported that the sound in back was indeed the best. In front, to put it charitably, it was disappointing. The WAMM is a "voiced" system, and is naturally at its best in the seat used for that voicing.

For those interested, Wilson was using (if my notes are correct) the Ken Chan Koetsu pickup (this modified by Sound Chamber in Hong Kong), the Versa Dynamics 2.0 turntable/arm, Vendetta Research phono preamps driving a custom, John Curl-designed, line preamplifier, Krell amplification (References on the full-range units, KMA-200s on the subwoofers), and MIT cables throughout.

There was other news from the Wilson suite as well. The WATT will soon be available in a Series II configuration from \$5700; earlier units can be updated. Among the changes in the Series II are a claimed improvement in midrange linearity, a slightly fuller sound with more low-end impact, and an increase in the minimum impedance (in the 2.2kHz to 2.6kHz region) from 0.4 to 1.7 ohms. The Series IIs were not on demo. Also new—CDs from Wilson Audio! The market demands were apparently too strong. I picked up two new Wilson recordings on CD and also purchased the same discs on vinyl. I plan to compare them soon. But not now; we must move on (reluctantly) from the Wilson Audio suite and get on with the report.

**Altec Lansing** has built on the technology developed for their flagship, the five-way active Bias 550 (to be reviewed next month in *Stereophile*), with another, considerably less expensive model, the 512. Also self-powered, this

four-way, five-driver system is tri-amped, its internal amplifiers totaling 400Wpc. The front panel has driver-level adjustments, and the bass crossover point can also be varied from 80 to 250Hz. When I heard them they did not appear to be at their optimum, but with the adjustments available there is a considerable margin for success or failure in the setup. Price, \$4500. An unpowered version, the 511 (at \$3000), may also be externally tri-amped.

**Carver** now has two "Amazing" models, the Platinum edition at \$2695 and the smaller Silver at \$2195. Though these are substantially more expensive than the original, they also include an electronic control system. This device provides a sonic hologram generator, a sub-bass generator, and a new "Gundry Perspective" control. This last is the most intriguing, and is said to psychoacoustically vary the listener's distance from the loudspeakers. For those who just want the loudspeakers without the extras, you'll have to wait a few months when a version of the Silver may become available sans electronic processors.

**Opus 3** now has a line of loudspeakers available through May Audio. But the important news is that May Audio will be distributing their superb LPs and CDs. The reports reaching me of Opus 3's demise may have been premature.

**Infinity** has a new RS series of mid-priced loudspeakers, six models ranging from the 2001 (\$238) to the floor-standing 6001 (\$1058). All have newly developed woofers of injection-molded graphite. The midrange domes use a polypropylene skin reinforced with hollow graphite spheres. EMIT tweeters are used in the top two models. Their display was not conducive to serious auditioning when I was there, much business being conducted. Infinity, incidentally, appears to save their big guns for the Chicago show, their more popularly priced models for Las Vegas. Audio Research, Counterpoint, and Versa Dynamics, however, were all using IRS Betas in their setups, and Infinity president Arnie Nudell was seen several times in the halls, apparently checking closely to make sure his next-to-the-top models were making a good showing. They were at their best in the Versa Dynamics room (with VTL/Manley electronics).

I'll make an exception, at this point, to my stated intention to discuss only new developments. **Precise Acoustic Laboratories** had their Monitor 10 set up in a dedicated room,

<sup>3</sup> Wilson Audio Teeny Tots.

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**Getting what JA thought to be a good sound in a room that, strictly speaking, was too small, Counterpoint was one of a number of exhibitors using Infinity IRS Betas.**

driven by Spectral electronics (including the Spectral CD player/preamp) and demonstrated by designer Keith Johnson. The sound here was strikingly good—clean, naturally detailed, and spacious. Keith uses an unusual low-frequency design with this system. The ported cabinet is apparently tuned to a lower frequency than called for by standard alignments. This is said to optimize the overall, in-room response, not the anechoic performance. It appears to work remarkably well. The bass end was stunning in its depth and impact, especially for a relatively small, mid-priced (\$1595) loudspeaker.

The **Avance Delta 2** loudspeaker from Denmark made impressive sounds in the Just Speakers<sup>4</sup> room. This is a medium-size, stand-mounted, two-way system in the shape of a truncated pyramid. The drivers—6.5" Kevlar woofer and soft-dome tweeter—are both from Scan, and the cabinet is cast from an inert fiber concrete. Avance makes a complete line of speakers, some larger than the Delta 2, but only

the latter was on display. It was one of the best small loudspeakers I heard at the show. The Scan tweeter is a relatively new design, smoother and sweeter than previous tweeters from that source, and the Kevlar midrange appeared to combine low coloration with reasonable bass extension and weight for so small an enclosure (14 liters). No US importer had been found as of my visit, but some had expressed interest.

**Nestorovic Labs'** Type 5AS Mark III has been updated several times since DO's review nearly three years ago (Vol.9 No.5). The designer, the genial Mile Nestorovic, played one of his Nagra-recorded master tapes (Seattle Symphony, I believe) over the 5ASes, and the results were impressive. At \$3000/pair, a retest might be in order.

There's been a rethinking of high-end models at **Kindel Audio**. The PLS-As and PLS-Bs have been well received, but apparently the shippers took a dislike to them and damaged a fair proportion. The new top-of-the-line MQLS-1 (\$1850) should be available by the time you read this. It's a two-piece system with a moderately large subwoofer module on the bottom and a tall, narrow mid/tweeter cabinet

<sup>4</sup> Just Speakers is a supplier of raw drivers and parts from a number of manufacturers and appears to be primarily a wholesale operation.

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**Flanked by the new VMPS Super Tower III speakers, from left to right are J. Peter Moncrieff of IAR, Clark Johnsen of The Modern Audio Association and author of *The Wood Effect*, Brian Cheney of VMPS, and Neil Levenson of *Fanfare* and *The Absolute Sound*.**

on top. The subwoofer is a vented, dual-10" driver system with a claimed F3 (3dB-down point) of 26Hz and strong output to 20Hz. The upper section has an array of four 6.5" drivers—two on top, two on the bottom—and a single 1" dome at the center. The response of the four midrange drivers is staggered so that all of them respond in the lower part of their range, but only the inner two in the upper portion (between the 2pi/4pi transition). The system sounded very open in a limited audition, perhaps a little laid-back but with a very detailed yet sweet high end.

VMPS was on hand with its new Super Tower IIIs (\$4695/pair). Big changes from the earlier version include a symmetrical mid-tweeter array (the leaf supertweeter is now in the middle instead of at the top, where it fired over everyone's heads), and a new cabinet design with curved front edges for reduced diffraction. This change also has the incidental but welcome effect of improving the cabinet's appearance, as does the new, light oak finish. VMPS's cosmetics have moved smartly from the '50s to the '80s in one swell foop. Brian Cheney played me his German cowbell and alphorn recording—heady stuff. I requested excerpts from the *Willow* soundtrack (Virgin Records America, 7 90939-2), and Brian proceeded to rock the walls with this spectacular recording.<sup>5</sup>

Vandersteen showed the improved model 2Ci (\$1195/pair) which seemed, on a brief audition, to be more open at the top than its predecessor. I understand a pair has been sent to JA for evaluation. I asked Richard Vandersteen about the rumored Model 3. There really is such an animal in the works. It will be a bit taller than the 2Ci (no stands required) and will sell for around \$2500/pair. Richard said it just might be ready for the *Stereophile* show in San Francisco in April. Here's hoping.

One of the more striking new loudspeakers, at least in concept, was shown by Sumo. Known as the Aria (no relation to California Audio Labs' CD player of the same name), it is a tall, wide, planar system of radically new design. The driver consists of a single-element, full-range loudspeaker. Its "cone" is a flat, thin, polyester membrane, driven at its center by what appears to be a conventional voice-coil. It is said to react as a point source, rather than as a piston, with true coherency. And it did sound coherent. Prototypes of this same system had been shown in Chicago and needed further work. The design shown in Las Vegas appeared to

<sup>5</sup> I had just bought this album the day before at the local Tower Records—got their last copy—after hearing it in Dave Wilson's suite on the WAMMs. The record had been mixed down over WATTs and Entec subwoofers with impressive sonic results—which is why Dave had used it. Musically, however, I can't say, having only heard parts of it as of this writing.

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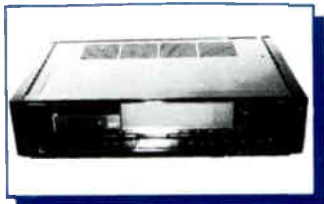
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address most of the problems. The loudspeaker is the work of designers Paul Burton and Moray Campbell at Highwood Audio in Canada, and is being distributed by Sumo. The only problem I see is one of perceived value: the Aria will sell for \$3000, and appears to be a far less complex system to manufacture than some considerably less expensive systems, both planar and conventional. Still, smaller, less-expensive versions were shown in Chicago and can be expected in the next year or two if the design principle proves successful.

**Thiel** showed their existing line of loudspeakers. The much-fabled CS 5, however, was not yet to be seen. It might be ready for Summer CES in Chicago, according to Tom Thiel (Tom is General Manager, brother Jim heads up design). So don't look for it in the stores just yet.

Another new company, **Crigler Brothers**, showed their new Slant Six loudspeaker. You may not be familiar with the Criglers by name, but they originally formed two of the three principals of MCM, a loudspeaker company you may have heard of. When the third principal, Jim Hauer, moved north to Dayton, Ohio with the company's name and designs (it eventually became Focus), the Criglers remained behind in Mobile, Alabama and began working on new designs and tending to their (still operating) retail business. The Slant Six is their first product to be introduced for national distribution (a larger system is in the works). It is basically a two-piece system (6.5" woofer, metal-dome tweeter) a bit taller than a typical two-way but still requiring (short) stands. The front is sharply raked. If you took a Spica TC-50 and stretched it to about three times its present height, you'd have a rough idea of the shape. It is very solidly built, with a 1.375"-thick cabinet. The price of the two-way will be \$950 with stands. Also available is a matching 8" subwoofer, whose cabinet is designed to sit under the Slant Six and take the place of the stands (its narrow front matches the Slant Six, but it extends deeper in the rear to obtain the necessary volume). With subwoofer, the price is \$1699. While one choral recording I listened to sounded a bit forward through the midrange, a number of other discs demonstrated a very promising sound—clean, sweet, unexaggerated highs, extended bass (I heard it with the subwoofer), and fine soundstaging.

Loudspeaker news at **Conrad-Johnson**

revolved around a new, bookshelf-sized version of the LM210, the CM205 (\$995). C-J had a "silent" display, so no audition was possible, but the new speaker is said to incorporate all of the qualities of the '210 save for some reduction in low-end extension. Except for styling (which some may prefer), I believe that the LM210 might still make more economic sense, at least for the dedicated audiophile who wouldn't dream of putting this "bookshelf" system on a real bookshelf. You still need stands, which will bring the total cost of the '205 up to nearly the price of the '210.

I had planned to visit with **Monitor Audio's** head honcho, Mo Iqbal, to get the scoop on his latest tweeter, a sophisticated dome of aluminum/magnesium alloy anodized with gold. But I didn't get back to the MA suite until the last day, by which time Mo was winging his way back to the UK. Sorry, Mo. But I did get to hear the new model based on this tweeter design. The tweeter appears to be derived from the one used in the R852/952 loudspeakers (still on my list of the best dome tweeters around), but the application of gold is said to further improve stiffness (the first breakup mode is claimed to be 28kHz, 5kHz higher than in the earlier design). A brief audition of the new Monitor Audio 1200/Gold MD demonstrated superb HF detail without excess, and no obvious grain, tizz, or other nasties. I was not seated in the "sweet spot," however, so judgment of the other qualities of this new design will have to wait until we are able to do a full review. The 1200 is a narrow, floor-standing column combining what looks to be about a 7" woofer (the literature does not say) with the new tweeter. Cabinet finish is typical of Monitor Audio, which is to say bettered by no one. It doesn't come cheap, however, at \$2250.

**Sound-Lab** demonstrated their A5/B5 combination. The \$5000/pair A-5 is the smallest of Sound-Lab's single-diaphragm cylindrical radiators, the B-5 (\$2500 each) is their smallest flat-panel electrostatic subwoofer. A single B-5 flanked by a pair of A-5s was set up (Sound-Lab had brought a pair of the B-5s, but there wasn't room for the full system), driven by the previously unheard (by me) MFA tube electronics. The overall balance was impressive, but soundstaging—both imaging and depth—was less so. I suspect this system simply must have more room to breathe than was provided by a small hotel suite, where it formed a virtual room-

# DUET DEBUTS

Featuring a host of firsts, beginning with the new MDT-33, Morel's high-efficiency double-magnet tweeter whose frequency response falls within an incredible  $\pm 0.6\text{dB}$ . Paired with the MW-164, Morel's long-throw double-magnet woofer, making its debut in a cabinet system. Followed by the cabinet itself, a radical rhombic design angled up for greater depth and imaging.

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divider. Visually, the arrangement was imposing, but less intimidating in the natural, light finish seen here than in the black seen at an earlier CES.<sup>6</sup>

Permit me a brief digression to cover two items of a non-loudspeaker nature. **Reference Recordings** announced the first of what may be a series of laser *video* discs. Produced by a man who must be world's most knowledgeable videophile, Joe Kane,<sup>7</sup> it is a test disc designed to assist the home-user in proper setup and calibration of the videophile's monitor and audio system, and includes some impressive demonstration material as well. If you're into laser video, this disc is a must-have. It will retail for \$59.95. On a different note, **Audio-Technica** announced that they will be marketing the OC9 pickup (reviewed in the February 1989 *Stereophile* by yours truly) in the US under their Signet banner. Price is expected to be \$700, a welcome \$200 reduction from the price charged by other "gray-market" importers.

Every show, it seems, sees the introduction of the unbelievable product or two. Loudspeakers seem particularly prone to the bizarre. **Waterworks Acoustics** was in attendance with their Soundpipes. Made of what appears to be PVC piping about 5-6" in diameter, curved at the top like a ship's ventilation stack, the System Two (there is a smaller System One) incorporates two 5" woofers and a dome tweeter in a symmetrical, over-under configuration. It must be seen to be appreciated. A subwoofer is available. Water resistance is claimed. It wasn't being properly demonstrated, so I can't comment on the sound; you'll have to paddle down to your nearby Waterworks Acoustics dealer to hear them for yourself.

Compared with our next entry, the Soundpipes came across as a serious audiophile effort. A company called **Amtech Video Audio Manufacturing** has taken your ordinary track lighting, removed the light sockets, and installed loudspeakers therein. Honest. Separate modules are available for woofer, tweeter, and midrange. According to the literature, you can "stack woofers, tweeters, midranges in any sequence or position you desire." I didn't get to hear them—the room, believe it or not, was too crowded! Sort of like slowing down when

passing an accident, I suppose.

I've saved the highlight of the show for last: **Snell Acoustics** demonstrated a prototype of their Model B, a large, floor-standing, four-way system designed to compensate for common room-mode problems. This is particularly true in the bass, where two 10" woofers are placed in a near-floor position to compensate for the "Allison effect" (a common midbass dip caused by mounting woofers above the floor). The two woofers are also staggered in position—one in front, one in the rear—to further smooth any inevitable location-caused anomalies. The Model B is a large (bigger than the Type A), four-way, ported design; in addition to the two woofers, it includes an 8" mid-woofer, 1.5" mid-tweeter, and 0.75" super tweeter. The dispersion of the latter is said to eliminate the need for a rear tweeter. Flat response is claimed to 18Hz, with a 119dB capability (at 1 meter) at that frequency. I can't vouch for the latter, but other observers reported a clean 16Hz tone from the system. More to the point, on demonstration the system revealed a strikingly real sound. Balance was superb, soundstaging precise, and bass could only be described as awesome. Kevin Voeks, Snell's designer, conducted the demo. It was pre-programmed, with 18 varied selections (committed from CD to DAT for convenience) played in a completely darkened room. The latter, in my experience, always helps, but most of the credit goes to the loudspeaker. It's a good thing it *was* demonstrated in the dark; the ridiculous grin on my face throughout the demonstration would have been very embarrassing. But don't expect to find the B at your Snell dealer just yet; these were engineering prototypes. A finished system is still six months to a year away, price forecast at \$3500.

The **Triad System Ten** is the work of designers David Cornwall and Robert Grodinsky. Readers might recall that Bob Grodinsky marketed a line of electronics under his own name in the early '80s. Their System Ten has been designed with special attention to minimizing the effects of stored energy. This three-way system has three rather ordinary-looking drivers, a 10" woofer, and 4" midrange dome tweeter, housed in an elegant truncated pyramid of a cabinet with gently curved top and sides. The sound was dynamic and punchy, yet open. Triad has been known in the past primarily for

<sup>6</sup> Which may have been the A-3/B-3 combo. I don't recall.  
<sup>7</sup> See Kane's interview with Robert E. Greene in Vol.1 No.2 of *The Perfect Vision*.

## CUSTOMER SATISFACTION —

1988 Stereophile magazine  
reader survey —

- 91% of Magneplanar® owners said they would buy Magneplanars if they had it to do over again. 8% said "maybe" and less than 1%\* said "no."
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their satellite/subwoofer systems aimed at the video sound market. The System Ten, at \$2500, just might give them an entry into the audiophile market.

This is where I'm supposed to do my best Siskel and Ebert impersonation and pick the Best Sound of Show. It's a toss between the WAMM and the Snell B. The Snell B clearly made the biggest impression on this reviewer, but I couldn't avoid reflecting on the cost of the WAMM during my audition of that imposing product. To be fair to the latter, it had to fill a room at least six times the size of that holding the Snells, with an audience of at least 30 people soaking up the sound.

Another year, another Las Vegas CES. Shortly before the show, I received a letter from an old friend, who's not really into audio, asking me to recommend a good loudspeaker. The requirements? It had to mount on the wall and cost less than \$150/pair. I'm still pondering what to write in his "Dear Wayne" letter. We sometimes forget that the larger manufacturers have to deal with just this sort of attitude from the great General Public. Fortunately, the high end is under no such limitation. They keep pushing at the physical barriers separating today's loudspeakers from the ideal. Such efforts are invariably costly—we'll never see audio Nirvana for \$150—but as long as customers are willing to pay the price, the effort will continue. One thing is certain, however: *Stereophile* is unlikely to run short of interesting loudspeakers to review in years ahead.

—Thomas J. Norton

## Dick Olsner

**The Sun Sets on the Finial Technology Laser Turntable:** *Dateline, January 6, 1989, Las Vegas, Nevada.* In the parlance of a craps shooter, the Finial Laser Turntable "sevensed-out." At a press conference, Finial surprised everyone by announcing the cancellation of any marketing plans for the 'table. Ironically, this came on the heels of an initial production run of some 35 units and a clear vindication of the technology that went into the 'table. According to ex-GE executive Jacques Robinson, the company's chairman, Finial concluded, on the basis of a cost analysis, "that the unit is too expensive to produce." Retail price estimates of only three months ago were in the vicinity of about \$4000. Currently, Finial believes a

price tag of \$8k to \$10k to be more realistic. Finial no longer sees the 'table as being affordable by a "large" number of audiophiles, and does not consider that an annual production of 300 units would produce a satisfactory return on investment. The technology, however, is available for licensing, and Finial is looking at alternative applications.

Unquestionably, the 'table is hellishly complicated, difficult to build in small batches, and very expensive. Yet, in the context of a Goldmund Reference or a Versa Dynamics, it does represent exceptional value, and the underlying technology works very well indeed. A sample from the initial production run was on hand so that those of us assembled at this public execution "could actually see and hear the real thing, and how great it sounds." The Laser Turntable excelled in the playback of old and worn records. An old, '70s-vintage, chronically abused Jim Croce album sounded brand new. Because the groove angle (as determined by reflection of a light beam from the top portion of the groove wall) and its associated radius of curvature are used to determine the modulation velocity, the optical 'table is not bothered by such surface damage as scratches. And ticks and pops are effectively suppressed by a fast-acting "Noise Blanker circuit." The demonstration even included a CD vs LP single-blind comparison. And I clearly preferred the sound of the LP. Oh, in case you're wondering, the initial production run is *not* for sale. It will be relegated to collecting dust on the shelf. I suppose that Finial is not anxious to give competitors a chance to study the design in detail, but I see this more properly as a tombstone to the audio crime of the century. We've had this juicy bone dangled in front of our collective psyches for three years now—only to have it rudely yanked away.

**Analog News:** In spite of the ever-growing digital specter of doom and gloom in the '90s, there was a spate of new and mostly affordable turntables. Bill Firebaugh of the **Well-Tempered Lab** has been very busy fathering two new 'tables. Joining the Well-Tempered 'table (\$1695 w/arm) are the WT Record Player (\$795), which includes a simplified version of the WT arm, and a cost-no-object 'table/arm at \$5000. The budget 'table gives up little of the established WT technological base: the plinth is damped, the belt-driven platter is made from

acrylic, the armtube is sand-filled, the arm pivot is damped with silicon fluid, the motor mount is isolated from the plinth, and the WT bearing has been retained.



**Bill Firebaugh's no-holds-barred attempt on LP replay, the WTT Signature, will cost \$5000.**

Dubbed "the next best record player," the Model 1.0 from **Versa Dynamics** reflects most of the technology of the Model 2.0 at a more "affordable" \$6000 price point. The Model 1.0 features a simplified Versa arm, a zero-clearance spindle bearing system, and a vacuum hold-down system. The air compressor system is new, and partly because of the reduced air-flow requirements of the 1.0, it is very quiet and can be conveniently placed within the listening environment. And I'm told by reliable sources that the 1.0 sonically gives up very little, if anything, to its much more expensive big brother.



**"The next best record player": Versa Dynamics' Model 1.0.**

Rod Herman is at it again. Having severed his ties with SOTA, he has designed and engineered a new budget 'table, called the Onyx, for **Arcici**. The plinth is lead-packed, and non-suspended. Vibrational isolation is accomplished with damping pads made of a Sorbothane-derivative material. Belt drive is achieved via a magnetically shielded synchronous motor. The platter is 1"-thick acrylic. A \$160 isolation stand is included in the package, which is projected to retail for \$895.



**Arcici's Onyx, designed by Rodney Herman.**

A new line of **Dual** turntables is now available in the US, imported by Ortofon Inc. Of most interest in the line, whose prices range from \$180 to \$750, is the CS 7000 (\$750), also dubbed the Golden 1. This is a three-speed, semi-automatic, belt-driven 'table, complete with a decent dynamically balanced tonearm, floating subchassis, wood plinth, and beautiful black piano lacquer and 24-carat gold trim.

On the third floor of the Riviera it was difficult not to bump into one of the **May Audio Marketing** suites, as they occupied no less than six rooms. And no wonder—May Audio and Nizar Akhrass now import **WBT** connectors, **QED** accessories and electronics, **Deema** record accessories, **Castle** speakers, **Target** audio products, **RATA** turntable stands and the **Torlyte** mod kit for the Linn, **Alphason**, **Jecklin** Float headphones, **Kristlin** products, **Haropa**, **Opus 3** records, CDs, and speakers, **Goldring** cartridges, and a partridge in a pear tree. Joining the **Alphason** line is a moderately priced turntable (\$900) designed along the lines of the more costly **Sonata**. The Solo features a three-point hung suspension, a mineral-loaded elastomer platter, and a specially developed bearing material that is claimed to reduce noise levels with continued playing.

**Basis Audio** announced the introduction of the Basis "Debut Gold Standard," an upgraded version of the original and by now two-year-old "Debut." Changes in the motor and pulley are claimed to increase torque delivery to the platter without increasing the noise level. The platter and bearing have also been improved and "have resulted in lower friction, lower noise, and a tenfold increase in the precision of the rotating assembly." Retail price of the new model is \$6900.

I managed to get a closer look at the **SimplyPhysics** Aviator tonearm. This is a tangen-

tial air-bearing arm using acrylic for both the arm and airtube. Forced air exiting through holes in the top of the fixed airtube creates a laminar boundary between the tube and a lightweight glide. The horizontal mass appears to be much less than that of similar designs, and at \$950, complete with pump, it would appear to compete sonically with much more expensive arms.

**Dynavector** has come up with an improved magnetic circuit for its line of moving-coil cartridges. Dynavector points out that conventional design assumes that the magnetic force is constant and unaffected by armature movements; the output voltage of the coil is presumed to be strictly proportional to the velocity of the stylus or cantilever. However, cantilever movement produces a time-varying change in the magnetic force which then intermodulates the output voltage. This effect can apparently be minimized by the addition of a shorting wire or ring on the front yoke of the magnetic circuit. The model XX-1 (\$1295), a high-output MC with a solid boron cantilever, incorporates a switchable "flux damper," or shorting wire, in the cartridge body itself. If this is such a significant improvement, then I'm not sure I understand the benefit of being able to switch it off.

Moving-coil cartridges by **Benz** of Switzerland are now available in the US from Panther Enterprises. Benz is the outfit that manufactures the van den Hul and Carnegie cartridges, so expect similar cartridges at a more favorable price.

**The Digital Frontier:** Digital signal processors are proliferating. Such devices are based on the assumption that even expensive CD players do not provide the ultimate in digital filtering and digital-to-analog conversion proficiency. At present this is a valid assumption. Typically, CD players employ cheap (read slow and non-linear) DACs and do not possess the computing power to perform sophisticated digital filtering. These processors take over the digital data stream from a CD player's digital output socket and do the rest of the processing.

The **Wadia** 2000 processor was in evidence at a number of suites. It packs a lot of technical sophistication, and, at about \$6500, is one of the most expensive devices of this type that I know of. But when you consider that it uses premium 18-bit DACs and four DSP chips oper-

ating in parallel at 36MHz in a 64x oversampling technique (equivalent to the computing power of 100 PCs), then the price begins to make a lot of sense.

**Theta Digital** introduced the DS Pro processor (\$3200), the processor-only version of their DS Pre digital preamplifier reviewed by Lewis Lipnick in this issue. The Pro does not have the control functions of the Pre, and therefore needs a line-level preamp.

Even **Krell** has entered the field. Krell Digital's DSP-1 processor uses four Motorola DSP56000 chips and 64x oversampling. Burr Brown's fastest 18-bit DACs are used. Pure class-A current-to-voltage converters are used at the DAC outputs. The entire processing chain of the DSP-1, after the feed from the laser is decoded, is completely dual-mono. There are two Motorola 56000 processors, one Burr Brown DAC, one current-to-voltage converter, and one balanced analog gain stage per channel. As you can imagine, the projected price tag is a hefty \$6500. Krell, however, has gone one step further than the competition and is also offering a mechanical counterpart to the DSP-1—the MD-1 CD Transport. Of course, you may use your favorite CD player with the DSP-1 or opt for the best transport money can buy (a mere \$3000 or so). You're bound to get a chuckle out of the MD-1; there's a clear visual resemblance here to an analog turntable. It's a top-loading system—the CD spins freely in the center of the unit, held down by a weighted



**Krell Digital's top-loading (!) MD-1 CD transport**

works. In the tradition of the finest analog tables, the entire Transport is isolated from mechanical vibrations (I wonder, though, if the dust cover will introduce airborne acoustic feedback from the speakers). The unit is built around an all-metal Philips industrial-grade CD transport and laser mechanism. The laser uses a glass lens rather than a plastic one to improve

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focusing and increase the useful life of the optics. Apparently the plastic lenses tend to cloud up after several years of use.

A much more modest offering comes from **A&R Cambridge**. The Arcam Delta Black Box is designed to improve on the sound of budget CD players and offers selected dual Philips 16-bit DACs, 4x oversampling and digital filtering, discrete class-A analog circuitry using audiophile-grade caps and resistors, and a fully regulated power supply. Retail price is also modest, a mere \$650. See JA's review last month to find out how it sounds.

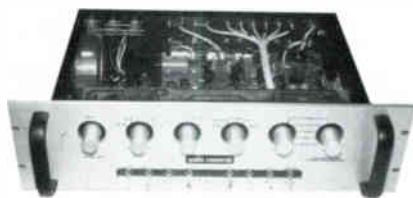
Oh yes, there were also a few new CD players. **Kinergetics** unveiled the KCD-20B. This is a 16-bit version of the superb KCD-20A (14-bit machines are no longer available), and is based on the 680 Philips chassis using selected digital filters and DAC chips. Price will be \$1195. **Melos Audio** introduced the CD-T8 (\$2295): an 8x oversampling, 18-bit deck using an all-tube analog section. The player (surprise!) is based not on the ubiquitous Philips chassis, but on the Sony 507 (better transport).

Finally, **SimplyPhysics** is doing something about that flimsy Philips transport. The Iso-drive (\$99.95) is a two-part mod for any of the Philips 560, 471, 472, 473, and 650 players. The Iso-drive replaces the Philips upper disc clamp and bearing with a machined brass rod and bearing assembly (or, in the 560/650 players, with a machined Delrin thrust point). The new bearing snaps right into the same fitting used by the Philips bearing, and should be easy to install. Next, a 5"-diameter plastic disc is placed in the drawer on top of the CD you wish to play. This disc has a slightly raised lip and a low-friction upper surface; as it is pushed down over the CD by the upper bearing, it flattens and dampens the CD. The Iso-drive is also claimed to center the CD to the true center of spin. Rick Roberts of SimplyPhysics is adamantly opposed to what he calls the ring run-around: the Sims Vibration Rings, aka Monster Cable CD Rings, aka Euphonic Technology CD Rings, aka Audioquest CD Rings. First, he claims that it is impossible to apply the rings accurately enough to truly stabilize the CD. Second, according to Rick, the rings start oozing glue around their edges, which eventually spreads out over the disc surface, trapping dirt; also, the glue lets go with time, decentering the rings even more. Does anyone out there care to comment on the ring problem? Is it real or imagined?

With 4,500,000 CD players sold in 1988, it should not take a genius to figure out that CD sales are also heating up (even though, according to the figures published by the Electronic Industries Association, this gives a market penetration of only 13% of US households). With that kind of market demand, even the staunchest of analog labels now offer CDs. Dave Wilson of **Wilson Audio** now offers the audiophile a choice, and I agree completely. If you have not done so already, you should investigate the direct-to-digital, 64x-oversampled jazz CDs from **Chesky Records**. Producer David Chesky is quite proud of the musical value and sonic quality of these recordings.

A new and exclusively digital label on the block is **Dorian Recordings**. Sharing space at the show with Aural Symphonics and using their system, I spent some time listening to a sampling of Dorian CDs. Played back through a pair of Martin-Logan CLSes with Nelson-Reed subwoofers on the bottom, these CDs consistently provided a spacious and natural soundstage. My favorites were *The English Lute Song* (DOR-90109) and *Solid Brass At The Opera* (DOR-90108).

**Preamps and Amps Galore:** The recent trend toward tube/transistor hybrid circuitry has depleted the ranks of the all-tube manufacturers. For example, Counterpoint and Audio Research no longer build pure tube designs. This has led some pundits in the industry to coin the term "token tube" designs. A good example of this is the new **Audio Research SP-14** preamp (\$2995). It is all-FET except for a single 6DJ8 tube in the phono section. Let's face it, this is a solid-state design with merely the slightest tube-sound infusion. Also new from Audio Research are two good-looking power amps—the Classic 30 and 60. Both feature a FET input stage and a 6550 output stage



**Audio Research \$2995 SP-14 preamplifier**

driven by a 6FQ7 phase splitter. The "classic" touch here involves the operation of the 6550 tubes in a triode mode, with the screen grid tied to the plate. The tubes are cooled by a very quiet fan and the amps are touted for their inherent reliability.

**Counterpoint's** Models 3.1, 5.1, and 7.1 are leaving the line, as is the concept of all-tube designs. Three new hybrid preamps are taking their places: the SA-1000 (\$835), the SA-3000 (\$1795), and the SA-5000 (\$3000). The use of hybrid circuits allows at least 70dB overall gain from the phono input to main out with very good signal/noise ratio. Even a 0.5mV nominal MC cartridge can be driven directly into these preamps.

The new **Conrad-Johnson PV-10** represents the latest implementation of the circuit topology pioneered in the Premier Seven. At \$995, the PV-10 will be the least expensive preamp in C-J's line. According to Lew Johnson, the PV-10 is more than a worthy successor to the PV-5, and, at almost half the price of the PV-5, is said to be sonically superior. This all-tube design has zero feedback circuits in both line and phono stages, and passive RIAA equalization in the phono stage. The low-impedance, regulated power supply uses no electrolytic



### **Conrad-Johnson's DF-10 combines CD player and line preamplifier**

caps (a source of component failure in the past). Instead, expensive polypropylene and polystyrene caps are used exclusively for line filtering and bypass. Also new from C-J is the Model DF-1 CD-player/preamp (\$1385). The CD-player section represents C-J's best effort to date, while the FET-based line-level preamp section draws heavily on the Motif line of electronics. Thus, in a modestly priced package, you've got the nucleus for a CD-based system. The preamp section can accommodate two high-level inputs (eg, tape deck and tuner), and also provides a tape output. This strikes me as a great concept, and should appeal to those audiophiles who have kicked the analog bucket.

C-J's PV-10 preamp should find stiff compe-

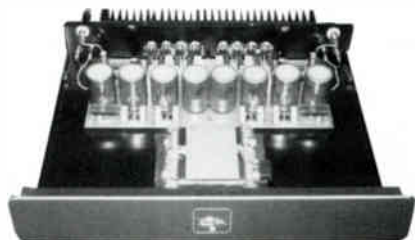
tion from a number of sources: **Quicksilver Audio's** new preamp (\$1195), known simply as the Preamplifier, appears to be extremely well built, is all-tube in design, and even uses a tube regulator. Additional competition in the same price point is offered by the **MFA Magus A-2** preamp (\$895) and the **Lazarus Cascade Deluxe** (\$1200).



### **MFA's \$895 Magus A-2**

**Manley is Vacuum Tube Logic of America's** new flagship line. This "reference series" combines much-improved cosmetics (how about stainless-steel covers!) with a few technical improvements over the standard line. For example, the Manley 350 monoblocks (\$6600/pair) differ from the VTL 300 monoblocks in their slightly higher power rating, and in the Manley's three separate power supplies for the input, driver, and output stages. Also, both the Manley 350 and 150 offer feedback controls and a front-panel selector for bias readout.

The **YBA** line of electronics is now available through Sumiko, the exclusive US distributor. Designed by Yves Bernard Andre, about as perfectionist an audiophile as you'll ever find, all products in the line are the result of extensive listening, exclusive use of custom passive parts, and careful system integration to assure that the final product is sonically identical to the prototype. Three levels of design are available, each level consisting of an amp and a preamp. Prices hover around \$6000 for Level 1, \$3000 for Level 2, and \$1600 for Level 3. After Yves Ber-



**YBA's Level 3 power amplifier from Sumiko features minimalist design philosophy and much attention to the sound of "passive" components**

nard gave me the "grand tour," and I observed the personal way in which he relates to the various parts in the chassis, I had little trouble believing that the design as a whole must sound wonderfully musical. I look forward to reviewing a sampling from this line.

The **Futterman** is back! Dallas-based and immodestly named **Prodigy Audio Laboratories** introduced the Monoblock 150 amplifier—an updated version of Julius Futterman's capacitively coupled, output-transformerless circuit. Improvements in the output stage and power supply are claimed to have improved the bass performance and reliability. At \$7000/pair they are not cheap, but welcome back anyway!



**Prodigy's Monoblock 150 amplifier—a Futterman by any other name!**

**Sumo** introduced the Andromeda II, a \$1499, 200W/8-ohm solid-state amp, and, according to Sumo, their "finest high-end amplifier." Sumo also announced that **Great American Sound** (GAS), the progenitor of such products as Ampzilla and Son of Ampzilla, has been purchased by Sumo's parent company and is being restructured to operate as a sister company. The first order of business will be the establishment of factory-authorized service centers around the country to take care of the needs of current GAS owners.

New from **Boulder** are the 250AE (\$3590/pair) and 500AE (\$5590/pair) amplifiers. They are based on the discrete, high-performance op-amp circuit topology of the 500, but without some of the professional touches such as input attenuators. The amps can be used in either stereo or mono mode. In stereo, the power output of the 500AE is 150W into 8 ohms; in mono, a pair may be bridged to produce 500W into 8 ohms.

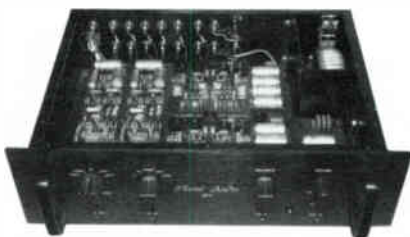
**Platinum**, a division of **Agtron** and a new guy on the block, offers a full array of solid-



**Sumo's Mk. II Andromeda**

state amplification. Agtron, a manufacturer of analytical laboratory electronics and photometrics, apparently also harbors a number of audiophiles, including president and CEO Carl Staub. So Agtron is off in a new direction, but what is really a refreshing change is that here is a new high-end manufacturer with an already-established design, manufacturing, and service base. The Platinum FHT line was designed with computer-aided time-domain circuit modeling, which allows iterative analysis of circuit behavior in response to dynamic stimulation. This system is claimed to have the ability to quantify and analyze the effects of such things as capacitor dielectrics, dissipation factor, and group-delay distortion effects. The FHT preamp (\$3000 w/phono module) is not only based on this time-domain design, but also uses premium passive parts, class-A gain stages, an external power transformer, and four separate and regulated power supplies. It all sounds very good; I look forward to hearing one of these.

The **Classé Audio DR-5** preamp (\$1995) is descended from the DR-7. It is moving-coil-capable and balanced in construction. The DR-8 amp, at \$2395, can put out 280W into 2 ohms, and is also bridgeable for a whopping 850W into 2 ohms.



**Classe Audio DR-5 balanced preamplifier**

Dan D'Agostino must really be a sci-fi nut, because he's at it again. From the Forbidden Planet (home of the Krell race) we now have

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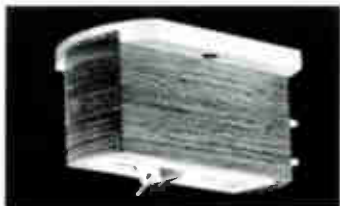
*Kiseki replaces recorded confusion with clarity and in so doing, recreates real music.*

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the Altair amp. The Altair is actually a first for **Krell**, being their first class-AB design, and is rated at 100W/8 ohms, 200/4, and 400/2. It's diminutive in size and heft, but not in price—a cool \$5500—and is aimed mainly at the European market and at those who want both Krell sound and the convenience of being able to shelf-mount their entire system. Krell also introduced a new affordable preamplifier, the KSP-7B, to be priced at \$2200. Unusually at this price level, the main outputs of the '7B, which replaces the PAM-7, are balanced.



**Krell's first class-AB amplifier, the 100W/channel Altair**

**FM Acoustics Ltd.** of Switzerland showed off their superb line of electronics, still as expensive as ever. There are two new amps: the 810 at (you'd better sit down for this one) \$22,000 and the 610 at \$12,500. There is also a new preamp, priced at a mere \$5500. Because FM Acoustics had impressed me previously as being specification-oriented, I was quite surprised by the following excerpt from one of their Technical Bulletins: "In low-noise circuits such as preamplifiers each transistor is additionally selected by ear because it was found that even transistors that have the same spectral noise density and other technical parameters can still sound different!"

After a pleasant chat with Bob Carver, I listened very briefly to the **Carver M-4.0t** (\$1000) monoblocks (supposedly the sonic clones of the tubed Silver Seven) driving a pair of the Amazing Silver Edition speakers (\$2200/pair). Guess what? The overall sound was quite tubey: soft and liquid on top, loose on the bottom. Carver kindly agreed to provide me with a pair of the Silver M-4.0ts and the Amazing Loudspeaker Platinum Edition (\$2600/pair) for a full review.

A visit to the **Acoustic Research** suite meant blending into the Old West, complete with authentically attired, gunslingin' sales staff. AR, really trying to make waves, introduced the Spirit line of speakers and electronics

(already available in the UK) to the US. There's a full line of electronics under \$1000 which promises to offer excellent value.

Not to be outdone, **Mission Electronics**, which just opened a US subsidiary, is expanding its Cyrus line of audiophile products. For example, the Cyrus II at \$799 is a really good-looking integrated amp with a 50W/8 ohm rating.

New from **Hafner** are the Iris Preamp and digital FM Tuner. The preamp features a discrete, class-A J-FET design and, of course, the IRIS remote. IRIS stands for Infrared Integrated System and uses infrared-activated digital circuitry to interface with Cadmium Sulfide photo resistors to yield 0.25dB volume and 0.1dB balance resolution without compromising the signal integrity. The high-powered infrared emitters in the IRIS eliminate the need to precisely aim the remote at the preamp, and after a long demo by Jim Strickland I concluded that this is a very flexible, user-friendly device.

**Odds & Ends:** Even though JA instructed me to concentrate on electronic products, I can't help commenting on a couple of new and very exciting loudspeakers. First, the Aria, a new type of planar design from **Sumo**. Designed and manufactured exclusively for Sumo by Highwood Audio in Calgary, Alberta, Canada, the speaker features the first full-range dynamic moving-coil driver. A spiderless voice-coil (ferrofluid is used to center the voice-coil in the gap) is used to vibrate the center of a stretched rectangular mylar membrane. A lot of work went into controlling and minimizing the attendant drumhead resonances. Flat response is claimed from 40Hz to over 20kHz. The pair I heard had very good bass quality and imaged extremely well. At \$3000/pair, this promises to be an excellent value.

The new Model A-5 from **Sound-Lab** is a full-range electrostatic design along the lines of the A-3, and the first to employ curved side baffles to reduce front-to-back dipole cancellation and improve the impact of the lower mids. At \$4995/pair, it promises to outshine the A-3 at a considerable savings in cost.

The best sound at the show? Unquestionably, the live brass band I ran into at the Convention Center. After that, and with only a couple of exceptions (one being the sound at the Versa Dynamics/Manley/Cardas suite), everything at the show sounded like a far cry from

# AudioPrism

## Product News

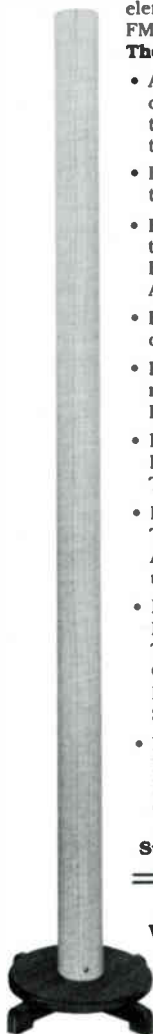
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live music. Generally, the sound was overly detailed, bright, and etched. I wonder if there's an audiophile agenda at work here—give the audiophile what he most craves. I'll just hope that's not the case, and remain an optimist by attributing what I heard to show conditions.

—Dick Olsher

## John Atkinson

As Editor, I expected to have a more relaxing show of it than Tom or Dick:<sup>8</sup> my reporting task was simply to report on what, if anything, they missed, spending most of my time in interesting conversation and the enjoyment of music. It was only when I arrived at the show that I realized that I would only know if they had missed something *after* the show, when it would be too late for me to hear and see it. I therefore had to attempt to see everything after all! Phooey!

First, despite nearly every manufacturer and retailer confirming that the Fall of 1988 had been very bad for high-end business, everyone seemed in an upbeat mood. Apparently high-end sales had picked up in the pre-Christmas period and everyone expected 1989 to be a better year all 'round than '88. The overall mood reflected the fact that the lack of sales in 1988 wasn't due to the fact that consumers didn't have any money; it was more due to the fact that although they did have money, they weren't going to commit to pricey purchases until the future looked a little more settled.

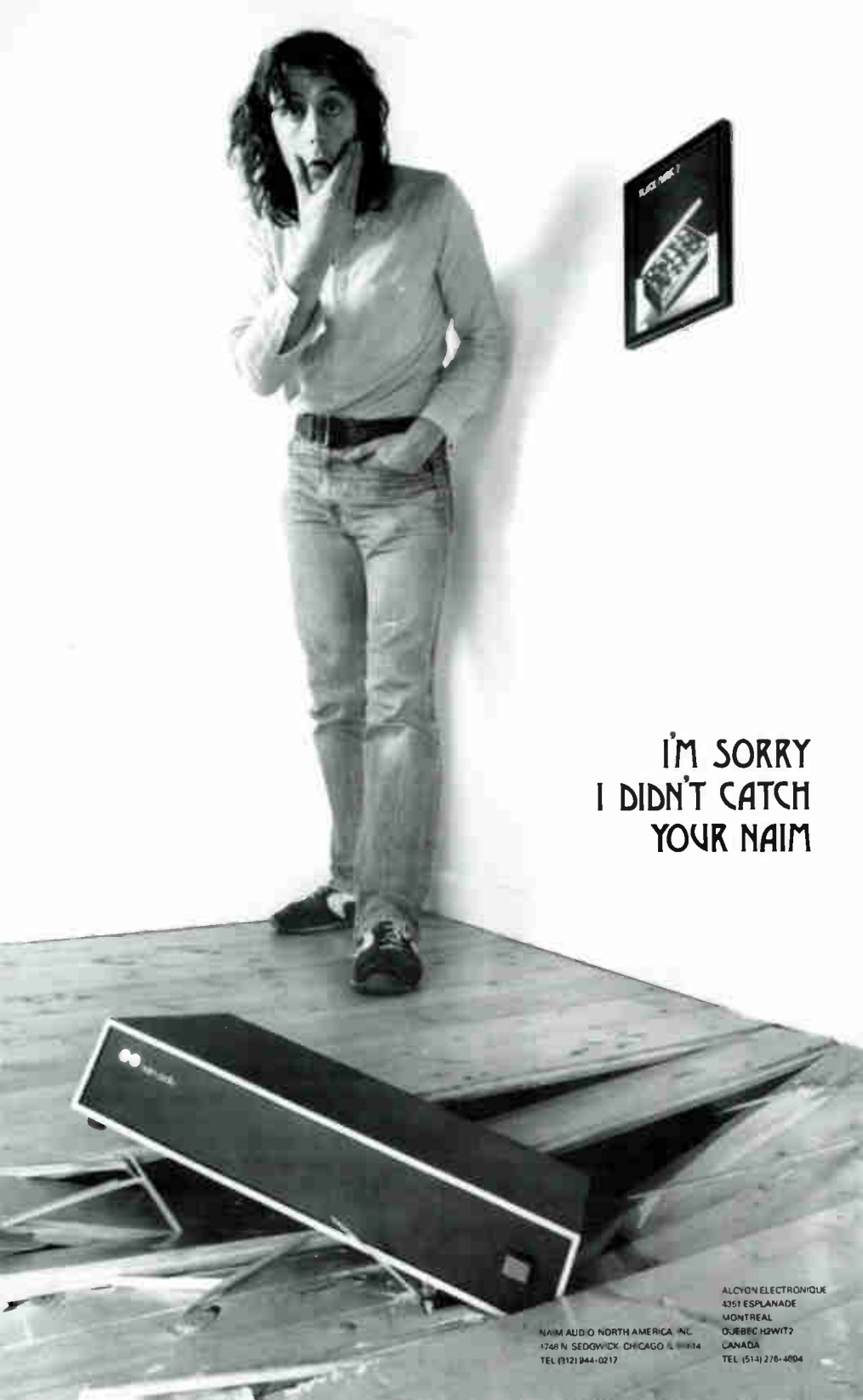
Second, it was noteworthy that, despite the launch at the show of an interesting bunch of new turntables, almost every exhibitor was using CD to demonstrate their amps or speakers. It appeared that Wadia and Theta had loaned many exhibitors samples of their D/A processors—I remember the days when it would have been Linn or Oracle that brought large stocks of their front-ends to a show for the same purpose—and the rooms that primarily played LP were rare indeed. **Counterpoint's** Michael Elliott was using an Oracle/vdH EMT/SAEC LP player to get good sounds from the soundtrack to the Coppola movie *One From the Heart* even though he was using IRS Betas in a very unsuitable room, the listeners being only 4–5' away from the mid/treble towers and

there being a bass honk audible in some seats. The speakers, driven in this instance by a pair of SA-20s and Counterpoint's cost-no-object SA-9/SA-11 remote-control preamplifier combo, usually require the listener to sit at least 8' away in order that the sound from the vertically widely-spaced drivers integrates properly. Yet the Counterpoint room was one of the few, in my opinion, where music could be enjoyed. Perhaps it was due to intelligent use of RPG Dif-fusers. Certainly the Haitink Shostakovich 13, the "Babi Yar" symphony (London 414 410-1), featured a deep, well-focused soundstage and neutral tonalities (except when the bass drum drove the room into overload).

Another exhibitor to feature LP out of choice was the room shared by **VTL**, **Cardas**, and **Versa Dynamics**, where IRS Betas were again featured. Sounding sweeter in the treble than any of the samples J. Gordon Holt reviewed for *Stereophile*, the Betas were driven by Manley 500W monos on the mid/treble panels and Manley 350s on the bass. Front end was a Versa 2.0 fitted with a Benz cartridge feeding a Manley Reference preamplifier, and cabling was, naturally, by Cardas. Miles Davis's classic *Kind of Blue* album sounded about the most natural—and musical—as I have heard.

**Audio Research** had a vast mausoleum of a demo room, but also both remained loyal to analog—using an Oracle/SME/Benz front end—and chose to use IRS Betas. I listened to a number of recordings in their room—it was my first opportunity to listen to the SP15 pre-amplifier and Classic 150 power amplifiers—and the one that stuck in my mind was the new Chesky LP of Ravel's *Daphnis et Chloe*, performed by the Boston Symphony under Charles Munch. Dating from 1955, the original two-channel master was made at 30ips; the record was cut by John Dent using Tim de Paravicini-designed tube cutting amplifiers. The big news from **Chesky** in Las Vegas was the launch of CDs made with a 6MHz-sampling A/D converter that, according to David Chesky, "is to Colossus as a jet is to a propeller plane." The releases include a superb 1962 performance of Brahms's Symphony 1, from the London Symphony Orchestra conducted by Jascha Horenstein, engineered by Kenneth Wilkinson and produced by Chuck Gerhardt, as well as Chesky's first original recordings, of small-group jazz. One of the latter, featuring veteran trumpet player Clark Terry, sounded convinc-

<sup>8</sup> My late father's name was Harry. Wouldn't it have been a neat thing for this report if I had been named after him?



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ingly natural in **The Mod Squad** room, played on a Prism CD player and reproduced via Vandersteen 4A loudspeakers driven by Audio Research Classic 150s. (The room acoustics had been extensively modified with Tube Traps and RPG Diffusors.)

News from the Moddies themselves at the show was that the Line Drive Deluxe AGT that so impressed me in the January issue has had to have a price increase, to \$1095. It is also now available with the Phono Drive as a single component, the Duet, costing \$2595. A Duet cosmetic upgrade kit, for those who already own separate Phono and Line Drives, consists of a double-height faceplate, a new top plate, and extra feet, and will cost \$595. As well as the Clark Terry album, I enjoyed a track from a Canadian CD in the Mod Squad room that had been recommended by *The Absolute Sound's* Michael Fremer: "Cowboy Junkies," from the album *The Trinity Sessions* (BMG 8568-R-R), features a delicious solo female voice (unfortunately with LF airconditioner accompaniment) recorded with a Calrec Soundfield mic direct to R-DAT. Certainly one of the most "real" recordings I heard at the show.

To return to analog, you could also hear real records in the **Apogee** room, where Jason Bloom had a system set up around a Basis turntable fitted with an Airtangent tonearm carrying a Koetsu Rosewood Signature cartridge. Cello electronics—Jason Bloom said that he didn't want Apogee to be associated with just one line

of electronics—drove \$3735 Duetta Signature speakers in bi-amped mode via the new Apogee DAX electronic crossover. The DAX, which costs \$3995, can be operated in both balanced and single-ended modes, and offers control of treble/woofer balance and a shelf of  $\pm 2$ dB at 5kHz to allow for the rake of the speaker panels, with six numerical readouts showing what the user has selected. The sound here was about the least hi-fi I have heard in a hotel room: effortlessly smooth, yet revealingly detailed, with extended highs. This was the room where I heard my personal "Best Record of the Show": an album of solo violin music performed by Arturo Delmoni<sup>9</sup> and produced by Jason with Water Lily Acoustics' Kavi Alexander. Recorded in an abbey, the image of the violinist was presented with, in the immortal words of the Audio Cheapskate, "palpable presence."

The **Wilson Audio Specialties** room was also, of course, where analog was to be heard, and I duly took my turn in exposing my psyche to the WAMM Series Six. Well, I have to say that, when it comes to reproducing the sound of David Abel and Julie Steinberg playing two of Bartók's *Six Roumanian Dances*, this system faithfully created for me the illusion that a real violinist and pianist were there in the room. But at what cost! \$80,000 for the speak-

<sup>9</sup> Arturo Delmoni will be giving a free recital at *Stereophile's* San Francisco show, due to take place April 21 through 23.



**The Mod Squad room featured their Prism CD player and Duet preamplifier, with ARC Classic 150s driving Vandersteen 4As**

ers, with probably another \$40,000 for the rest of the system. And the illusion of reality broke down, I felt, with larger-scale music. Still some work to do, David and Sheryl Lee—but you're getting closer and closer to that elusive absolute sound.

Following this experience, I visited the **Kinergetics** room, where the affable Tony Di Chiro was producing musical sounds from a far more modest system. A Kinergetics KCD-30 CD player fed the latest version of their KBA-75 stereo class-A power amplifier,<sup>10</sup> driving Spica TC-50s supported on dedicated speaker stands that enclosed a pair of Kinergetics BSC-100 subwoofers driven by their matching amplifier/controller/crossover. As I walked in, Tony was playing a solo guitar track from the Harmonia Mundi *Tarantule-Tarantelle* album, which sounded, if not real in the sense of musicians being in the room, as is characteristic of the WAMM, then *believable*, albeit on a smaller scale. I asked Tony to play my own piano recording on the *HFN/RR* Test CD. Having played the disc in a number of other rooms and having been surprised at how *different* the piano sounded on otherwise good-sounding systems, I am pleased to note that the sound in the Kinergetics room was stunningly true to the sound of the original Steinway. Nice one, Ken and Tony!

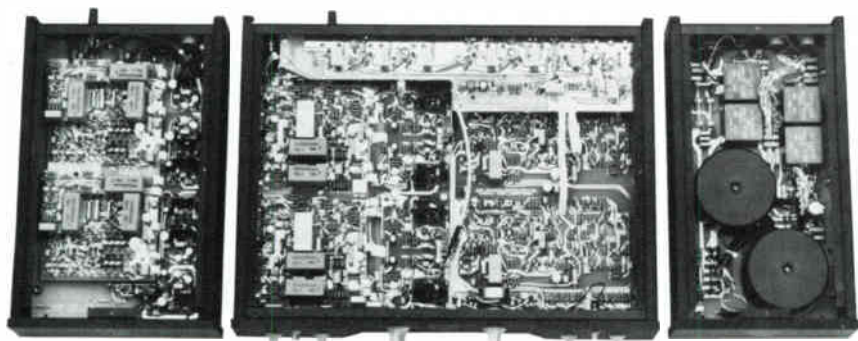
Now that I'm launched on the subject of digital replay, **California Audio Labs** launched a premium version of their Tempest II CD player. The Tempest Special Edition is priced at \$3995, compared with the standard version's \$2995—not \$2200 as LA quoted in his review of Thiel speakers in January. The SE uses selected Burr Brown 18-bit DACs and an 8x-oversampling digital filter and, according to CAL's Art Paymer, offers "a 20% improvement in detail resolution over the standard Tempest." I had the chance to listen to the 64x-oversampling **Wadia** 2000 "decoding computer" in a number of rooms and I have to say that I was impressed. The **Wadia**, which uses AT&T DSP chips to implement the digital filtration and oversampling, with the filter coefficients stored in replaceable ROMs, must be up there with the Theta DS Pre processor in being close to the state of the art in reconstructing an analog signal from the digital data stored on CD. Yet I have to admit to some surprise as to how different

these two processors sounded in the **VMPS** room, where Brian Cheney had set up both fed with the digital output of a Sony player. The new VMPS Super Tower III speakers were being driven by Classé DR-3 amplifiers, and Brian had arranged for the room to approximate a live-end/dead-end environment. Despite a rather warm balance overall, the sound was exceptionally transparent, and differences were readily audible. Both decoders seemed to be champions at the traditional hi-fi performance aspects: inaudible noise, irrelevant distortion, etc.; and both effectively presented the music. But they differed in the manner in which they handled that music. The **Wadia's** presentation of my own piano recording seemed to emphasize the acoustic space, the ambient soundfield on the recording, while rendering the piano rather mellow-sounding in comparison with what I remembered the actual piano tone to be. The **Theta**, with the VMPS speakers, seemed more true to the tonal quality of the Steinway. Maybe both, maybe *all* CD replay systems, should still be regarded as works-in-progress when it comes to state-of-the-art CD sound.

VMPS distributes the John Curl-designed **Vendetta Research** amplification, and launched a new version of the SCP2 phono preamplifier which has become both J. Gordon Holt's and my reference. The SCP2A has revised power supplies, with five times as much reservoir capacitance, giving a total of 20,000 $\mu$ F per channel, and separate secondary windings for positive and negative voltage rails. The SCP2A now has zero loop feedback. Still dual-mono in construction, a double-width front panel now straps the two channel modules, though the two power transformers remain independently housed. The retail price is to be \$2250.

Madrigal Audio Laboratories announced a plethora of new **Mark Levinson** products at the show, the No.25 dual monaural phono preamp, No.20.5 class-A monoblock power amplifier, and No.27 100Wpc power amplifier. The No.27, to be priced at \$3495, is a smaller cousin of the No.23 class-AB amplifier, retaining the latter's dual-monaural construction and burst-proof protection. The No.25 is built in an identically sized enclosure to the PLS-226 power supply for the No.26 preamp, and carries the No.26's phono board, providing it with four regulated voltage rails, one each for the positive and negative supplies of each channel. The

<sup>10</sup> The changes involve the addition of independent voltage regulators on the left- and right-channel low-level circuits.



**The fully loaded Mark Levinson preamplifier system: from left to right, No.25 phono preamplifier, No.26 line preamplifier with balanced-input board, PLS-226 power supply**

user can power the No.25 from the second output socket on the preamp's PLS-226 supply, but Madrigal has found that the best performance is obtained when the No.25 is powered from an independent PLS-226 supply. The '25 is available in two versions, High Gain at \$1875 and Low Gain at \$1800; the PLS-226 costs \$950; owners of phono-equipped No.26s can buy just the No.25 enclosure and mother board, their dealer then transferring the phono card from '26 to '25. The empty space in the '26 can then be fitted with the Mark Levinson balanced line-input card, to be used with the XLR input sockets already present on the rear panel.

The No.20.5 is a direct descendant of the No.20, an additional \$1000 bringing the price per pair to \$11,500. All differences between the two are contained on the plug-in AP-4 card, which carries the audio input circuitry, second voltage gain stage, and current mirror, and replaces the earlier amplifier's AP-3 card. (All except the earliest-production No.20s can be upgraded by changing this card.) We have a '25/'26 combination and a pair of '20.5s in Santa Fe; a review is planned to appear in the very near future.

The English Meridian products were distributed by Madrigal, but it was announced in Las Vegas that from February 1, their own subsidiary company will handle US distribution. The split appeared to be amicable, and was due both to Meridian's parent company, AGI, who also own KEF, needing to rationalize their US operation and the possibility of future Madrigal products aiming at the same market sector as Meridian. For me, one of the most exciting

products at CES was a new loudspeaker from Meridian, the System D600, comprised of an aluminum-dome tweeter with two 160mm polypropylene bass/midrange drivers in a reflex enclosure. That this is more than a loud-



**Meridian D600 "Intelligent" loudspeaker features digital inputs**

## Equipment Supports from The Sound Organisation

Hi-Fi furniture is much more than a convenient housing for your hi-fi components. The type of cabinet you select will actually affect the overall performance of your system.

The most obvious example of this involves the turntable. Some years ago the common wisdom was that, to combat acoustic feedback and other environmental problems, a turntable should be placed on a very massive cabinet. Unfortunately, while a heavy cabinet moves very little, its movement is at a very low frequency, usually below the cut-off frequency of the turntable suspension. Thus this vibration passes right through the turntable suspension and is fed directly into the hi-fi system. *The disastrous effect this has on the performance of the system has now been documented repeatedly by the hi-fi press around the world.* Today it is accepted that turntables should be placed on a rigid, low mass table. Rigid to prevent movement, low mass so that any vibrations will be at a high enough frequency to be filtered out by the turntable's suspension.

*It has also been documented that other components are affected by vibrations as well.* Cassette decks, CD players, and even amplifiers and tuners all have mechanical components that are susceptible to micro-phonics problems. Even when mechanical parts are limited to switches, volume controls, and circuit board connectors, it has been found that performance improves when the component is placed on a low mass, rigid support.

The Sound Organisation, a small British company, manufactures a complete line of equipment supports that allow you to get the best performance from your hi-fi system. These range from simple Turntable Tables or Wall Shelves to complete Stacking Systems that can be assembled in dozens of configurations and rearranged as your system changes. *(The photo shows only one of the possibilities. Several different base units are available and any number of stackers can be added as required.)*

All Sound Organisation supports, even the simplest Turntable Substand, are constructed to the highest standards and incorporate a rigid, welded steel framework. Each laminated shelf is supported by pointed spikes that decouple it from the mass of the framework.



For additional information on Sound Organisation products and the name of the dealer nearest you contact:

Audiophile Systems, Ltd., 8709 Castle Park Dr., Indianapolis, IN 46256 (317) 849-7103  
Aldburn Electronics, 127 Portland Street, Toronto, Ontario, Canada M5V 2N4 (416) 863-0915

speaker is apparent from the soft green digital display at the top of each speaker's baffle. The D600 is an active speaker, each carrying an electronic crossover and three power amplifiers dedicated to the drive-units: 70W each for the tweeter and upper of the two woofers, 140W for the bass. But it is more than even that, as the D600 is intended to be the heart of a system. Its rear panel carries two analog and three digital inputs (two coax, one optical), the latter feeding a phase-locked loop synchronization circuit, a 4x-oversampling digital filter, and dual 16-bit DACs.

The '600 comes with a full-function remote control, the 609, that offers source switching, analog control of volume featuring 64 steps, channel balance, an HF tilt control, control of bass shelving to add a degree of room optimization, all affecting both speakers or just one. A CD player with a serial data output and a pair of D600s would be all that would be required to set up a complete remote-control CD system. The '600 can also communicate with "intelligent" sources: add a Meridian 204 FM tuner/timer, and this too can be controlled by the loudspeaker remote control, the speaker display indicating what station has been selected and its frequency, etc.

The potential for multi-room systems is obvious, but for *Stereophile* readers, the primary aspect of such a product will be sound quality. Well, I have to say that I was impressed. Whether it was the fact that this was a system effectively without interconnects or speaker cables, I don't know, but the sound (from the Hogwood *Messiah* recording on L'Oiseau-Lyre) had a wealth of detail apparent, without any upfront "glare." Highs were smooth and extended, and the stereo imaging was excellent, being stable and precisely focused. I look forward to receiving a pair of D600s for review.

The Swiss **Revox** company has also been turning their attention to multi-room and remote-controlled systems, but the product of theirs I found most intriguing at the show was a new loudspeaker system. Larry Archibald and I were sat down in front of a curtain and asked for opinions on the sound of their new speaker, which was being used in conjunction with a Revox "Piccolo" subwoofer. In particular, Revox was interested in how we found the stereo imaging. I found the soundstage wide, but not that well focused. There was an impressive "big" quality to the imaging, but it was hard to

pinpoint any particular instrumental or vocal image. You can imagine our surprise when the curtain was pulled back to reveal a *single* centrally placed speaker. The Stereolith "Duetto," which will cost \$1095 in white or black lacquer or \$795 in a vinyl finish, is a two-channel speaker, but has only one enclosure.

The intention of designer Walter Schupbach was to produce a single speaker that reproduced a full-sized "stereo" image. How it attempts to achieve this is not exactly clear from the supplied literature, and you will see that I felt it did not exactly achieve this goal. But for non-audiophiles who want a "big," spacious sound with the minimum of space taken up in their living room, the Duetto, which can be ceiling-mounted above a large-screen TV monitor or projection TV, will, I am sure, be very popular. Expect to see it in the *Sharper Image* catalog real soon.



**Revox's two-channel, single enclosure Stereolith speaker**

Back in the land of audiophile speakers, **Martin-Logan** announced new versions of their CLS and Sequel electrostatics. The \$2925/pair CLS Series II features an improved amplifier interface, with a better transformer, which, in conjunction with an increased excursion ability for the membrane, results in 2dB increased sensitivity, 2dB more power handling, and about a third of an octave lower bass extension, with a lower Q. In addition, the Series II speaker has a "soft contour" switch, which shelves down the response between 2kHz and 20kHz to allow for some flexibility in matching other components in the system.

# Quattro II... Numbers that count.

The STAX CDP Quattro II is hardly the sole 18-bit, 8-times-over-sampling compact disc player on the market. What makes it preferable to the others?

Readers of this publication can no doubt recall that the most demanding listeners found earlier 14-bit and 16-bit designs notably deficient in the retrieval of low-level details, particularly those conveying the ambience of the recording site. As maker of the world's most revealing headphones, STAX has demonstrated an understanding of the nuances of recorded sound that, culminating in the unequalled SR-Lambda Signature, uniquely qualifies this company to extract more information from the compact disc medium.

The heart of the Quattro II is its 2 ladder-network-type 18-bit D/A converters, externally bit-trimmed for full accuracy and low-level linearity—one per channel, to prevent phase differences between left and right signals. The most obvious virtue of the 8-times-oversampling approach is that the filtering of the digital output can be kept simple, resulting in a treble as precisely detailed as it is lacking in so-called digital asperity. Similarly, the down-to-DC bass response delivers the performance the digital format has always promised.

Other niceties abound. The master clock, the base timer of digital data reconstruction and D/A conversion, is run from an isolated power supply to avoid timing glitter. This clock generator is not located in the player section, permitting a jitter-free resampling (D/A) timing pulse to be fed directly to the DAC sample-and-hold I-V converter. The fixed direct output proceeds immediately from this I-V point—no DC-cut capacitor or DC-nulling feedback servo.

Digital audio is, simply put, numbers into music. Whatever compact disc you choose, the STAX Quattro II allows those numbers to count for more—more information, more detail, to move you closer to the original musical experience.



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Pictured: CDP Quattro II high-resolution compact disc player. Photo: Ken Fabrick.  
For a full-line brochure, please send \$5.00 to:  
Stax Kogyo, Inc. 940 E. Dominguez St., Carson, CA 90746

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**STAX**<sup>®</sup>

(The original CLS I found to be very demanding on the rest of the system if the overall balance was not to become too forward in the treble.) The Series II Sequel has appeared with almost indecent haste after the original model—Lewis Lipnick's review for *Stereophile* only appeared last December—but designer Gayle Sanders felt the changes important enough to be implemented right away. The dynamic woofer now has a sealed-box alignment, to give better time-domain performance, while the speaker is supplied in bi-wirable form. A bass control has been added to allow tailoring of the woofer output to better interface with the listener's room, and the EHT supply has been made "stiffer" so that fluctuation in the line voltage up to  $\pm 15\%$  will have no effect. This has been achieved with only a \$100 increase in the price of the speaker, to \$2300.

And the Statement, Martin-Logan's \$40,000 statement in speaker design? Gayle informed me that they are in production, with the first system due to ship in January. We are keeping our fingers crossed that *Stereophile* readers will be able to hear the Statement, along with the Wilson WHOW and the Infinity IRS V, at our show next month in San Francisco.

With one exception, Japanese manufacturers were quiet about DAT. The exception, however, made enough noise for all, for it was Nakamichi launching what was both their first consumer R-DAT recorder and the first to be officially sold in the US despite the threats of lawsuits by the RIAA. Indeed, Nakamichi seem almost to be courting litigation as, contrary to the "gentleman's agreement" among DAT manufacturers that consumer machines would not be able to record digitally at 44.1kHz, the CD sampling frequency, the new Nakamichi 1000<sup>11</sup> will record directly from a CD player's

digital output. If the CD has its copy-protect flag set, a front-panel LED lights to show that that is the case, but the Nakamichi continues to record. In fact, the only thing it will not do at present is to record from an analog source at 44.1kHz, which seems to me to be a strange omission: the ability to prepare a master tape for CD production without going through any kind of sampling-frequency convertor would seem to be an obvious task for a DAT recorder.

Will the RIAA sue on the grounds that sales of the Nakamichi 1000 will represent lost sales of LPs and CDs due to teenagers copying them on to DAT tapes? Well, they could try, I'm sure, but as this beautifully made two-box Nakamichi is to be priced at \$10,000 (\$4600 for the self-calibrating 16-bit A/D and 20-bit D/A digital processor, \$5400 for the remote control and transport, which features Nakamichi's proprietary "F.A.S.T." tape-loading mechanism), it is hard to see that the RIAA will have a case. And if the RIAA doesn't sue, then surely a precedent for sales of consumer R-DAT machines in the US will have been set if they do decide to take legal action when some other manufacturer introduces a \$1000 machine.

Finally: the show marked the 50th anniversary of television in the USA and **Monster Cable's** 10th anniversary. Monster celebrated the occasion by launching their most expensive cables yet, the M.Sigma Series M2000 interconnect which, complete with Monster's Turbine Connectors, is priced at \$750 for a 1m pair, and M.Sigma Series M2 speaker cable, again priced at \$750 but this for an 8' pair. (The original Monster Cable sold for \$0.65/ft back in 1979.)

—John Atkinson

<sup>11</sup> Yes, the coincidence between the model number and that of the original Nakamichi state-of-the-art analog cassette machine of about 15 years ago is intentional.



Nakamichi's desirable Model 1000 R-DAT transport and digital processor

# WHY IT TAKES A 20-BIT CD PLAYER TO APPROACH TRUE 16-BIT LINEARITY.

If human ingenuity could build the perfect 16-bit digital-to-analog converter, there would be no need for Denon's new 20-bit approach to building CD Players. Unfortunately, 16-bit players have always been susceptible to distortion-inducing non-linearities and quantization errors. This means they can't maintain accurate spacing between all of the 65,536 amplitude levels available from the 16-bit samples of the Compact Disc.

Enter Denon's "Delta" system. It combines the world's first 20-bit 8x resampling digital filter with the first true 20-bit linear converters to process each 16-bit sample to four additional digits of accuracy. (That's something like using 3.141593 as the value of "pi" when everyone else uses 3.14.)

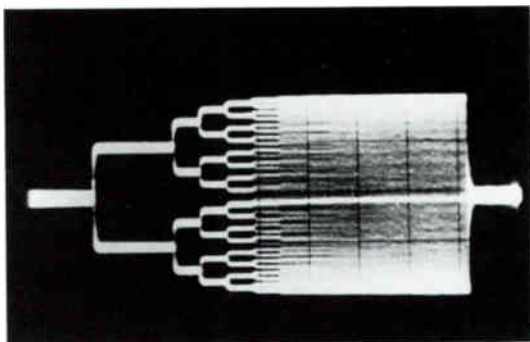


*DCD-3520 Compact Disc Player*

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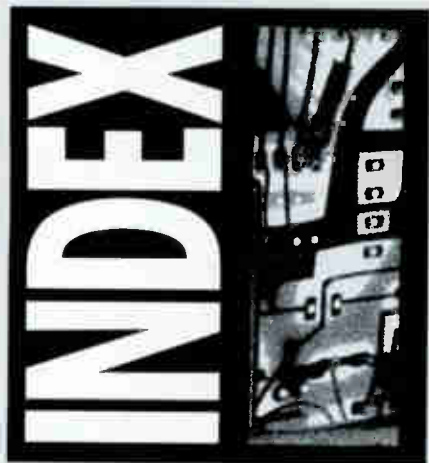


*This oscilloscope trace confirms the even spacing of amplitude levels in Denon's 20-bit system.*

This is no mere computational trick: Denon 20-bit CD Players literally extract more music from the Compact Disc. They exhibit better dynamic range, lower noise, and lower distortion during quiet passages. In the process, Denon 20-bit machines reveal more of the low-level detail that defines musical timbre. On well-recorded CDs, you'll hear more of what makes a french horn sound like a french horn.

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# PURE GOLD

## Alvin Gold

Some months ago, one of the mainstream British hi-fi magazines published an editorial explaining why they would no longer publish group reviews of turntables. The magazine concerned was *New Hi-Fi Sound*, whose format includes a group test of 8 or 10 products of one type each month. Their reason for dropping record players wasn't any perceived inadequacy—they still produce tests of cassette decks—but the increasing difficulty in putting together sufficiently large groups of black-vinyl record-playing roundabouts. By their reckoning, the situation has passed the point of diminishing returns. That's the wrong phrase, but you know what I mean.

Nevertheless, and with a certain amount of difficulty, a group of some 25 or so assorted new, revised, or previously ignored record players, arms, and suchlike were assembled for a test I was responsible for, and we only just missed several additional models. I found this wholly remarkable, and not a little pleasing. Almost in the very month that PolyGram announces that classical LP production on the famous Deutsche Grammophon label is to cease, we have as catholic a selection of new and exciting record-playing components as I have seen in half a decade or more. So someone has done his or her sums wrong. There were important models at all price levels, designed to appeal to the audiophile or to the more general user (in rare and welcome cases, both), and there were also the Well-Tempered Turntable and Arm. Yes, we had all sorts here.

One of the stars, if only because the company's outstanding success with their first product is bound to excite close attention to anything they do, came from the outfit whose first product was the oddly named Xerxes turntable, a resounding success that has not been matched by their second product, the Darius loudspeaker. The burning question of the moment is whether their tonearm continues in the tradition of innovation in the service of art that Roksan achieved with the Xerxes itself. In this country, the Xerxes is now the clear number two, outselling all other expensive turntables as convincingly as it remains outsold by the eternal Linn Sondek itself.

Roksan keeps its reputation, at least so far as product names are concerned. Artimez, indeed! What does it sound like to you? An Olympian god? A watery Australian beer? No, with a name like that, it has to be the real thing.

With the number of new arms being released down to a trickle (launches never were two a penny, but they're fewer and farther between now), most are concentrated at the budget end of the market, or go straight for the top end. This reflects their respective manufacturers' desires to make enough of a living either by selling lots of arms, or by selling relatively few with good margins. But Roksan, as usual, is doing things their way: the Artimez is aimed squarely at the unglamorous and competitive middle market area.

The Artimez is a simplified version (ha) of an arm—the ultimate Roksan arm—yet to come. That model, due for release this year, is to be called the Cambyses, and will offer a more sophisticated version of the Artimez bearings and a more user-friendly arm-cueing device. How the latter is to be achieved isn't clear.

As befits the progeny of a young, vigorous, design-oriented outfit like Roksan, the Artimez is a showcase for new thinking. As befits the popular image of the technical press, floundering around in a technological pea soup and saddled with the stereotyped role (I always thought stereotypes suited hi-fi reviewers particularly well) of disseminating rationalist obfuscation, I don't intend to get too heavy on this one. The ideas behind the design can't be ignored, though. The front of the arm consists of a wide-diameter armtube with the headshell press-formed from the collapsed end of the tube, the novel features here being the forging process and the strength of the headshell contributed by the two thicknesses (2mm) of metal involved.

The other end of the arm I find harder to come to grips with. There are some important plus points, for example the low center of gravity of the counterweight section (I'll have more to say on this shortly), and the placing of the vertical bearings in the horizontal plane of the record, reducing the lifting effect of the arm over warps and stuff like that.

What's really unusual, however, is the way

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the counterweight is coupled to the arm. More correctly, I should say decoupled, as it is hung from a unipivot bearing which bears into a cone-shaped depression in a carrier which can be positioned anywhere along the length of the arm rear extension. The idea is to reduce inertia at the stylus tip during maximum arm acceleration. As the arm moves sideways, the counterweight is moved through a lateral arc, but in the first place at least it doesn't rotate around the arm pivot point, though it tends to catch up over an interval too long to be relevant to our argument. The same principle operates in the vertical plane.

At worst, the idea seems unobjectionable, and indeed provides a degree of decoupling without damping that might be welcomed. The Artimez arm does provide low effective mass, but there is a problem in that tracking force varies with vertical orientation, which shunts the counterweight toward or away from the arm pivot. The effect, which cannot be desirable, is to modulate tracking force according to vertical orientation. As the arm rides the crest of a warp, tracking force is at a minimum. It would have been better the other way. I must also question the design of the bearings. The bias mechanism is odd, too, but not damagingly so; we'll pass it by.

My arm sample was an early one, suffering what I hope are only teething problems: to wit, bearings that, according to their state of adjustment, were either too tight or too slack and which always seemed a mite notchy. Engineers in other companies who are enthusiastic about other aspects of the arm (the armtube/headshell receives the most consistent praise) regard the lack of bearing behavior as inherent. I'll suspend judgment. They did, after all, get a very complex bearing design spectacularly right in the case of the Xerxes itself.

If the design appears to be kind of half cocked, the sound is rather better than that description implies—between  $\frac{3}{4}$  and  $\frac{7}{8}$ , I'd say. The design lacks the "Linn bloom," and has a Rega-like homogeneity in the midband allied to a level of in-depth resolution that is quite special, matching almost anything on the market. Bass slam is excellent, but not at the expense of tunefulness, separation, or control.

Only two features prevent the Artimez from attaining top-level ranking. Treble quality isn't quite right. This lack of rightness is consistent with excitability in the armtube, where the

bearings do not tether the tube at one end properly, and it makes itself felt by adding an edge of excitability to treble reproduction. This seems to add to the apparent clarity of the design, but it's a false clarity which superimposes an unvaryingly steely quality on the music, and which results in a loss of stereo image specificity.

My feeling is that the design is inherently highly talented, but it stands to benefit from the settling-in process that will almost certainly occur as production continues. The price is attractive, however, at least in the UK. It costs £350.

Given CD and all that, Roksan may reasonably have expected to have had a clear run with the introduction of their arm, but it wasn't to be. The heavyweight arm introduction of the year, of course, is the Linn Ekos. Visually almost identical to the Ittok, it is a triumph of the artisan, being essentially bankrupt of new thinking, especially when measured against the Artimez. Instead, it could be seen as the triumph of evolution over revolution. But it *is* a triumph.

The arm is not the same as the Ittok because almost all the components are different. I think only the bias force dial—incidentally, the only item now made in Japan—is carried over from the old model. The differences extend to the materials, interfaces, and manufacturing processes involved, but other than that the two arms look pretty similar. The Ekos has a black finish, while the Ittok is covered in bright metal, *au naturel* as it were. Paradoxically it looks much more expensive that way. There have even been black Ittoks, which must be almost totally indistinguishable from the Ekos. In such cases you'll have to look at the armrest. The Ekos armrest is built into the base structure, bringing the arm into line with virtually all other arms and thus simplifying installation.

Armrest apart, the differences between the two Linn arms are small but vital, in engineering terms and in performance. But these differences make the arm considerably more expensive. The armtube, of a new and harder alloy, instead of being screwed *and* glued at each end, is secured by just a high-tech glue, a much more elegant solution that avoids deforming and stressing the components. Linn claims this joint is functionally identical to a one-piece armtube. Who am I to argue?

The armtube and headshell are made from new ultra-hard alloys, and the bearing hous-

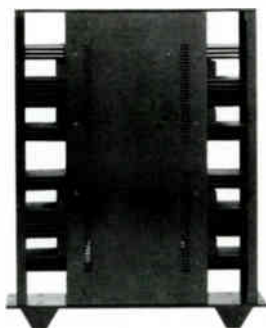
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ing is machined from solid instead of being cast *à la* Ittok, which enables a much harder alloy to be used. A similar story applies at the headshell end. The bearings are made to 1  $\mu$ m tolerances. Linn says that this is as good as can be achieved in practice, and even then only by selection since 4  $\mu$ m is the best that can be ensured for individual machining operations.

I confess (without prejudice) that I was startled to discover that this is precisely the tolerance level Rega claims to achieve routinely with their £90 arm, the RB300 (incidentally, the component Rega claims is their most profitable). Rega also says they could make the Ekos cheaper than they could make the Ittok, but they don't, and words are cheap, *n'est-ce pas?*

What else has Linn done? They've changed the output plug, which is metal and reshaped for strength, an apparently minor change that Linn says had a surprisingly large audible effect. The cable can be retrofitted to other Linn arms too, but note that the wiring (as opposed to the plug) remains identical. Finally, arm cueing is damped in both directions to reduce resonances from this source. This makes it a pig to handle when lifting the arm from a suspended turntable, but practice makes perfect. Or not, depending.

The new Linn arm is expensive, but if justification can be provided by the way the arm behaves, then there can be no complaints. I confess to finding the price—a little over twice that of the Ittok—hard to swallow unless Linn really intends making the arm in very small quantities. Rightly or wrongly, I perceive the SME Series V as a lot more expensive to build, even if it doesn't necessarily show any resulting musical advantage. When questioned on these matters, Linn pointed out that on a scale of hardness known as the ABEX scale, their bearing rated 7 against 5 for the SME V, and 0 (would you believe) for the Ittok. But I don't know if this means anything except that they're interested in what SME is doing. That's significant, I suppose.

Summarizing, the Ekos is all about building an Ittok-like arm much, much stronger, but offering all the old advantages including the practicality and lack of temperament for which the Ittok was justly renowned. The Ekos also has the third mounting hole demanded by the Troika, and it was with that cartridge, and both Linn and Pink Triangle turntables, that I did most of my listening.

The new arm successfully addresses just those areas where the Ittok was at its weakest, and make no mistake: it is a very impressive machine. The most striking advances apparent in the new arm are much more consistent and explicit stereo imagery, and a sweeter, more lucid presentation. Consistency is at the root of these things, and ties in with what can best be described as an "on rails" quality when playing music, which had much of the poise and strength exemplified by the Airtangent, though the two are hardly comparable in any other respect.

Except this one: The Ekos is capable of one rather remarkable feat that is bettered by very few arms, of which the Airtangent is perhaps preeminent. It reproduces a coherent and believable soundstage right down into the darkest recesses of the bass. By contrast, the Ittok foundered here, with stereo images largely mono'd at the lowest frequencies. The Ekos was, in any case, sharper and leaner through the bass, which made it sometimes less obvious, but considerably meaner and more potent when something came along to stir it into life. It excelled on orchestral bass and cellos and—most strikingly of all—the soft ambient cues that define an acoustic space. It's easy to see where the stereo ability springs from.

The Ittok is also a mite coarse by the finest standards, and here, too, the Ekos shows considerably greater capabilities. Though less obvious than the Ittok, it has greater subtlety and range, a greater ability to show light and dark, piano and forte. The Ekos follows the music better and imposes less of itself in the process. In short, it is one of the finest arms available, a comment especially true of pivoted arms. This is one Linn product of which I have no complaints, other than that it isn't cheap enough that everyone could have one. **S**



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## THETA DS Pre D/A PREAMPLIFIER

Lewis Lipnick



Theta DSPre D/A preamplifier

Digital signal processor/preamplifier. Dimensions: 19" W x 15" D x 3.75" H. Weight: 29 lbs. Price: \$4000 (\$3200 without control center). Approximate number of dealers: 40. Manufacturer: Theta Digital Corporation, 6360 Van Nuys Blvd., Suite 5, Van Nuys, CA 91401. Tel: (714) 997-8908.

When I first set foot in the McCormick Hotel at the 1988 Summer CES, a lot of the hot gossip appeared to be centered around Theta Digital's DS Pre. Even people I ran into who had previously shown their distaste for anything digital were foaming at the mouth about how musical and "analog"-sounding this product was. It is not, of course, possible to really judge anything at a CES. But my initial two encounters with the DS Pre at the show<sup>1</sup> confirmed the general consensus: this product is something special, and may well be considered a milestone in the further refinement of digital audio reproduction. I know the skeptics in the reading audience are probably thinking about turning to another review, reaffirming their automatic bias against anything non-analog. And I readily admit that I have been one of the enemy, since I actually use CDs as source material in my equipment reviews. Horrors. But before you damn the DS Pre, yours truly, and digital audio in general, I suggest you read the following review, and take a listen to a product that just might make you think twice.

### Technical highlights

The DS Pre is a signal-processing control unit

<sup>1</sup> In Rowland Research's suite in conjunction with C-1 pre-amp, Model 7 amplifier, and Avalon loudspeakers. Also, of course, in the Theta Digital Suite with an Audio Research D-125 amp and Thiel speakers. Marantz CD-94 players were being used for digital source material in both cases.

for all digital audio components having a standard serial digital output, including CD, DAT, Digital Laser Video, *et al.* It can be used as a line-level preamp (no phono section is included), or in conjunction with an existing pre-amp, its active volume and balance controls capable of being bypassed. There are two inputs for digital source material, as well as one digital tape monitor circuit access located on the rear panel, served by standard RCA jacks (this product is electronically, not optically, coupled with source material). A novel "thru-put" analog input allows addition of an upstream preamp, or any other line-level source (tape, tuner, etc.). Analog output (fixed or variable) is also fed through standard female RCA jacks. The front panel has eight toggle switches similar to those used by Audio Research: four serve the digital domain (input selector, tape monitor, channel reverse, absolute phase reverse), and four control power, mute function, upstream thru-put signal bypass, and fixed or variable volume. There's a large volume control on the far right of the faceplate, adjacent to the left- and right-channel balance trim pots. There are also two red indicator lamps placed in line with the front switch array: one for power, the other to confirm digital source connection. The review unit in my listening room is entirely finished in black, except for the gold-plated Theta logo located on the front left of the faceplate.



In my discussions with Neil Sinclair and Mike Moffat, the two founders of Theta Digital, it was clear that their philosophy follows a clear divergence from accepted past practice in digital audio design. Rather than looking for new methods to cover up the sins of imperfect digital-to-analog conversion, as has been pretty much SOP so far, they have decided to take the bull by the horns and build a product that gets the conversion right in the first place. They claim that this will allow the listener to hear all of the musical harmonic textures and detail, without the "warm, sweet, but blurred" colorations required to make most digital material palatable. I'm not so sure that this design goal is entirely original, but the DS Pre appears to be the most successful attempt that I have heard so far.<sup>2</sup>

The DS Pre uses nonswitching, 8x-oversampling digital filtration and conversion, followed by a 6dB/octave, single-pole low-pass analog filter, with less than 3° of phase shift in the audio band. It also incorporates seven separate power supplies, in order to insure "that current draw in one area won't compromise performance in another." Mike Moffat claims that the DS Pre is the first digital audio component to use a digital filter with a proprietary composite algorithm which optimizes for time domain, group delay, transient ability, and frequency response. According to him, all other designs use a single-purpose filter chip optimizing only for the latter. He also claims that the Theta-designed filter, which appears to use a DSP chip per channel, each served by two ROMs (Read-Only Memories) to hold its coefficients, has a tenfold increase in computing power over all others. The DS Pre is capable of 80 million computations per second, reserved, I am told, mostly for phase and time error correction.<sup>3</sup>

But perhaps the most revolutionary feature of the DS Pre is the fact that its digital filters are programmable, allowing the owner to easily upgrade the unit in the field as software becomes available from the manufacturer. Changing the filter is easily done (if I can do it without screwing up, it *must* be easy): simply

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2 I have not yet had the opportunity to audition the Wadia digital processor, which appears to be the Theta's only serious competition.

3 The Wadia is capable of 72 million computations per second, used mostly, I believe, to implement its 64x oversampling digital filter.

remove the cover, pull out the four ROMs, and replace them with the upgrades. The idea of variable software programmability is a stroke of genius; rather than having to send a product back to the manufacturer for upgrades (we all know about those hassles), the owner will be able to totally change the sonic characteristics in ten minutes. Tweakers will love it—rather than having to deal with VTA, they can play with interchangeable ROMs.<sup>4</sup>

The DS Pre is built like a tank. In order to prevent external digital interference, the chassis is composed of solid steel, plated first with copper, then with zinc. Internal layout of components is neatly done, with the four ROMs easily accessible on the main board. The unit is supplied with one Straight Wire Videolink cable, to access digital source material.<sup>5</sup> Output from my review sample was single-ended only. By the time you read this, the DS Pro (digital section without preamplifier capabilities) will probably be available in both single-ended and balanced configurations. Costs of the DS Pro, at press time, are slated to be set at \$3200 (single-ended) and \$4000 (balanced).

## System setup

I plugged the DS Pre into my present reference system, which consists of a Mark Levinson No.26 preamp, No.23 power amplifier, and B&W Matrix 801 Series Two Monitors. The DS Pre was auditioned as a control preamp directly into the No.23 (in single-ended mode), bypassing the No.26, and as a fixed-level digital processor into the No.26's line-level input. In this configuration, connection between preamp and power amp was auditioned in both single-ended and balanced modes. CD players used included a Rotel 820BX2, Philips CD880, and two different Adcom GCD-575s.<sup>6</sup> Interconnect between all components consisted of Madrigal HPC, and Audioquest's LiveWire Emerald and Lapis. Speaker cable was LiveWire Clear in bi-wired configuration.

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4 Neil sent me an extra set of ROMs to play with that extend the bandpass to 21.6kHz (20kHz is standard). Although the new filter produced a slightly more open quality of sound, it injected a noticeably hard, glassy sheen to the upper midrange.

5 Since digital source material has a bandwidth of between 2.2 and 3.0MHz, Theta claims that choice of cable is critical. I agree. I auditioned several interlinks, and also found the supplied Straight Wire Videolink to sound best.

6 The first Adcom GCD-575 began exhibiting sonic problems a few months after adding it to my system. It was replaced with a properly operating duplicate about six weeks ago.

## Musical & Sonic Impressions

My first impressions of the DS Pre were not so good. From the beginning, I was bothered by a rather loud "ticking" noise, occurring at sometimes regular (every five seconds), sometimes irregular intervals. Although Neil was at a loss to explain the origin of the problem, he suggested that it could be due to a poor digital source connection caused by the smaller-than-standard Cardas RCA jacks used on the early production units, and that crimping the outer portion of the male connector might help. This made some difference, although I was still plagued with sporadic ticking.<sup>7</sup> Neil asked me to sit tight until they could duplicate this phenomenon at their lab, which dropped rather a large fly in the journalistic ointment.

At about this time, John Atkinson came through town, which coincided nicely with a meeting of our listening group of musicians from the National Symphony. Although the evening wasn't altogether a lost cause,<sup>8</sup> the general consensus followed the lines of "that damn ticking is so distracting, I really can't make any determinations." (Murphy's Law always seems to strike at the worst possible time.) Two weeks later, Neil informed me that they had seen two other similar problems in the field with the DS Pre, and had narrowed the fault down to high-frequency RF interference. It hadn't dawned on me, but since my listening room is located about one mile from the Pentagon, with all of its microwave and security transmissions, the possibility of RF made a lot of sense. The next day, I had a new DS Pre with an RF blocking filter in place, and a case of sonic apples and oranges.<sup>9</sup> Not only was that irritating ticking gone, but the sound was so much more musically involving and realistic. Deeper soundstage, better bass extension, more transparent, less brittle and bright, and, last but not least, a sense of clarity I had never before heard from anything other than master tapes. Finally, I could do some serious listening.

In my system, the DS Pre definitely does better when fed through the No.26 preamp (balanced or single-ended between pre- and

power amps). Although the Theta seems particularly immune to cable interactions (output impedance is 2 ohms!), it did seem to lose a significant amount of openness, musical finesse, and overall clarity when routed directly into the No.23 power amp. When I tried the same thing with an Adcom GFP-555 preamplifier, however, the tables were turned: the sound became congested, opaque, and grainy with the preamp in circuit. So it appears that the quality and transparency of the downstream preamp are of utmost importance in this case. After spending several hours trying the DS Pre in both configurations, I decided to do all listening for this review with the No.26 in line, using a balanced connection to the No.23. The DS Pre also appears to benefit from use of an Adcom ACE-515 Power Enhancer. Insertion of this AC filtration device significantly improved overall clarity by removing a slight (and I do mean slight) "mist" covering the sound.

Next, I decided to do comparative listening using all three source CD players (Adcom, Rotel, and Philips). One would assume that digital information originating from different CD players would be identical, right? Wrong! While the Rotel and Philips machines sounded pretty much alike (the Philips winning by a small but discernible margin), the Adcom was a different story altogether. In comparison with the other two, the Adcom sounded dull, tubby, lacked transient definition, masked ambient information the others retrieved, and produced a more distant perspective. So the theory that it doesn't make any difference what type of digital source is used with outboard D/A converters just got blown out of the water. It has been suggested to me by people with more knowledge than I of digital theory that flawed error correction in this sample of the Adcom could be the cause of the sonic difference. Perhaps. Whether this is the case or not, I would advise anyone interested in purchasing a DS Pre to audition different CD Players with the Theta before making any final decisions. For purposes of this review, almost all listening was done with the Philips CD880 in line. I also auditioned all three source players without the DS Pre. Not bad, but no cigar.

Four grand is a whole lot of money for something that is basically already included in most digital source hardware, so naturally one might well ask if the DS Pre really gives that much sonic improvement. I would have to say yes,

<sup>7</sup> The mystery was compounded by the fact that the Adcom GCD-575 seemed to produce much more of the irritating ticking than the Rotel or Philips.

<sup>8</sup> In spite of this, we all had a good time playing records, discussing music, and generally raising hell.

<sup>9</sup> Theta has informed me that they are including the RF blocking filter in all current production units.

although one of my musical colleagues felt that, while it does give some improvement, it just ain't worth that many bucks. His point is well taken . . . if you plan to use the DS Pre in a \$3000 system. But if you've invested significant time and money into obtaining the closest thing to the original (or, some would say, absolute) sound, then it's probably worth considering. Perhaps the best-value/performance ratio can be ascertained by comparing the DS Pre with one of the most respected and established CD players now available: the California Audio Labs Tempest II (\$3000 current retail price).

In comparison with the DS Pre, the Tempest II is both colored and artificial. Don't get me wrong. It's still a great-sounding product, and with the exception of the DS Pre, remains my favorite CD player by a wide margin. It's just that it is more of an editorializing "musical instrument" than the Theta. If you're one of those who prefers the euphonic characteristics of classic tube designs over neutrality, the CAL might come out on top. But in comparison with the Theta, it sounds hazy, indistinct, and defocused, almost as if one were listening through a gauze curtain. It's also more frequency-dependent in soundstaging (upper-midrange material being thrust slightly forward), and prone to bring everything closer to the listener as the volume increases. I had not really noticed these problems before, since a Tempest II had been part of my reference system for some time. When the CAL/Theta comparison was made, however, the latter sounded so much more open, clear, dynamic, grain-free, and naturally spacious. Perhaps the best description of the two would be (as Al Merz, one of my National Symphony colleagues so succinctly stated), "the CAL sounds like I'm standing offstage, in the wings, while the Theta opens the door, and places me in the hall."

One of the arguments against digital in general is the lack of natural three-dimensional space and ambience retrieval. Well, that argument just went out the window, because the Theta does what no digital source before had done for me: It recreates the natural space and soundstage present at the recording site as well as anything I have yet heard.<sup>10</sup> Front-to-back, lateral, and vertical dimensions are remarkably well reproduced, without exaggerating or

diminishing the sizes of the ensemble or of individual performers. Skeptics who feel that digital source material doesn't contain any natural spatial information should first listen to the Theta, then open their mouths.

Dynamically, the Theta is a bombshell. Both ends of the dynamic scale are accurately reproduced, without any change of harmonic coloration or soundstaging; something I have yet to hear from any other digital device (except for master tapes). As good as the Tempest II is, it simply cannot compete in this area. The problem isn't so much with the ultimate dynamic capabilities of the Tempest II; it doesn't lack guts. But it pales a little in comparison with the much more open and effortless Theta. Full orchestral climaxes with the DS Pre have that "live music punch" that'll blow you out of the room, assuming that your system can handle the task. (Mine sure can—the No.23 has never sounded so good; it's the first time I've heard commercial digital source material with natural dynamics, and this amp just loves it!) If you decide to audition the DS Pre, and like full orchestral sound, I strongly suggest that you take along the Chandos CD of Richard Strauss's *Alpine Symphony* (Neeme Järvi, Scottish National Orchestra, Chandos CD 8557) and the EMI Eminence recording of Vaughan Williams's *Job* (Vernon Handley, LPO, EMX 9506). Although they sound very good with the Tempest II, the Theta gives a whole new dimension to the word "transient."

While the DS Pre is not particularly sensitive to interconnects, I have found its lack of colorations and superb transparency to show up the strengths and weaknesses of different cables better than the more output-sensitive Tempest II. Our musicians' listening group auditioned complete systems (source/pre-amp/power amp) of Madrigal HPC and Live-Wire Lapis in double-blind tests, and unanimously preferred the Lapis. While we all felt that it brought the entire soundstage closer to the listener, it reproduced overall harmonic textures, delineated individual musical lines, and generally sounded more "real" than the HPC. While I'm not willing to unconditionally state that the Lapis will be a better cable than HPC in all instances (cables are much too system-dependent), it is definitely the more musically believable of the two in my system.

Perhaps the most intriguing aspect of the DS Pre is its ability to open up the sound, placing

<sup>10</sup> Using recordings in which I have been artistically involved, so as to be able to credibly compare original vs reproduced.

the listener at the microphone and unraveling complex musical material in a natural way, without sounding antiseptic. In some ways, it is very similar to the B&W 801 Series Two Matrix Monitor, a speaker I still feel to be just about the most musically accurate currently available. It doesn't take away or add, but merely passes an honest signal. The Theta may appear to produce a forward perspective in comparison with the Tempest II. But I believe it to be actually accurate in this respect, the CAL tending to exaggerate soundstage depth, creating a pleasant, but not necessarily accurate perspective. When auditioned head to head with the Theta, it also appears to be blur individual musical voices, covering up low-level harmonics, effectively placing a barrier between the performer and listener. At the same time, the DS Pre is not hard-sounding or brittle in any way. There are, of course, still some digital recordings that will cause earbleeds. But we all accept the theory about "garbage in, garbage out," don't we? Even with this in mind, I've been surprised at how much better most of my CDs sound with the DS Pre. No, it doesn't turn ammonia into ambrosia, but the highly refined sonic performance of this product brings so much more music to my ears. It's not a matter of covering up the imperfect, but rather a successful method of conveying what's already there.

## Shortcomings

There aren't any.

## Conclusions

For me, the Theta DS Pre is indeed a sound for sore ears. Although there are other products available which are certainly listenable, the DS Pre sets an entirely new standard of performance. No more colorations. No more artificially created euphonic sonic syrup to make the unlistenable more palatable. No more irritat-

ing digital haze and grit. I will admit that there are still problems to be addressed in digital audio, particularly in the original A/D conversion. But with the advent of the DS Pre, the nightmare of inadequate D/A conversion, with all of its attendant musical aberrations, can finally be put to rest. Aside from retrieving what is, in my opinion, the best sound ever from CD, the DS Pre offers so much more flexibility than dedicated products such as the CAL Tempest II. Whether or not you subscribe to the validity of digital sound reproduction, or even if you're not in the market for a new audio toy, the DS Pre should be at the top of your component audition list. I would suggest, however, that you check your bank balance on the way to your local Theta dealer. It just might come in handy.

## Postscript: JA

Lewis sent me the first sample of the DS Pre, the one that ticked,<sup>11</sup> so that I could compare it with the Accuphase CD player reviewed elsewhere in this issue, as well as carry out some basic measurements. Fig.1 shows the  $\frac{1}{3}$ -octave analyzed spectrum of the DS Pre's output when playing the dithered -90dB tone on the CBS CD-1 test disc. Apart from the intrinsic dither noise on the disc and the higher harmonics of the signal present between 10 and 20kHz, the waveform is commendably clean, as can be seen by the high level of the 1kHz band in the spectrum and the complete absence of any mains-related noise down to the -112dB measurement floor. The error in absolute level was one of the best I have measured, -90.31dB being reproduced as -91.5dB. To see how other top-rated CD players fare on this test, see both

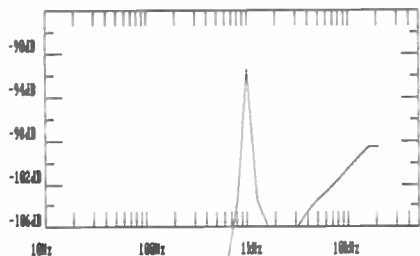


Fig.1 Theta DS Pre: 1kHz tone at -90.31dB with noise and spurs

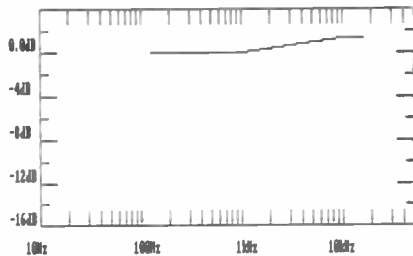


Fig.2 Theta DS Pre: De-emphasis error, first sample

<sup>11</sup> It did tick slightly in Santa Fe, but only on its Digital Input One. All the measurements and listening to this sample were done with Digital Input Two. —JA

"Follow-up" and my review of the Accuphase in this issue, as well as the "Follow-up" section in my review of the Arcam Black Box in the February issue (p.95).

The basic frequency response of the Theta was commendably flat between 10Hz and 20kHz, without any ripples in the top audio octave. The Santa Fe sample, however, evinced a response error when playing pre-emphasized discs, the processor applying an inadequate amount of de-emphasis. Fig.2 shows the error

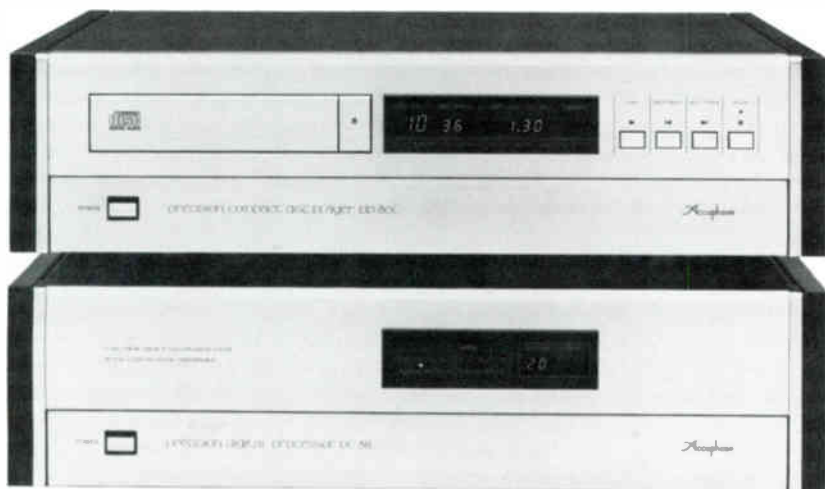
plotted against frequency, which reaches a maximum of +1.4dB at 10kHz with respect to the level at 1kHz. This will certainly be audible as a slightly "thin-sounding" character with pre-emphasized discs. To judge by Lewis's remarks on the sound of the final sample of the Theta, I assume that this problem was corrected, but if you have an early Theta and its sound is inconsistently thin, then I suggest you contact your dealer about having it upgraded.

—John Atkinson

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## ACCUPHASE DP-80L CD PLAYER / DC-81L DIGITAL PROCESSOR

John Atkinson



Accuphase DP-80L/DC-81L CD player

Two-box remote-control CD player/processor connected by either optical or coaxial standard EIA serial data link. Unique processor features: 8x oversampling digital filter with discrete 20-bit DACs; de-emphasis operating in digital domain; remote-control level control operating in the digital domain, offering 0–40dB attenuation in 1dB steps. Specifications: Frequency response: 4Hz–20kHz  $\pm 0.3$ dB. THD: 0.0016% (1kHz), 0.002% (20Hz–20kHz). S/N ratio: 120dB. Channel separation: 112dB. Maximum output voltage (DC-81L): 2.5V balanced/unbalanced. Output impedance (DC-81L): 25/25 ohms balanced (XLR sockets), 50 ohms unbalanced (RCA sockets). Dimensions: 18.75" (475mm) W by 5 $\frac{3}{8}$ " (135mm) H by 14.75" (373mm) D (both). Weight: 33.1 lbs (DP-80L), 35.1 lbs (DC-81L). Approximate number of dealers: 50. Price: \$13,000 (DP-80L: \$4750, DC-81L: \$8250). Manufacturer: Accuphase Laboratory Inc., Japan. Distributor: Madrigal Ltd., PO Box 781, Middletown, CT 06457. Tel: (203) 346-0896.

### Prologue

\$13,000! You could buy two Hyundai Excels for that kind of money. Or one 5-liter Ford Mustang. Or two-thirds of a Saab 900 Turbo. How

could the purchase of this Accuphase two-box CD player be justified on any rational grounds? What if it *did* offer state-of-the-art sound quality? Would it really be 50 times better than a

humble Magnavox? Would it even be 4.3 times better than the California Audio Labs Tempest II? And would it approach the sound quality routinely offered from LP by the similarly priced Versa Dynamics 2.0 turntable?

Before turning to the answers to those questions, let me tell you a tale. A friend of mine back in the UK finally gave into temptation a couple of years back and bought a Ferrari. It wasn't new, of course, but it was a beautiful car, Pininfarina-designed; I suppose you could call it a two-door sedan, to distinguish it from the hairier mid-engined Maranello machines. A year or so back, when I was visiting the old country, my friend was taking my wife and I for a spin in his dream car and asked if I would like to take a turn behind the wheel of the beast.

Would I? What would you have said?

Actually, I felt equivocal: bending the bodywork of one's friend's Ferrari is a surefire way of terminating that friendship! But drive it I did. Yes, you could buy a lot of Hyundai Excels for the price of such a car, even quite a few Mustangs. And an Excel will certainly get you to the same place via the same roads as will a Ferrari. But I am here to say that it is *not* the same experience. You may *drive* ordinary cars; with a thoroughbred like that Ferrari, driver and car take on a symbiotic relationship, the tires becoming the extension of your nerve endings. The car both is responsive to your wishes and feeds back all you need to know about the road and your relationship with it; it is almost as if you need only think about what line you want the car to take, and the deed is done! That Ferrari redefined my attitude to driving. No, I will never be able to afford one myself, but I am glad to know that it exists.

The only possible justification for high price, therefore, is that you get more, not only than you expected but also than you knew *existed*. That is the only standard by which to judge human artifacts designed without compromise, and it was only with that finally clear in my

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1 That Ferrari is the only car I have ever driven that actually felt more secure on the road above 100mph than below. (At double-nickel speeds, you're not giving the tiger anything on which to chew.) This is assuming that the roads are empty, of course. A lasting conclusion from my experience with this car was that the English roads are not good enough for it, even the freeways being too crowded to allow it room to breathe. But on the empty roads within the body of France, or on those in the USA's desert Southwest—long straightaways, interesting curves, and *no* traffic—driving such a car to its limits, or at least to the driver's, must be the nearest thing to winning Wimbledon, beating Alain Prost for the checkered flag at the Monaco Grand Prix, and having your first symphony premiered by the Chicago Symphony all in the same year.

mind that I addressed myself to the subject of this review.

### Technical highlights

The Accuphase DP-80L CD player and DC-81L digital processor are refined versions of the original DP-80 and DC-81 that I reviewed for *Stereophile* in Vol.10 No.6. That \$8000 player featured a 2x-oversampling digital filter and discrete 16-bit DACs and had what was then the most accessible CD sound that I had heard. Even that well-known digiphobe Larry Archibald was moved to praise its sound. It didn't quite approach the resolving power of the original Stax Quattro, however, which was, in those far-off days—September 1987—the champ when it came to the retrieval of detail.

Identically styled and sized to the original '80/'81 combination, with champagne-gold front panels and highly lacquered persimmon wood endchecks, the new units are very different under the skin. The player is based on a die-cast aluminum chassis and now has a sprung transport, compared with the original's unsprung unit, and is capable of playing 3" discs. A hinged panel conceals all function buttons, apart from Play, Track Search (Back/Forward), and Pause. All the functions, including Open/Close, are duplicated on the supplied infrared remote control. The power supply is hefty, based on a large toroidal transformer at the unit's rear, and includes a line filter on the mains input. A single large printed circuit board carries all the circuitry responsible for controlling the disc motor and linear-drive laser sled, for extracting and demodulating the data from the disc, and for presenting it in the EIA-standard, multiplexed, two-channel serial format to the output sockets. (Two optical outputs are provided, as well as a 75 ohm coaxial output.) Sony LSIs handle the servo control and digital processing tasks, and two 8-bit microprocessors are used, one each for mechanism control and for display/control key handling, with a single master clock used throughout the player. A discrete red LED numeric display indicates play, track/index number, and time, though, as with the display on the processor unit, this is a little too discreet, being hard to read from the other side of a sunlit room.

The equally massive DC-81L features separate toroidal transformers for the digital and analog sections, again with intrinsic mains supply filtering. A hinged flap on the front panel

conceals digital source select and level up/down buttons, these duplicated on the DP-80L's remote control. Red LEDs display which of the optical or coaxial inputs has been selected, the sampling frequency of the input signal, whether or not the input is pre-emphasized, and the amount of output attenuation selected, in dB down to -40dB. Four main printed circuit boards, in two layers, almost completely fill the unit's interior. On the bottom are the digital and power-supply boards, the latter carrying the rectification and filter circuitry to provide separate regulated 5V rails for the digital circuitry and left and right DACs; left and right regulated -37V rails for the DACs; independent regulated  $\pm 19V$  supplies for the left and right analog boards; and a 24V rail for the relays.

Fig. 1 shows a block diagram of the complete processor. The digital board takes the input datastream, identifies the sampling frequency, and automatically reconstitutes the correct clock frequency—32, 44.1, or 48kHz—using a phase-locked loop. Error correction is applied if necessary, and the data for left and right channels are separated and resampled by a digital filter operating at 352.8kHz. This is specified as giving 110dB attenuation between 24kHz and 328.7kHz, with less than 0.0001% ripple in the passband. The digital filter also

applies the appropriate de-emphasis (with an accuracy said to be  $\pm 0.001\text{dB}$ ) and adjusts the output level digitally. (This is done by multiplying the digital word representing the analog sample value by a coefficient selected by the volume up/down buttons. For example, to reduce the level by 20dB, each digital word would be multiplied by the coefficient 0.1.)

Whenever mathematical operations are carried out in the digital domain, the result is always a digital word with more bits than the original. This therefore has to be truncated somehow, and as simply chopping off the extra least significant bits reintroduces quantization noise, this must be done with some sophistication, rounding *off* rather than rounding up or down. The Accuphase therefore uses a noise-shaper circuit to accomplish this task, truncating the filter's internal words to 20 bits. The final stage on the digital board consists of two arrays of serial-to-parallel converters; the two sets of 20-bit-wide parallel datastreams, together with a "deglitch" signal per channel, are then taken via an edge connector to a mother board.

This, in turn, leads to the two analog boards, one per channel. These are shielded magnetically and electrically and each is also electrically isolated from the digital-processing board by 21 optoisolators—expensive, high-speed

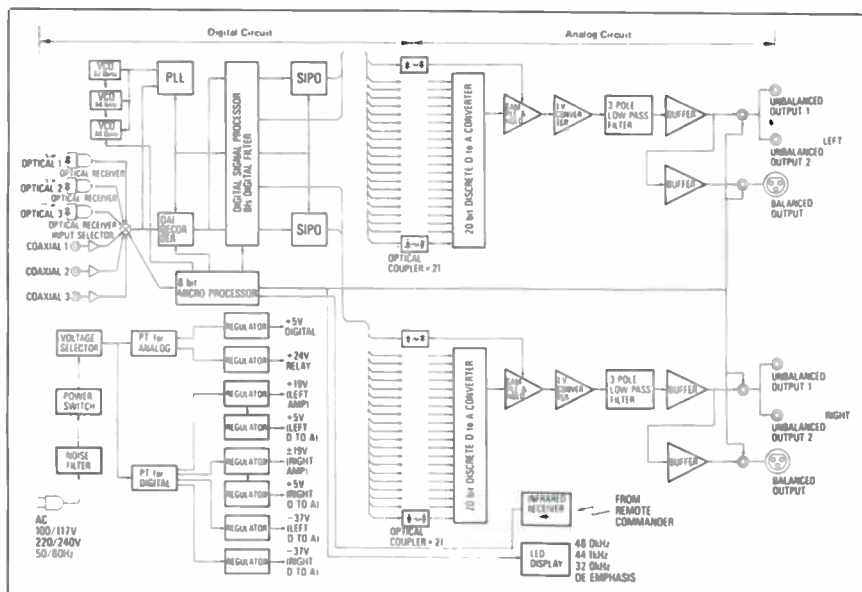


Fig. 1

Hewlett-Packard devices—one for each bit and one for the deglitch signal. Finally, we get to the heart of the system, the D/A converter which, as in the original DC-81, is a discrete current-multiplying device. The '81L's DAC, however, is a 20-bit device, which implies a resistor tolerance of an astonishing less-than-one-part-in 2<sup>19</sup>; *ie*, less than 0.00019% error! This, I suspect, is where a significant proportion of the DC-81L's cost lies—and how do you even *measure* that you have trimmed a resistor to that degree of accuracy unless you *already* have an accurate 20-bit A/D converter?

The deglitch signal controls a sample-and-hold circuit, followed by a current-to-voltage converter. The analog output voltage is then processed by an 18dB/octave Butterworth low-pass filter to rid it of the 352.8kHz sampling frequency components and their multiples, this based on a GIC (General Impedance Converter) circuit; separate unity-gain buffers, constructed from discrete transistors, provide balanced and unbalanced outputs from XLR and RCA sockets respectively. No DC-blocking capacitors are used, the output buffers featuring DC-servo circuitry.

All things considered, the Accuphase player is built to an outrageously high standard and will probably outlast its owner, as indeed it should at this price level.

### The Sound

You might well feel that the system in which the Accuphase was auditioned was a little unbalanced in that its total cost was less than that of the player. Yet it is capable of giving a considerable degree of *musical* pleasure with high-quality sources and I had every confidence that its resolving power would prove equal to the task set it. Celestion SL700 loudspeakers, sitting on their own spiked stands well away from room boundaries, are driven by a pair of VTL 100W Compact monoblock amplifiers (each sitting on a Mission Isoplat and plugged into one half of an Inouye power line conditioner). The speakers are bi-wired with Monster M1 speaker cable. The wall behind them is almost all covered, first with three layers of records, then with bookshelves up to the 9' ceiling. The speakers are sited along the longer wall of the slightly asymmetrical 20' by 16' room, and the sidewalls have bookcases strategically positioned where the primary reflection from the speakers would occur.

Three corners are fitted with Tubetraps, the floor is carpeted, and there is a minimum of flat featureless surfaces facing each other. The single listening chair is some 2.5m from the speakers, with the wall behind it alternating between picture window concealed by blinds and 16"-diameter Tubetraps, with a 2'-high planter running almost the full width.

My idea was to create a reasonably live room—I feel that totally dead rooms are not the ideal speaker environment—but with the furnishings and Tubetraps used to ensure that no one frequency band is too prominent.

All signals are routed through a Mod Squad Line Drive Deluxe AGT passive control center, with Audioquest LiveWire Lapis interconnects used between it and the CD players as well as to feed the power amplifiers. The Accuphase was therefore auditioned from its single-ended outputs, but from my experience with Mark Levinson amplification used in balanced mode, I suspect that using the Accuphase's balanced outputs will provide a slight improvement in overall transparency.

The Accuphase units come fitted with two-pin mains plugs that can be inserted into the wall socket either way around. Madrigal's Michael Wesley recommends feeling the enclosures for the level of very slight mechanical vibration and using the orientation which gives the lower level. I have to say that I could feel no difference either way, but this may be due to the fact that the mains waveform in this part of the country seems to be a good sine wave, with no distortion or DC offset apparent.

For comparison purposes, I used the first sample of the Theta DS Pre reviewed by Lewis Lipnick elsewhere in this issue and the Sony DAS-R1 digital processor, both driven from the Accuphase DP-80L transport's coaxial digital outputs. (The Sony transport had ceased to work except for intermittently while in transit from J. Gordon Holt's listening room, and as the DAS-R1 processor has a unique, twin-optical input, comparisons with the optically connected Sony system were not possible.) The DC-81L processor, however, *was* driven from the DP-80L's optical data output to allow easy A/B'ing. The final reference was a California Audio Labs Tempest II CD player, which offers a familiar, highly musical standard of CD reproduction. All the players were isolated from vibration with Audioquest Sorbothane feet.

Needless to say, all levels were carefully



matched for comparisons using a 1kHz test-tone track and a millivoltmeter. This procedure may well have introduced some sonic changes itself, as the Accuphase had to be operated with its digital volume control set to -4dB and the Theta with its analog volume control in circuit, both of which might be thought to add a slight handicap. The levels of the Sony and the CAL were matched to the other two by using the Line Drive's volume control. There was no way around these compromises, however. A more serious source of error became apparent when the Accuphase was compared with the Theta processor, as the latter seemed to sound too bright and thin, but in an inconsistent manner. Its measured frequency response did feature a tiny bit more HF energy, being flat to 20kHz, whereas the Accuphase has a very slight droop in its top octave, but it turned out that the Theta's de-emphasis characteristic was wrong, pre-emphasized discs being replayed with an error that reached a maximum of +1.4dB at 10kHz. All the comments concerning the Theta therefore involve non-pre-emphasized CDs.

It also transpired that the Accuphase's analog output has inverted polarity, which will be expected to introduce an audible difference between it and the other three reference decoders/players, which are polarity-correct. For long-term listening, I compensated for this by reversing both sets of speaker leads, but for A/B purposes with all but the Theta (which has a digital polarity reverse switch), this was out of the question. I hope, therefore, that I have adequately compensated for this factor in my comments.

So, what was the Accuphase combination's sound like?

In a word, superb.

"Superb," along with "excellent," "good," and "wonderful," is, as I tell other writers of this magazine when I'm wearing my editor's hat, a word conveying almost no meaning. I should expand on this adjective, therefore.

Tonally, the Accuphase is less thin than the sample of the Theta that I auditioned, even taking into account the latter's de-emphasis error. It is slightly more forward than the Sony R1, however, with which it shares an awesomely deep bass, even with subwooferless Celestions. By comparison, the CAL Tempest, while true to the musical aspects, is rather unsubtle in the upper midrange and altogether more untidy in its rendering of orchestral tone colors.

But looking at the more fundamental aspects of reproduction, there are three main areas where, historically, CD sound has fallen down. First, and foremost, is the ability routinely offered by even modest LP players to communicate the *musical* values of a recording. CD playback too often leaves the listener sitting isolated from any feeling of "event" or performance. The music may be there but it is rendered, to an extent that differs widely from individual to individual, inaccessible. The sound is cold, the presentation soulless. The second aspect concerns the inability of many players to present a full-bodied soundstage with appropriately miked recordings, one possessing both depth and a solid feeling to individual instrumental images. The usual presentation ranges from a flat, one-dimensional stage to one that does possess a degree of depth but with instrumental and vocal images resembling paper cutouts within that stage. Third is the absolute retrieval of detail. Though important, this is actually the least essential of the three to my way of thinking. I can put up with a sound that is slightly fuzzy around the edges if the soundstage envelops the listener and the music is present and accounted for. Other listeners, of course, will rate this aspect higher, or even highest.

As with its predecessor, this Accuphase renders CD sound with an open quality that allows the music to communicate. "Easy on the ear" sounds too dismissive, too passive a phrase, but it correctly describes the player's ability to avoid any trace of listening fatigue. As is often the case with LP, CD effortlessly follows CD. There is an "analogue" bloom that draws you into the sound. In this respect, it is rivaled only by the Sony and CAL machines, the sample of the Theta sounding rather cold by comparison. With pedigree discs, like the Chesky's (CD19, the new 64x-oversampled Brahms 1 from Horenstein, in particular) and Harmonia Mundi's, the sound—and I hope you realize the pain it causes to say this—was *better* than that produced by my Linn Troika/Ekos/Sondek player, in that it was equally musical while allowing the virtues of CD—silent backgrounds and stable imaging—to shine forth. From my experience in JGH's listening room, I suspect that it even begins to approach LP played on the Versa Dynamics player.

Imaging? Here, the Tempest II remained the champion: its soundstage was deeper than that

of the other three machines, allowing you to "hear the walls" to the best extent, and individual images had the most "rounded" nature. (Its midrange balance, however, does push some instruments toward the listener.) Of the three solid-state players, the Accuphase most nearly approached the absolute spatial presentation of the CAL, while having less of a forward midband. On my piano recording on the *HFN/RR* Test CD, the Accuphase set back the Steinway more within the acoustic of the hall than did the Sony and CAL machines, approaching the analog tape in this respect, and also had more detail concerning the piano sound apparent. (As this disc is pre-emphasized, I couldn't compare the sound of the Theta.) There was slightly more action noise apparent with the '80L/'81L, and you could also hear to a greater degree than with the other players that the piano was not quite in tune. (Above the low bass, a piano has more than one string for each note, and when played hard, these tend over time to drift away from each other.)

Listening to the original-instruments Leonhardt *Brandenburg* set on Seon (RSCD-1005 06)—my favorite, with a cast of soloists that includes Anner Bylisma on cello, Frans Brüggen on recorder, and Sigiswald Kuijken on violin—the Accuphase and the CAL players were the closest to the LP when it came to the presentation of a real acoustic space between and behind the speakers. The tube player, however, was less good at rendering the individual images of musicians within that space, while the Sony and Theta presented shallower images overall.

When it came to the resolution of fine detail, the Accuphase, Theta, and Sony pulled away from the Tempest to quite a large extent. To use a photographic analogy, you are often better off using a coarse-grained film, such as Tri-X, when you use a lens with inherently low resolution. Being made more aware of the film's grain structure actually lends an illusion of sharpness, while a fine-grain emulsion throws up the shortcomings of the lens in sharp contrast. (Ha!) The CAL is similar in that it disguises a relatively low resolution (within the context of this group) by the high contrast and relative granularity of its presentation. The sound may appear to be detailed, but, on close examination, the detail is, to some extent at least, illusory. The other three players, however, have

intrinsically higher resolution, and their presentation is both finer-grained *and* detailed. The Sony in its optically coupled mode most nearly approaches the vivid resolution of, say, Kodachrome 25, the Accuphase rendering recorded tape hiss with fractionally more grain.

The optically coupled Accuphase, however, is slightly better than the coaxially coupled Sony and has the best ability of the four to resolve the sounds of instruments with almost identical sounds. Take the 1980 EMI *Planets* from the LPO under Boult (CDM 7690452, from an analog original, and in my opinion the most natural-sounding recording of this work). In the "Saturn" movement, Holst has arranged for the music to "tick" between two contrasting pitch centers to indicate the remorseless passing of time. Two flutes and a bass flute, doubled by harps, start the movement by rocking between chords containing tritones and major ninths, A/F-natural/B-natural and G/E-flat/A-natural—could you even begin to guess that the first two iterations of the tune are accompanied by E-major and A-flat scales in the bass and that the piece will eventually end in a declaration of C-major? (Though a hint of ambiguity remains, the harps insisting on reminding the listener of the existence of B-natural, which of course is still a "white" note.) As reproduced by the Accuphase, the manner in which Holst has achieved this degree of bittersweet tonal ambiguity<sup>2</sup> is presented with such a degree of clarity that one has no need for the score. There it all is, laid out before the listener, every instrumental sound discrete yet without its relationship with the whole being destroyed. When the flutes are reinforced by clarinets, for example, the Accuphase enables you to hear the filling out of the sound without losing sight of the individual natures of flute and clarinet tonality. If the epitome of poor CD sound is the dilution of instrumental tone color, the result being to render an orchestra as a giant harmonica, the sound of this Accuphase is the farthest from that travesty that I have yet heard.

<sup>2</sup> As is always the case, the CD liner notes are totally inadequate when compared with the original LP. I make no apology for quoting, therefore, from a splendid interview with Sir Adrian Boult that was reprinted from Boult's *My Own Trumpet* on the LP jacket. Boult, Holst, and others were having dinner before the first public performance of *The Planets* in 1919: ". . . Geoffrey 'Boye' put his finger on the place in *Neptune* where the trombones are busy with a G sharp major chord and the trumpets are doing an E minor one. 'I'm sorry Gustav,' he said, 'but I think that is going to sound dreadful.' 'Yes, I know it is,' said Gustav, 'but what do you do when they come like that?'"

The DAC used by the Accuphase is undoubtedly a very high-class design. Listening to the fade to noise of a dithered 500Hz sinewave on the CBS test disc revealed a relatively pure-sounding tone, with the only discrete components audible being second or fourth harmonics one or two octaves higher. Unusually, when compared with the Theta or CAL, the Accuphase was similar to the Sony on this track in that the level of broad-band noise increased as the signal dropped below -90dB. The Theta's low-level noise remained constant in level, though the CAL's was more granular-sounding than any of the other three.

One test that I didn't have time to perform before the test sample had to be returned to Madrigal was to listen to the Accuphase's output with a significant amount of attenuation set with its digital level control. When level changes are performed in the digital domain, quantization noise can be injected due to the truncation of the digital words output by the multiplier chip. From my tests with only a few dB of attenuation, however, I would suggest that the Accuphase is well-engineered in this respect.

Finally, I assessed the Accuphase's error-correction capabilities using *Stereophile's* standard test, disc two of the Pierre Verany set (PV.788031/788032), which contains an exacting series of tracks cut so as to test a player's ability to track signals at the edge of the CD-standard envelope. The Accuphase coped with all the tracks perfectly up to 35, a 2.4mm dropout, when it clicked once per revolution. Track 36, a 2.5mm dropout, was handled identically, while tracks 37 and 38, 3mm and 4mm dropouts, resulted in occasional muting as well as clicks. This is excellent error-correction performance, nevertheless. Looking at the performance of the player with the disc's "torture tracks," track 43, which combines a 2.4mm dropout with the minimum track pitch allowed by the standard, featured one click per revolution; tracks 49 and 50, which feature two successive 2.4mm and 3mm gaps in the data respectively, both gave one louder click per revolution. Again, this is excellent performance.

## Measurements

The output impedance of the unbalanced outputs was right on spec at 50 ohms, as was the maximum output level at 2.5V. Looking at the

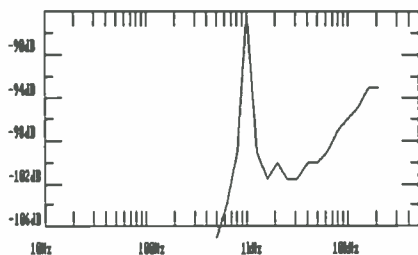


Fig.2 Accuphase CD-81L: 1kHz tone at -90.31dB with noise and spurs

frequency response gave a lower limit of -0.7dB at 4Hz and an upper limit of -0.25dB at 20kHz, with no discernible ripples in the top octave. Unusually, and irritatingly, investigating the output polarity with a raised-cosine pulse track revealed that the decoder output was inverting, something that should be taken into consideration when comparing the Accuphase with other machines in a dealer's listening room.

Fig.2 shows the  $\frac{1}{2}$ -octave analyzed spectrum when the left channel of the Accuphase was reproducing the dithered -90.31dB tone on the CBS CD-1 test CD. Theoretically, a tone at -90.31dB is only described by three quantizing levels, thus should reproduce as a stepped squarewave. The use of dither when recording this computer-generated tone, however, means that it should actually be reproduced as a *pure* sinewave, overlaid with the dither noise. Any spurs and noise apart from that already present on the disc, therefore, will be due to the player, *not* to the digital process. As can be seen from fig.2, the -90.31dB tone reproduces a little too high in level, at -86dB. (The right channel was slightly better at -87dB, but neither is as good as should be mandatory at this price level.) The 1kHz band, however, is some 14dB above the 2kHz band, implying a level of second-harmonic distortion of around 20%, which is one of the best I have yet measured, being equaled only by the Theta DS Pre, Yamaha CDX-1110U, and one channel of the Onkyo DX-G10.<sup>3</sup> The Accuphase can also be seen to introduce fourth-harmonic distortion at around the same level as second-, but any harmonics above that are submerged in the

<sup>3</sup> If this distortion seems high to you, remember that this is at an extremely low level, -90dB, which will itself be inaudible in all but the very quietest listening rooms at high playback volumes. As the recorded level rises above this, any harmonic distortion will rapidly drop to vanishingly small levels.

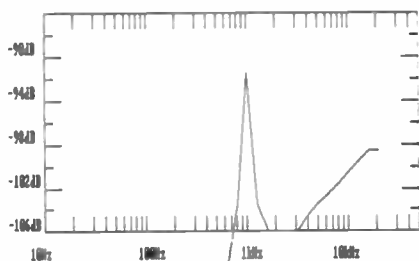


Fig.3 Theta DS Pre: 1kHz tone at -90.31dB

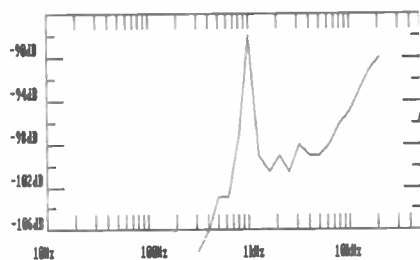


Fig.4 Sony DAS-R1: 1kHz tone at -90.31dB

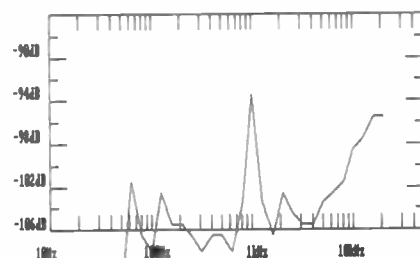


Fig.5 CAL Tempest II: 1kHz tone at -90.31dB

intrinsic rising level of noise and higher-order rubbish. This is lower in level relative to the 1kHz tone than with some other machines, however, also being similar to the Theta, Yamaha, Adcom GCD-575, and Onkyo in this respect.

Figs. 3, 4, and 5 show the  $\frac{1}{2}$ -octave noise and distortion spectra for the three machines that I compared sonically with the Accuphase, the Theta DS Pre, Sony DAS-R1, and CAL Tempest II, respectively. The Theta again shows a very clean 1kHz sinewave at -90dB, with just 1.2dB of expansion evident; the Sony has some third-, as well as second-harmonic distortion present on the tone, with 2dB of compression evident at -90dB; while the CAL has predominantly second-harmonic apparent, some 9dB below the level of the fundamental. The CAL shows the most low-level expansion of any of the four, the -90.31dB tone reproducing 3.2dB too

low in level and the -80.77dB tone 0.3dB too low, this typical of one of the better-quality Philips 16-bit chip sets. Note that the CAL also shows some supply-related noise, the 63Hz band lying at -101.5dB and the 125Hz band at -102.5dB. (Both are well below audibility, however.)<sup>4</sup>

## Conclusion

Larry Archibald noted back in 1982, in the very first issue to appear under his publishership (Vol.5 No.1), that he felt that "consumers are fed up with the repeated cries of ecstasy over products which really have nothing to offer but newness and are usually very expensive." Well, my opinion of the Accuphase DP-80L/DC-81L combination could certainly be construed as a cry of ecstasy, and it is, without a doubt, very expensive. In fact, it is the *most* expensive CD player yet to reach the market. But as it does offer the best sound I have yet to hear from compact disc, the price does indeed correlate with performance. Having experienced the manner in which it achieves the apparently impossible, in that it retrieves fine detail from CD *without* destroying the musical whole by floodlighting the soundstage, to go back to a humble Magnavox or even the excellent-sounding Yamaha '1110 becomes unthinkable. It is not just that the Accuphase is so many times better. The difference between the Accuphase and ordinary CD players is the difference between a painting and a print made of that painting.

For those of us whose boats have yet to come in, it would be best to ignore the existence of this Ferrari of a CD player, its price rendering it so inaccessible that we might as well not even think about it. But if your boat *has* come in, preferably with a well-stocked hold, the only players/decoders in the same sonic league as the Accuphase DP-80L/DC-81L, in my opinion,<sup>5</sup> are the three with which I compared it: the Theta DS Pre (\$4000 plus trans-

<sup>4</sup> The 60Hz level is very strongly affected by the positioning of the CAL's power supply. The measurements for fig. 5 were taken with the player proper separated some 6" above its power supply. When the player is positioned directly on top of the power supply, as would seem intuitively correct, the 60Hz level rises by almost 20dB to -83dB, presumably due to the injection of hum from the transformer into the tube circuitry. It is essential, therefore, to arrange for the Tempest's two boxes to be physically separated to get the maximum sonic performance from it.

<sup>5</sup> I have yet to hear the Spectral or Wadia in familiar circumstances, although the latter did sound to be in the same class as the Theta at the WCES.

port), Sony R1 (\$8000), and CAL Tempest II (\$3000). The latter, however, is distinctly untidy-sounding by comparison, though its soundstage presentation is the deepest and widest. Should you choose the Accuphase over one of the other three? The answer must be that it's eight of one and thirteen of the other.

The answer has to be yes—if you can afford it. Me, I'd be happy to live with any one of the four. But as the number of CDs with true 16-bit information on them begin to proliferate in the next couple of years, the Accuphase DP-80L/DC-81L (and the Theta and the Sony) will be there to greet them. **S**

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## AUDIRE NOBLE I POWER AMPLIFIER

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Dick Olsher

Class-A biased monoblock amplifier. Power output (20Hz to 20kHz): 75W/8 ohms, 150W/4 ohms, 280W/2 ohms. Frequency response (-1dB): 2Hz-100kHz. Power bandwidth: 2Hz-50kHz. Harmonic distortion (20Hz-20kHz): 0.01% at rated power. Slew rate: 50V/ $\mu$ s. Input impedance: 51k ohms. Input sensitivity: 1.2V RMS. Hum and noise: -110dB. Size: 11.5" W x 16" H x 4" D. Weight: 25 pounds each. Price: \$2100/pr. Serial numbers tested: 1015 & 1016. Approximate number of dealers: 15. Manufacturer: Audire Inc., 9576 El Tambor Avenue, Fountain Valley, CA 92708. Tel: (714) 968-1236.

The recent debate over the intrinsic sound quality of audio amplifiers would appear to be a thoroughly modern preoccupation. Do amplifiers sound differently, and if so, why? On the one, hand there are the "scientists" who attempt to rationalize reproduced music in terms of measurements. According to this point of view, observed sound differences are solely attributable to readily measurable electrical performance criteria. A simple expression of this approach is the belief that sound differences between well-designed modern amplifiers, operating comfortably below overload, are caused by small frequency-response differences. When these frequency deviations are equalized out, the sonic differences supposedly disappear. More sophistication is offered by the approach championed by Bob Carver; namely, the attempt to match amplifier transfer functions. Here, the relationship between amplifier input and output is analyzed into a number of components such as frequency response, slew rate, harmonic distortion spectrum, and phase response. By matching the transfer function of amplifier A to that of amplifier B, the claim is made that amp B is now a sonic clone of amp A. This smacks of genetic engineering, but proponents of this method hasten to add that it is morally justified on the grounds of offering the sound of an expensive tube amplifier in the trappings of readily affordable solid-state designs.

Obviously, this procedure should bridge the sonic gulf between the two amplifiers, but

whether it eliminates all sonic differences is not at all evident. And any *a priori* claims that amps with perfectly matched transfer functions must sound alike should be viewed with a healthy dose of skepticism. First of all, there are some serious limitations. For example, you can't speed up a slow amp without a major circuit redesign, although the reverse is possible. Second, just how close is close enough? In other words, to what degree must the transfer functions be matched before audible differences disappear? Some differences might be significant to -40dB.

But the theoretical rug is really pulled out from underneath such an approach when you consider the following: Just how well do we really know this transfer function? Do we presently know all of the pertinent parameters that influence perceived sound quality? I submit that we do not. In the past ten years we have discovered new forms of transient distortion (remember TIM and SID!), and our understanding of amplifier current demands into reactive loads has expanded. I suspect that we still have a lot to learn. And if that's the case, then our present analytic transfer function is incomplete, offering only a partial sonic match. Part of the problem is that our measurements may not always relate to the listening environment. Test-bench measurements into an 8-ohm resistor in no way simulate the highly reactive load of a dynamic loudspeaker. Thus, measurements or specifications derived in this manner will not adequately describe the performance of an

amp into a real-world speaker load. One day the set of essential measurement criteria may be complete. That, however, will only happen with continued input from "humanist" audiophiles.

While scientists view man as a machine and attempt to reduce human perceptions to a set of measurements, humanists represent the other side of the coin. For them, reproduced music is experienced, and its quality intuitively judged, by reference to the perception of live music. If "canned" music is to elicit similar emotional reactions as live, then how is this illusion to be maximized? This is the essential question; static specifications are entirely secondary. In the language of Zen, "to understand is not to understand." The answer to this paradox lies in the insight that to feel the music, our intellect must be dethroned and free reign given to our intuitive or emotional capacities. As the equipment puts fewer and fewer obstacles in our path, the road to the top of the mountain becomes easier and easier. Awaiting us there is a "beautiful view from the summit": acceptance of reproduced music as a satisfying truth. The designer then must think and not think. He must be able to measure, but not merely listen for his measurements. He must truly hear the music.

I recently came across a paper that surprised the hell out of me, not so much because of its content but because of its date. Let me quote briefly: "All forms of distortion in amplifiers, measured according to conventional methods, are either so far below the minimum audible distortion level, or are so far below distortion of the same kind produced by other links in the chain—the pickup, loudspeaker, or even the human ear itself—that it should no longer be possible to hear any difference between the performance of any good modern amplifier. Certainly, none of them should produce any audible component of distortion. The fact remains that some good amplifiers are observed to 'sound cleaner' in some way than others. . . . But work has gone on until fabulous figures of performance are achieved—distortion in the region of 0.1% (and some even lower) and frequency response from a fraction of a cycle up to the region of a megacycle within 0.1dB or so. By the figures, such amplifiers should rate as audibly perfect. This trend seems to have been followed because of a belief that a better specification in these regards must mean the ampli-

fier performs better. Even when some knowledgeable people realized that this is not true any more, because of the standard generally achieved, the trend has persisted, because promotion has made the market—or at least sections of it—'specification conscious.' Some, of course, have discovered for themselves that the audible performance does not appear to be related to the figures on the specification and have concluded that 'specifications are valueless—the only reliable test is to listen to it.' "

All of this was written over 30 years ago by Norman Crowhurst. The paper was titled "Some Defects in Amplifier Performance Not Covered by Standard Specifications," and was presented during the 1957 annual convention of the Audio Engineering Society in New York. Crowhurst goes on to discuss several performance areas not addressed by conventional specifications, including the problems of heavy feedback designs, amplifier clipping characteristics, recovery from overload, and testing with reactive speaker loads. One of his major conclusions is that performance criteria need to be coordinated to avoid, for example, aiming at an unnecessarily excellent frequency response at the expense of some other desirable characteristic. I can only hope that, 30 years from now, this has become commonplace.

On, then, to the subject of the review, the unusually styled monoblock Noble power amplifier from Californian company Audire. I cannot dispute Audire's claim that the Noble amplifier is descended from royal lineage. It is, after all, a scaled-down version of Audire's Monarch amplifier, retaining the latter's circuit topology and impressive heatsink fascia. The massive heatsink is used to cool the output devices by air convection, thereby avoiding the use of (generally noisy) fans. The circuitry is all discrete, with a DC-coupled input. All gain stages are true class-A, complementary push-pull, from input to output. The power supply features a toroidal transformer and a capacitor reservoir of 52,000 $\mu$ F, which accounts for the Noble's ability to swing 20A transient current peaks.

The Noble is available in two versions: the Noble I, nominally 75W of class-A power into 8 ohms; and the Noble II, 200W of class-AB power into 8 ohms. However, only the Noble I was the subject of this report. The Noble is claimed to be stable into any load, whether resistive, capacitive, or inductive, and because



Audire Noble amplifier

of its high current-drive capability into low-impedance loads, it should have no difficulty in driving anything from Apogees to electrostats. Speaker connections are via good-quality binding posts. Complete with walnut side panels, the Noble strikes an elegant pose, looking as if it ought to sound very good.

The amplifiers were auditioned with Quad ESL-63 and Celestion SL600 loudspeakers, while a Threshold FET-10 preamp was used throughout. The analog front end consisted of the SOTA vacuum tube/SME V tonearm and Sumiko's Virtuoso Boron cartridge. The speaker cable used in all cases was 12' runs of the TARA Labs Space & Time Phase II. Interconnects were the Kimber KCAG and the Cogan Hall Intermezzo, the latter a cable which I'm beginning to like very, very much.

The Noble's first task was to drive the Quad '63s. Mozart's *The Magic Flute* with Solti conducting the Vienna Philharmonic (London OSA-1397) provided the basis for my first sonic impression. I have had a difficult time coming to grips with the miking technique employed on this recording. At times I appear to be situated above the performers, though the solos appear in a natural perspective. There's a lack of spatial cohesion between the orchestra and the rest of the performers within the soundstage; clear evidence of multimiking. Yet there's plenty of drama and beautiful singing. Especially noteworthy are Renate Holm as Papagena,

Pilar Lorengar as Pamina, and Hermann Prey as Papageno.<sup>1</sup>

My initial impression of the sound presented by the Nobles was of a cool, dry, grainy mid-range with a slight loss of focus and image palpability within the soundstage. After a couple of hours of warmup the situation improved slightly, but not enough to avert an initial diagnosis of "solid-state sound" syndrome. For example, the Act II.v. trio between Tamino, Sarastro, and Pamina was texturally too grainy, with a slight brightness through the upper soprano registers. The spatial outlines of the voices were not as well resolved as they should be, and the soundstage perspective was distinctly two-dimensional. On the plus side, the soundstage was reasonably transparent and dynamic shadings were reproduced effortlessly. There was also lots of detail, but on balance I found the sound quality unappealing; there just wasn't a sufficient measure of mid-range smoothness, sweetness, and focus.

I also detected a somewhat dryish overtone structure on David Abel's Guarnerius (Wilson Audio's Beethoven Sonata in G, Op.96 for Piano and Violin). As David Wilson has pointed out, the Guarnerius sings with speed, focus, and sweetness. Through the Noble I, however, there was less of the last two. The piano bass was deep, but not as well detailed as, say, that through the Electrocompaniet AW100 also reviewed in this issue.

Moving on to the Paganini compositions for Violin and Guitar (Telefunken 6.35574), specifically the Centone di Sonate No.2 in D, the violin overtones were again objectionable; slightly bright and steely without the requisite degree of sweetness.

As usual, the Opus 3 *Test Record 1* provided a gold mine of information. For starters, Therese Juel's voice (cut A1) was overly sibilant. The soundstage was wide and spacious, but the

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<sup>1</sup> I feel that recorded opera is sometimes preferable to live opera—you don't have to reconcile the dramatic elements of the plot with the physical incongruity of the performers, and can let your imagination provide the missing physical details. On this point, I echo Leopold Stokowski's feelings, so ably expressed during an extemporaneous address before the 1932 New York meeting of the Acoustical Society of America: "You go to *Tannhäuser*, and the idea back of *Tannhäuser* is that Venus, the most beautiful woman who ever existed, should tempt *Tannhäuser* from the narrow path of virtue. But unfortunately Venus was chosen because she had a marvelous larynx, and unfortunately sometimes she weighed too many pounds, and unfortunately—but I leave that to your imagination. And so the whole evening, the whole point and meaning of that drama is changed and spoiled because you couldn't imagine anybody [laughter]. Well—it is such a pleasure to talk to physicists. They understand everything!"

depth perspective was slightly diminished. Reproduction of the double bass was very good in terms of speed, but there was a slight loss of detail resolution in the lowest registers. The upper registers of the sax and brass (cut A4) were slightly bright. Overall, the sound quality was a bit hard.

Pedro Aledo's voice (Pierre Verany PV I2793), normally well-behaved, took on a bright edge through the upper octaves. And there was also a noticeable defocusing of the vocal outlines.

The sense of hall on *Laudate!* (Proprius 7800) came right through with a transparent soundstage, but voices in the choir tended to blend together, making it difficult to pinpoint individual voices. Again, the soundstage appeared to be two-dimensional, and soprano voices were overly sibilant and bright.

Neither did Cleo Laine's voice (*Live at Carnegie Hall*, RCA LPL1-5015) escape adulteration. The mids were dry, and most of the sweetness normally there was leached out of her voice.

Piano tone was the least affected by the Noble's dry nature. For example, take the Chopin Nocturnes (Vol. I, Connoisseur Society CS-1065). Ivan Moravec's beautiful phrasing and delicate touch were all there, but midrange textures were a tad too hard.

I ran the Lesley Test with both the Quads and the Celestions. The results were similar in both cases. With the Noble I in the chain, the character of Lesley's voice was slightly hard and grainy. In addition, the spatial outlines of her voice were not as tight as they should have been. Changing speakers and interconnects did improve the situation up to a point. With the SL600s and the Cogan-Hall interconnects, essentially all of the brightness I cataloged earlier as being characteristic of the Quad/Noble combination disappeared, as did some of the midrange grain and spatial blur. Much of the Noble's character, however, including the textural dryness, hardness, and 2-D soundstage, were unaffected by the change in loudspeaker. This leads me to conclude that these, indeed, represent the inherent sonic signature of this model.

As a final illustration of the Noble I's performance capabilities driving the SL600s, let me describe how it fared on *Belsbazzar's Feast* (EMI SAN-324). The dynamics of this work were very well reproduced, without strain or loss of control during complex passages. Excess bright-

ness was not in evidence. However, midrange textures were astringent, insufficiently sweet and smooth. The soundstage was noticeably 2-D, and instrumental outlines lacked incisive spatial focus.

## Summary

As you can see, this amplifier pushed mostly the wrong buttons for me. Its class-A operation and that wonderful heatsink radiator were very much appreciated during the cold Santa Fe winter nights. But its performance in the critical midband failed to warm my heart, and in fact consistently irritated me. With either the electrostatic or dynamic speaker loads, the Noble I could not reproduce midrange textures with the smoothness and sweetness of the real thing. This, for me, was its major failing. This parched and slightly grainy midrange quality altered timbral purity enough to seriously erode my listening enjoyment. There was also a tendency toward brightness and hardness in the upper mids and lower treble, which indicates the need for careful integration of the amp with a particular load. Bass control and extension are very good, as is the representation of dynamics, and the Noble I does achieve a decent level of transparency. But for me, that's just not enough to overcome its problems in the midrange. Finally, soundstage depth and image palpability and focus are in the category of typical solid-state performance. To paraphrase Keith Johnson, instrumental outlines are hung to dry on clotheslines between the speakers. Those serious about imaging should try a (good) tube amplifier (the VTL 75W stereo amp is a good starting point).

At \$2100, is it fair to expect a product to provide a significant slice of the best performance available? I do think so, and unfortunately, the Noble I does not compare favorably in this respect with other (more expensive) solid-state amplifiers in *Stereophile's* Class A and B "Recommended Components." It isn't just that I don't see the Noble approaching the performance level of, say, a Krell or a Levinson, it not being close in the areas of tonal purity, smoothness, and image focus. It just appears to be too expensive for what it does have to offer. **S**



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# ELECTROCOMPANIET AW100 POWER AMPLIFIER

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Dick Olsher



**Electrocompaniet AW100 amplifier**

**Class-AB biased stereo amplifier. Rated output power (0.2% THD): 2x100W into 8 ohms, 2x180W into 4 ohms, and 2x305W into 2 ohms. Output impedance: less than 0.006 ohm. Input impedance: 10k ohms. Input sensitivity: 1V. Recommended source impedance: less than 1000 ohms. Max peak current: 65A. THD (measured at 1kHz at half power into 8 ohms): less than 0.003%. Dimensions: 17.3" by 14.2" by 5.2". Weight: 35 lbs. Price: \$2195. Approximate number of dealers: 35. Warranty: 5 years parts and labor. Manufacturer: Electrocompaniet A.S., Solheimsveien 72, N-1473 Skaarer, Norway. US importer: Music & Sound Imports, 30 Snowflake Road, Huntingdon Valley, PA 19006. Tel: (215) 357-7858.**

Zymurgy is defined as the art and science of yeast fermentation, but is often used as a fancy euphemism for the joy of homebrewing. You may be legitimately wondering at this point what homebrewing has to do with audio in general and amplifiers in particular. Having recently completed a class on homebrewing, I was struck by certain parallels between these hobbies. The class spanned five evenings over a five-week period and covered everything from preparation of the wort, malt extracts, grain mashing, hops, yeasts, fermentation techniques, bottling, and recipe designs. The sessions were enriched by a generous supply of homebrew and popcorn, courtesy of the instructor. This brings me to the first parallel: everything goes better with a home brew. This maxim is merely an extension of Hammond's Cardinal Principle of Audio: the perceived sound quality of one's system is directly proportional to the number of drinks consumed. (That's Will Hammond of KPFK's "In-Fidelity" radio program in Los Angeles.)

The final class was devoted to beer judging. A total of nine beers in various categories were to be judged in a single-blind fashion. The score sheet required a numerical score in five categories, as follows: Bouquet/Aroma (10 points), Appearance (10 points), Flavor as appropriate for the style (15 points), Body (full or thin) (5 points), and Drinkability/Impression (10 points). A score of 40 or greater out of a maximum of 50 points would denote a world-class beer. The aroma of beer is defined as the smell of beer relative to the malt and grain, while the bouquet is the aroma that hops contribute to the beer. The appearance of the beer is judged by the amount of head retention, the color, and clarity of the fluid. Flavor is broken down into the feel, taste, and aftertaste (that's right, beer tasters don't spit it out) of the beer under test. The taste of beer is quite complex, and should be a mixture of the four basic taste perceptions of the tongue: bitter, sour, salt, and sweet. The key here is the balance between the bitterness of the hops and the sweetness of the

malt. The aftertaste should be clean and pleasant, never cloyingly sweet. The final category addresses the overall impression of the beer. Is it a beer we would personally buy and drink again? The similarity to audio reviewing is quite clear. Would the reviewer be willing to spend his own hard-earned money on the product and live with it happily ever after?

Because of the diversity of the class members and the subjective nature of the judging, I expected a lot of disagreement over the relative rankings of the beers. In fact, the surprising finding was that, with one exception, the individual scores were tightly bunched around the average. Such precision (*ie*, a small standard deviation) underlines the general validity of the subjective reviewing process. The exception turned out to be Belgian Gueuze Lambic beer. Wild yeast is used to ferment this beer in a process "perfected" by Belgian monks over many centuries. To my taste buds, the Lambic's flavor was remarkably close to that of spoiled apple cider—definitely an "acquired taste." The highest-scoring beer that evening turned out to be Young's Special London Ale, with an average score of 40.8 and a personal score of 43. Other high scorers were Guinness Stout (38), Heineken Special Dark (36), Pilsener Urquell (33), and Anchor Liberty Ale (34). In last place was the only entry in the American pilsener category: Corona Extra, with an average score of 20.<sup>1</sup>

From beer to amplifiers: Electrocompaniet was founded in Oslo, Norway, in 1974, primarily to produce a 25W solid-state amplifier based on a design by Dr. Matti Ojala and Jan Lohstro. That amplifier was the first commercial transistor amplifier to embody the crux of what I have dubbed the modern school of amplifier design. The essential features of such modern designs are the use of low overall feedback, high slew rate, a highish class-A/B bias, extended open-loop frequency response, and a high current-drive capability into real-world reactive speaker loads. The basic idea is to minimize transient distortions and maintain adequate current drive under all load conditions. Ojala, for example, has shown that under certain dynamic conditions, what is nominally an 8-

ohm dynamic loudspeaker can present an impedance modulus as low as 1 ohm to the amplifier; exactly the sort of behavior that would go unnoticed with a test bench 8-ohm purely resistive load.

Electrocompaniet's current design engineer, Per Abrahamsen, is clearly a modernist who has gone a couple of steps further. One of them is attention to detail. Transistors are carefully matched, internal wiring is minimized, and the use of active circuit protection and fuses in the signal path is avoided. Not only that, but the design is not finalized completely in the laboratory. For example, a listening panel decided on the extent of class-A operation, *ie*, the point where the output device bias slides to class B. This is a refreshing approach, and one I think other manufacturers should note. Electrocompaniet's tweaking procedure places the ear/brain squarely in the decision process. A design completely predicated on lab measurements will likely fail to take into account sonically significant aspects of performance that are difficult or simply impossible to measure at present.

The AW100's input stage is a class-A biased transconductance amplifier without any overall feedback, loop feedback only being used around the output stage. The power supply shares a single 600VA toroidal transformer. However, separate 10,000 $\mu$ F capacitor reservoirs are used for each channel. These reservoirs are bypassed with polycarbonate and polypropylene film capacitors to enhance their speed. Physically, the EC amp is fairly diminutive in size and weighs in at a lightweight 35 pounds. It neither has the look nor feel of a Krell or a Mark Levinson, and construction quality resembles that of a \$1000 effort (which it may very well be in its domestic market). Speaker connections are via high-quality binding posts, which allow the use of large-gauge bare cable terminations.

I kicked the AW 100 around for a couple of months before conducting any formal listening tests. So I got more than a decent first impression (and, I might add, quite a favorable one) before the final testing phase. First of all, the EC was not obviously a solid-state design; a quick listen did not immediately reveal its pedigree. There was no grain, hardness, or upper-octave harshness. In fact, the upper octaves were sweet, and transients were well-controlled. The EC seemed to excel in the reproduction of dynamic shadings. The soundstage appeared to expand dynamically, with lots of

<sup>1</sup> To be fair, I should point out that this beer was downrated because of a skunky aroma and a harsh aftertaste most likely caused by a photochemical reaction. Beers are light-sensitive, and storage in clear bottles under bright lights on a supermarket shelf will affect their aroma and flavor.

headroom—almost as though an expander had been added to the system. The soundstage was slightly laid-back. But despite that, and except in the bass (where I felt the two to be comparable), I clearly preferred the EC to the sound of the uninvolved Motif MS-100. Bass power and definition were very good, as was resolution of low-level inner detail. On the minus side, I was put off by a slightly artificial reproduction of musical textures. There was an "off" flavor to the midrange that was at first very obvious, but faded somewhat with continued exposure. At no time was I fooled into believing the performance level of the EC approximated that of an amplifier belonging in *Stereophile's* Class A category. It simply lacked the resolution powers and purity of, say, a Mark Levinson No. 23. So by the time the final testing began, the real question was, just how firm a footing did the AW100 have in Class B?

With one exception, analog program material was used exclusively during the final testing phase. My front end consisted of the SOTA Vacuum/SME V/Sumiko Virtuoso Boron combination feeding the Threshold FET-10 pre-amp. Interconnects were the Cardas and Kimber KCAG, while the TARA Labs Space & Time Phase II and Cardas Hex speaker cables were used. Speaker loads consisted of the Celestion System 6000 and SL600s, and the Quad ESL-63s on Arcici stands. (The Arcicis greatly improve the Quad's reproduction of bass stability and clarity.)

The EC's first task was as a direct substitution for the Cochran Delta Mode amps driving the SL600s in Celestion's fullrange System 6000. This, I figured, was going to be a tough one for the AW100 to handle: the Delta Modes had proved to mate synergistically with the System 6000, bringing about an unmatched conjunction of detail, tonal purity, and palpable imagery without being either overly analytic or soft. In addition to the price difference—some \$8000—this represented an ultimate judgment day for the EC. The results were surprising.

On the Lesley Test—using master tapes of my wife Lesley singing—my spouse's sweet highs were very much in evidence. However, there was a slight darkening of midrange textures and a slightly more chesty tonality. The focus was very good, with the core of the voice tightly bunched in space, but the outline was slightly flat or 2-D. There was some residual veiling of the soundstage, but the sound was

generally clean, dynamic, and always listenable. William Walton's *Belsbazzar's Feast* (EMI SAN-324) brought further confirmation that the Electro was darker-sounding than the Cochrans, and not as palpable and lush in the mids. There was no sign of compression or confusion on choral and orchestral crescendos, and I actually thought the AW100 more powerful in the bass and better extended in the treble.

The issues of soundstage palpability, depth-perspective reproduction, and textural integrity—the hallmarks of a good tube amplifier—were raised again on the Opus 3 *Test Record 1*. The darker mids were noted again, as were the consistent reduction of stage depth and squashing of instrumental outlines. Pedro Aledo's old and new folksongs (Pierre Verany PV 12793) suffered a similar fate. Here the overall sound quality was clean and fast, with only slightly hardened mids. But outlines were not as well-fleshed-out, and the depth perspective was reduced. What this boils down to is that, through the Electrocompaniet, the illusion of a 3-D soundstage, together with fine spatial resolution, is much more difficult to obtain than with a good tube amplifier.

Next, I tried the AW100 full-range with the SL600s, obtaining similar results. Neither did my findings change with the Quad '63s. There were still a slight darkish tinge to midrange textures and the now familiar complaints about the losses in soundstage image palpability and depth.

Paganini's Sonatas (Opus 2) for Violin and Guitar (Telefunken 6.35574-DX) provide a simple spatial framework for evaluating soundstage interrelationships. It is said that Paganini's early musical education was on his father's mandolin; later, as a famous violin virtuoso, he reverted to playing the guitar. But that the guitar was a favorite of his is not at all obvious, at least from the Op.2 collection. Clearly the guitar is dwarfed by the virtuoso violin writing, the former merely assigned to handle simple bass lines. The recording engineers must have felt that way too, because Gyorgy Terebesi's violin is miked too closely. This was obvious enough through the Electro, but the spatial perspectives were not clearly drawn. The violin outlines were oversized, and it was unclear that the guitar and violin belonged in the same acoustic space.

David Abel's Guarnerius (Wilson Audio: Beethoven Sonata for Piano & Violin) was also

darkly textured and not as well integrated and tightly focused as it should be. The Cochran's here yielded a slightly more forward perspective, lighter textures, much more palpable mids, and a more vivid and better-delineated soundstage. In general, bass lines were tight and clearly resolved.

The AW100's overall report card was quite favorable. It was capable of quick, clean, dynamic reproduction of topnotch program material. The bass was powerful and well-articulated. At the other frequency extreme, I found the treble to be sweet, with excellent transient control. The AW100 clearly transcended many of the traditional faults of solid-state designs. It was neither harsh nor brash through the upper octaves, and proved easy to live with over the long haul.

Midrange textures were slightly dark, which may be a blessing with some speaker systems, but was a coloration I found bothersome. Just how much this will affect you I cannot tell. For me there was always a slight sensation of artificiality about this amp. It generated a spacious and transparent soundstage, with very

good focus and resolution of low-level detail. There was a slightly laid-back perspective to the soundstage, but this was not as serious as its failure to properly flesh out a soundstage. It did no worse or better in this department than most solid-state amplifiers. The illusion of 3-D is just not as convincing as that available from, for example, the VTL dual 75W amp, which, at \$1950, costs about \$250 less than the Electrocompaniet. If this aspect of sound reproduction is of paramount importance to you, I suggest you investigate tube amplifier alternatives.

The AW100 betters anything that I have heard in Class C of *Stereophile's* "Recommended Components"; I would therefore rank it in the bottom of Class B. There is really nothing more reasonably priced here that matches its performance capabilities in the areas of high current drive and reproduction of dynamic shadings and performance at the frequency extremes. Still, you should understand that while it is not my favorite Class B amp, at the asking price it is worth a serious listen. **S**

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## INOUYE SYNERGISTIC POWER LINE CONDITIONER

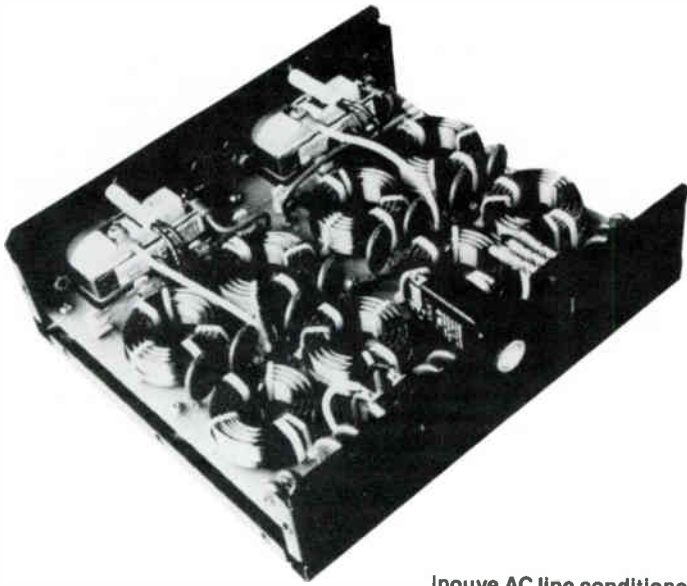
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John Atkinson

Dual power line conditioner with: 1800VA capacity; two independent sets of two output sockets, transient protection fuses, and limited five-year warranty. Price: \$525. Approximate number of dealers: 20. Distributor: Artech Electronics Ltd., PO Box 1165, Champlain, NY 12919. Tel: (514) 631-6448.

If you ever have the need to separate those at the cutting edge of *audiophilia nervosa* from the skeptics/conservatives of the audio world, all you need do is ask whether the quality of the mains voltage available from the wall socket has any effect on a system's sound quality. "Absolutely not," the latter group would guffaw, pointing out to their questioner that between the line cord of any component and its audio circuitry is a hefty filtering system, consisting of the mains transformer, one or more diode bridges, and shunt arrays of electrolytic reservoir capacitors, often bypassed with low-value film caps to ensure a low impedance at RF. Any high-frequency noise on the line will be faced with a very-low impedance pathway to ground.

In addition, most modern hi-fi components—the exception being the output stages of nearly all power amplifiers—interpose some kind of voltage regulation between the basic power supply and the audio stages, this offering perhaps another 50–60dB of audio-band power-supply noise rejection. In fact, it is usual in circuit analysis, I understand, to assume that all power-supply rails, no matter what their DC voltage, are at ground potential with respect to AC signals, so low is the power-supply impedance to ground assumed to be. Even if there *is* a significant degree of HF noise on the AC line, it will be efficiently shunted to ground long before it can have any effect on a component's sound quality.



Inouye AC line conditioner

And as nearly all modern electronic components are dual-rail, complementary designs, any noise which is identical on both live and neutral lines, even if it did manage to get through to the sensitive audio sections, will be rejected by those circuits' intrinsic common-mode rejection.

Yet many audiophiles, having experimented with the various power-line filters and transient spike suppressors available for use with computers,<sup>1</sup> report hearing sonic improvements with some of these theoretically superfluous devices. A year or so ago, in Vol.11 No.4, Lewis Lipnick found that Adcom's ACE-515 RF filter/spike suppressor unit improved the performance of a pair of Rowland Research Model Five power amplifiers, improving the sense of focus and clarity, as well as improving the sense of solidity in the bass (though the same manufacturer's Coherence One preamplifier seemed unaffected, and the Model Seven power amplifier was made to sound watery and thin). On the other hand, Lewis didn't like the effect of the Straight Wire Power Purifier 8, a much more sophisticated unit that is said to ensure

that the mains waveform is a good sinewave. Even though LL found that it reduced the levels of midrange background noise, he felt that it limited dynamics, endowing the music with an overall gray coloration.

The Inouye Synergistic Power Line Conditioner appears to be similar to the Adcom product in that it offers filtration of RFI and noise. It is built on an aluminum, nonmagnetic chassis, and fitted with a large-gauge power cord. Internally, the line-conditioner circuitry is contained on a single, large, double-sided printed circuit board. Following the wall power as it enters the conditioner through a standard IEC socket, the Live voltage goes via a thick pcb track to first a 15A circuit-breaker, then to the on/off switch, this containing a red neon indicator lamp. Both the Live and Neutral rails are shunted to ground by high-voltage ceramic capacitors (to provide a low-impedance ground for RF noise) and by metal-oxide varistors (to squelch transient voltage peaks higher than the mains's maximum 170V or so). Both Live and Neutral lines are divided into two at this point, each feeding two sets of two three-pin sockets via an elaborate filtering arrangement of two heavy-gauge, air-cored coils per line, giving a total of eight, and eight more ceramic capacitors. These components appear to make up series L-C-L filters. A star-grounding topology is used, again via thick pcb traces. Finally, each

<sup>1</sup> I'm talking here specifically of units that employ simple filtering and transient suppression. Conditioners that employ some kind of ferroresonant circuit, as supplied for use with computers, are a complete no-no for hi-fi purposes in my opinion. Even if you can stand the mechanical hum, I believe they impose a high source impedance on the AC mains, which is the last thing you would want for an amplifier or preamplifier.

pair of sockets is further protected against transient spikes with a series fuse/shunt varistor/red neon/shunt varistor/series fuse network. The neons remain lit while this final transient defense is active.

A small criticism concerning these four internal fuses, which presumably will have to be replaced occasionally: The cover is fixed to the chassis with Allen-head screws, and one screw on the review sample was fastened so tight that I stripped its hexagonal socket with the wrench. I had to drill the screw out to remove the cover, which was a pain in the neck. Perhaps Inouye could look into this problem.<sup>2</sup>

One of the factors that bothers me with any type of line conditioner is that long experience has led me to distrust anything that places any kind of impedance upstream of a hi-fi component's power supply. Arnie Balgalvis has reported in these pages the favorable effects of having a dedicated AC circuit installed directly between the house circuit-breaker and his hi-fi system; I plan to have a dedicated supply installed for my relatively new listening room later this Spring. I am extremely distrustful of having anything in the line that would impede, for example, a power amplifier's need to suck current from the pole transformer. The traditional "Christmas Tree" of two- and three-way mains adaptors plugged into a single socket is anathema, therefore. Inouye, however, claims a very low insertion loss for their SPLC: I measured a presumably negligible in/out impedance of approximately 0.75 ohms on each rail at 60Hz. While the conditioner would pass audio-band energy present on the line, it shunted components higher than 20kHz to ground with increasing effectiveness as the frequency increased. Looking (carefully) at the AC waveform straight from the wall with a 'scope, I could induce HF noise on the line with thyristor dimmer switches and add some triangulation by turning on and off my trusty Black & Decker drill plugged into the same circuit. Looking at the output of the Inouye SPLC, the sinewave remained slightly more pure with the drill operating, though it still was triangulated a little at the moment when the drill was turned on. It was also hard to come to any sensible conclusion regarding the HF thyristor switching noise as the Inouye appeared to have no effect.

<sup>2</sup> Under no circumstances should the SPLC's cover be removed while the unit is plugged into the wall. The entire pcb is at mains potential!

I suspect that the short length of unscreened twin cable between the Conditioner and a voltage divider/current limiter at the 'scope input was picking up RF noise radiated from the dimmer.

The main problem here seemed to be that the mains waveform in *Stereophile's* part of New Mexico is a very good sinewave—due to a low population density and a complete lack of heavy industry. Given that moving to New Jersey for this review is out of the question, something else was called for to reveal the SPLC's intrinsic behavior. Feeding a high-frequency sinewave into the Inouye's mains input, between either leg to ground, revealed a deep notch to appear at 88kHz—presumably the fundamental tuning of the filter—when the response at the appropriate conditioned output was measured. Measuring the series impedance of the neutral leg and its impedance to ground at spot frequencies also indicated that the unit's response should roll off above the audio band, but in addition indicated that another notch should be present at 44kHz—except that I couldn't then find this notch with a high-frequency sinewave sweep. (A puzzle!)

Could it be significant that these notches coincide with the fundamental CD sampling frequency and its second harmonic, present to some extent in the outputs of all CD players? I haven't the faintest idea, except that with the CD players and digital processors I had to hand—the Sony DAS-R1, Accuphase DP-80L/DC-81L, Precision Audio DVIC-471, Magnavox CDB472, and Theta DS Pre—I rapidly became convinced that there was a significant, if variable, degree of improvement in their sound. In general, it was as though the black of the sonic backgrounds became even more black, to the benefit of the music, with an opening up of the back of the soundstage. The greatest effect noticeable was with the least expensive player.

Am I reporting on the sound of CD players with less noise on their AC mains inputs? I don't actually think so. Of course, you can't listen to a CD player that doesn't have a headphone socket *without* a power amplifier or speaker, so identifying cause and effect is impossible. But I am sure that the audible improvement here is not so much the reduction of mains-borne noise that would otherwise degrade CD-player performance, but the other way around: when a CD player is plugged into the Inouye filter, RF garbage present on *its* power supply rails (which, if not shunted to ground by the

reservoir electrolytics, will find its way to the mains supply via the diode bridge the "wrong" way around) is prevented from affecting the performance of the preamplifier and power amplifier. Here the two sets of sockets on the Inouye start to make sense: plug the CD player into one, then use the other for the preamplifier.

My next auditioning session involved trying the conditioner with my Linn Sondek LPI2 plugged into it. The Linn has a frequency-synthesized supply to provide its synchronous motor with a 60Hz AC sine wave, so any noise present on the AC line should be expected to have no effect. In addition, as with any belt-driven turntable, the flexible belt acts as a low-pass filter in conjunction with the moment of inertia of the rotating platter, rejecting any HF fluctuations in the motion of the motor. Things weren't so cut and dried, however, when it came to the listening. Half the time I felt that the SPLC rendered the music more stable in its pitch centers; half the time I didn't. No conclusion here, I'm afraid.

Inouye suggests that electrostatic loudspeakers benefit from having their polarizing supplies plugged into the SPLC, with users in Canada reporting a 30–50% improvement in performance. I intend, therefore, to pass the review sample on to Dick Olsher or J. Gordon Holt so that they can report on its effect with Quads and Sound Labs, respectively.

Returning to electronics, I don't use a conventional preamplifier at present in my reference system: the Mod Squad's Line Drive Deluxe AGT forms the system heart, with the Vendetta Research SCP2 dual-mono phono preamplifier providing the urge and equalization for LP replay. I tried the effect of the SPLC on the sound of the Vendetta Research. Well, the results were not as favorable as with the CD players. With a phono preamplifier plugged into each channel of the Inouye, the sound became somewhat less full-blooded, with less of a feeling of unrestricted low-frequency dynamics. This effect was, to my surprise, not noticeable when I tried the Inouye conditioner with the VTL 100W monos—one plugged into each half of the SPLC—but was a factor with my Krell KSA-50. The sound of the VTLs seemed to improve, however, becoming more fluid. The rather forward midrange characteristic of this amplifier receded, the soundstage thus acquiring a touch more depth. Low frequencies did acquire a touch more bloom, though

this was not enough for the bass to sound more under-damped. To be honest, though, this effect on the VTLs' bass was almost insignificant much of the time.

To explore the effect of the Inouye with a more conventional preamplifier, I then used it with the line stage of a PS Audio 4.6 fitted with its M-500 power supply. (As this was at night, I had the dimmer-controlled lights on—might as well give the SPLC something to get its teeth into.) After my experience with power amplifiers, I wasn't expecting much of a change with the Inouye SPLC. The 4.6's auxiliary power transformer is a massive hunk of ironware that you would not expect to benefit from any additional AC line filtration, particularly with the relatively clean AC here in Santa Fe. I was very wrong. The difference between the 4.6 *sans* the Inouye and with it upstream of the preamp supply was the largest I experienced with any of the equipment I had to hand. The sound of the 4.6 line stage is something I always think of as "typical" PS: open, clear, detailed, always musical, but also grainy in the lower treble when compared with true Class A preamps. This is why I prefer to use it in its "straight-wire" setting, when it acts as a passive control center. Yet listening to *Tracy Chapman* (Elektra 9 60774-1),<sup>3</sup> with the 4.6's line stage in circuit, the Inouye rendered the sound considerably more musical. The lower-treble graininess, heard as a "cack" in Chapman's mocha-flavored vocalizing, was considerably reduced, the sound becoming smoother yet without mellowing out HF detail. The triangle on "Mountains of Things," for instance, remained as clear as crystal. Not surprisingly, Tracy Chapman led to Joan Armatrading: the superb "Willow" from her 1977 *Show Some Emotion*. Again, the effect of the SPLC was to render the singer less electronic, the music more accessible, and now a suspicion I had about the low frequencies was confirmed. Kick drum had more body, more "thud"; bass guitar had more weight.

I also used the Inouye SPLC with my dedicated headphone amplifier for most of the headphone listening to be reported on in the next issue. Here, again, I found the effect to be an

<sup>3</sup> It is one of the tragedies of hi-fi shows that they enable you to hear great albums like this *too* many times. My colleague at *Gramophone*, Ivor Humphreys, feels that much contemporary music has the equivalent of a sell-by date: after a certain number of plays, you do not need to hear the music again. Unfortunately, the musically monotonous overkill at this year's WCES almost got me to that stage with this album.

improvement. Backgrounds became a deeper grade of silent, and instrumental specificity within the soundstage improved. Any hint of aggressiveness in the treble was diminished. To put these comments into context, the improvement was remarkably similar to that observed between the sound of an amplifier or preamplifier when it is first turned on and that when it is fully warmed-up.

### Conclusion

To sum up my findings: The Inouye Synergistic Power Line Conditioner had positive effects on the system's sonics when CD players were plugged into it; it had, as best as I can conclude, no effect on the Linn Sondek (though it might offer an improvement with turntables driven directly from the mains voltage, particularly in areas where the mains is particularly dirty); it changed the sound of the Vendetta Research phono preamplifier and the Krell KSA-50 in ways that I felt to be worse; it changed the sound of the VTL monoblocks and of my class-A headphone amplifier in ways which I felt to be improvements; and it effected an astonishing improvement on the sound of the PS Audio 4.6/M-500 combination's line stage. (Any improvement from its use with electrostatic speakers is still to be reported on.) As Larry Archibald offered when I discussed this review's findings with him, "it appears the better a component's power supply, the smaller the degree of improvement offered by the Inouye," which I suppose is pretty obvious when you think

about it, as is "the better the quality of your mains and the cleanliness of your RF environment, the less need you have for such a device." Except that this neat theorizing doesn't jibe with my experience of the PS Audio preamplifier.

Well-made, and certainly offering very positive effects with some of the equipment with which I used it, the \$525 Inouye faces stiff competition from Adcom's ACE-515 (\$180), from The Audio Advisor's TrippLite LC-1800 (\$308), and even from Straight Wire's Power Purifier 8 (\$495). *Stereophile* received a significant amount of strongly dissenting mail from readers following the appearance of Lewis's mainly negative review last April (for example, see the letter from Mr. William Beuthel of Denver, CO, in Vol.11 No.11, p.27). As the SPLC's effect will be component-dependent and will also depend on the degree to which your AC mains is noisy or contaminated,<sup>4</sup> I suggest that, if you can find a dealer willing to cooperate, you try the Inouye with each of your components in your own system before making a final purchase decision. You may find that you get the same improvement with your preamplifier that I did with the 4.6. As for me, the Inouye's effect on CD replay in my reference system was sufficiently great that I wouldn't want to part with it. **S**

<sup>4</sup> Someone living in the heart of a city, with a large variety of thyristor dimmers, TVs with switched-mode power supplies, and electric motors of all kinds, will be in a situation very different from someone who lives in the remote depths of one of the mountain states.

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## THE CARTRIDGE CHRONICLES: PART II

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Thomas J. Norton

In the first part of this survey (*Stereophile* Vol.12 No.2, February 1989), I looked at four moving-coil pickups. They weren't the most expensive on the market by a long shot, but you aren't likely to find any of them in your local Circuit City, either. In this episode we'll cover two fixed-coil pickups—of the moving-magnet variety—and a single moving-coil, these pickups ranging from \$100 to \$550 in price.

Fixed-coil pickups have, in general, one distinct advantage over the vast majority of moving-coils—they require no step-up device beyond the standard phono input. Since good

moving-coil stages are generally expensive, especially those which justify the use of a high-priced moving-coil, a significant saving is possible if you don't already own a preamp with suitable gain. If you're of the school which believes in using a low-output moving-coil straight into a normal phono input, this may not be a consideration, but low noise is. There is no free lunch.

The same associated equipment was used in these evaluations as in the last installment: Well-

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<sup>1</sup> Discounting, of course, high-output moving-coils.



Tempered Arm on VPI HW-19 Mk.II turntable, Klyne SK-5a preamp (without use of its switchable MC high-frequency compensation circuit), PS Audio 200cx power amp, and B&W 801 Matrix loudspeakers. Interconnects were Monster M-1000, speaker cable Monster M-1. All measurements were made at the tape-monitor outputs of the Klyne (which means that they include the frequency response of the latter, a minor consideration since it is far flatter than that of any of the cartridges). The arm rest of the WTA, which some have accused of resonating, was removed in all listening evaluations just as a precaution; a soft (dry) sponge under the arm tube in the rest position kept the styli from plopping down onto the turntable sub-chassis.

A brief comment on tonearm compatibility: In general, any of the moving-coils (here or in Part I) should present no difficulties with any typical medium- to medium-high-mass audiophile tonearm. The Ortofon and Shure pickups are, however, higher in compliance than the moving-coils. Either one, but especially the Ortofon, would be better suited to a lower-mass arm. (The Shure damper slightly lessens its sensitivity to a mismatch.) The Well-Tempered Arm, because of its inherently heavy damping, appeared well matched to all of the pickups, which is why (aside from its fine sonic attributes) it was used in this survey.

In Part I, I commented on the problem of physical clearance between cartridge and disc. I had a serious problem with the van den Hul MC One (its replacement has not yet arrived as of this writing), and minor difficulties with the Monster Genesis 500 and the Krell KC-100. In this installment, only the Ortofon 540 had a clearance so minimal as to discourage VTA experimentation. I have not yet determined if this is a "design trend," but it *could* cause difficulties when using such pickups with turntables lacking any provision for flattening warped recordings. It may not always be useful advice, but, as always, your best protection in insuring compatibility is a dealer you trust.

### **Ortofon 540: \$300**

Ortofon wants to be your cartridge company. Or so it seems, given their introduction of a number of totally new models in the last couple of years. They are, it would appear—much like Grado Labs—still heavily dependent upon the phono cartridge for their bottom line, unlike



**Ortofon 530 cartridge, which shares a common body with the 540**

several other major pickup manufacturers who are branching out into things digital and video.

The 540 is Ortofon's top-of-the-line moving-magnet cartridge. The 500 line consists of three models, different (apparently) only in stylus sophistication. The 520 has an elliptical tip, the 530 a fine line, and the 540 the so-called Fritz Gyger II. The latter appears to be similar in concept, though not identical in shape, to the van den Hul Fritz Gyger, the designer of the Fritz Gyger II (to state the obvious), is apparently also responsible for the design of the so-called Replicant stylus, used in Ortofon's flagship MC3000. All three of the 500-series pickups are also available for P-mounting, for the information of our two subscribers who are into such bizarre activities.

Output voltage is specified at 3.0mV at 1kHz, 5cm/s lateral velocity, while cartridge mass is a modest 5.0 grams. Optimum downforce is said to be in the 1.25–1.5gm range.

**The Sound:** One of the problems in a cartridge survey of this nature is that you run the risk of being hypercritical of perfectly good middle-of-the-road cartridges. The 540 is a very respectable performer about which I may be more critical than it deserves. I simply never really warmed up to it. Its measured performance, as we shall see, was impeccable. It did nothing really "wrong" and never offended, but somehow it never really moved me in the ways in which the better moving-coils or, more to the point, the comparably priced Grado MCZ (review to come soon) did.

I admit to a certain ambivalence concerning the Ortofon, however. It does have a number of definite strengths. Its high-frequency response

was extremely clean and properly balanced. Sibilants were particularly well-controlled. Hard transients—plucked guitar strings, the details lending character to various percussive instruments, and the like—had a natural clarity, neither dulled nor excessively etched or over-bright. In the low end, the 540 had a respectable solidity, although it tended toward leanness and detail at the expense of extension and weight. Midbass was neither lean nor under-damped, walking a fine line between the two. Instrumental timbre tended to lack warmth—though not to the extent of drying up the overall balance—but otherwise was difficult to fault.

In short, for every one of the 540's sonic strengths, a counterbalancing weakness detracted from my enjoyment. Some examples may best illustrate what I mean. On *Kor* the 540 had good detail within the chorus and excellent differentiation of individual voices, but compared with the best pickups its reproduction of ambience was a bit hard, its layering less dimensional. On *Magnum Opus Volume 2*, the 540 presented a very detailed sonic picture; the reedy quality of the high pipes was distinctly evident. The Ortofon's bass on this recording was taut and detailed, with no muddiness whatsoever. Yet its low end was noticeably less deep and unrestricted than that of some of the other pickups in this survey. The 540's soundstage was smaller, less open. And although its high end was very detailed, its sense of air and top extension was no better than the other non-moving-coils.

The Ortofon reproduced "*Live*" *Direct-to-Disc Flamenco Fever* with obvious detail. The solo voice was well-focused; bass—footwork and drums—was distinctly taut; guitar had a sparkling sound. But the presentation was cool and rather lean, and depth was less pronounced in comparison with the better pickups, with a less spatial audience sound and less clear delineation of movement of performers within the soundstage.

**The Measurements:** The frequency response of the 540 was extremely flat:  $\pm 1.0$ dB from 20Hz to 12.5kHz on both channels (the channels weren't absolutely identical, but the differences were inconsequential—more than 1.0dB at only 1.2dB at 40Hz). The left channel was  $-2.3$ dB at 20kHz, the right  $-4.0$ dB at the same frequency. The lower-treble/upper-midrange

dip so common in other pickups around 5.0kHz was entirely absent here, the only notable deviation being a slight rise at 8–10kHz ( $+1.2$ dB in the *worst* channel). It must be noted, however, that the 540, like most moving-magnet pickups, is sensitive to load capacitance. The measurements, and much of the listening, were done with a total load capacitance of 218pF (25pF preamp input, 168pF for 1m of Monster M-1000 interconnect, 25pF for the capacitance of the internal wiring of the Well-Tempered Arm). Increase the capacitance beyond that point, and the mild rise at 8–10kHz becomes more pronounced, the dropoff at 20kHz more severe. (An extreme case: with 548pF total load capacitance, the left channel peaked at  $+3$ dB at 8kHz and dropped to  $-8.1$ dB 20kHz). In my opinion, the 540 should be used into 250pF (or less) load capacitance. If your preamp input has a fairly high input capacitance,<sup>2</sup> you might be able to compensate with a low-capacitance interconnect. Be advised: many audiophile-grade interconnects are fairly high in capacitance. I measured Stralght Wire LSI, for example, at 283pF/meter, Cardas Hexlink at 395pF/meter. Obviously, I recommend neither for use with the 540, or with any other pickup sensitive to load capacitance (moving-coils and Grados are not). The modest MAS Musicable, on the other hand, measured 65pF/meter.

The Ortofon 540 tracked well up to 80 $\mu$ m. Subjective tracking was comparable with any pickup in the survey, including the most expensive.

**Conclusions:** The most difficult review to write is of a product which the reviewer feels is good when judged on any objective basis, but which fails to push the right buttons. For me, the 540 is just such a product. If you take my chosen test record as a reference, the Ortofon is inarguably flat. The upper-midrange/lower-treble dip of some cartridges—the Grado family, for example—undoubtedly contributes to their feeling of depth and their refusal to sound anything but sweet except with the most egregious program material. The Ortofon, with its measured linearity through the midband, is not at all euphonic. But remember my caution concerning test records—they're all a bit different. And this isn't *Stereo*

<sup>2</sup> This information is often unpublished. Check with the manufacturer of your preamp.

*Review*; until I can compare a 540 with a Grado MCZ with an identical frequency response (not likely), I'll have to go with my subjective impressions. In the right system, the Ortofon may well lock in to provide a rewarding match. It certainly does many things well and nothing really poorly. But it was, for me, merely competent; I was not moved to describe it with superlatives in any way.

### Shure VST III: \$100

Tom has just laid out a fortune for a new amplifier and speakers and he still needs a new cartridge. His old one never was anything special, but lately it's been sounding more tired than ever. He'd like to buy a vdH or a Krell or a---- (fill in the \$\$\$\$), but those other purchases have laid him out like a mackerel. . . . Dick just had a little "accident" and is now faced with a \$600 replacement bill for a busted cantilever on his \$1000 cartridge. Something about a party. He'll replace that moving-coil eventually, but needs something to tide him over without making a big dent in his "save for a replacement" budget. . . . You're putting together a modest system for Uncle Harry. Harry has a big collection of "classic" MOR music (he's big on Lester Lanin), but doesn't have a big budget. Or. . .

You get the picture. I'll venture that most of our readers are looking for something a bit more upper-end than a "lowly" \$100 moving-magnet cartridge. You probably think that such a cartridge has to sound impossibly ratty. For hoi polloi, *lumpen*proles, and their ilk.

If that be true, then the ilk are in on a well-kept secret. Shure's VST III is certainly no substitute for the best high-end pickups, but it won't make you reach for *TV Guide*, either. Even in a high-end system. I say that because

my first reaction after installing the Shure in the WTA and putting on a favored recording was one of disbelief. Perhaps I was expecting what most audiophiles instinctively expect from (relatively) cheap pickups—not much. What I heard was a decent soundstage, a clean, non-irritating high end, very good tracking (*that* was no surprise), and, overall, a very satisfactory performance overall.

But a performance, it must be said, which is unlikely to satisfy the very critical listener over the long haul. The positive traits I have listed were quite apparent. If your expectations are modest, you might be tempted into a long-term relationship with the VST III. It is certainly inoffensive, its failures subtractive rather than additive. Critical audiophiles, unfortunately, have a tendency to either praise to the skies or condemn unmercifully. On that basis, the Shure remains earthbound. Its uppermost highs were subdued, shaving off critical bits of information: ambience was dulled, the sense of openness and HF extension limited, and the overall effect noticeably "closed-in." Midrange was a bit forward, but at the same time lacked fully developed "life" or presence. Bass was strong and well-extended but softened, as were dynamics. Soundstage, as noted, was effective, but depth only moderately well-developed. And surface noise, paradoxically considering the VST's balance, was more prominent than on cartridges with more fully developed detail.

Let's be fair, however. I'm comparing the VST III with the sound of top-quality pickups eight to ten times its modest cost. If small details on, for example, *Ojehokoren—Cyndee Peters* (Opus 3 77-04) were less than arresting—the curtailing of the airy, ambient environment surrounding the performers and the openness of Cyndee Peter's voice soaring gently above the chorus; the sense, in short, of "being there"—you don't really expect them at this price. If the VST III fails to totally involve the listener, it also fails to distract from the essential enjoyment of the listening experience. Remember, my first reaction—before getting analytical, as critics are prone to do—was favorable. Inner clarity and detail may not have been totally convincing, but the Shure does not sound dull. Veiled, yes—reminiscent of a thin gauze curtain between the listener and the performers—but a curtain light enough to leave the musical fabric essentially intact. Depth was foreshortened, but not lost. Bass may not challenge the ulti-



Shure VST III cartridge

mate definition of your subwoofers, but it will give them something to think about.

A word on the Shure damper brush. For the neophytes in the group, the VST III incorporates the damper adapted from its more expensive pickups—a small brush with a damped hinge attached to the pickup body. It is designed to ride on the record during play, not only cleaning the disc, but providing damping which effectively minimizes the amplitude of the low-frequency arm/cartridge resonance. In contrast to the experiences of others in the audiophile press, I found that the use of this damper actually improved the overall sound, increasing HF clarity and detail. In any event, it won't cost you anything to experiment. I suspect that the effectiveness of the brush is arm-dependent.

**Measurements:** Loaded with a total of just under 300pF load capacitance, the general response trend of the VST III was smooth, but tapered off at the top end. It was up very slightly at the low end (+0.1 to +0.8dB from 20Hz to 1kHz left channel, flatter on the right), then dropped to between -0.8 and -1.5dB (left channel, -2.1dB right) from 1kHz to 12.5kHz. The trend at HF was down: -2.5dB at 16kHz, -5.3dB at 20kHz (for left channel; -3.7dB and -7.4dB respectively for the right). The measurements above were taken (and all listening tests were conducted) with this loading. The effect of changes in the load capacitance were less pronounced than with the Ortofon 540. Increasing it increased the rolloff at 20kHz, reducing it to about 225pF slightly reduced the HF rolloff (to -2.5dB at 16kHz, -4.2dB at 20kHz, left channel) but also reduced the output from 8kHz to 12.5kHz by about 0.5dB. Tracking was good up to 80 $\mu$ m, with excellent subjective tracking on a wide range of recordings.

Output is the same as the Ortofon at 3.0mV (1kHz, 5cm/s), while cartridge mass is a little higher at 6.6gm. Maximum downforce is specified at 1.25gm, the brush requiring another 0.5gm.

**Conclusion:** The VST III was not shamed in use through a high-end system. If it failed to remind me of its more pricey competitors, it did remind me of something else. In the immortal words of the bard,<sup>3</sup> "*Déjà vu* all over again"; the Shure is reminiscent of the best moving-

magnet cartridges of the mid-'70s, but with better tracking. Those pickups generally sold for under \$100 in that deflated era; we've come a long way since then, but for a price. The Shure is unlikely to satisfy the serious audiophile for critical listening, but it might make for an affordable, very listenable cartridge for non-critical sessions—those occasions when you want to enjoy those less-than-striking-sounding recordings for their musical merit. If you have the capability to make quick cartridge changes, the Shure would provide a yeoman back-up capability and spare wear and tear on the family jewel. Especially if the system is used by others. For full-time use, however, Tom and Dick will likely replace it at the first opportunity. And Uncle Harry? Those Lester Lanin recordings never sounded better. All a matter of your expectations.

### Audioquest 404i-L: \$550

Audioquest is perhaps best known for their LiveWire connecting cable and their audio accessories. But they have been marketing cartridges almost from their inception. The 404i-L moving-coil is an updated version of the earlier 404, first made available in 1982. The L indicates the standard low-output version (0.5mV, 1kHz, 5cm/s lateral velocity); a 404i-MH (for mid-high) is also available with an output high enough to drive a standard phono stage (1.4mV). The 404i-L incorporates a hollow boron cantilever with a line-contact stylus mounted in a rigid, cast-metal body. The overall mass was unspecified, but I estimated it to be around 8gm.

**The Sound:** The Audioquest 404i-L wasn't auditioned until the very end of this survey. Nothing personal, it just worked out that way. I wish it hadn't, because the 404i-L was one of those pleasant surprises that every reviewer hopes for but doesn't really expect. Briefly stated, the 404i-L was a delight, in many ways the "find" of the survey. By that I *don't* mean that it was the best-sounding cartridge of the seven reviewed (including those in Part I), but it provided a strong taste of the best qualities of the better \$1000 pickups (at least those that I have auditioned) at half the price.

Before this turns into a love-fest, let me briefly point out the areas where I felt the 404i-

<sup>3</sup> Yogi Berra.



### Audioquest 404i-L cartridge

L came up a bit short. While it was respectable in three-dimensionality and depth, the latter was somewhat truncated. Overall, the sonic perspective was a bit forward, especially through the upper midrange and lower treble. A hint of hardness was sometimes evident, although it was not consistent. And the Audioquest's low-frequency response was tight but lacked the last word in potency and extension.

But the 404i-L's positive qualities were immediately apparent. It was open, clear, transparent, and, yes, "airy" in a way which the non-moving-coils surveyed could not match. Although, as I have stated, it lacked the last word in depth, it was *not* flat or two-dimensional. Its overall soundstage was good, with notably tight focus. That elusive "jump factor" was present; the 404i-L is a "fast" cartridge. But this quality didn't appear to come from any exaggeration of the high-frequency response. There was excellent inner detail, yet never an etched or clinical quality. The HF qualities varied with the program material—a good sign, indicating that the cartridge did not dominate the program material with its own colorations. Bright, hard transients were fast and open—the snap of a closely miked guitar string, the sparkle of a brushed cymbal (with the right combination of sizzle and silkiness). But that character was properly tamed when a softer touch was called for. On Debussy's Sonata for Violin and Piano (Wilson Audio W-8722), for example, the violin was sweet and warm, with the sound of the rosin on the bow audible but not obtrusive. The sound here was naturally detailed, but in no way bright or edgy. And sibilants were particularly well-controlled, clear yet never spitty or sandpapery—the latter a sure sign of either a tipped-up high-frequency

response or poor tracking. The 404i-L showed no sign of either problem.

Compared with an early version of the Grado TLZ—a cartridge directly competitive in price—the Audioquest was leaner and more detailed. Low-frequency response was less extended, but tauter through the 404i-L; highs were more detailed, but less sweet. The Grado had the more three-dimensional image and more expansive soundstage, the Audioquest had more "life" and drive. The TLZ was more laid-back, the 404i-L more up-front and punchy. They sound quite different, and if pressed I'd have to call the Audioquest the more neutral of the two. But the Grado is extremely listenable, and requires no step-up device.<sup>4</sup>

(The Audioquest has the highest output of all the moving-coils surveyed. That means you *might* be able to get away with using it without a step-up device, depending on your system's gain and noise level. I tried this briefly. The Klyne had a bit too much hiss for this to be totally successful, and I'm still not convinced that 47k ohms is a suitable load for a moving-coil. I used the 80-ohm setting of the Klyne pre-preamp for most of my auditioning. I have not auditioned the MH version of the Audioquest, which has a specified output virtually the same as that of the Grados.)

**The Measurements:** The 404i-L didn't sound as if it had a high-frequency peak, nor did it measure that way. Above 1kHz the response was -1.5dB left channel, -1.7dB to -2.0dB right channel, from 4kHz to 12.5kHz. At 20kHz, the left channel was -0.4dB, the right -2.5dB. Below 1kHz there was little worth commenting on—a gradual rise to +0.9dB in the 20-40Hz region (left), +1.1dB at 20Hz (right).

The Audioquest's measured tracking ability was its only real problem area. At the recommended 1.8gm (used in most of the listening tests) it was only able to track 60 $\mu$ m. Increasing the downforce to 2.1gm allowed it to *just* manage 70 $\mu$ m; 2.3gm gave marginal results at 80 $\mu$ m. Increasing the force to 2.1gm did seem to reduce the touch of hardness which was sometimes noted in the listening tests. Aside from that, however, the *subjective* tracking abil-

<sup>4</sup> After these comparisons had been concluded, Joe Grado informed *Stereophile* that the MCZ and TLZ auditioned were not representative of current production. I will be reviewing the current versions of these promising contenders within the next two or three issues of the magazine.

ity of the Audioquest, as I have already noted, never gave any cause for concern. (Keep in mind that the measurements only show the tracking in the upper bass—300Hz.) It should be said, however, that in my experience the Well-Tempered Arm has managed to extract good tracking from pickups which had caused problems in more conventional arms.<sup>5</sup>

**Conclusion:** The Audioquest has a lot going for it. Because of an impending deadline, I wasn't able to spend as much time with it as with the other cartridges, but I have no problem whatsoever in giving it a strong recommendation.

## Overall Conclusions

It should be obvious that I found the best of the moving-coils to be superior to the best of the fixed-coils. The latter couldn't match the tight focus and "air" of the former, yet the fixed-coil manufacturers have argued that there is no inherent reason why this should be so. They have a point. But when they sometimes argue that moving-coils are inherently *inferior*, I have to point out that record *cutting* heads are all, to my knowledge, moving-coils. That isn't an argument for the superiority of the moving-coil, just an observation that every recording you hear has already passed through one such device on its way to the lacquer. The argument is also made that the distinctive, lively quality of moving-coils is due to "ringing," to which they are said to be prone. Perhaps. But it's a fact that all physical systems ring or resonate in some fashion in response to an excitation; you can damp such ringing either by the selection of the material used in construction or by later application of well-chosen damping materials. The history of audio transducer design is a history of attempts to control ringing and resonance by placing them out of the audible band or by applying appropriate damping, *without* throwing the baby out with the bathwater by deadening the transient response. Compromises are inevitable.<sup>6</sup>

5 My infamous Dynavector 17D had tracked poorly in a Premier FT-3, but was surefooted in the WTA.

6 A distinction must be made here between damping of the actual transducer system, be it pickup or loudspeaker driver (or driver/enclosure system), and damping of the system supporting structures: cartridge body or loudspeaker cabinet structure (as contrasted to the interior airspace/port). The damping of the former must be carefully balanced. The damping of the latter, in my opinion, cannot be overdone (within practical physical limitations).

Also, to repeat an important point, there is the question of frequency response. The measured response of these pickups does relate, in a fashion, to their sonic character. But recall again that, until there is agreement on a test record which is an *absolute* reference (and, in the wake of the digital juggernaut, don't hold your breath), test-record results must remain useful but relative guides, not holy writ. One observation must be made concerning the CBS CTC 330 test record used here. On a significant number of the measurements made in this survey, the right-channel frequency response measured down by an average of about -2.5dB at 20kHz and -1.2dB at 16kHz. Though this may not be statistically conclusive, I am inclined to discount any channel mismatch of that degree as an aberration of the test record.

In truth, none of the pickups evaluated here is likely to seriously disappoint, in the right system, but *my* top choices are very definitely the van den Hul MC One, the Krell KC-100, and the Audioquest 404i-L. I confess to a slight overall preference for the Krell; it simply locked into my system better than the others. But I could live quite happily with either of the other two; I don't see how you could go wrong with any of them.

## Manufacturer/Distributor Addresses

**Audioquest**, PO Box 3060, San Clemente, CA 92672. Tel: (416) 475-8643.

**Ortofon**, 122 Dupont Street, Plainview, NY 11803. Tel: (516) 349-8670.

**Shure Brothers, Inc.**, 222 Hartrey Avenue, Evanston, IL 60202. Tel: (312) 866-2200.

### From Part I:

**Audio-Technica US Inc.**, 1221 Commerce Drive, Stow, OH 44224. Tel: (216) 686-2600.

**Monster Cable Products Inc.**, 101 Townsend Street, San Francisco, CA 94107. Tel: (415) 777-1355.

**Music Hall** (Audio-Technica AT OC-9), 108 Station Road, Great Neck, NY 11023. Tel: (516) 487-3663.

**Krell Industries**, 20 Higgins Drive, Milford, CT 06460. Tel: (203) 874-3139.

**Transparent Audio Marketing** (vdH), Box 117, Rt. 202, Hollis, ME 04042. Tel: (207) 929-4553. **S**

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# NITTY GRITTY HYBRID LP / CD CLEANING MACHINE

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John Atkinson



**Nitty Gritty Hybrid Record/CD cleaning machine**

LP/CD cleaning machine. Price: \$550 (\$610 with oak finish). Comes with 16oz bottle of Purifier 2 LP cleaning fluid, 4oz bottle of Pure CD, and small whisk to clean Vac Sweep lips. Replacement Parts: Purifier 2 LP cleaning fluid, \$12.95 (16oz), \$44.95 (1 gallon); Pure CD cleaning fluid, \$9.95 (4oz); Vac Sweep replacement kit, \$9.95; Capstan replacement kit: \$9.95. Nitty Gritty coffee mug: \$3.95. Approximate number of dealers: 150. Manufacturer: Nitty Gritty Record Care Products Inc., 4650 Arrow Highway, F4, Montclair, CA 91763. Tel: (714) 625-5525.

The beauty of formative experiences is that they are easy to remember, resulting in a plentiful supply of anecdotes with which to open pieces of writing. Take, for example, the subject of record cleaning. Never one to take on tasks unnecessarily, I always found the whole subject of keeping records in visually pristine condition a royal pain in the keester. In addition, the whole ritual involving unguents, emollients, brushes, creams, and lotions carefully and painstakingly applied both to record and to stylus, struck me both as obsessive and something that delayed the act of listening to *music* too much to be bearable. When I beheld Naim Audio's Julian Vereker cleaning a record at an audio show in 1977 by rubbing it on his sweater, I was already wide open to his argument that, hey, why do you need to keep rec-

ords in an apparent state of pristine grace? It is only the dirt on the groove walls that matters, and with the high contact pressure involved, the stylus can do a pretty good job of pushing such groove dirt out of its way. If you hear ticks and pops from your system while playing LPs and they're not due to static, then there is something wrong with your system. (Actually, JV said "turntable," but we're all more open-minded now, aren't we?)

Resonances in the pickup cartridge, tone-arm, turntable, and loudspeaker exaggerate the nature of the sound produced by the small items of debris not forced out of the way by the stylus. The preamplifier RIAA equalization drastically rolls off the highs from any transient leading edge from a "tick," turning it into a much more subjectively endurable "plop," but

any mechanical resonant behavior will restore the annoyance of the noise. Add, then, the fact that many preamplifiers back then in the dark ages of the late '70s had such limited HF overload margins that *any* transient would send them into hysterics, and it is not surprising that audiophiles became convinced that record dirt was a universal barrier to the enjoyment of recorded music.

Me, I bought the first of three Linn Sondek LP12s and found that, yes, the subjective annoyance of record ticks went down, even with the SME 3009 III and Shure V15 IV I was using back then. Since then, better tonearms, *good* MC cartridges—therein lies a tale—and, most importantly, better *preamplifiers* have kept surface noise down to a minimum in my various systems. Apart from keeping the grooves free from superficial dust with a carbon-fiber brush, and keeping static down with a humidifier and Discwasher Zerostat pistol, I have virtually no problems with record ticks and pops. You don't believe me? Ask Larry Archibald, a regular visitor to my listening room, if he is disturbed by noise when enjoying LPs in my system. Or even the venerable JGH, in whom we trust.

But . . .

Some of my records *have* been getting noisier than others. (I don't play those for Larry, and Gordon wouldn't listen to them anyway—they're mainly rock.) And my bride of just over a year had brought with her to Santa Fe a dowry of some of the dirtiest records I have ever laid eyes on! So when the chance came to try Nitty Gritty's fairly new<sup>2</sup> "Hybrid" LP and CD cleaning machine, I jumped at it.

The Hybrid appears to be based on Nitty Gritty's 1.5/2.5Fi Mk.II LP-cleaning machines,<sup>3</sup> the only apparent difference being the addition

of an integral acrylic dust cover, to which is attached a buffing pad for CDs, and an eccentric cam/CD support that plugs into the LP-drive capstan to provide a suitable nontangential cleaning motion. Looking at the machine from left to right, a small rotating platter with a central spindle supports the label area of an LP. To its right is the vacuum slot, with lips consisting of a fine-fibered brush material Nitty Gritty calls "Vac Sweep." To its right is a small rubber puck/capstan that rotates the LP by rubbing on its rim, a three-position rocker switch, a hole to store the CD adaptor, and a larger hole to store the CD cleaning-fluid bottle. Finally, the right-hand side of the machine consists of a reservoir for the "Purifier 2" record-cleaning fluid—it holds 16oz—and a pushbutton to pump the fluid on to the brushes either side of the vacuum slot. Underneath is a plastic tray to catch waste fluid. While the top of the Hybrid is made from a black plastic material, the lower half of the plinth is available in wood-finish vinyl or, for an additional \$60, a satin-finish oak veneer.

To clean an LP, the user first pumps fluid on the brushes until they are saturated with Purifier 2. You then push the LP against the rubber capstan, engage its edge with a slot, and lower it on to the spindle. Pushing the on/off switch away from you turns on the capstan motor and the LP is revolved two or three times to thoroughly wet the grooves and allow the fine bristles of the brush to lift groove debris into suspension. The switch is then pushed toward the user, the motor turns on again but now a powerful suction action removes the solution and the dirt with it. Because the side being cleaned is facing down, gravity helps to keep muck suspended free from the groove walls before the vacuum has had a chance to remove it. Three to five revolutions of the record are sufficient for the record to be left completely dry and clean.

To clean CDs, the cam/CD support is plugged into the capstan—you have to push all the way and turn to lock it into place—and the CD placed upon it playing side up. A line of "Pure CD" cleaning fluid is applied from the dispensing bottle along a diameter, with maybe a sec-

1 "Unfair," protests Laura, pointing out that she keeps her records in excellent condition. The dirty discs are her *mother's*.

2 That really should have read "new," and you should have been reading this text many months ago, but the Hybrid fell prey to the kind of confusion that occasionally befalls review samples. We originally sent it back in mid-1988 to Bill Sommerwerk in Mechanicsburg—love that name, and it was so appropriate, Bill being such a techy—Pennsylvania, but Bill moved to the Northwest and it missed him by days. The Nitty Gritty finally followed BS to the land of rain, but he got deeply embroiled in his new job of writing software manuals, and by the time he was ready to start work on the review, I had him tied up with surround-sound processors and inexpensive amplifiers. It finally arrived back in the land of enchantment—well, that's what New Mexico license plates started saying when *Stereophile* went monthly—and I deputized myself to embark on the review as being the least likely person to want to use the machine. And you think everything runs like clockwork here?

3 Differences between the Hybrid and Nitty Gritty's less expensive machines comprise the motor to rotate the LP and the reservoir/pump system to wet the brushes, while the more expensive Mini-Pro 1 and 2 have a second, upper vacuum slot so that both sides of the record can be cleaned simultaneously.



ond one at right angles to the first if the disc is very soiled. The motor is then started (but not the vacuum) and the lid with its buffing pad is lowered on to the CD. After 30–60 seconds, the CD is clean and static-free and the lid should be carefully raised to prevent the CD from flying off while the motor is still turning.

Nitty Gritty supplies a transparent LP and pocket microscope to their dealers in order to demonstrate the efficacy of their machines' cleaning actions. As they also sent one to me, my first test was to try it for myself. I sprinkled one side of the album with a mixture of fine dust from the yard and talc (my wife's *Magie Noire* from Lancome, for those who want full experimental details). Looking at the disc through the microscope revealed, as expected, grooves that looked as though an entire football squad had wiped the gack from their uniforms with the disc. I primed the Vac Sweep lips with 15 pushes of the pump; on to the Hybrid went the disc, its edge engaging the slot in the edge of the capstan; the rocker switch was pushed back and the disc was rotated past the wet brushes for two revolutions; the switch was then pushed to the forward position and the disc revolved for three revolutions while the vacuum pump did its stuff.

The result was remarkable. A dry, clean record, with no line of gunk left where the sweep had been when I turned the machine off and with only an occasional speck of talc or dust in the grooves evident through the microscope. A second cleaning removed even these. Other users of cleaning machines have warned about residues left in the grooves when the cleaning liquid evaporates. Using the clear record and suitably strong lights, I failed to find any evidence of such a residue. A caution: Nitty Gritty warns against overfilling the reservoir. It is very tempting to empty the entire 16 ounces of Purifier 2 liquid into the reservoir all at once. Of course, I did just that. When the container is full, the fluid creeps out of the top, even when the cap is screwed tight, due to its very low surface tension.

The time had come for a real record.

I reached for my British RCA pressing of *Casino Royale*, well-chewed by countless cartridges and exposed to the ravages of the elements (and paper inner sleeves) for some 22 years. The background groove noise is not particularly high in level, but has a gritty quality. Just one clean on the Hybrid reduced this to

an occasional minor tick, taking the intrinsic background noise below the level of the master tape hiss. What I had *not* expected, however, was a change in the tonal quality of the music! A slightly harsh edge to the sound of voice and saxophone had gone, the sounds being now considerably more natural.

I found this effect astonishing—and consistent, particularly with older records. Some old Deccas, for example, have got increasingly noisy with age. The Nitty Gritty, again, both cleaned up the groove noise and rendered the overall sound more smooth. I can only assume that the various soaps and additives that are added to the vinyl biscuit to facilitate pressing gradually leach out the body of the record over time, rendering the groove wall more granular in texture. Presumably the thorough scrubbing and vacuuming of the groove performed by the Nitty Gritty machine removes this garbage, leaving the groove wall in a more homogeneous condition.

What the machine cannot do, of course, is compensate for the effect of groove damage from poorly tracking cartridges or from scratches. These the LP owner has to live with, unfortunately. No record-cleaning system can compensate for handling abuse, and cleaning my mother-in-law's Mario Lanza records did nothing about the myriads of fine scratches, even while lowering the level of background groove noise and improving the overall sound.

When it comes to CD cleaning, I am more skeptical. Couple the fact that CD players have powerful error correction with the fact that the disc is played upside-down so that gravity helps surface dross to be flung off the rotating disc, and I am not convinced that a CD needs any more help in keeping clean as long as it is well looked after and handled properly.

There lies the rub, however, as I never failed to be astonished by the muck and grime present on even new CDs, fingerprints in particular. The Nitty Gritty Hybrid proved excellent at leaving CD surfaces in mint condition, though monitoring the level of corrected errors using the appropriate LED on a Meridian MCD-Pro player revealed no significant improvement with any of the CDs I cleaned. (I suspect that most errors are due to microscopic scratches rather than to surface dirt.) However, a clean CD is certainly a thing of joy, and the Hybrid does get the little silver devils clean. As the CD adaptor only increases the price of the LP clean-

ing machine by \$60 or so, I recommend that you might as well get the Hybrid. And for those who scour the secondhand CD market, it will be an essential purchase, forming a synergistic partnership with a proprietary scratch remover such as CD Saver.<sup>4</sup>

### Conclusion

I still feel that if you are plagued with record noise, you should seriously investigate your system to make sure that some components are not exaggerating the effects of ticks and pops. An MC cartridge with a response that rises like a ski slope in its top octave, used in a flimsy, resonant tonearm mounted on an inexpensive direct-drive turntable with a plastic plinth, will make even the cleanest LP sound like you habitually use your records to store lawn sand on. But given that you have a well-matched system, the Nitty Gritty Hybrid will work sonic

wonders on your LP collection, as well as keep your CDs clean. I repeat that the degree of improvement in the removal of a harshness on female voice had to be heard to be believed. My wife Laura wasn't even in the same room, yet she called out when I put the cleaned LP back on the Linn, asking what I had done to the system.

As far as domestic acceptability goes, having once tried a Keith Monks machine and found it large, noisy, and fiddly in the extreme, I was impressed by the Nitty Gritty's compact size, ease of use, and the small amount of time it takes to clean an LP or CD. Nitty Gritty is not going to get this machine back in a hurry.

Has the Nitty Gritty Hybrid converted me into the kind of fanatic who religiously cleans an LP twice before playing? Sorry, no. I still need my music fix in too much of a hurry for that degree of commitment. What I do, therefore, is to put on a CD and then happily clean my LPs, whistling while I work. **S**

<sup>4</sup> See JGH's reviews in Vol.10 No.8 and Vol.11 No.8.

## FOLLOW UP

### CD players

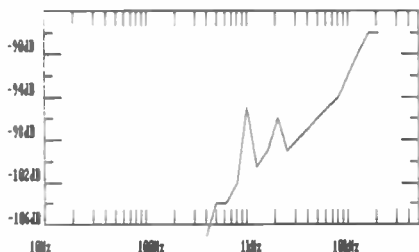
You will see from the reviews of the Accuphase and Theta decoders elsewhere in this issue that we have started to include in *Stereophile's* reviews the  $\frac{1}{2}$ -octave analyzed spectrum of a player's output while it reproduces the dithered -90.31dB tone from the CBS CD-1 test CD.<sup>1</sup> With an undithered signal, a tone at this level only crosses three quantizing levels and therefore is not sufficiently described for it to be reproduced as a sinewave. However, as the code representing this tone on track 19 on the CBS disc *has* had an appropriate amount of dither noise added when the CD was cut, it should reproduce as a pure, if noisy, sinewave. Any distortion components present can therefore be laid at the door of the individual player's decoder and electronics.

A  $\frac{1}{2}$ -octave spectrum analyzer obviously does not have sufficient resolving power to reveal individual distortion harmonics of a

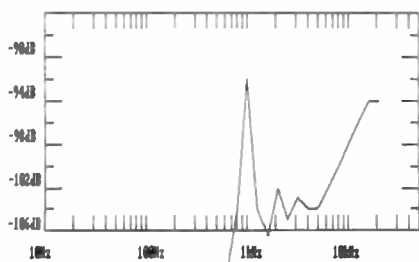
1kHz tone higher than the 8th, and the Audio Control analyzer we use has too limited a dynamic range to reveal the presence of harmonics that are significantly lower than -20dB with respect to the fundamental. Nevertheless, it *is* good enough to reveal major differences between CD players, giving an approximate idea of the levels of low-order distortion components present at low levels, as well as the level of power-supply-related noise. The graphical representation of a player's low-level performance is more informative, therefore, than a straight statement of by how many dB it compresses or expands the level at -90.31dB. (The rising level in the two octaves above 5kHz in all the spectra is, I presume, due mainly to the dither noise on the CD. However, as its level is not quite constant from player to player, it must also contain a contribution from decoder-generated spurious.)

For this follow-up, I looked at the spectra for two players that have been previously well-received by *Stereophile's* reviewers, the Mod Squad Prism and Sonographe SD1 Beta; a processor, the Sony DAS-703ES, that was one of

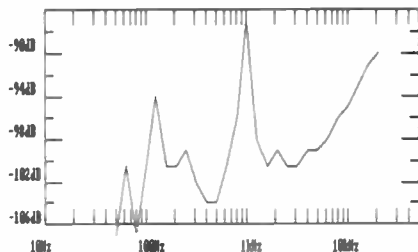
<sup>1</sup> Those interested in examining the low-level performance of CD players will find it well worthwhile investing in this disc. Priced at \$45 plus \$1.75 postage and handling, it is available from Old Colony Sound Lab, PO Box 243, Peterborough, NH 03458. Tel: (603) 924-6371, 9-4 EST, M-F.



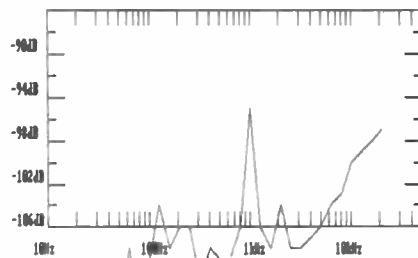
**Fig.1 Sony DAS-703ES: 1kHz tone at -90.31dB with noise and spurs**



**Fig.2 Mod Squad Prism**



**Fig.3 Sonographe SD1 Beta**



**Fig.4 Magnavox CDB472**

our references of a couple of years back; a recently discontinued 16-bit Magnavox, the CDB472; as well as the four players reviewed by Sam Tellig in his "Audio Anarchist" column this month: the Adcom GCD-575, Magnavox CDB582, Onkyo DX-G10, and Yamaha CDX-1110U.

Fig.1 shows the spectrum of the -90.31dB dithered tone when reproduced by the left channel of the Sony DAS-703ES. (The right channel was practically identical.) This 1986-vintage, then-state-of-the-art, 4x-oversampling, 16-bit processor shows quite a large negative level error at -90dB: -4.5dB,<sup>2</sup> this typical of the performance of a machine that uses the Philips TDA1541 dual 16-bit DAC chip. Note the very high level of second-harmonic distortion, however, and the much-higher-than-usual level of HF noise relative to the fundamental.

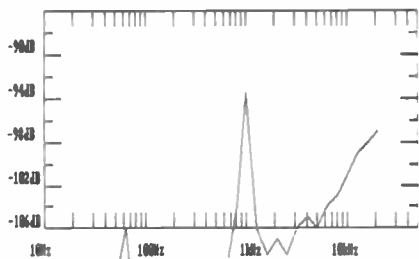
The spectrum for the Mod Squad Prism favorably reviewed by Tom Norton in May 1988 can be seen in fig.2. Again using the TDA1541 16-bit DAC chip, this player also shows an expansion error at -90dB, but much less than the Sony, -90.31dB reproducing as -92dB. Even-order distortion is evidenced by the raised levels of the 2kHz and 4kHz bands, 10dB and

12dB below the level of the fundamental respectively, but the sine wave is relatively pure nonetheless. Note the absence of mains-related products.

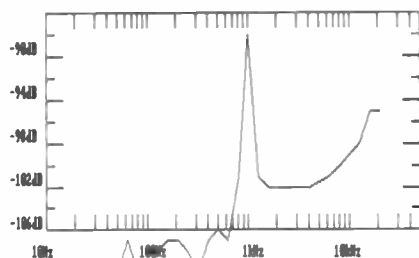
By comparison, the Sonographe SD1 Beta (fig.3) does show noise present at 60Hz and its multiples, the strongest component (-94dB) lying at 120Hz, the full-wave diode bridge switching frequency. Distortion levels are relatively low, however, the second harmonic being 12dB below the fundamental, the third 13.5dB, and the fourth 12dB again. Absolute level error for this machine, which uses Philips' earlier TDA1540 14-bit DAC with oversampling, is a hair over 3dB of compression; *ie*, the -90.31dB tone reproduces at -87dB.

Looking at the stock Magnavox CDB472, which uses a 4x-oversampling digital filter with true 16-bit DACs, this features a 4.5dB negative error at -90.31dB on the left channel (fig.4), the right channel being 1dB better. The main distortion component present is the second harmonic, at -104dB (9dB below the fundamental), and power-supply components can be seen at -108dB (60Hz), -104dB (120Hz), and -106dB (240Hz). The newer Magnavox '582 features much less level error at -1dB (right) and -2dB (left), despite being a very inexpensive player. Fig.5 shows the spectrum of noise and spurs for the left channel: there is still

<sup>2</sup> All levels are accurate to 0.5dB.



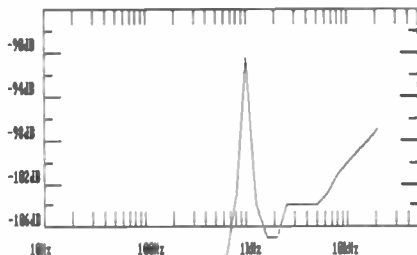
**Fig.5 Magnavox CDB582**



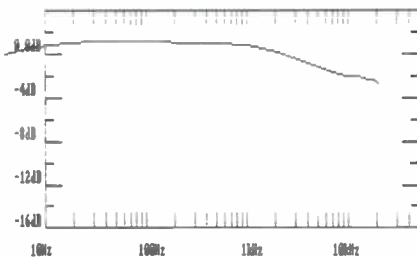
**Fig.6 Yamaha CDX-1110U**

some 60Hz hum visible (but hardly audible) at  $-106\text{dB}$ , but otherwise power-supply noise is lower than the older model, as is the level of second harmonic distortion. Third and fourth harmonics are noticeable, however, though these are still no higher relative to the fundamental than with the CDB472. Examining the frequency response of the CDB582, the lows were extended,  $-1\text{dB}$  at  $4\text{Hz}$ , while the highs showed a slight roll-off, the top audio octave being shelved down by  $0.3\text{dB}$ . De-emphasis was within  $0.1\text{dB}$  of perfect. Maximum output level is  $1.9\text{V}$ .

De-emphasis was also within  $0.1\text{dB}$  of flat from the unfiltered outputs of the Yamaha CDX-1110U. Down by  $0.7\text{dB}$  at  $4\text{Hz}$ , this pseudo-18-bit player was ostensibly flat throughout the audio range, with perhaps a slight ( $+0.2\text{dB}$ ) shelf in the midband. Fig.6 shows the spectrum of the noise and spurious while the Yamaha was playing the  $-90.31\text{dB}$  tone on the CBS disc. The absolute level error was mildly compressive, the left channel replaying the tone at  $-88\text{dB}$  and the right at  $-86.5\text{dB}$ . Hum at  $60\text{Hz}$  appears at  $-107\text{dB}$ , while the main distortion components present appear to equal levels of second, third, and fourth harmonic, at  $-102\text{dB}$ ; *ie*,  $-14\text{dB}$  relative to the  $1\text{kHz}$  fundamental. In this respect, this Yamaha is almost as good as the incredibly



**Fig.7 Adcom GCD-575**



**Fig.8 Adcom GCD-575: AFPC response**

expensive Accuphase player, the very expensive Theta DS Pre, and one channel of the merely expensive Onkyo DX-G10. The level of HF noise and spurious is also lower than usual. Maximum output level of the '1110U is  $2.1\text{V}$ .

Fig.7 shows the noise/spurious spectrum for the Adcom GCD-575. Any level error at  $-90.31\text{dB}$  was below the resolving power of the Audio Control analyzer. Power-supply noise was below the measurement threshold at  $-112\text{dB}$ . The Adcom was also excellent when it came to distortion, the main harmonics present being third, fourth, and fifth, all at  $-104\text{dB}$ ; *ie*,  $-14\text{dB}$  with respect to the fundamental and as good as the Yamaha at less than half the price. The maximum output level is higher than usual at  $2.55\text{V}$  from the fixed-output sockets, which will make the Adcom sound considerably louder in uncompensated switched A/B tests against other players. From the variable sockets, controlled by a front-panel knob, the '575's MOL is a high  $5.15\text{V}$ , making it suitable for direct-driving even the most insensitive power amplifiers. The Adcom showed rather more frequency-response variation than the other players, being  $0.7\text{dB}$  down at  $20\text{kHz}$  and  $2.3\text{dB}$  down at  $4\text{Hz}$ . With the "Analog Frequency/Phase Contouring" (AFPC) switched in, the response was markedly altered, as shown by fig.8. The entire midrange is boosted by just over  $1\text{dB}$ , while the treble is shelved

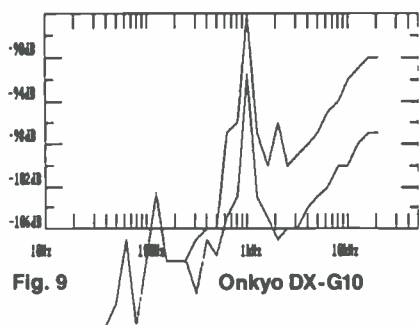


Fig. 9 Onkyo DX-G10

down by 2dB, this superimposed upon the intrinsic slight HF droop. ("AFPC" seems rather a fancy label for what, to judge from the curve in fig.8, is a shaping network consisting of two resistors and a capacitor per channel.) De-emphasis was accurate, though similar to the Adcom's basic response in being down 0.4dB at 16kHz.

It turned out that the sample of the Onkyo DX-G10 auditioned by Sam Tellig had its DACs misaligned, something that just should not happen with a \$2500 player. Looking at the low-level performance of the Santa Fe sample of this massive, true 18-bit player, there also appeared to be a DAC imbalance. The upper trace in fig.9 is the  $\frac{1}{2}$ -octave analyzed spectrum for the right channel, showing just over 4dB of compression at -90dB, while the lower trace is the left channel, revealing a mild 1dB of expansion. (The levels at -80.77dB were altered by +2.5dB and -0.5dB, respectively.) Both traces are identical below 250Hz, with power-supply noise just visible at -107dB (60Hz) and -102.5dB (120Hz). The left channel is truly excellent when it comes to distortion added to the dithered tone, any low-order harmonics being 14-15dB below the level of the fundamental. The right channel is less good, however, with some second-harmonic at 2kHz noticeable. The right-hand channel had some midrange noise apparent below 1kHz, giving the visual effect of an exaggerated left-hand "shoulder" to the 1kHz band.

If both channels measured as good as the left, this Onkyo would be the best player I have ever measured, reproducing the -90.31dB dithered tone with very low distortion and very little level error. As it stands, however, it is only halfway to that status.

Looking at the less esoteric measurements, the maximum output level from all the Onkyo's

outputs, variable and fixed, was 2.1V. The frequency response showed mild tailoring, with a very slight tilt downward of -0.45dB between 60Hz and 18kHz. I would expect the DX-G10's fundamental sound to be a little bass-prominent as a result. Response limits were -0.9dB at 4Hz and -0.6dB at 20kHz, both figures relative to the level at 60Hz. There was also a slight de-emphasis error measurable, reaching a maximum of +0.45dB (left channel) and +0.35dB (right) at 4kHz, relative to the level at 1kHz. This will be audible as a slight feeling of additional presence to pre-emphasized discs, and I have to admit to some surprise to discover that this expensive and beautifully constructed player doesn't measure absolutely flat.

What conclusions should be drawn from these results? First, I think it mandatory for companies offering expensive players to offer D/A converters with very little or no level error at -90dB. If Magnavox and Adcom can offer this in mid-priced and inexpensive players, then premium-priced players should feature performance at least as good. The increased level of profit from an expensive machine should, I would have thought, allow enough margin for the manufacturer—or even the dealer—to align both channels of the machine (if it allows for DAC adjustment) before sale. All you need is a spectrum analyzer, a copy of the CBS test CD, and a screwdriver. Increasing player price does buy better, more rugged build quality, but also appears to buy a player with lower levels of distortion and spurious at very low levels, as well as with intrinsically lower levels of power-supply-related noise. These are all factors which, in conjunction with good low-level DAC linearity, well-matched between channels, seem to correlate with good CD sound. Remember, however, that even if the digital circuitry is excellent, an inadequately designed analog stage can throw away much of its performance. And none of these more traditional measurements indicate the effect of digital signal timing jitter from poorly performing transports, another factor which will affect sound quality.

One thing that doesn't appear to correlate directly with sound quality is the number of decoder bits. The only common factor among the machines covered in this set of tests is that they all use 4x- or 8x-oversampling digital filters, with then a final low-order analog reconstruction filter. (The Yamaha offers its

user the opportunity of doing away even with that.) Other than that, they use 14-bit, 16-bit, pseudo 18-bit, linear 18-bit, and, if you include the Accuphase CD player also reviewed in this issue, 20-bit DACs, with only a rough correlation of sound quality with DAC bits.

—John Atkinson

### **Audio Control Industrial SA-3050A audio analyzer**

When I reviewed the Audio Control Industrial SA-3050A third-octave analyzer in Vol.11 No.6, I came down very hard on what I perceived as its deficiencies. I was frankly expecting perfection (Audio Control Industrial generally makes good stuff at a fair price), and when the product didn't meet *my* standards, I was less than charitable in my denunciation.

Some of my criticisms were valid. I had, however, forgotten the unavoidable compromises required in designing a reasonably priced spectrum analyzer. These compromises revolve around the impossibility of building a detector circuit that can simultaneously read the true peak value of the signal *and* derive a stable average value.

Short of an all-digital design, the only complete solution to this problem is to build two sets of detectors: one that reads peak values, another that takes a long-term average. (I once worked for a company that did just that.) Of course, such a solution takes up a lot of board space and money.

The usual compromise is to build a detector circuit with little or no filtering, so that it accurately records peaks. The user then switches in more and more capacitance to average out the measurements. This arrangement corresponds to the "fast," "medium," and "slow" settings on analyzers.

Unfortunately, capacitors cost money and take up space. At low frequencies really large capacitors are needed, so we run out of space and money again. Audio Control Industrial's filtering at the "slow" setting in the original review sample was not enough for a reasonably steady display when using pink noise. (Steadiness is important when measuring frequency response; how are you to separate the display's flopping around from "real" changes in the measurement?)

I suggested to ACI that they average the readings in software—that is, do mathematically what a capacitor does electrically. They took my suggestion seriously, and the latest version

of the SA-3050A includes a number of improvements that I and other users had wanted:

- When you select the "slow" setting, the display blanks out for a few seconds while the processor averages the readings. When the display reappears, it is close to its final values. The "slow" display is now stable enough to be useful for frequency-response measurements. "Fast" and "medium" displays work as before.
- The low-voltage dropout relay is now connected to the battery only when the unit is operating; it is no longer a continuous (though light) drain. You no longer need to keep the SA-3050A plugged in when not using it. (It turns out that the short battery life I experienced was due to a defective battery, not to excessive drain from the relay.)
- The "loss of memory" suffered by my unit was caused by the wrong resistors on the board.

I can now recommend the SA-3050A without reservation, as a Class B test instrument! I appreciate Audio Control Industrial's willingness to listen to suggestions from its customers and work with them to make their products more useful. If you have an early SA-3050A, ACI will update it for a nominal fee. (The modification involves replacing the computer's ROM and the power switch.)

—BS

### **Rogers LS3/5a loudspeaker**

In last month's review of the venerable LS3/5a loudspeaker (Vol.11 No.2, p.115), you will remember that I had intended to compare an 11-year-old pair of these BBC-designed monitor speakers against a brand-new pair. As explained in the review, this turned out not to be possible before the review deadline, due to the new pair getting lost in shipping. (As Murphy's Law would have it, they finally arrived just after the February issue had been put to bed.) The new version of the LS3/5a differs in detail from those manufactured before 1987, the supplier of the drive-units, KEF, having carried out a research program to render the design more consistent in manufacture and nearer the target performance originally specified by the BBC. In particular, the increased uniformity in tweeter production meant that the auto-transformer in the appropriate leg of the crossover used to match the tweeter level to the woofer could be

1 Stereophile has purchased an Audio Control Industrial SA-3050A to use for the majority of its loudspeaker reviews.—JA

replaced by a simple constant-impedance resistive divider. This results in a slightly lower overall impedance, to an 11 ohm characteristic rather than the original's 16 ohms. In addition, the original Neoprene surround of the B110 bass/midrange unit has been replaced by a PVC formulation to reduce the amplitude of a persistent slight peak around 1kHz. As the target of the redesign was to produce a sound identical to that of the original, the LS3/5a designation remains unchanged.

To conclude my review, therefore, I carried out listening tests comparing old against new, both pairs being auditioned on 24" Chicago stands positioned well out in the room and driven by VTL 100W monoblocks. The differences were minor in degree but nonetheless noticeable. In particular, a slight nasality characteristic of the older pair was significantly lower in level with the new pair, resulting in a slightly warmer balance overall. Dynamics also seemed very slightly less compressed and the treble slightly sweeter, with less of a "fizz" apparent. To put these comments into perspective, when I tried auditioning one of the decade-old '3/5as with one of the '88 samples as a pair, what differences there were between the two did not prevent the speakers from performing quite well as a stereo pair. I have auditioned a number of speakers where there was more of a sonic difference between channels.

Figs.1 and 2 show the impedances of the old and new versions, respectively. As can be seen from fig.2, the latest version does have an overall lower impedance, with minima just below 8 ohms, but the shape is identical apart from in the three octaves above 7kHz. Fig.3 shows the averaged,  $\frac{1}{2}$ -octave frequency response of the two pairs of speakers, measured on-axis in-room at a distance of 1m. (The upper trace is the 1978 LS3/5a; the lower trace is the 1988 speaker.) Differences can be seen primarily in the treble, where the latest version lacks the slight prominence in the 1kHz region. The top two octaves are also hinged down a couple of dB compared with the older sample. The response in the lower frequencies seems pretty much identical, though the design's intrinsic 160Hz hump is perhaps a smidgen better-controlled. (Note that the dip in the 250Hz region on both traces is due to destructive interference between the direct sound from the speaker and that reflected from the floor between the speaker and the measuring microphone.)

To conclude, my experience of the latest version of the LS3/5a confirms last month's tentative recommendation. Still somewhat compromised concerning overall dynamics and HF smoothness and clarity when compared with such modern miniatures as the considerably more expensive Acoustic Energy AE1 and Celestion SL600Si, and having a distinctly tubby midbass, the latest version of the LS3/5a still has one of the least colored midbands around, throws a deep, beautifully defined soundstage, and has a slightly sweeter top end than it used to. At \$650/pair, the LS3/5a (manufactured by Spendor, Harbeth, and Goodmans, as well as by Rogers) is worthy of a Class C recommendation in *Stereophile's* "Recommended Components." But if you have an old pair and are happy with the sound, I wouldn't bother changing to the new version. —JA

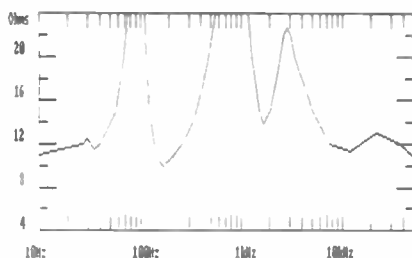


Fig.1 Modulus of impedance, 1978 sample

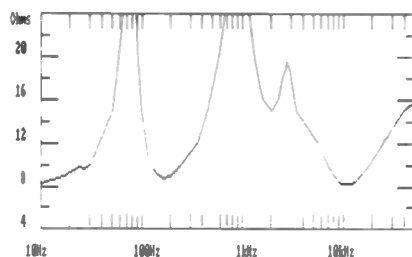


Fig.2 Modulus of impedance, 1988 sample

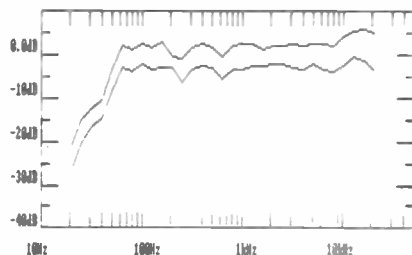


Fig.3 L/R-averaged  $\frac{1}{2}$ -octave frequency response at 1m (upper trace, 1978 sample; lower trace, 1988 sample)

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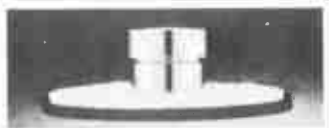
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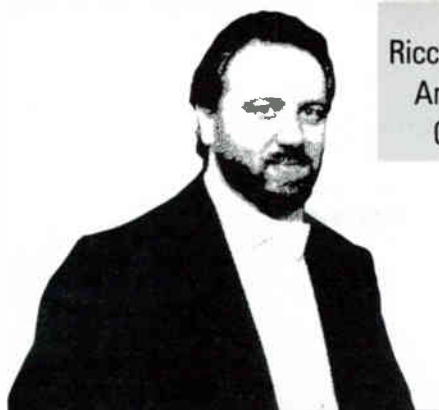


TIPTOES

LAST



Riccardo Chailly, the new Conductor of Amsterdam's famed Concertgebouw Orchestra, talks with Barbara Jahn



**O**n September 1, 1988, the 35-year-old Riccardo Chailly officially became the fifth Conductor (and the first non-Dutchman) to take charge of the Concertgebouw Orchestra. I was lucky enough to speak to him on that day, and despite the momentous responsibilities and commitments ahead of him, he was full of enthusiasm.

100  
years  
of  
tradition

**BJ:** *You are still with the Berlin Radio Symphony Orchestra after six years, you are Musical Director of the Teatro Comunale di Bologna . . .*

**RC:** Yes, I have been with them for three years and have just renewed my appointment there for the next three years.

**BJ:** *. . . and now you are Chief Conductor of the Concertgebouw.*

**RC:** Yes, although I officially took over today, I've been very busy with them for the past two years.

**BJ:** *And you took them on tour in May.*

**RC:** Yes, a major European tour, and that formed a very important bond in our musical relationship. They played fantastically well—I was so pleased about that.

**BJ:** *When did Bernard Haitink actually leave the Concertgebouw?*

**RC:** I think it was about one and a half years ago, and for that interim period I was asked to anticipate my period as chief conductor as much as I could. So I gave a lot of unscheduled time, to keep close to the orchestra and to work on new repertoire. They didn't want me to appear in Amsterdam and then disappear for

six months, so I had to balance these demands with my other work. Fortunately, I succeeded and I find I have now done a lot of the background work and we've got together something like 40 different symphonic programs.

**BJ:** *Was it difficult to break Bernard Haitink's mold after 26 years?*

**RC:** Well, it wasn't a question of breaking, but a willingness to continue.

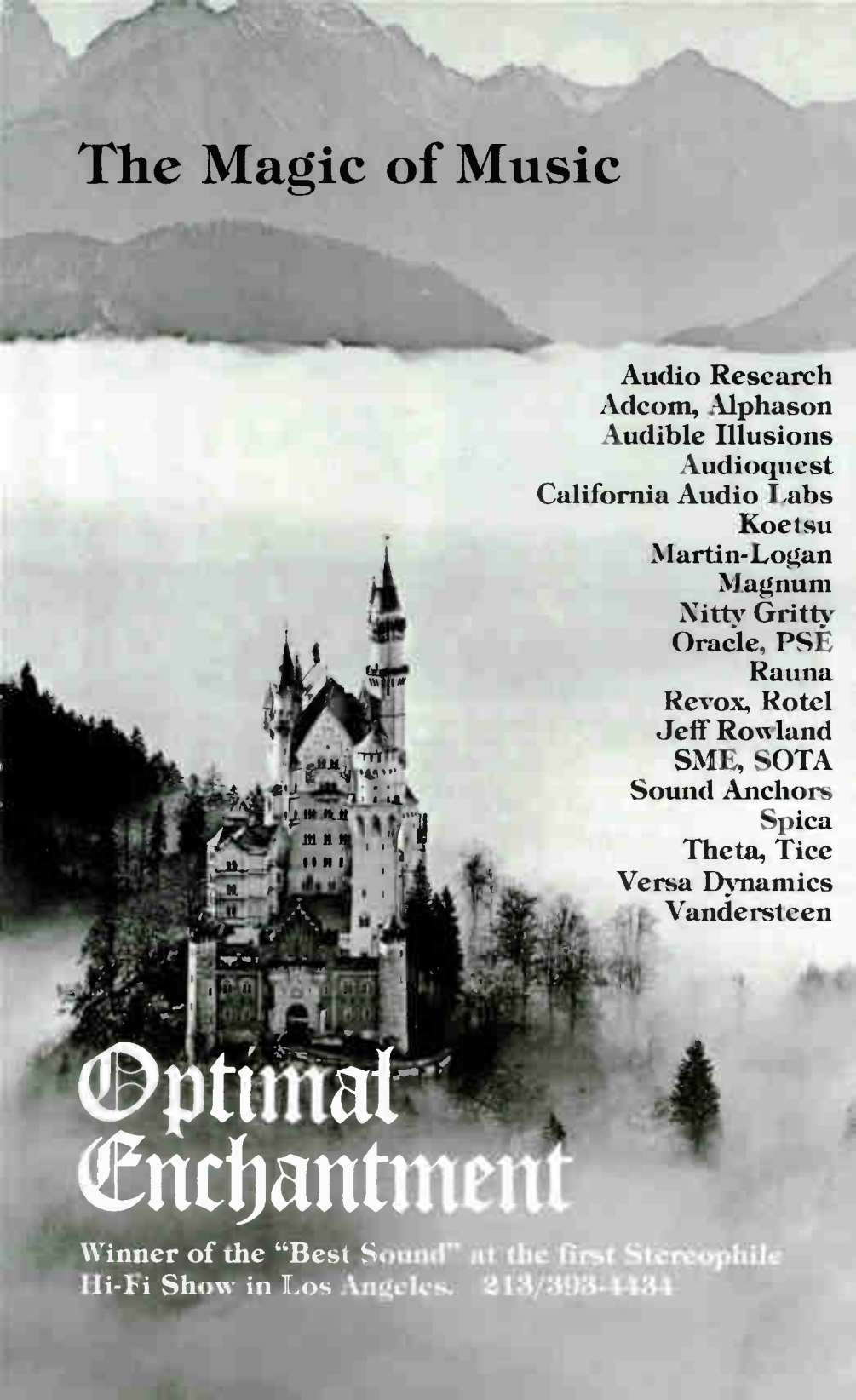
**BJ:** *But your style is very different.*

**RC:** Yes, absolutely. We are different personalities, as all conductors are. But the idea was to continue the tradition arrived at after 100 years, especially with the Romantic repertoire. But there is a great willingness to allow new light into the repertoire—there was not enough emphasis on avant-garde music or Italian and French music, so I wanted to accent those three areas of the repertoire. Avant-garde is the most difficult and the one we must work the hardest on. It is a very, very demanding project.

**BJ:** *You've made a number of recordings of 20th-century music, particularly Stravinsky.*

**RC:** Yes, and we have moved on to Berio; there is a recording in October of *Formazioni* which Berio wrote for the Concertgebouw.

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**BJ:** *I hadn't realized that.*

**RC:** Yes, it was premiered a year ago. It is a major symphonic piece.

**BJ:** *Looking at your list of Stravinsky recordings—The Rake's Progress, Le Sacre, Symphony of Psalms, Le Chant du Rossignol, Le Baiser de la fee, and so on—are you trying to create a revival of interest in his music?*

**RC:** Yes, I do believe very much in Stravinsky's music. The London Sinfonietta was wonderful in *The Rake's Progress*, and the other disc of smaller pieces. My activity with the Concertgebouw is to present Stravinsky in general; we did a tour with *Le Sacre*—it is one of the most incredible showpieces for orchestra and, in a way, the masterpiece of this century.

**BJ:** *Do you feel that since Stravinsky's death there has been something of a decline in interest in his music?*

**RC:** It really depends on the country. In Italy and Holland he is very highly regarded, but not played enough. So next season we will perform *Le Chant du Rossignol*, a masterpiece which has been completely dropped from the major repertoire.

**BJ:** *What do you think of Robert Craft's recordings of Stravinsky?*

**RC:** Very technical and, in a way, cynical, cold readings. I admire them for their clarity and faithfulness; I see the presence of someone who has been next to the composer, and who therefore knows exactly what the composer wants, but I don't see an interpreter there. That is not the case when Stravinsky himself is conducting; you feel not only the genius of the composer but a great personality.

**BJ:** *So what do you put into Stravinsky when you conduct?*

**RC:** In certain repertoire I like a lyrical as well as a late Romantic piece with great moments of neo-classicismo. I also like to underline, in pieces like *Le Sacre*, the frantic side of the rhythm, and the modernity of scores like *Le Chant du Rossignol*—this neo-impressionism. It is almost post-Debussyian in the color of the orchestra. The early piece, *Loiseau du feu*, needs a special color, and later pieces like *Movements* for piano and orchestra demand a completely different, more abstract sense of color.

**BJ:** *And when you conduct the Concertgebouw; what kind of color do you look for there: blended strings, pastoral woodwind—or does this change with the work?*

**RC:** When I stand on the podium I am facing *the* Concertgebouw sound. It is a very clearly determined sound that is the consequence of 100 years' legend. Therefore I try to follow that instinctive *klang*, although I can underline the warmth of the strings, and ask for more darkness in the lower strings in the Cello Concerto of Shostakovich, for instance. But, in general, the woodwinds have that unique, spectacular Netherlands School sound and technique. The woodwind players have an incredibly strong personality too—you notice it as soon as there is a solo coming through, and the flautist has a wooden flute which gives a unique color and

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“There is a great willingness to allow new light into the repertoire”

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combines so well with the other wooden instruments. But there is a stable, absolutely equal quality to all the orchestral groups in this orchestra—you can't say which is the best. Mengelberg for 50 years, Van Beinum for 14, Haitink for 26, and there was of course Kes, the first chief conductor. This is something you feel—you have the benefit of 100 years of fantastic work.

**BJ:** *Will it be Riccardo Chailly for 25 years too?*

**RC:** [*Laughs*] I don't know, I've never thought of that. But I feel a great orchestra consists of fine players and a conductor who is associated with them for a long time. You could call it special, unique luck that Holland had only Dutch conductors for 100 years who were really good. It is easy to say I want a national conductor to follow a national tradition, but it is still luck. In Italy we have had, and still have, phenomenal conductors, but we've never had the case of an orchestra that was kept for 100 years only by Italian conductors. To keep all that tal-

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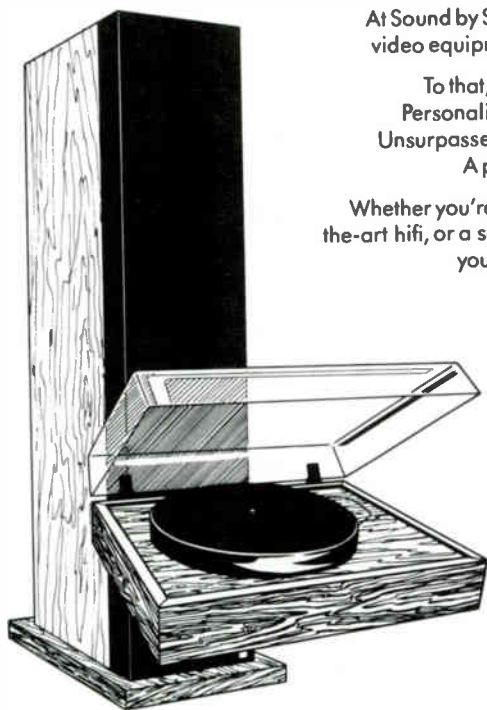
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ent in one place is the secret of the Concertgebouw's wonderful tradition.

When I was in Berlin it was the opposite feeling, because after the 15 years of Fricsay, there were some years with Lorin Maazel who kept the standard very high, then they were six and a half years without a chief conductor. So when I arrived I had to start from the beginning, because the orchestra was in a state of mental disease. They'd lost their *bonhomie* because they'd lost their repertoire, they'd lost their prestige, they'd lost their recording image. Everything had collapsed in six and half years. Therefore I had to work like crazy; I had to give them an identity, internationally speaking, by tours and recordings.

**BJ:** *Do Radio Symphony Orchestras have more rehearsal time?*

**RC:** Yes. We had a weekly program, which meant five to seven rehearsals. The Concertgebouw has about half that.

**BJ:** *So that helped you when you took over Berlin.*

**RC:** It did. To develop the repertoire, and give time to assimilate, think about, and correct myself. I could never have accepted the Concertgebouw without eight years in Berlin. That was the basis of my career.

**BJ:** *It must be a great privilege to be Principal Conductor of the Concertgebouw after a succession of Dutch conductors.*

**RC:** I think so, definitely.

**BJ:** *How did that come about?*

**RC:** Just by luck, really. I went there in January 1985, completely unaware of what was going on with Haitink—I was absolutely mentally virgin in that respect. So I think that was the reason for my success. I was there as guest conductor, pleased to be facing a great orchestra, with three different programs in two weeks: an avant-garde program, a Russian program, and an American/Italian evening. I had the opportunity to show them many different types of repertoire. For me it was a great time, completely without any stress, which sometimes happens when you are facing a really first-class orchestra.

**BJ:** *Was their response to you good?*

**RC:** It was extraordinary from the beginning. And I started in a most unpopular way. The debut concert was on the 5th (or 6th) of January, a full avant-garde concert of Italian music: Berio, Petrassi, and Bussotti. So it was the most difficult way to start a relationship with a great

orchestra. But they worked wonderfully. The only problem was we had 200 people in the audience instead of 2000! I'll never forget walking out of the door and down those famous stairs to the platform in the Concertgebouw to see just a small group of people.

**BJ:** *Because it was a concert of 20th-century music?*

**RC:** Yeah, exactly.

**BJ:** *So you needed to educate the audience too?*

**RC:** Well, this was a shock. They did not understand avant-garde music and maybe it wasn't well advertised. Possibly in the past they were given bad avant-garde music, but that was a

---

“To keep all that talent in one place is the secret of the Concertgebouw's wonderful tradition”

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very interesting program.

**BJ:** *Was the orchestra happy to play it?*

**RC:** Yeah, yeah. They were very engaged by it, and over the following two years we worked very hard on it. I was appointed Chief Conductor in June '85, and things moved so fast in those months. Since then I've had a lot of meetings with the Artistic Committee of the orchestra and its manager to make things better, and this year the C series is completely full. You see, we changed its structure; we've called it "Picasso," and we've combined avant-garde music with the major masterpieces of this century. So, for example, we did *Formazioni* in the first half and *Le Sacre du Printemps* in the second, and the concert was completely sold out.

**BJ:** *Which is the most expensive Series? That must surely reflect the audience's preference?*

**RC:** I think it's the A Series, with Romantic and

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**BJ:** *I've heard your Dvorak 9 and Brahms 1 and I love the drama and tension in them. Again, your approach is very different from Haitink's, so what is the audience's reaction to you?*

**RC:** So far, staggering! I don't like to say that though, I would rather you came along to see it for yourself. You would immediately understand the temperature around my music-making in Amsterdam. But yes, I am a very different musician and personality from Bernard Haitink, and maybe that's why I have been so well accepted. You see, in Amsterdam the decision is completely democratic—the orchestra, not the management, chooses the chief conductor. Their votes were made in three different periods over six months.

**BJ:** *And you were chosen on the basis of your appearances as guest conductor?*

**RC:** Right.

**BJ:** *It must feel wonderful to go to an orchestra knowing that they really want you.*

**RC:** To come out with the majority of votes from 120 people—you must understand what that means, especially as the only other competitor left in the final with me (and I don't want to say who that was) is one of the greatest conductors in the world. So it was even more flattering for me.

**BJ:** *But won't it sap your energies being in charge of three orchestras?*

**RC:** Yes. Therefore I do intend to stop, in June 1989, the RSO Berlin because I simply mentally and physically can't do that too. It is really far too much to be chief conductor to three orchestras. I extended, by a year, my stay with the RSO Berlin because Ashkenazy cannot start with them until September '89, and they really did not want a gap after the trauma they had when Maazel left. So I've kept the title as a sign of friendship and trust, but I have reduced my season with them by one half. But even doing four weeks only is not easy because in Amsterdam I have a contract for 14–16 weeks a year, and I must make recordings too.

**BJ:** *And in Bologna?*

**RC:** The opening season is opera for two months, then two to three weeks of symphony concerts and one recording per year. That's never obligatory, but there is a willingness between myself and Decca to produce Italian opera recordings there: so we did *Macbeth*, and

just recently *Manon*! The way Carreras sings in Acts 3 and 4 of *Manon* is unbelievable. He told me it is his favorite recording; he is very pleased with his singing and interpretation, and he is right. He is always good, but what he did in those two acts is frightening! The sense of drama!

**BJ:** *We've heard a lot about the acoustical properties of the Concertgebouw Hall when it is full and when it is empty. How have you found it?*

**RC:** Mengelberg used to have a big curtain behind his back facing the orchestra to mute the sound when he rehearsed, and we do that sometimes, especially when they remove chairs for a recording because then there is even more echo from the wooden floor. It is sometimes difficult to listen for details from the podium; more so than from the audience.

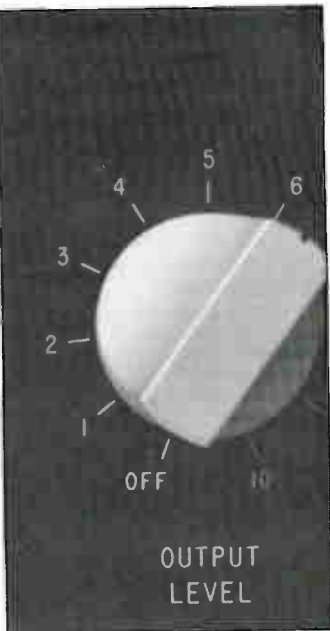
**BJ:** *What about when you are recording? I've just heard Bernard Haitink's last recording with the Concertgebouw of the Beethoven Symphonies, and here Volker Straus from Philips was multi-miking so that he could "adjust" the sound to more accurately represent the received sound heard in the hall when full. What is the Decca technique?*

**RC:** Not multi-miking. Since digital recording they use two microphones above the head of the conductor to balance the sound of the whole orchestra. There are additional microphones for special close effects with, say, the percussion. But no microphone for the brass, and I think in Dvorak 9, if I remember well, one microphone for the woodwind. But so few microphones it was absolutely frightening. It is mainly done with those two above my head, and there is no rebalancing, as when remastering tapes. We have to produce the sound we want at the performance. The major danger is that if you lose concentration for a moment, the balance or some details that you want are lost. Later on you are stuck, you cannot get it back.

**BJ:** *Isn't that like giving a concert performance though?*

**RC:** No, it's different because the position of the orchestra is not a normal symphony concert position. In Amsterdam we have the brass on the right side of the stage. When we recorded in the *parterre*, when the chairs have

<sup>1</sup> Warmly recommended by Robert Levine in the February '89 *Stereophile*.



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been removed, we separate horns on the left and the rest of the brass on the right. The horns need much more space than the trumpets and trombones; if they were all together you would have a very thick, woolly, emphatic sound. Separated, there is a more transparent quality, but it makes it harder for the orchestra to balance itself; so the conductor has to control that because Decca says, "If you want more detail from the horns or bassoon, you must do it there and then. Don't ask us to balance here and there." And there's always a conflict; I would love, as I did before with the stereo system, to have one finger on the recording console to alter that balance. With the digital system, Decca categorically refuses to do that, and I think they are right; the sound is better, more wide-ranging—but it is much harder for the conductor.

**BJ:** *Your musical education began with the study of composition. Do you think that's why you have a great empathy with 20th-century music?*

**RC:** My father was my first teacher; he is still alive, and he is a very well-known Italian composer. So he was my mentor in music, and he was very severe, I tell you. It was a very old-fashioned education I got—he taught me the first four years of my education in just four months. Those four months are fixed here in my mind, like a shock. He wanted to give me the heaviest and most thorough basis, and he succeeded, but it was so demanding. After that I went to the Conservatory Giuseppe Verdi in Milan with Bruno Bettinelli, who was the leading teacher of composition. So I've followed avant-garde music very much since I studied composition. I have a great admiration for the sister of Claudio Abbado, Luciana, who for more than ten years has been head of a series in Milan called Musica di Nostro Tempo that is only devoted to avant-garde music, using the four orchestras we have in Milan: La Scala, the Radio Symphony Orchestra, and the two Chamber Orchestras. I grew up with that, and Claudio Abbado was an active figure there (when he was Chief Conductor of La Scala), doing important things with Stockhausen, Nono, and Berio. In October I premiere Concerto Grosso No. 4 of Schnittke, that we at the Concertgebouw commissioned, and we'll keep doing those kind of things regularly.

**BJ:** *Do you still compose?*

**RC:** No, I never did. My father's more than

enough because he's very good, and as a composer I was a disaster—no creative side at all. It was a cold consequence of a good study; it was just technical.

**BJ:** *So what exactly did your father teach you?*

**RC:** The harmonies and counterpoint of the former Classics, and I had to compose a Romance for piano, a Scena Lyrica for voice and orchestra. But he was extremely severe in counterpoint—very thorough and persistent. Rightly enough, because when I conducted Bach (I've been conducting for 20 years), and the last movement of Mozart's "Jupiter," I remembered my father's lessons; I'll never have words enough to thank him for making me learn the fugal formula and construction so well.

**BJ:** *I believe you studied conducting at the Conservatoire. Is there great value in that?*

**RC:** Very much. As a professional I believe you cannot learn—you must be born a conductor—but you need to be told what to do with your arms; you must be instructed how to beat. Without that you cannot really consider yourself a conductor. You can be an instinctive conductor, but technique is the basis on which you can develop your own way. I studied with Piero Guarino who gave me the ABCs, and then with Franco Caracciola in Milan, who was the most important technical teacher. The summer courses I did for three years in Sienna with Franco Ferrara were most impressive for the interpretation of music. He was the most gifted Italian conductor (together with Toscanini). He would not teach technique, only music.

**BJ:** *Which conductors did you aspire to?*

**RC:** He was one of my long-term idols, with Karajan and Carlos Kleiber, and my Italian mentor since I was very young was Claudio Abbado. He made me his assistant in La Scala, then engaged me regularly each season after that as a guest conductor. My idols from the past are Toscanini, Bruno Walter for Brahms and Mahler, and I have an enormous admiration for two British conductors: one I consider in some ways the best Mahler conductor—Sir John Barbirolli—he had a unique gift. Another I admired very much was Sir Thomas Beecham, especially with his recordings of *Bobeme* and *Carmen*.

**BJ:** *You have conducted a great deal of opera. Do you think of yourself primarily as an opera conductor, or a symphonic conductor?*

**RC:** I think one completes and is a fulfillment

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— Arnis Balgalvis, Stereophile, Vol. 11, No. 11

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of the other. Of the two I think opera conducting is the most complete, because it is a unity of all the elements. The symphonic concert is a spectacular event for the conductor, but it is not as complete.

**BJ:** *I've heard two different opinions: Some conductors find opera easier, because there is more rehearsal time. Others say it is more difficult because there is so much to think about at once. What do you feel?*

**RC:** I think if you are a born conductor, with all your technique in order, the symphony concert is difficult for musical reasons, but opera conducting is far more complex for its numerous problems. Also, with symphony concerts, you make your own interpretation, you realize your own wishes. In opera it is a daily compromise with the vocal aspect, it is a constant combination of willingness and compromise. If you cannot compromise then you better not even start thinking of being an opera conductor.

**BJ:** *Why are so many young Italian conductors expected to be able to cope with opera? Is it purely the Italian vocal tradition?*

**RC:** Yeah, and the amount of repertoire we have in that respect. There is a new way with the new generation of conductors to start in the old-fashioned way—in the pit as a prompter, and up eventually to the podium. My generation, in the '70s, felt the major thing was to be a symphonic conductor. I started with opera as a consequence of the nature of my country, but it was not my first aim; my major aim was symphonic, as with Claudio Abbado, my great friend. But the idea was always to do both.

**BJ:** *What are your future recording plans?*

**RC:** With the Concertgebouw, first the Berio, which will be a very big shock for the lovers of the Concertgebouw tradition in terms of recording direction; everyone is expecting a program of Mahler, but I'll do Bruckner 4 and start with Mahler much farther into the future. He is well taken care of in the hands of Leonard Bernstein and more recent conductors like Haitink, who is one of my favorite conductors for late Mahler. Then there will be Schumann's Symphony 1, and we've just recorded Schumann 4, and Shostakovich's Piano Concerto 1 with Ronald Brautigam, a staggering new talent from Holland. We are all sure he will go a long way; we will couple that with the Shostakovich Cello Concerto 2 with Lynn Harrell. Then we'll record the Overtures of a Dutch

Romantic composer, Wagenaar. He is sort of a combination of Strauss and late Verdi in his approach to orchestral scoring. It was very popular at the time of Mengelberg—he did all those Overtures, but then Van Beinum and Haitink never performed them. So for 50 years he has been forgotten.

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## “My idols from the past are Toscanini, Bruno Walter for Brahms and Mahler”

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**BJ:** *Do you like to record cycles of works? I know you have a few Bruckner symphonies under way, and now two of Schumann's.*

**RC:** As long as it's not a pre-ordered project. If it is, I am obsessed before I start and I probably will not take it on. If I know I can approach it as I want, when I feel ready, and not be pushed, then I think there will be a cycle. For instance, with Schumann, it will be a long time before we feel we are ready to record the next ones. Everything is a consequence of my music-making. Cycles are not the principle to go for—that is a big mistake. There, I must say, Decca is a great partner; I have done five years and have just renewed for another five, and I've never once felt forced to do something because it's commercial. I have made commercial and noncommercial recordings, like the Zemlinsky.

**BJ:** *Yes, those recordings are very welcome in the catalog.*

**RC:** Decca respected my wishes to make them, and now Symphony 2 with Psalm 23 is coming on the market with the Berlin Radio. There will be more later; Decca is happy to discuss with me the repertoire I'd like to do. With Bruckner, I've recorded 1, 3, and 7 with the Berlin Radio; if I do complete the cycle it will probably be with different orchestras! **S**

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## Shostakovich's Tenth Symphony



Christopher Breunig

The 1979 English translation of *Testimony—Memoirs of Dmitri Shostakovich as related to Solomon Volkov* upturned many previous ideas of what his music was about. The use of ciphers, such as DSCH (the composer's musical signature, translating to the notes D, E-flat, C, B, via German usage) permeates various works. Thus an autobiographical reference is implied (?). But Volkov claims that Symphony 10 "is about the Stalin years"—specifically, the rampaging scherzo is "a portrait of Stalin: that's the basis." This month I've chosen the work, by common consent Shostakovich's best symphony, because four new CD versions have arrived.

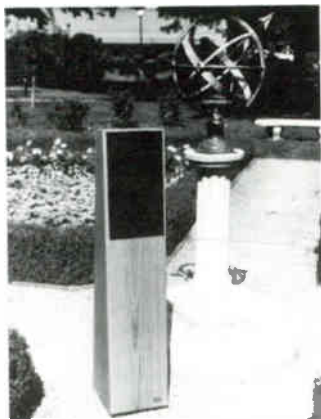
Three of these depart from tempo norms established in recordings by Mitropoulos, Karajan, and Ormandy, who took the Allegretto (iii) at between 10½–11½m; Järvi, Rozhdestvensky, and Haitink (a CD transfer of his first, analog recording in the complete Decca/London cycle) range from 13:15 to 12:23. Leonard Slatkin (whose St. Louis/RCA recording comes with the best analytical note, by Richard Freed) follows the Mitropoulos precedent. Mitropoulos gave the world premiere in New York, on October 14, 1953 (two months before Mravinsky conducted the Leningrad premiere), and he

recorded it with the NYP exactly one year later—reissued in 1965 by CBS (61457, mono).

A decade has passed since the publication of the Ninth (the classical orientation of which disappointed the Soviets, who expected a victory tribute along the lines of the "Leningrad" wartime Symphony). Shostakovich was censured by the Communist Party bureaucrats in a chilling 1948 decree, whereafter the composer released film scores and "acceptable" cantatas, but withheld more meaningful works. The Tenth came after Stalin's death. At the time he was reported as saying, merely, "I wanted to portray human emotions and passions." In *Testimony*, Shostakovich says he was unable to write an apotheosis to Stalin.

Perhaps it is best to disregard all of this (Shostakovich's work will provide a treasure-store for student theses for many decades). It is not a Strauss tone-poem but, as Khachaturian wrote, with insight or not, "a true symphony—of deep emotional and philosophical content"! In outline, the Tenth comprises a long, brooding, opening Moderato, the heavy-footed swirling scherzo (ii), the three-section Allegretto (iii), and a wondrous Andante landscape with woodwind voices, leading abruptly to the boisterous finale.

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Stark authenticity comes via the USSR Ministry of Culture Orchestra, under Rozhdestvensky (Olympia OCD 131), whose slow Allegretto avoids the dirge-like characterization of Haitink and the LPO, and where the introduction to (iv) is deeply imaginative in unfolding. The MK digital recording is edgy; woodwinds shriek, bassoons croak, and the thump of timpani add to the raucousness of brass. As a reference measure of what other conductors are up to, I find this a useful disc. But, frankly, I don't think I could sit through it end to end.

It's a pity that in Haitink's admirable LPO version from 1977 (Decca/London 421 353-2) there is an obvious change in orchestral presence after the first movement. This is, nevertheless, the best-sounding Tenth on CD. But, without fillup, and with reservations about the tempo for (iii), which in context strikes me as marginally too slow, it is not quite competitive at full price.

The new Chandos recording by the Scottish National Orchestra under Neeme Järvi (CHAN 8630; also on LP, ABRD 1319) offers the contemporary Ballet Suite No.4, a short, entertaining work with a grand central Waltz, dispatched

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with panache, as filler. After their superb Shostakovich 7, I was a little disappointed at parts of the inner movements. Not only do these sound a little blurred in the resonant Caird Hall setting (Dundee), but they lack the electricity we now expect from this spontaneous conductor. The outer movements, though, are gripping, and there are some deeply eloquent woodwind solos in (iv), and a fine solo by the new leader, Andrew Martin, in the third section of (iii). Next to Rozhdestvensky, Järvi's is the most impressive of the Andante (iv) readings, and the finale rips along with real fire. It is the smoothed sonorities of the St. Louis/Slatkin version (RCA RD 86597), partly attributable to the damping acoustic of Powell Hall, that let down this otherwise very well-constructed, beautifully balanced performance. Tempi are effective, but the storm of (ii) is lightweight, secured from the sense of struggle, or irony. Slatkin builds the finale very well, but the Moderato (i) is too serene.

There is no coupling. Nor on the oldest of the digital CDs, the second recording made by Karajan and the BPO (DG 413 361-2). The Tenth is the only Shostakovich symphony recorded by Karajan; his earlier, analog one (1966) was a revelation, recorded in a massively reverberant way. Apparently, there's a Moscow concert performance on Melodiya, too, from 1969 (C10 21227 009). Critic Robert Layton is enthusiastic about the digital Tenth; my own preference lies with the older one, in spite of inferior massed string tone. In (iii) I find the new reading slightly mannered, lacking the individuality in woodwind voices of the 1966, which has more expressive freshness. I like, too, the impressive weight of lower strings at the opening of the bars; simplified in Karajan/II.

Simon Rattle's EMI recording with the Philharmonia was apparently prompted by success in the concert hall together in 1985. Enthusiasts may tolerate the waywardly slow Allegretto, and the sound is certainly beautifully engineered on the LP (I have not heard the CD, CDC 47350). The *Penguin Guide* gives a dismissive review, but Rattle's highly individual account I find persuasive, since it is so clearly felt deeply. There are some dragged moments in (i), where Rattle strives for a large-scale effect.

Of what might be termed the "middle-generation" Tenth—Previn's, Svetlanov's, Tjeknavorian's—I know only the third. It's an ec-

centric reading, long-drawn-out in (i). The *ad hoc* National Philharmonic plays excitingly in (ii), and the Gerhardt/Auger analog recording is excellent. But as an RCA deletion it should not command any silly prices (RL 25049). Nor can the 1971 Philadelphia/Ormandy Tenth, produced for CBS by Thomas Frost (M 30295) be considered exceptional. It is very proficient, the scherzo fast, but uninvolved for all that. Ormandy exploits the rich sonorities of his marvelous string section, but the lack of depth in the soundstage (winds obviously close-miked) diminishes the atmospheric qualities of the actual playing. A pity, when Ormandy was a champion of the composer (as well as of Sibelius). There *is* some fabulous detail, *eg*, the principal horn entry in (iv).

Of greater documentary interest is the superb realization (1956) by the Czech Philharmonic under Ancerl. This must have been a Supraphon co-production, but it appeared on DG (later Heliodor 478 412, mono). The winds can never have sounded so haunting as here in (iv)/Andante. Ancerl takes (ii) at a very brisk speed indeed, convincing because he seems to coax relentless energy and more and more tone from his great orchestra. Not even the autocratic Yevgeny Mravinsky matched this reading overall. He starts the scherzo with sluggish, heavy-mannered style, with the gawky Leningrad PO winds giving a peasant flavor to the writing. Apart from the meticulous articulation, it is difficult to penetrate Mravinsky's account; to sense what he really felt about the work. Pressed on noisy vinyl, Soviet copies were distributed abroad in the '60s; the date is not given on my copy, but judging from the slick but slight finale I would say that Mravinsky either did not understand, or did not care for the score.

And the pioneering Mitropoulos LP comparisons with an original copy show quite a loss in the "Classics" transfer (as issued in the UK, at any rate), with blurring of articulation and a "soggy" orchestral quality. Recorded hum seriously mars quiet passages, and my UK Philips pressing is quite free of that. The scherzo is so like Ancerl's you could not tell them apart; if anything, the drive is even more demonic. I like, too, the urgency and fluidity of line in (iii), the sardonic coda. But, unless the US reissue was fault-free, not recommended for a work of such dynamic contrasts—though musically very fine indeed. **S**

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# The Music of Kurt Weill



## Robert Deutsch

**Aufstieg und Fall der Stadt Mabagonny**  
(*Rise and Fall of the City of Mabagonny*) Text by Bertolt Brecht

Lotte Lenya, Jenny; Heinz Sauerbaum, Jim; Fritz Goellnitz, Jakob; Gisela Litz, Begbick; Horst Gunter, Moses; Peter Markwort, Fatty. Wilhelm Brückner-Rüggenberg, cond.

CBS M2K 77341 (2 CDs only). Digital remastering by Leroy Parkins and Frank Decker, eng.; George Davis, George Avakian, prods. ADD. Mono. TT: 2:16:00

**Aufstieg und Fall der Stadt Mabagonny**

Anje Silja, Jenny; Wolfgang Neumann, Jim; Frederic Mayer, Jakob; Anny Schlemm, Begbick; Klaus Hirte, Moses; Thomas Lehrberger, Fatty. Kölner Rundfunkorchester, Jan Latham-König, cond.

Capriccio C 75 159/1-3 (3 LPs), 10 160-61 (2 CDs). Helmut Buttner, Hermann Kaldenhoff, engs. DDA/DDD. TT: 2:21:25

**Die Dreigroschenoper**

(*The Threepenny Opera*) Text by Bertolt Brecht  
Erich Schellow, Macheath.; Lotte Lenya, Jenny; Johanna von Koczian, Polly; Inge Wolffberg, Lucy; Willy Trenk-Trebisch, Mr. Peachum; Trude Hesterburg, Mrs. Peachum. Wilhelm Brückner-Rüggenberg, cond.

CBS MK 42637 (CD only). ADD. TT: 73:14.

**Die Sieben Todsünden, Little Threepenny Music**

(*The Seven Deadly Sins*) Text by Bertolt Brecht  
Julia Migenes-Johnson, Anna I & II; Robert Tear, Stuart Kale, Alan Opie, Roderick Kennedy, The Family; LSO, Michael Tilson Thomas

CBS MK 44529 (CD only). Steven Epstein, prod.; Bud Graham, eng. DDD. TT: 55:25

**Street Scene, Original Broadway Cast**

Lyrics by Langston Hughes, Maurice Abravanel, cond.  
CBS MK 44668 (CD only). Original recording produced by Goddard Lieberson. Digital remastering by Leroy Parkins; Frank Decker, eng. ADD. Mono. TT: 52:20

**Berlin and American Theater Songs**

Lotte Lenya; Maurice Levine and Roger Bean, conds.  
CBS MK 42658 (CD only). Digital remastering by Kevin P. Boutote; Martin Greenblatt, eng. ADD. TT: 72:01

**The Unknown Kurt Weill**

Teresa Stratas; Richard Woitach, piano  
Nonesuch 79019-1 (LP), -2 (CD). Frank Laico, eng.; Eric Salzman, prod. DDA/DDD. TT: 55:20

**Stratas Sings Weill**

Teresa Stratas; Y Chamber Symphony, Gerard Schwartz  
Nonesuch 79131-1 (LP), -2 (CD). Paul Goodman, eng.; Robert Hurwitz, prod. DDA. TT: 48:58

In serious (*ie*, classical) music circles, Kurt Weill is generally considered to be one of the "might have beens." In his twenties and early thirties—which, given that he was born in 1900, also happened to be *the* twenties and thirties—he wrote serious works like chamber music and operas. Upon his exile to America, however, he became a composer of Broadway musicals, a vocation that many classical music critics hold in esteem similar to that reserved for individuals who produce child pornography or who provide athletes with steroids. On Broadway, Weill has had some spectacular flops (*eg*, *The Firebrand of Florence*) as well as some solid hits (*eg*, *One Touch of Venus*).

*Mabagonny* and *The Threepenny Opera* are definitely among Weill's "serious" works, using texts by Bertolt Brecht (about as serious a playwright as one can find), and a musical idiom distinctly closer to *Wozzeck* than to *Hello Dolly!* In contemporary musical theater, the show that comes closest to matching these works in content and style (other than the admittedly Brecht/Weill-inspired *Cabaret*) is Sondheim's *Sweeney Todd*. One difference is that Brecht's "epic theater" technique often involves deliberate dissociation of the songs from the book, whereas Sondheim typically aims for integration.

In listening to the recordings of *Mabagonny* and *The Threepenny Opera*, I must admit that my own response is more admiration than adoration. Both are fascinating pieces, and provide a powerful stylistic (as opposed to literal) evocation of Germany in the inter-war years. On record, both suffer from the absence of the visual dimension, and, in my case, from having to follow the English translation of the libretto. (You'd think that anyone with my surname would speak German, but the answer is *nein*.) *Mabagonny*, with its bizarre plot (in one scene, a man eats himself to death), mixture of German and Germanized-English lyrics (*eg*, "We've lost our good old mama and must have Dollars oh you know why"), and uncompromisingly bitter view of humanity, is the less accessible of the two works, and, unlike *The Threepenny Opera*, it has not enjoyed a great deal of popular success. The score has some quite lovely

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melodies that are placed in the context of orchestrations that tend to de-emphasize the lyricism and lean in the direction of modern dissonances.

The CBS recording has had the field to itself since 1955; transferred to CD (in rather dry-sounding mono), it is a good representative of the older approach to the piece: words and acting are given prominence over music and singing, tempos are on the fast side (producing a "nervous" feel), and any "romantic" tendencies are expunged. By contrast, it is clear from the opening bars that the new Capriccio recording sets out to present *Mabagonny* more like a real opera than a Brechtian "play with music." Thus, the string section sounds bigger, the music is allowed to breathe more, and the singing—especially by Anje Silja, who sings the central role of Jenny, sung by Lotte Lenya on CBS—is of a much higher caliber. Sound quality is quite natural, with the CD having a bit more clarity and the LP a bit more (added?) depth. For me, *Mabagonny* still remains a problematic work, but the Capriccio recording makes the more persuasive claim to give it special status.

*The Threepenny Opera* remains the epitome of the Brecht/Weill style, juxtaposing Brecht's cynical world view with Weill's haunting melodies; music to soothe the savage Brecht. Incidentally, if you're familiar only with the English versions of "Mack the Knife" as sung by Louis Armstrong or Bobby Darin (remember him?), you may be surprised to learn from the original German that the ostensible hero of the piece is a rapist as well as a murderer—more Mack the Ripper than Robin Hood. The recording has an authentic theatrical style, with a cast of actors who sing rather than singers who act. Voice fanatic that I am, my preference would have been for the latter, although it must be said that Weill himself stipulated performers with cabaret rather than operatic voices. (What did he know, anyway?) The digital transfer of the 1958 recording is very well done, taming the excessive brightness of the original. Overall, this is still the best available recording of *The Threepenny Opera*, although those who want to hear the English version may want to hunt down the recording of the 1976 New York Shakespeare Festival production (CBS PS 34326, nla).

The last product of the Brecht/Weill collaboration was *The Seven Deadly Sins*, described

as a "ballet with singing." All the familiar hallmarks of the collaboration are there, with Brecht on his usual ideological soapbox (the extended title specifies said sins as being "of the Petty-Bourgeois"), and Weill providing music that has a few *Threepenny* echoes, as well as passages that sound a lot like Mahler. Julia Migenes, who sings the part originally done by Lenya, has an operatic as well as a Broadway background; here, she seems determined not to use her "operatic" voice, and ends up sounding like a cross between Lenya and Barbra Streisand. Tilton Thomas conducts *The Seven Deadly Sins* and the *Threepenny* suite with verve. Liner notes detailing technical aspects of the recording (eg, microphones used) suggest awareness of audiophile concerns, and, indeed, the sound has exceptional depth and clarity.

*Street Scene* belongs to Weill's Broadway period, and is the piece that represents, for me, a real find. This "Broadway opera" was a special favorite of Weill's; in the notes he wrote for the recording, he describes it as the culmination of his attempts to develop a form of musical theater that would integrate drama, music, spoken word, song, and movement. Based on Elmer Rice's Pulitzer Prize-winning play, with lyrics by Langston Hughes, *Street Scene* deals with the lives of tenement dwellers in New York City. *Porgy and Bess* is an obvious influence, musically as well as dramatically, but Weill's sense of musical identity allows him to transcend what in lesser hands might have become a mere Gershwin pastiche. To be sure, the score does not have songs with the soaring tunes that characterize Gershwin's masterpiece (no "Bess You Is My Woman Now"), but the songs it *does* have are consistently attractive and work well in theatrical terms. I'd love to see this show on stage. The CBS CD is of the original 1947 recording that has long been unavailable. It sounds just like a 1947 mono recording—no more, no less. Most of the performers have operatic voices, but the singing, except for Anne Jeffreys' Rose Murrant, is not particularly distinguished. *Street Scene* is a most interesting piece of musical theater, and this *is* its only available recording, so we cannot afford to be too choosy, but I hope there will be a new complete recording (this is a condensed version) with a topflight cast in the near future.

During her husband's lifetime, Lotte Lenya appeared in a number of his shows, a process that sometimes involved Weill having to lower,



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by as much as a fifth, the keys in which her character's songs were originally written. After his death, Lenya became the foremost champion of Weill's music, and achieved great success in revivals of *The Threepenny Opera*. Her association with Weill's music is so complete that the library of materials maintained by the Kurt Weill Foundation, formed to preserve and promote Weill's works, is called the Weill/Lenya Research Center.

Lenya's performances of Weill's songs are widely regarded as definitive, but her recording of Berlin and American theater songs merely makes one wonder what all the fuss is about. The voice itself is not a very attractive instrument, with a narrow range, little power, and a considerable waver. What is most striking, however, is the contrast between her renditions of the Broadway and the Berlin songs. In English, her accent is not very obtrusive, but her phrasing and expression are so bland that she might as well have learned these songs phonetically. (Ironically, the gushy liner notes identify *meaning* as what she says to be her greatest strength as a performer.) Only in the Berlin songs (recorded in 1955, only two years earlier than the American songs) is there a real sense of involvement and excitement. Even here, I found myself getting tired of the basic sound of the voice; so, for me, the "Legend Called Lenya" (as the liner notes refer to her) remains a taste yet to be acquired. Excellent digital transfers—and I thought she was really a great Rosa Klebb in *From Russia With Love!*

If Lenya doesn't make an airtight case for Weill's songs, who does? Teresa Stratas! To Lenya's great credit, she recognized Stratas as potentially the greatest interpreter of Weill's songs, and made available to her some old sheet music that had been gathering dust in the attic (more or less). The result was *The Unknown Kurt Weill*, followed by *Stratas Sings Weill*. A singer with impeccable operatic credentials, Ms. Stratas has the voice, the intelligence, and the sensitivity that these songs require. Whether singing in English, German, or French, she pays meticulous attention to text *and* music, using all her skills to discover and communicate the emotional core of each song. Her sense of the Weill style is matched by Richard Woitach, her accompanist on the first recording, and, somewhat less so, by Gerard Schwartz, the conductor on the second. Sound on *The Unknown Kurt Weill* has superb clarity and presence,

with near-perfect balance between piano and voice. For the CD version, Nonesuch has unconscionably omitted almost all of the extensive documentation (*ie*, lyrics, translations, information on the history of each song, pictures) that accompany the LP. At twice the cost of the LP, this simply will not do! Sonically, there is little basis for preference, so I would go for the LP.

If this flurry of Weill releases makes you think that we are in the midst of a Weill revival, you're right. Fully staged as well as concert productions are popping up all over, and there are more recordings in the offing. In particular, Decca/London has announced a five-year recording project that will encompass all of Weill's major and most of his minor works. Coming from other sources are new recordings of *Lady in the Dark*, based on last summer's Edinburgh Festival concert performance, possibly with Julie Andrews in the lead, and *One Touch of Venus*, with Judy Kaye. Now, if only some record company would have the courage to have a go at *The Firebrand of Florence* and *Love Life!* **S**

I Me too, and wasn't that the best Bond movie—or at least the one where the characters were fleshed out a little. —JA

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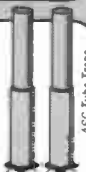
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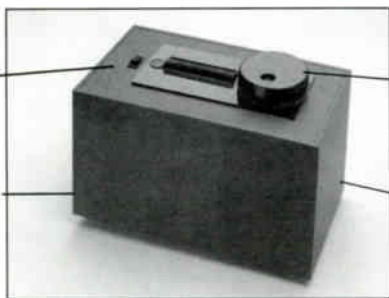
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### BARTÓK: String Quartets 1 & 2

Chilingirian Quartet

Chandos ABRD 1280 (LP), CHAN 8588 (CD). Anthony Howell, eng.; Tim Handley, prod. DDD. TT: 56:05

We have become so used to the aggressive assault on Bartók's Quartets that at first hearing these readings by the Chilingirian seem decidedly lukewarm. Yet on subsequent listenings, particularly with the score in hand, it becomes surprisingly evident that Bartók's modes of attacking accentuation, his terse rhythmic mottoes, and his relentless alterations of pace and tempo can be followed to the letter and still produce more subdued interpretations than are the norm. So the Chilingirian cannot be accused of paying little heed to Bartók's demands, nor can they be faulted for their zest and immaculate coordination. So what is it that prevents these performances from taking flight? I think perhaps the problem lies in a quality that, perversely, many other quartets aspire to, yet never attain: a totally homogeneous color and integrity of intention. Lack of individuality among the players is somehow, here, a deficiency; and yet both performances, and particularly that of the second quartet, are more than adequate and indisputably recommendable.

The recording is beautifully balanced, and the dry acoustic of West Dean College, Chichester, seems especially apposite. There is just a smidgen more bloom to the strings on LP, but the effect is negligible, so if you prefer black vinyl, go for it. —Barbara Jahn

### COPLAND: Suites from *Appalachian Spring*, *The Tender Land*, *Billy the Kid*

Aaron Copland, Boston Symphony (*Appalachian, Tender*); Eugene Ormandy, Philadelphia Orchestra (*Billy*) RCA 6802-2-RG (CD only). Reissue engineer: Anthony Salvatore; Reissue Supervisor: Andre Gauthier. ADD. TT: 66:07

Here are three of Aaron Copland's orchestral works; the two played by the BSO under his

direction give bold testimony to what might have been if only RCA had undertaken the project to record Copland's orchestral music with him conducting American orchestras instead of the CBS Masterworks project which ensued with Copland conducting various London orchestras. The CBS series, which has begun to appear on CD, was quite uneven in sound as well as performance. The London orchestras did a good job, but often seemed under-rehearsed. Interestingly, the best recordings from the CBS series were done with freelance New York musicians: the original chamber-orchestra version of the full-length *Appalachian Spring*, and the *Old American Songs* with William Warfield. During this period of the 1960s, RCA had three house orchestras which could have done ample justice to "Copland Conducts Copland": the Chicago and Boston Symphonies, and the Philadelphia Orchestra; a few titles could have been recorded in New York with studio players.

If you're shopping around for an *Appalachian Spring* in the orchestral suite version, this one's it. Bernstein/NYPO on CBS is the closest thing to it, beautiful in its own right, but something special took place at this Copland/BSO session between composer-conductor and orchestra. Perhaps it was a feeling of tradition and shared experience. Although the actual concert premiere of the Suite had been given by the NYPO under Rodzinski, it was the BSO under Koussevitzky which made the premiere recording in 1946 with Copland out in the hall. Now here he is on the same podium nearly 15 years later, going one on one with the conductor and orchestra who put him on the map as far back as 1930. The bucolic charm and rustic magic are truly within hailing distance of Koussevitzky, and blow Copland's own later LSO recording for CBS out of the water, along with everyone else's except Bernstein/NYPO on CBS, *not* Bernstein/LAPO on DG!

*The Tender Land* is an opera seldom performed, and never in major houses. A rundown of its scenario looks hokey as hell, but the orchestral suite, of which this is the only

recording, is prime Copland Americana from the 1950s. In no way should it be considered a poor cousin of *Appalachian Spring*, as some observers contend. Its two movements comprise music of great lyric beauty, and the hoedown is an orchestral tour de force. The quirky, eccentric 1960 BSO gives it their all, and the sound, as originally produced and engineered by Peter Dellheim and John Crawford, is spacious, detailed, and richly bassed. It is also slightly congested in the heavy tutti, as was the original record, but less so.

The Ormandy/Philadelphia recording of *Billy the Kid* has that beautiful, seductive sound of which Philadelphia fans have had waking wet dreams. But this is a sound for Tchaikovsky 5, not *Billy*. Beneath the Copland's Americanisms lies a story of emotional, psychological, and physical violence, set against the indifference of a strange and hostile environment. The scenario would have been impossible without Freud, and the music would have been impossible without Stravinsky, the French Impressionists, and *Les Six*. That's no place for a pretty orchestra. For *Billy*, it boils down to a single choice, Bernstein/NYPO on CBS, recorded in Boston's Symphony Hall. Isn't it a small world. The CBS "Best Value" compilation also contains Bernstein's *Appalachian Spring*, to which I have so glowingly referred, along with *Fanfare for the Common Man*, and a rip-roaring Suite from *Rodeo*. Duplication of repertoire? 'Fraid so. In cases where there's no way around it, it's worth it.

—Richard Schneider

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**MAHLER: Symphony 3, *Rückert Lieder***

Dame Janet Baker, mezzo-soprano; Edwin Paling, solo violin; Maurice Murphy, solo post horn; London Symphony Chorus, Southend Boy's Choir, LSO; Michael Tilson Thomas

CBS Masterworks M2K 44553 (2 CDs only). Michael Shady, eng.; David Mottley, prod. DDD. TT: 123:52

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The two things I like most about this new presentation of Mahler's Symphony 3 may be just those things others take to be drawbacks: the reading is un-interpreted, un-editorialized, and cool, and the engineering is so flawless and clear that it sounds as if each solo instrumentalist, in turn, had a separate microphone on his lap. Tilson Thomas makes the symphony sound vaguely like a movie soundtrack—sort of like *Victory at Sea*. This is meant more as an observation than a criticism.

The approach is detached; the music is exquisitely played and recorded. It may, in fact, be the most beautiful-sounding Third on disc, partially due to the playing, part to the engineering. I can't remember it ever sounding more clinically clear: If I were an aspiring vio-

linist, wind player, or the like, I would turn to this set to hear how it should sound. One can hear the bows on the strings, feel the breath on the flutes. And the playing, *qua* playing, is superb; the LSO is heard to its best advantage.

Granted, the Third is not as full of *Sturm und Drang* as most of the other Mahler Symphonies, but I don't ever remember hearing it devoid of emotion. The first movement just takes place. The third movement sounds jolly. The finale doesn't thunder; it doesn't leave one awestruck, as if something great had just happened. The reading didn't only leave me cold, it left me feeling as if I had just *read* the score, rather than having just heard or experienced it. In some ways I felt closer to the music than ever before, but further away from the meaning. It sounds faster than other Thirds, but isn't—this was my first clue. What we get is a glorious presentation of glorious music, with no problems attached: happy-go-lucky Gustav the orchestrator. There's something to be said for such an approach, but not much.

The *Rückert Lieder*, as sung by the always-wonderful Janet Baker, are heard in a reading certainly closer to Mahler's spirit than the Symphony (and that's one of the reasons why I'm convinced that Tilson Thomas has given us this type of Third on purpose—he obviously can find depth when he wants to), although the top of the mezzo voice is not so evenly produced as before. Still, there's much to enjoy—even revel in—here.

I'm not being sarcastic—I genuinely enjoyed these discs. There's something to be said for Mahler as pure music, without emotional baggage. Mahlerians may object to the WASPy approach, but, in a way, this should be a part of each collection. It's an alternate view, and it's good to simply *bear* the music so clearly. I can't help believing that Tilson Thomas and the engineers have gotten precisely what they wanted—the most crisp, spotless Third imaginable.

—Robert Levine

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**ROREM: String Symphony, *Sunday Morning, Eagles***  
Atlanta Symphony; Robert Shaw (*Symphony*); Louis Lane (*Sunday, Eagles*)

New World NW353-1 (LP), NW353-2 (CD). Jack Renner, eng.; Robert Woods, prod. DDD. TT: 51:16

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To describe Ned Rorem's music as accessible would be an insult to his considerable intelligence, as it would be to that of his following, which, though not of the masses, is as substantial as it is dedicated. Reflection upon the strength of Rorem's position in the American concert scene, in addition to his fame, even notoriety, as a highly self-revealing autobiographer and cultural observer, inclines one to ask why various past recordings of his works have been

scattered about on minor labels, many of which are no longer in business. Fortunately, New World Records is a strong, independent company with an apparently excellent grasp of grantsmanship, virtually the only way recordings such as theirs can be made today. The fact that their recordings are tastefully packaged and well-marketed doesn't hurt either.

Roem is nothing if not literary, and a great measure of his fame rests upon vocal settings from a wide variety of poetic sources. But he is also a highly gifted and colorful orchestrator, even to the point of extravagance at times. When a composer of Roem's flair for instrumental plumage sets himself the task of writing a work for strings alone, one must take notice. *String Symphony* was commissioned by the Atlanta Symphony, with Robert Shaw as the designated premiere conductor. For the composer, personal statement and professional assignment were one and the same. The symphony is one of the few works which Roem has *not* based upon literary references, and, as the composer points out in his notes, it's not really a symphony, but a suite of brief and formally simple dance and song forms. Simple but not simplistic, there are layers of meaning beneath the surface, and Roem needs no piccolos or tam-tams to hide behind. He can do anything with strings that has ever been done.

With *Sunday Morning* and *Eagles*, we are back in the world of Roem the everything-but-the-kitchen-sink orchestrator. That doesn't mean bombastic or vulgar. Roem never shouts, forces, or hectors, although I do sometimes find myself asking if that was perhaps one tam-tam stroke or cymbal crash too many.

The eight titled movements of *Sunday Morning* refer to poems by Wallace Stevens, and there is a concerto-for-orchestra aspect to the constituent breakdown of the orchestra throughout the movements, which bear such titles as "Passions of rain," "Death is the mother of beauty," and "... a ring of men." *Eagles* is a single-movement tone poem on Walt Whitman's "A Dalliance of Eagles."

Shaw gets a magnificently polished and communicative performance from his strings, and Louis Lane does no less with the two works assigned to him. The technical production by Telarc's moonlighting Robert Woods and Jack Renner gives digital a better name than certain recent Telarc's have done. For me, the CD wins over the LP, which had a noisy side 2 and was warped anyway.

If you are unfamiliar with Roem, I can think of no better introduction than this recording, particularly if you enjoy orchestral music of the spectacular persuasion. The fact that Roem has the capacity to challenge our minds without

alienating, and to touch our hearts without embarrassing, sets him nearly in a class by himself among today's composers.

—Richard Schneider

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ALLESANDRO SCARLATTI: *La Giuditta (Judith)*  
Maria Zadori (sop), Judith; Katalin Gemes (mezzo), Ozias;  
Jozsef Gregor (bass), Priest; Drew Minter (ctr-tenor),  
Holofernes; Guy de May (ten), Captain; Capella Savaria,  
Nicholas McGegan  
Hungaroton HCD 12910 (CD only). Andras Szekely, prod.  
Ferenc Pecs, eng. DDD. TT: 71:44

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This recording represents the world-premiere appearance on disc (of any sort) of an oratorio that ought not to have waited so long. *La Giuditta* probably does not qualify as a neglected masterpiece, but I was surprised how pleasantly time passed as I listened to this lengthy CD. The Biblical story of Judith is well known (boy meets girl, boy gets girl, boy loses head), and has been told with more dramatic force elsewhere, but never in such elegant musical terms. The excellent notes which accompany the CD (it is packaged in a slipcase to accommodate the 76-page booklet) give a concise (and well-translated) description of the Italian oratorio as Scarlatti wrote it, and call him, not without reason, Handel's most important precursor.

For the most part, this performance is a success. The Capella Savaria plays as well as many of the more celebrated Western European ensembles, demonstrating a vigor and enthusiasm that Nicholas McGegan reins in but does not dampen. (This, mind you, in spite of living under the iron boot of Godless Tyranny.) Intonation is very good, ensemble playing has just the right touch of roughness that lends character to authentic performance, and everyone seems to enjoy what they are doing.

The soloists are nearly all as fine; I have already praised Drew Minter sufficiently in another review, and he does as well here. If his Holofernes is never quite the blustering hero he might be, he evokes a degree of sympathy in the love scene that is well beyond what the bare text implies. Katalin Gemes is a full-voiced Ozias who succeeds in conveying all of the emotional context of the music; Guy de May is suitably offended as the Captain whom no one will believe, and Jozsef Gregor's Priest may be a bit thin in tone (where is David Thomas?), but his pitch is reasonably secure, and he can bluster when necessary. The problem here is Maria Zadori. I find her rather rough-grained voice not nearly pretty enough for Judith, nor does she possess nearly the emotional or dynamic range required by the role. Sight-unseen and gender unknown, Minter's Holofernes would be a much more interesting prospect for a night under the desert moon. Despite

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this, the love duet between the two principals is exquisite, both for Scarlatti's delicate music and the subtly ironic text.

I have had a number of good things to say about the sound of Hungaroton CDs in the past; this one is more of a mixed bag. I'm afraid it's multi-miked, and not very subtly. There is little sense of instruments playing together in a real space, and the soloists appear to be somewhere else entirely. On the other hand, the microphones used seem to be excellent: instrumental timbre is extremely realistic; flutes are sweet and airy; and the double bass is firm and rich. Multi-miking need not be entirely evil (as a few Chandos recordings demonstrate), but Ferenc Pecsí needs a lot more experience in the technique.

In sum, then, something new and worth hearing. And a matter of interest: the Capella Savaria is sponsored by the Soros Foundation, VEPEX Contractor Ltd., and Sabaria Boot and Shoe Factory. Sounds suspiciously like a capitalist arrangement to me. —Les Berkley

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#### SCHUBERT: *Lieder*

*The Hyperion Schubert Edition, Vol. 1*

Dame Janet Baker, mezzo; Graham Johnson, piano  
Hyperion C1J 33001 (CD only). Martin Compton, prod.;  
Antony Howell, eng. DDD. TT: 69:32

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This is the first in what is to be an approximately 35-disc set comprising all the songs of Franz Schubert—the first time such a mammoth effort has been undertaken. Fischer-Dieskau's remarkable recordings missed about 200 songs which simply either had to be sung by a woman or were too far away from his vocal range to transpose (even the baritone's greatest fans would have trouble hearing him in "Der Hirt auf dem Felsen"). The Hyperion series will feature different singers, and rather than presenting the songs chronologically (although I'd love to hear that, too), they will be bound together by a theme, a poet, or the like. These 19 songs have the poets Schiller and Goethe in common, and make up a fascinating program.

Dame Janet's great gift has always been the manner in which she can, from the first note or two of a song, invite the listener into the song's world without making the experience seem stilted. She never exaggerates, never imposes herself on the music, and does it all without seeming selfless or faceless. Most of the songs here are filled with many emotions, some of them in conflict, and their humanity never fails to come through in Dame Janet's readings.

The very first song, the 1812 "Der Jüngling am Bache," is a finely spun tale about innocent eagerness, and the singer lets it flow with the simplicity it requires. By contrast, "Schaefer's Klage" seems straightforward but has an

undercurrent, in text and music, of genuine sadness which Dame Janet does not miss. "Meeres Stille" is delivered with a hypnotic, almost disturbing gentleness—nothing moves; it's genuinely eerie. "Wanderers Nachtlied" is a remarkable composition, a mere minute and a half long, but its cry for peace is so heartfelt and rendered with such sincerity that it has the impact of a long, powerful poem. And to mention just one more (there are 19, and I could go on for pages), the disturbing "Der Flüchtling," with its merry "lively morning breeze" opening and subsequent "the smiling earth is but a grave for me" stanzas, here makes dramatic sense: Dame Janet is less lilting in the opening than most singers, giving us warning that there's nasty work ahead.

I would be remiss if I were to say that 30+ years of singing have taken no toll on this singer's voice, but the truth is that the problems are remarkably few. There's an F# on the world "quelle" in the first song which is uncomfortable, and elsewhere one feels that 10 years ago a song might have been taken more slowly because the singer had more breath to offer, but, such tiny criticisms aside, the voice has held up staggeringly well. Perhaps now there are only six degrees of dynamic shading where previously there were ten—tsk, tsk.

Graham Johnson's accompaniments are so much more than that—I wish there were a better word. He is responsible for the intelligent and informative notes about the project and each song which are to be found in the booklet, and it is obvious that he knows—and loves—his Schubert. His playing is gorgeous—in "Meeres Stille" he's barely noticeable, but defines the song—and elsewhere he is a partner to Dame Janet. I'll be looking forward to the next volume in this series. Hyperion is to be congratulated on all counts: their ambition, their impeccable, natural engineering, and their production values. *Bravi!* —Robert Levine

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#### SCHUBERT: Piano Sonatas

No. 19 in c, D.958; No. 20 in A, D.959; No. 21 in B-flat, D.960; Allegretto in c, D.915; Three Piano Pieces, D.946  
Maurizio Pollini, piano  
Deutsche Grammophon 419 229-1 (3 LPs), -2 (2 CDs),  
Guenther Hermanns, eng.; Rainer Brock or Guenther  
Breest (D.960), prod. DDD. TT: 141:41

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How you react to these performances will depend upon what you think of Pollini's playing. If you find him excessively intellectual, his recordings of Beethoven and Schumann chilly and unfeeling, perhaps you should look elsewhere to explore Schubert's last three sonatas. Pollini certainly makes no poetic meditation on death; for such an interpretation you might best go to an artist such as Claudio Arrau, who



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both in playing and written opinion relates exquisite threnody in these pieces. How you react will depend also on what you hear in these sonatas. It may be argued quite convincingly that they are the works of a man composing under a death sentence (I find such an analysis far more holistically applicable to Schubert than to anything in late Mahler), but they are also supremely introspective, hardly death-obsessed or even uniformly anguished. Upon repeated hearings, conceptions such as Arrau's become less poetic than prosaic and lugubrious. On the other hand, I can think of no body of Romantic piano work more appropriate to Pollini's talents than Schubert's last sonatas, so impassioned but free of obviously sensualist or virtuosic elements, so rewarding in the hands of a player whose restraint conceals much art.

In D.958, the darkest sonata, Pollini makes the abrupt c/E-Flat transitions of the first movement transitory islands of hope and repose, rather than biffing through them, or pointing up melodrama. By sustaining slightly the first note of each triplet in the finale, and paying passionate attention to the contrast between *pp* and *fp*, Pollini makes this movement thrillingly spectral, no predictable *tarantella macabre*. D.959 inspires Pollini's best performance; he holds together this beautifully balanced sonata with sureness. Needless to say, Pollini the great technician sails through the harmonically wild, emotionally disturbing effusion of the scherzo; but, in a masterly touch, he offsets this with an understated chorale-like opening theme to the Rondo, projecting nobility and meditation only punctuated by anguish.

The B-flat is the most deceiving of the lot: while seemingly simple in its block chords and spare variation, it is easy for a pianist to lose control of structure in the expansiveness. Pollini is the first I know of, save Schnabel and Serkin, to embody Schubert's improvisational aspect and elegiac sense without dirgelike wallowing or noodling like a bad jazz musician. Life goes on, a great soul transcends self-pity in the face of death: this conviction sustains through the remaining three movements. Pollini's advocacy for this outwardly romantic work recalls Jascha Horenstein's reading of the Bruckner Ninth: complete faith in the composer's great soul, though living in a faltering and tormented body; complete agreement with his transcendence of traditional structural and harmonic forms, complete conviction that bathos is the worst possible argument for this belief. The conviction carries over into Pollini's performances of the *Allegretto* and the *Three Piano Pieces*. These are not works of the emotional range of the Sonatas, but hardly make-

weights, either. Pollini illuminates the *Three Pieces* especially, his treatment ideal to convey their bald contrasts between agitation and serenity.

The only insufficiency I detected in these readings was that Pollini does not read in the music the sense of wonder and discovery that Artur Schnabel brought to his pioneering EMI recordings from the '30s.' This is unfair, of course; it is hardly Pollini's fault that Schnabel made these works part of the standard repertoire long before Pollini's career began. Pollini's intelligence, taste, and soul are what put him in Schnabel's league. Needless to say, this set is strongly recommended. —Kevin Conklin

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**SCHUBERT: Piano Sonata in A, D.959****SCHUMANN: Piano Sonata No.2 in g**

Murray Perahia, piano

CBS M 44569 (LP), MK 44569 (CD), Tony Faulkner &amp;

Andrew Kazdin (Schubert), Tom Lazarus &amp; Andrew Kazdin (Schumann), engs.; Andrew Kazdin, prod. DDA/DDD. TT: 54:14

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The highlights of these two performances for me are the beautifully inward, albeit classically restrained slow movements. Classical, in fact, is an apt description for the pianist's approach to the Schubert, whose first movement, I note by the way for those interested, is played minus the exposition repeat. It is a splendid performance in almost all respects, marvelously full of affect in the Andantino and really gorgeously conceived in the scherzo's trio section and, most especially, in the finale. The playing throughout is extremely sensitive, as well, in the Schumann, though here, again, Perahia's leanness of tone and color is rather more Apollonian than Dionysian, as in the more temperamental and mercurial Argerich version of the G-minor Sonata. It remains only to be mentioned that the evenly balanced piano reproduction is most satisfactory, but I find the London-based recording of the Schubert superior in color and warmth to the cooler, less ravishing Schumann, which originated in New York (perhaps this might have also been a matter of a difference in pianos). —Igor Kipnis

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**SCHUMANN: Cello Concerto; Works for Cello & Piano**

Fantasiestücke, Op.129 &amp; 73; Adagio and Allegro, Op.70;

Fünf Stücke im Volkston, Op.102

Yo-Yo Ma, cello; Emanuel Ax, piano; Bavarian Radio Symphony Orchestra, Sir Colin Davis

CBS Masterworks M 42663 (LP), MK 42663 (CD). Concerto: Martin Wohr, eng.; David Mottley, prod. Cello &amp; piano: John Newton, eng.; David Mottley, Wolfgang Schneider, James Mallinson, prods. DDA/DDD. TT: 60:42

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† Schnabel's recordings of D.959 and D.960 are available in the US as part of Arabesque 8145-2, a boxed set of three LPs.



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Much of the work Yo-Yo Ma and Emanuel Ax have turned out for CBS Masterworks has seemed the musical analog of the slick album covers and posters that CBS produces in its relentless promotion of the artists: soft in focus, unbearably pretty, and laden with pretension. The technical perfection is there, but all too often without inspiration. The duo breaks that trend in this release, but the concerto with Davis and the Bavarian RSO firmly perpetuates it.

Striving for poetry but stumbling into haltingly phrased lines and a cool, tentative feeling, Ma and Davis give little sign of such conviction as is evident in the recent DG issue with Bernstein, Mischa Maisky, and the Vienna Philharmonic. The occasional expressive legato passages yield ultimately to a drowsy torpor that reveals only prettiness where beauty should be. The bloated orchestral sound punctuated by rather screechy flutes and massed violins doesn't aid the effect. The malaise persists through most of the *Fantasiestücke* for cello and piano, and the stage seems set for another entire recording struck from the typical Ma/Ax mold.

But a healthy dose of passion informs the final two pieces, *Adagio and Allegro*, and *Fünf Stücke im Volkston*. In an applauded departure, Ma and Ax take off, convincing us that they are thrilled to be playing music. These wonderful little compositions display the never-questioned techniques of the players and add the intangible thrill of inspiration. They alone are worth the price.

The cello in these duets is rich and full-bodied (unlike the concerto), and the piano, though a bit smothered-sounding, is also quite good. The piano is more lifelike on the LP, but that is the most obvious difference between the two formats. The similarity is such that you should probably choose to match the strength of your own system.

You may not be inclined to listen to the whole of this release every time, but you will never regret having those final two performances.

—Robert Hession

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#### WAGNER: Concert Pieces

*Götterdämmerung*: Siegfried's Rhine Journey and Funeral Music; Brünnhilde's Immolation. *Die Meistersinger*: Prelude to Act III, Dance of the Apprentices, Entrance of the Mastersingers. *Tristan und Isolde*: Prelude and Liebestod

Leopold Stokowski, LSO (*Götterdämmerung*), RPO (*Meistersinger & Tristan*)

RCA 5995-2-RC (CD only). Christopher Parker, Robert Auger, Anthony Salvatore, engs.; Richard Mohr, prod. ADD. TT: 68:18

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Stokowski's earliest recordings of some of this music go back to his work with the Philadelphia Orchestra in 1931, and he was to record

and re-record a good bit of it many times over the next four-plus decades. The present performances—the RPO ones date from October, 1973, the LSO sessions from November of 1974, when Stokowski was just over 91½ years old—were made three to four years before his death. It's therefore tempting and not incorrect to describe these, at least in part, as autumnal interpretations. But even though those old early Philadelphia recordings have a passionately gripping, freewheeling intensity and incredible instrumental excitement, as well as loads of personality, the much more recent performances reissued here on CD are almost always absorbing. The excitement may be sporadic, yet there is sometimes an amazing vitality present. Can you imagine the effect Stokowski's kind of performances would have had in an opera house at the incredible moment in the funeral music when the vassals raise Siegfried's body? And, as usual for the old magician, the orchestral tone, especially in his specialty, the strings, is invariably warm and singing, marvelously lyrical, and even sensuously shaped. Just listen to what he does with the transition to the *Liebestod*. That silky string sound is also for the most part reasonably well characterized in the recording, although I don't find what basically amounts to mellow sonics especially up to date. Brilliance is lacking on the top end in the 1974 pieces; more separation, greater detail, and better imaging are apparent in the sessions of the previous year, but there one also is subjected to a little stridency at climaxes, as, for instance, at the end of the *Meistersinger* excerpts. A few more access points in the tracking (the Funeral March, the Dance of the Apprentices, Entrance of the Mastersingers, and the *Liebestod*) would not have been amiss.

—Igor Kipnis

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#### WAGNER: Parsifal

Ramon Vinay, Parsifal; Martha Mödl, Kundry; Ludwig Weber, Gurnemanz; George London, Amfortas; Hermann Uhde, Klingsor; Josef Greindl, Titurel; others; 1953 Bayreuth Festival Chorus & Orchestra; Clemens Krauss

Rodolphe RPC 32516.17 (2 CDs only). ADD (mono). TT: 3:57:00

#### WAGNER: Der Fliegende Holländer

Hans Hotter, Holländer; Georg Hann, Daland; Viorica Ursuleac, Senta; Karl Ostertag, Erik; Louise Willer, Mary; Franz Klarwein, Steuermann; Chorus & Orchestra, Munich State Opera, 1944; Clemens Krauss

Rodolphe RPC 32515 (CD only). ADD (mono). TT: 2:24:00

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In three releases mere months apart, Rodolphe has given us Clemens Krauss versions of three fifths of Wagner's massive canon. And, if this 1953 *Parsifal* and 1944 *Holländer* do not rise automatically to the top of the heap as did last summer's stupendous Krauss *Ring* cycle (from



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# Natural Sounc

the same Bayreuth season as this *Parsifal*), they were certainly worth dusting off.

Boulez's wretched rush-through of 1970 aside, this is the shortest complete *Parsifal* on record (Melodram carries an abridged version, in Italian, with Gui and Callas). Unlike Wagner's other works, to which very specific "correct" tempi seem appended in the listener's mind, *Parsifal* seems almost infinitely flexible; Krauss's 237 minutes seem just as "right" as Jordan's 244, Knappertsbusch's 250, Karajan's 254, Solti's 260, Levine's 278, and even Goodall's 287. In *Parsifal*, Wagner suspends time, creating more a suffusion of sound than his usual drive to an inevitable *dénouement*. As Gurnemann tells the ever-wondering Parsifal, "here time becomes space." This ostensibly Christian fever-dream that never mentions the names "Jesus" or "Christ" creates drifting clouds of harmony rather than the magnificent dawns, dusks, and lightning bolts of the *Ring*, or the almost horrific clarity of *Tristan*, its psychic and spiritual sister. Beginning and ending, like *Tristan*, with the sacrament of communion (though here sacred, again ostensibly), it is unlike the earlier music-drama in that the entire cycle could simply begin again, the previous circuit forgotten, Parsifal wandering off like Amfortas before him to be seduced by another Kundry, wounded by another Klingsor. Tristan and Isolde are transfigured to a higher realm; *Parsifal*'s principals seem doomed—or blessed—to endlessly repeat their roles in the timelessness of dream. The work—truly a *mystery play*—seems less reducible, less fathomable the more I hear it; I'm alternately astounded that it is not respected and loved even more than it is, and that it is performed at all.

All of which is to say that Krauss's tempi are fine by me. Only in the Act I entrance of the Gralsritter do things fall apart—orchestra and chorus never quite manage to play and sing together. There are no such problems in II and III. Wagner's blunted climaxes and endless *diminuendi* are finely honed, but not by too much, and Krauss's profluence is inevitable enough to banish thoughts of mere "conducting." This is also true of the self-effacing Goodall and Jordan, but surprised me after hearing Krauss's electrifying *Ring*. Another reaffirmation of the truism that a great conductor serves the work, not himself.

Despite Ramon Vinay's valiant attempts, his Parsifal remains, for the most part, dark and constipated; it's hard to imagine a poorer piece of vocal casting. It's bad enough that the role must be sung by a mature tenor *at all*, so youthful did Wagner intend the part—it requires a young, light, clear voice—but you can't have that *and* a Heldentenor in one body. René

Kollo (Solti) takes good care of the young, light part, Reiner Goldberg (Jordan) the clear-ringing heroic aspects, but Ramon Vinay's thick, pork-barrel voice is even more wrong for this role than it was for the Siegmund he sang that same summer. Regardless, he improves throughout, and, in Act III, wrests himself heroically from self-torturing depths ("Und ich—ich bin's"); "Nur eine Waffe taugt" is thrillingly heroic.

Ludwig Weber's hooty Act I Gurnemann reminds more of Hagen's rough savagery than the avuncular expositor we're used to, or even Hans Sotin's (Levine) gruff kindness. But there's a tortured passion here you'll find nowhere else, not even in Hotter (Knappertsbusch)—Weber not so much recounts as *relives* his discovery of Amfortas after the spear's theft. And the hootiness disappears by Act III. George London is much more convincing than he was to be with Kna nine years later, his voice much darker here (it later became so bright as to obscure pitch), less relentlessly aggressive and inappropriately robust. Though no one has (for me) bettered Fischer-Dieskau (Solti) for sheer beauty of singing wedded to consummate vocal acting, London will do just fine, thanks. His final Act III refusal to perform communion ("Nein! Nicht mehr!") is overpowering.

Ah, but Martha Mödl as Kundry—that smooth, liquid voice, a far cry (literally) from Waltraud Meier's recent histrionics for Levine and Goodall, and much like Yvonne Minton for Jordan. Mödl's Act II scene with Vinay goes down smoothly, though not *too* smoothly. My only caveat: From time to time she cuts words and notes extremely short; I don't know whether this is for dramatic intent or to save her voice, but it seldom works. She's not quite the vocal actress here that Gwyneth Jones (Boulez) or Christa Ludwig (Solti) have since become.

Hermann Uhde gives Klingsor a ruddy authority, rather than the usual harsh-voiced posturing. Josef Greindl is excellent in the tiny part of Titurel, and Gene Tobin and a young Theo Adam are undistinguished Gralsritter. The four Squires, like the solo Flower Maidens, go uncredited, though the third Squire sounds like Gerhard Stolze (who sang small roles at Bayreuth that summer).

There are striking differences in recorded sound between this *Parsifal* and the *Ring*, recorded within weeks of one another. What the *Ring* lacked in bass can be found here; where the *Ring*'s brass were buried and lost at the bottom of the Bayreuth pit, they are here gloriously present. The entire orchestra, in fact, is almost perfectly balanced with the voices throughout. Only the flutes and the prompter are too annoyingly audible. But the orchestral sound during the Flower Maiden scene is

*After silence, that  
which comes nearest  
to expressing the  
inexpressive is music.*

**—Aldous Huxley**



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almost lush. Unfortunately, these two CDs (yes, this is another Rodolphe double-play bargain) are the harshest, most unlistenably glaring I have heard. Plus plenty of tape hiss. Graphic equalizers? Treble controls? Use 'em if you got 'em. (There's also print-through pre-echo from improperly stored master tapes.)

Holländer's sound is remarkably good; better than it has any right to be, considering the 1944 transcription date of this historic first-ever complete recording of the work. But this broadcast performance (available 30 years ago on Mercury) was recorded on magnetic tape, back when Germany was still the only country to own the technology. Though congested and harsh during the loud passages (including most of Act III), and with many dropouts, the rest of the opera actually sounds better than the *Parsifal* and *Ring* of nine years later. The brasses come through with power and resonance (this time they weren't buried in the Bayreuth pit), and voices are very present and three-dimensional (in mono!). But, like the 1953 *Parsifal*, the high end is painfully grating.

Krauss is convincing at Holländer's helm; his Act III is probably the best I've heard, helped to no small degree by the Munich Staatsoper chorus, another of those robust, vibrant ensembles from one of the golden ages of German singing. Krauss's drive, as in his 1953 *Ring*, is undeniable, generating ample excitement in the Overture and throughout the opera, here done in three separate acts (not the continuous Bayreuth version). After a ragged Overture and Act I, the orchestra pulls itself together for the rest of the work, often sounding almost demonically inspired.

The cast is impressive: the young Hans Hotter as the Holländer, his voice so heartbreakingly youthful and light in tone (though not in power), and with so effortless a top, as to be virtually unrecognizable—that is, until his overwhelming Act III entrance ("Verloren!")—as the towering Wotan and Gurnemanz of the '50s and early '60s. "Die Frist ist um" is impassioned enough, though not as tortured as Fischer-Dieskau for Konwitschny. But that Act III...! It makes Simon Estes (Nelsson/Bayreuth) sound like a tyro.

Georg Hann's Daland is a dry barker. Though dramatically appropriate for this gruff, materialistic schemer, such a choice impairs his duet with Hotter, cutting short the harmonies. His Act II "Mögest du, mein Kind" is strong, though lacking the bantering playfulness Georgio Tozzi brought to the role on stage and, for Dorati, on record. As Erik, Karl Ostertag displays a passionate tenor of *Helden* proportions (though with a slight tendency to nasality), milking the part for every drop of drama. The tension

among Senta, Erik, and orchestra during Erik's Act III dream kept me on the edge of my seat—such emotional immediacy is found *only* in live performances. Franz Klarwein's Steuermann is at least as good—a clear, sumptuous, lyric tenor with a subtle comic sense.

As Senta, Viorica Ursuleac has intonation problems and too much vibrato, lags laboriously in the slow passages, and virtually disappears in *piano* sections—no support or control—yet manages to redeem herself in the louder, more histrionic moments. Louise Willer's Mary is much more dependable, yet somehow less memorable. Ursuleac remains the most idiosyncratic Senta I've heard.

The booklets for both operas contain no notes, one photo each (Krauss), German-only librettos (missing half of *Holländer's* Act III), and about 800 typos apiece. These should not be your first recordings of either *Parsifal* or *Holländer*—I recommend Knappertsbusch, Solti, Levine, or Jordan (once on Erato, now available through Musical Heritage) for the former, Dorati, Nelsson, or Klemperer (though *not* Solti, for a change) for the latter—but these very good performances in not-very-good (*Parsifal*) and surprisingly-good-for-its-time (*Holländer*) sound make solid second or third versions, and valuable lessons in operatic history. Rodolphe: more, please.

—Richard Lehnert

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**WEBERN: Complete Music for String Quartet**  
Quartetto Italiano  
Philips 420 796-2 (CD only). ADD. TT: 52:53

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This reissue from 1970 proves a fascinating disc, showing Webern's developing style from the recently discovered slow movement for String Quartet of 1905, with its full-blooded Romantic harmonies, to the concentrated contrapuntal lines of the Op.28 Quartet of 1938. The complete String Quartet of 1905 is in one continuous and intense movement, its language still firmly rooted in the post-Wagnerian Romanticism common to the early compositions of the Second Viennese School. The Five Movements for String Quartet, Op. 5, of only four years later could not bring greater contrast. Concerned primarily with color and effects—wood on string, abrasive *tremolandi* on the bridge, brittle *pizzicati*—their germinal construction and concision lead inevitably to the extreme brevity of the 6 Bagatelles, which together last less than four minutes; Schoenberg said of them, "Consider what moderation is required to express oneself so briefly." With birdsong also captured here by the recording, an extra, but wholly suitable, dimension seems to have been specially added!

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de Peilz, Switzerland, with balance and distance sensitively judged, these pieces are heard to their best advantage. —Barbara Jahn

## Classical Collections

### ALFREDO KRAUS: *Arie Antiche*

Arias by Giordano, Ciampi (Attr.), Händel, Pergolesi, A. Scarlatti, Tenaglia, Gluck, Hasse, Salvator Rosa, Niedermeyer

Alfredo Kraus, tenor; José Tordesillas, piano  
Nimbus NI 5102 (CD only). DDD. TT: 45:46

A most welcome release. The appealing 17th- and 18th-century (one now believed to have been composed in the 19th century) songs and arias presented here captivated audiences not so long ago when sung with bewitching finesse by such as John McCormack, Tito Schipa, Dino Borgioli, etc. Beniamino Gigli also sang and recorded them with lachrymose passion, if not with the artful insights of others.

The comparatively few vocal recitals (and their recorded counterparts) presented these days generally emphasize popular operatic arias or musical diets designed for the palates of sophisticated vocal aficionados, with German *Lieder* as the entrée. Don't get me wrong! As a frequent gourmand of both, I enjoy this fare; I do, though, miss the delightful ditties by Alessandro Scarlatti, Tommaso Giordano, Vincenzo Ciampi, etc. These composers and others of similar ilk are offered here, and their recorded renaissance is doubly welcome as it features the bravura artistry of such a persuasive, stylistic master as Alfredo Kraus.

The man is a vocal miracle! As a member of the audience at his 1966 Metropolitan Opera debut, I have vivid memories of the very positive impression that his beautifully conceived interpretation (of the Duke in *Rigoletto*) made on me. And of his wide-ranging, crystalline tenor voice—despite the following day's *New York Times* criticism that "Kraus has not been blessed with a voice that is going to make a lasting impression in vocal history." What the instrument may lack in opulence is more than compensated for by its silvery, pure tenor clarity (no baritone overtones), wide range, and firm technical foundation. The voice still sounds as admirable as it did 23 years ago, even though, when this disc was taped, the tenor was but a few days shy of his 60th birthday. No allowances have to be made for his age, although, unlike wine, voices do not generally improve with the passing of years. One cannot fault his superbly controlled breathing and long, expressive phrases. As in 1966, I still hear patches of tonal dryness. Another critical aspect which has neither improved nor deteriorated since that time is interpretive rather than vocal. In

declamatory passages—of which there are few in this program—he has a tendency to emphasize too explosively. This, however, is a minor fault when outweighed by the interpretive intelligence and eloquent sensitivity with which he transforms song into memorable, enjoyable experience.

In a program chock-full of virtues, it's difficult to single out highlights. However, Pergolesi's "Se tu m'ami," Gluck's "O del mio dolce ardor," and Scarlatti's "O cessate di piagarmi" offer models of legato expressivity, tone coloration, and pellucid articulation not often encountered, at least to this degree, on the contemporary vocal scene. Only in the last-named composer's delectable "Le violette" was I conscious of limited warmth and charm when comparing Kraus's singing to Schipa's famous, idiosyncratic rendition. José Tordesillas's piano accompaniment, although adequate, is too self-effacing for optimum musicality.

Although Nimbus usually provides fine engineering, they have fallen below their anticipated high standards here. The first cut is poorly balanced, over-reverberant, and appears to have been taped in a wet-walled bathroom. There is some improvement later, but the engineers don't succeed in providing the balanced, intimate ambience and immediacy that the superiority of the performance merits. Nonetheless, not to be missed by singing and song enthusiasts.

—Bernard Soll

### 20TH-CENTURY SOLO CELLO MUSIC

Truls Otterbech Mork, cello

Nordheim: Clamavi; Crumb: Sonata for solo violoncello; Lidholm: Fantasia sopra laudi; Kodály: Sonata for solo violoncello

Simax PSC 1023 (CD only). Arne Akselberg, eng.; Arild Eriksstad, prod. TT: 64:24

Few sounds seem to touch us as closely as the sound of the solo cello. The bit of the bow stretches some inner string, pulling us as the body vibrates harmonically. In the hands of a master, the violoncello is unsurpassed as a solo instrument. Truls Otterbech Mork is surely one of the finest cellists on this planet, and this is one of the finest CD reproductions of string sound to date.

The four works presented here are all highly emotional, thoroughly modern, recorded beautifully, and, despite the well-known law to the contrary, are performed with an impossible ease that conjures images of magical string players of the past—Paganini, Casals, and a handful of others.

The excellent liner notes give concise and insightful backgrounds on the composers, with each work dated, except for the Kodály. Also included are all recording details; recordists,



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take note. The sound has clarity without being harsh, or losing the resonance of the instrument. The master was made with two Brüel & Kjaer omnis on Sony PCM-701/RTW AD 3/Sony SL2000 digital equipment.

Arne Nordheim is deeply influenced by Béla Bartók (true of a vast number of contemporary composers, myself included), but rather than imitating Bartók's, Nordheim's compositional style is genuinely evolutionary, unique and masterful in its own right. *Clamavi* is an incredibly good piece, the sound both clamorous and sweet. Mork displays flawless movement between octaves, his intonation is spot on, and he conveys a fiery and patient spirit.

The first movement of George Crumb's *Sonata for Solo Violoncello* is a study in contrasts, alternating between pizzicatos and emotional double stops. This work, too, is reminiscent of Bartók, particularly of the later string quartets. The last movement features fast-paced, widely spaced arpeggios enriched with doublestops. This is virtuoso modern music of the highest order.

Ingvar Lidholm's *Fantasia sopra laudi* features subtle, breathtaking, high pizzicato tones. The disc is absolutely silent, rich in sound, and never glaring. All CDs should sound this good. The imaging, too, is excellent, presenting one perfectly sized cello in your listening area. The composition never lets up in intensity, and despite only one instrument creating the texture, the tonal variety, masterful dynamics, and awesome attention to detail make this a selection you won't want to miss. The movement ends on a beautiful high G# (the cello's highest) that would be hard to match on the violin. Mork's mastery of every tone, spanning nearly five octaves, is nothing short of spectacular.

The CD ends with Kodály's *Sonata for Solo Violoncello, Op.8*, which exploits virtually every effect possible on the instrument. There is a section that sounds like the work of several cellists, with broken chords spanning three octaves in the blink of an eye. In short, this is a magical offering; if you like the cello, you'll love this disc.

—James Berwin

#### JESSYE NORMAN: *In Recital*

Songs by Händel, Schubert, Schumann, Brahms, R. Strauss  
Jessye Norman, soprano; Geoffrey Parsons, piano  
Philips 422 048-2 (CD only). Volker Straus, prod.; Peter  
Laenger, eng. DDD. TT: 64:29

This concert, taped live at the Hohenems Festival in Feldkirch, Austria in June of 1987, will serve as quite an eye- (and ear-) opener for those who have always found this singer's recital discs a bit on the reserved side. I don't know the size of the hall in which this took place, but Miss Norman sings in a grand, expan-

sive manner, as if she were attempting to reach the farthest row back in a 2000-seat house. The effect is stunning—there isn't an empty or unimportant moment on this disc.

The opening selections are by Händel: divinely controlled readings of "Dank sei dir, Herr" and "Lascia ch'io pianga." They are followed by a Schumann group—"Widmung" absolutely soars. "Frühlingsnacht" is ecstatic, and the others are, by turns, introspective, poetic, and soulful. The two Schubert groups—10 songs altogether—are startling in their variety. "Der Musensohn" is suitably energetic and playful, sung very fast and with no problems in articulation or pitch. The "Ave Maria" is gorgeous—reverential, intimate, scaled down and all of a piece—a veritable lesson in legato singing. I'll only mention two others: "Der Tod und das Mädchen" and "Erlkönig." Norman uses a baritone sound for the Death figures in both, and she amazes. If the voice she uses for the little child is not quite as innocent as one would like, well, it only proves that the singer is human. The encores by Brahms and Strauss are impressive, but the two Negro Spirituals which close the show bring the house down, and quite rightly so.

Some may find the sound a bit harsh, particularly near the program's start (one can imagine the engineers twisting away to get the balance and treble right), but it's certainly never a real issue. Geoffrey Parsons is a more-than-sympathetic accompanist, although his piano suffers most from the sharp acoustic. And the singing is really spectacular. This is a relatively easy program to digest, and Norman turns it into an event to remember. Booklet with notes, texts, and translations, and the applause on separate cueing points! Go buy this—it's a great bet.

—Robert Levine

## Show Music

#### PUMP BOYS AND DINETTES: *On Broadway*

Performed & written by: Jim Wann, John Foley, Mark Hardwick, Debra Monk, Cass Morgan, John Schimmel  
CBS MK 37790 (CD only). Mike Berniker, Billy Sherrill, prods. ADD. TT: 52:10

Yes, these waitresses and greasemonkeys *were* on Broadway some years back, and did OK there, too. *Pump Boys & Dinettes* is not so much a "show" as a revue, a plotless evening spent hanging around the gaspumps and diner of some little bump in a road called Highway 57. A plot, however, is not missed—the songs are that good. This is light country rock, tightly sung and played by a band taut as a trampoline, funny, intelligent, and constantly inventive—you keep thinking a song or lyric is going in

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one direction, when suddenly it zags like a jackrabbit. But most of all, the songs are *ubole-some* in ways I thought were long dead. And, remarkably, the fresh humor seems to be at no one's expense.

Available on LP for about 15 minutes some six or seven years ago, *PB&D* has at last been reissued on CD, and the news is all good. Nine-teen country-rock tunes totaling almost an hour was a bit much to ask of a single vinyl biscuit in the first place; that LP had much in common with the original cast recording of *Hair*, including tinny treble, no bass, and sounding as if recorded in a cardboard carton full of Wonderbread.

Well, these wonderful, charming, down-home songs can finally *breathe*—the difference between CD and LP versions of the "Menu Song," for example, is one of those night-and-day contrasts digiphiles love, and rightly so. Granted, what little sense of ensemble (it was false anyway) the LP had is gone now, and you *don't* want to listen to *PB&D* on headphones—the reverb'll give you whiplash—but other than that, there's no contest. For example: Lyrics that I've been trying to figure out for the last six years are now effortlessly intelligible; subtleties of emotion are so much more palpable on CD—Debra Monk's little half-smiles come across vocally here, not at all on my old LP, even when listened for; and "Fisherman's Prayer" sounds like the acappella quartet it is, not a trio whose bassman stepped out for a Ballentine.

I could go on—little discoveries abound in every cut—but you've heard enough; highly recommended.

—Richard Lehnert

## Jazz

### DAVE BRUBECK QUARTET: *Moscow Night*

Concord Jazz CJ-353 (LP), CCD-4353 (CD\*). Gary Clayton, eng.; Russell Gloyd, Carl E. Jefferson, prods. DDA/DDD. TTs: 42:23, 49:56\*

When Dave Brubeck, bass guitarist Chris Brubeck, clarinetist Bill Smith, and drummer Randy Jones made their much-publicized return last year to perform at the historic Reagan-Gorbachev summit, the pianist presented Gorbachev with a pre-production copy of this CD. (Yes, we're told that Gorbachev owns a CD player.) During a conversation with Brubeck following the latter trip, he mentioned that when Nancy Reagan leaned over and asked the Secretary General whether he liked jazz, the reply was, "I like *good* jazz, and this *is* good jazz."

If that summit recital had anything in common with the performances preserved on *Moscow Night*, then we can safely assume the Soviet leader's taste extends well beyond

vodka and caviar. In such Brubeck standards as "Unsquare Dance," "St. Louis Blues," "Three To Get Ready," and "Take Five" (CD only), as well as new vehicles "Give Me A Hit" and "Theme for June," you'll be treated to some fine mainstream blowing and more than a little invention.

*Moscow Night*—recorded live in March of 1987 in Moscow's Russiya Concert Hall—constitutes one of the first musical documents to emanate from *glasnost*. The concert came at the end of the Brubeck Quartet's first string of 13 USSR appearances, and was taped in cooperation with Melodiya, the official Soviet record company.

Clarinetist Smith's musical presence is always refreshing. Although for many years he has been deeply immersed in the classical *avant garde* as both composer (he's a former *Prix de Rome* winner) and performer, his jazz efforts barely reflect—at least in obvious ways—that orientation. They do, however, reflect an unerring sense of the long line, particularly evident in "Theme for June," in which he constructs soaring roudlades of notes that alternately surprise and fulfill expectation. Riveting, beautifully sculpted work, indeed.

If pianist Brubeck's playing cannot accurately be described as "swinging," that fact has never diminished my appreciation of his often imaginative keyboard explorations. Here one finds liberal helpings of such Brubeck trademarks as pulsing, stride left hand topped with angular, shifting accents, and solos that inexorably build to climaxes of orchestral proportion. Unfortunately—as in the midst of "St. Louis Blues"—these climaxes sometimes depend more heavily on repetitive banging than on inspirational heat. The lyrical side of Brubeck's personality is revealed at the outset of "St. Louis Blues" and throughout his brother Howard's pastel-colored "Theme for June." While the latter may never become a jazz standard, its mix of impressionistic harmonies, soft-edged funk, and romanticism is entirely winning.

The Soviet audience was obviously enjoying itself at this concert, and Concord's sound retrieval provides a strong sense of "being there." Despite the metallic clanginess of the piano's upper octaves (some of it due to the instrument itself?), instrumental timbres have generally been captured with admirable veracity. When compared to the LP version, the overall sound of the CD is also a bit on the metallic side. For some listeners, I suspect, the CD will sound more immediate. To my ears, the tradeoff is a reduction in presence and naturalness. And don't buy the CD for the "Take Five" bonus. It's not one of the more compelling accounts of what has long been the quartet's signature piece.

—Gordon Emerson

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MILES DAVIS: *The Columbia Years 1955–1985*  
Columbia C5X 45000 (5 LPs), C4K 45000 (4 CDs). Jeff  
Rosen, prod. ADA/ADD. TT: 4:14:16

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CBS is going in big for 5- and 6-disc retrospective sets these days; in the last couple years we've had big boxes from Sinatra, Springsteen, Dylan, and now Miles Davis. Unfortunately, while the Sinatra box brought back into print scores of items long unavailable, the Springsteen set was all new live recordings, and Dylan's *Biograph* made available, for the first time, two well-packed LPs' worth of important, rare tracks, *The Columbia Years 1955–1985* is mighty slim pickings in terms of unreleased goodies.

Suffice it to say that CBS has not warmed my heartily cockles by releasing such reshapes of already-in-print material as *Ballads and Miles and Coltrane*, when there's plenty of stuff in the can that's never seen the light of US day: *Aura*, *Pangaea*, *Black Beauty*, and the rest of the *Plugged Nickel* sessions, for starters. *Columbia Years* offers, instead, an admittedly well-chosen and -organized collection of the basic Miles, with a paltry 35 minutes' worth of previously unreleased material, three of those four tracks alternate takes.

Spouse I shouldn't gripe. Producer/compiler Jeff Rosen has done one admirable job of choosing, as he claimed in a recent NPR interview, only those 35 tracks on which Miles's playing was particularly hot. Listening to all five LPs in order, one each of "Blues," "Standards," "Originals," "Moods," and "Electric," unequivocally underlines Davis's stature as the single most important figure in jazz. Ever. Even I, who own over 100 Davis recordings, sat there stunned anew at the sheer volume of definitive, epochal performances contained in these discs: "All Blues," "Blues for Pablo," "Footprints," "My Funny Valentine," the long-unavailable "Love For Sale," "Miles," "So What," "Water Babies," "Masqalero," the frighteningly relentless "Sivad" from the *Live-Evil* band, "Honky Tonk," and "Miles Runs the Voodoo Down." And much more. Lakes of ink have been spilled about how Davis and his uniquely introverted trumpet sensibility and deep, deep tone have single-handedly turned the jazz world around not once, but three or four times. But the truism's nonetheless true, and *The Columbia Years*, though of course lacking anything recorded before 1956 (*ie*, Bebop and Cool), proves it as no other compilation I've heard. Rosen also turns a neat chronological trick: each disc manages to have at least one track recorded later than any on the previous disc; time advances in a five-steps-forward, four-steps-back spiral.

But you hard-core collectors have waited long enough—what are those few goodies,

you say? Most important is "I Thought About You," recorded in 1963 at the Antibes Jazz Festival. Supported by a trio of Hancock, Carter, and Williams, Miles takes a blistering, swaggering solo, followed by a mellow, puckish Hancock chorus and a desultory Carter solo (it's easy to forget that, great as he was in '63, Ron Carter has since improved tremendously, in all ways). Miles then returns for a melancholy final chorus more in keeping with the tune's lyrics. This cut is at least as good as anything on *Miles Davis In Europe* (nla), from which it was omitted.

The alternate takes: "Someday My Prince Will Come," with Mobley, Kelly, Chambers, and Cobb, is little more than half the length of the take that made it on to the LP of the same name, and a quick glance at the credits will show why: no Coltrane. But Davis's solo sounds quite a bit better structured than the one released, though it's still tentative. Hank Mobley's tenor solo sounds not a tenth as intimidated (by Trane?) as on the take we've heard for the past 25 years, and Wynton Kelly's solo is fresher, more adventurous. Except for Coltrane's absence, this "Prince" is superior in every way. In "Flamenco Sketches," from the historic 1959 *Kind of Blue* sessions with Coltrane, Adderly, Evans, Chambers, and Cobb, it's Coltrane's turn to sound hesitant and short on ideas, while Miles seems to force things a bit; the ending, however, is less peaceful here, more bittersweet. Wayne Shorter's lazily loping "Pinocchio," from 1967, is taken at about half the speed of the version found on *Nefertiti*. It's easy to see why this one wasn't released, lacking as it does any urgency or necessity. Hancock and Williams seem to be trying to goose things along continually, to no avail, but even this contrast adds no creative tension.

Serious Davis collectors have little reason to buy this set; "I Thought About You," "Prince," and the two brief cuts from *Jazz Track*, long out of print, are hardly enough to justify the expense of five LPs, let alone four CDs, and the much-touted digital remastering and the half-dozen digital remixes are unremarkable, albeit tape hiss is much reduced. But for those just beginning to interest themselves in Miles, it's hard to imagine a more well-rounded introduction: There are as many important performances here as you could expect to find in a set of this size, and, at 50+ minutes per LP, 60+ minutes per CD, the timings are generous enough. Beginners *si*, fanatics *no*.

—Richard Lehnert

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**KEITH JARRETT: *Dark Intervals***

Keith Jarrett, piano

ECM 1379 (837 342-1, LP; -2, CD). Kimio Oikawa, eng.;

Manfred Eicher, prod. DDA/DDD. TT: 58:22

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After a five-year hiatus in which he explored jazz standards, classical music, the clavichord, and the unclassifiable *Spirits*, Keith Jarrett has returned, however briefly, to the form that gained him his widest reputation: solo piano improvisations. But with a difference—only a single LP this time (instead of two, three, or ten), that LP composed of eight short sections, each with a title. This is a far cry from unbroken piano improv spanning three LP sides, titled only with the name and date of the venue.

In this live concert recorded in Japan in April '87, Jarrett's staggering technique remains intact, only more finely tuned. The set opens, appropriately enough, with "Opening," in which chaos emerges out of order, the last half of the 13-minute piece a rumbling exploration of the piano's bass strings. "Hymn" follows, more redolent of cantorial lamentation than the Gurdjieffian chords of Jarrett's 1980 *Sacred Hymns*; "Prayer" might have been a better title, so plain is the playing's supplication. "Americana" opens with gospel leached through Copland—pastoral America only is evoked, of course, not Chicago or even Allentown, PA (Jarrett's home town). "Parallels" are just that, right and left hands shadowing each other with meticulous imprecision, as if cast over rough ground, in an obstinate, linear rhythm divorced from breath's ease. "Fire Dance" builds to a churning, frenzied climax, the ghost of Villa-Lobos hovering near. "Ritual Prayer" is based in the Near East—I imagine squat Greek Orthodox basses rumbling out the lower harmonies. And "Recitative" could be called "Paradise Regained," so inevitably does it build to its central, benign apotheosis, then fall back to great but quiet peace.

This album of often profound beauty, had it been released by anyone else, would call for much more acclaim; as it is, it's just another Jarrett solo masterpiece in the tradition of *Staircase* and *The Moth and the Flame*. The CD's DDD sound is some of the most natural solo piano sound I've heard (assuming you listen with your ears nearly touching the soundboard), entirely without harshness or glare. But, good as the CD is, the LP is better in the usual ways—deeper, rounder, more full, with greater three-dimensionality.

—Richard Lehnert

## Popular

**LADYSMITH BLACK MAMBAZO: *Journey of Dreams***  
Warner Bros. 25753-1 (LP), -2 (CD). Russ Titelman,  
Joseph Shabalala, prods. ADA/ADD. TT: 49:19

Two years ago, Paul Simon's *Graceland* was the rage. Hits were played on the radio. Everybody

was listening to it. Lots of people were using it to show off their systems (until people realized just how miserable the compressed sound really was). Simon took a lot of flak from those who said he'd stolen musical material from South African stars without giving them their due. He countered with the fact that although he had been influenced by some sampler cassettes from Africa, not only did he give people their proper credit, but he recorded *Graceland* in South Africa, using some of the local talent he'd admired on those samplers. The introduction to "Helpless" featured an acappella male chorus led by James Shabalala. It was one of the high spots of the album.

That chorus, famous throughout Africa for their many religious albums, is called Ladysmith Black Mambazo. This, their second American album since *Graceland*, contains 13 songs, most sung in Ladysmith's native Zulu. Many deal with faith in God, South Africa's pass laws, dowry negotiations, problems with lions killing the cattle, jealousy of the group's success, all kinds of friendship, and tributes to Hugh Masekela, Miriam Makeba, Duma Ndiovu, and Paul Simon. The best cut on the album, "Wayibambeza (Don't Waste Her Time)," is about two kinds of exile: that of migrant workers from their homes, and that of South African nationals (like Miriam Makeba) who still bring South African culture with them wherever they go. The song is sung, or chanted, in call-and-response. It's amazing in its starkness and complexity. There is also a wonderful Paul Simon arrangement of "Amazing Grace," sung in English.

The album was recorded on analog recorders at the Hit Factory in NYC, but mixed and mastered using a Mitsubishi X 80 Recorder by Bob Ludwig at Masterdisk, NY. Recording quality is high (compression is low). Worth auditioning (and it's better than *Graceland* for showing off male voices).

—Gary S. Krakow

### MINISTRY: *The Land of Rape and Honey*

Sire 25799-1 (LP), -2 (CD). Hypo Luxe, Hermes Pan, Eddie Echo, prods.; Jourgensen, Barker, Steve Spapperi, Julian Herzfeld, Keith Auerbach, engs. AAA/AAD. TT: 40:32

As the companion video clip "Stigmato" leaps up the charts in New York clubland, Sire Records calls this "the latest in agro rock... an aggressive challenge to smug music industry norms." Actually, Ministry is two guys from Chicago, IL (Alain Jourgensen and Paul Barker) who shed the rest of the band's original members after their last album (*Twitch*, 1986) and abruptly changed styles. Known previously for light disco pop—"Work for Love" is a good example—Ministry now sounds like someone took Big Black, the radical alternative Chicago band who did it first, and treated it to the works

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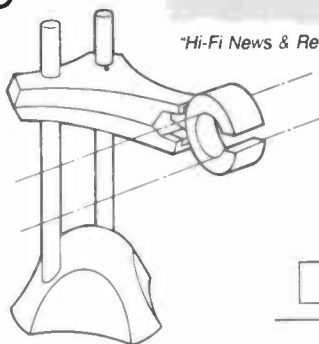
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in a world-class recording studio. Ministry has, in fact, burst on the industrial dance rock scene a little late. It's a particularly vicious and, one might think, cynically manipulative incarnation of the "let's burn down the cornfield *and* the whole damn barn" point of view already exemplified so well by Brit art-noise rockers Throbbing Gristle and our own Skinny Puppy and Sonic Youth.

Still, if you can relate to naked hostility taken well over the top (and who among us hasn't had those days?), this release is extraordinarily well-recorded and -produced. Some may say it's a waste of production dollars to lavish them on the likes of "Stigmata," a cheerful boy-hates-girl paean which features the most positive line of the whole album: "Your best weapon is the look in your eyes." Equally charming are "Destruction," a soundtrack for Dance Club in Hell, and "Hizbollah," which deploys Middle Eastern tonalities to imply that we're all in this together and it stinks. This is one band that won't play Live Aid or Sun City either, if only because their internationalism owes as much to a truly staggering self-absorption as to trendy DJ Mark Kamin's "world music" house style, cut with sitars, African nose flutes, and Islamic voices over the top.

Motivated equally as one-in-the-eye for a former girlfriend, I'm told, and by the primal urge to make money, Ministry's new stance does, after all, perfectly exemplify the attitude of the '80s. In the land of rape and honey, where social ills are coated with fancy sneakers, tabloid TV, and supply-side economics, Ministry's rage—as well as its "where's mine?" stance—is perfectly understandable. Yes, it's a little unfocused, more than a little misogynistic, and just like a teenager in a tantrum who's discovered he can't have it all, after all.

These boys are disillusioned, mean, and on the make, determined to shake the world until it rattles, and the production will certainly do that. It's painstaking, expensive, full of effects, sampling, squeaks, delay, and reverses borrowed from dub reggae: exciting, hypnotic music underpinned by a relentless backbeat that dares you to turn the system up. Don't do it. Produced with Hypo Luxa, Hermes Pan, and Eddie Echo, Ministry wants you to fear for your hi-fi set-up. Hold on to the fear or you will quickly find out whether your amplifier clips and why you should audition this release through old Cerwin-Vega PAs. The treble is spikey, on CD the dynamic range on tracks like "Deity" and "Golden Dawn" shoots from zero to the red zone, and the drum machine does not stop. But unlike the socially conscious nihilism of Ian Dury's "Plastow Patricia," for instance, Ministry's stance is just plain peevish.

Its hostility you can dance to, and that's a shame, because in a land of rape and honey, there's a lot to be genuinely mad about.

—Beth Jacques

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**JESSE WINCHESTER: *Humour Me***

Sugar Hill SH 1023 (LP), SH-GD-1023 (CD\*). Bil Vorn Dick, eng.; Jesse Winchester, prod. ADA/ADD. TTs: 40:34, 52:21\*

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Last we heard from Jesse was back in '81, when *Talk Memphis* was released—all funk'n'jive and no songs you could really stick a fork in. I've got no idea what else he's been doing in all that time, but one thing for sure: *Humour Me's* got his best songs since *Nothing But A Breeze*, way back in '77.

Winchester's long, famous Canadian exile in protest of the Vietnam War was, unlike that of most of his *confreeres*, the result of his profound Christian faith. Though that faith has surfaced only sporadically in his music ("I Can't Stand Up Alone," "Working in the Vineyard," "I'm Looking For A Miracle"), it permeates virtually every one of *Humour Me's* dozen songs. This is not the snarling Old Testament self-righteousness of Dylan, the white-hot zeal of Aretha, U2's pompous piety, or even the devout smolder of Al Green. No, Winchester's is a wry, tested, seasoned faith, as attested in the funkily contemplative "Thanks To You": "Someday up in Glory, I'll weep and tell a story to someone who will smile and say, 'You're a mess, but you're my child'. . . I *would* take the credit, but it's thanks to you."

There's compassion here, too: "And they just can't help themselves, they've given up control; they hear a little voice that lives down in their soul, saying 'Let's us go and find a cozy little hell,' and no one tells them 'No,' and they just can't help themselves."

Nor is Winchester's Christianity sexless: "I Don't Think You Love Me Anymore" lists all the *little* things—playing footsie, sleeping spoonwise—that disappear when love sours.

But those are just the words. What *I can't* tell you here is how good it all sounds—JW's velvety voice, so much like Lyle Lovett's but so much more fluid, his languid phrasing, gorgeous melodies, and arrangements that manage to sound lush and spare at the same time (with help from sidemen Bela Fleck, Jim Horn, and the amazing Mark O'Connor, among others).

The LP's reverb, false as it surely must be, is entirely gone on CD. The LP is warmer, lusher, by far the more sensual experience, but the CD includes two songs—"Pushover" and "Love Is Fair"—not on the LP (or cassette, for those who care) that I'd surely hate to do without.

Welcome the hell back, Jesse—what took you so long?

—Richard Lehnert

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## Erratum

Our apologies to Stan Klyne of Klyne Audio Arts, Ltd., from whose Manufacturer's Comment on p.180 of the February issue a line was accidentally dropped. The passage should have read as follows:

Regarding listening test methods: On several occasions, while describing his sonic perceptions of the SK-6, the reviewer made several comparisons to "competing" and "reference" units, without actually naming those units.

## Adcom GCD-575 CD player

Editor:

Conceptually, the Adcom GCD-575 was intended to be the CD player of choice in its price range with respect to sonic quality, audibly and measurably superior in resolution, detail, clarity, and ambience retrieval. We were indeed pleased that *Stereophile* concluded from its listening tests that we have achieved these objectives. Yes, stereophiles, one can now objectively document many of the sonically identifiable differences among CD players, even though other publications which regularly review CD players still lack the sophisticated new instrumentation necessary to identify and quantify these subtle distinctions.

The drawer mechanism we chose for the GCD-575 is also used by other companies, and has proven to be one of the most reliable on the market. In fact, none failed in our life-tests which replicated the equivalent of many years of normal home use.

Our drawer's function is simply to move the disc in and out of the machine. Once in place, the drawer is disengaged and not in the mechanical circuit. The mechanism which takes over, containing the turntable, laser drive, and other mechanical components, is mounted in a metal housing, suspended by four short-travel suspension springs with asymmetrical resonances and damping. This system gives fast recovery from minor shocks and vibration and retains the precision of focus between the laser beam and the disc.

We found in our research and development work that a looser, less controlled springing, while providing greater absorption of larger shocks (rapping on the cabinet, shaky floors,

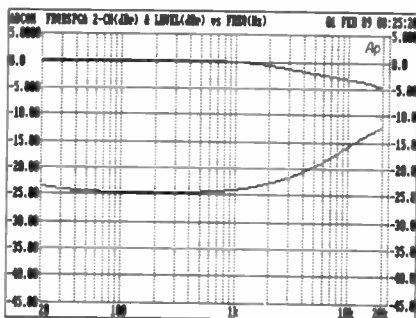


Fig. 1 Effect of AFPC circuit

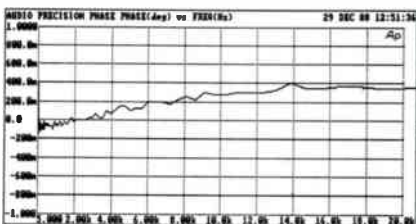


Fig. 2 GCD-575 Phase Response

etc.), negatively affected the overall sonic performance, due to less accurate reading of signals still in the digital domain and the need for greater error correction.

The heavier, costlier drawer mechanisms used in the \$1200-\$2500 machines with which the \$600 GCD-575 was compared would have given better shock resistance, but not, in our opinion, greater reliability. . . and certainly would not have permitted us to keep our targeted price.

We felt that the best price/performance solution in this instance was a compromise:

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In his "Follow-Up" measurements, JA iden-

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tified one of the main effects of the Adcom selectable "AFPC" circuit, but overlooked another of its aspects; and our reasons for using them in combination. The second, unidentified circuit function is the controlled reduction of separation between the two channels (see fig.1). This, in conjunction with the Frequency Contouring noted by JA, attempts to duplicate the way a good moving-coil cartridge responds when playing representative analog discs. The data from which the AFPC circuit was derived, both frequency response and phase, resulted from analyses of the actual response of hundreds of well-regarded phono cartridges.

The use of AFPC should be reserved for those CDs whose original recordings, either analog or digital, were made with microphones and techniques originally developed for the mastering and subsequent playback of analog vinyl discs: peaky cardioid microphones, very close pick-up and/or excessive and unnatural separation. These would be somewhat compensated for, or made less aurally insulting, by the "softening" effect of vinyl disc playback: translation losses, vinyl deformation, etc. The effects of AFPC, we feel, make these excesses on a CD more forgivable or, perhaps, less irritating.

JA says that a common factor among the machines tested is a "final low-order analog reconstruction filter." In fact, the GCD-575 is differentiated by the use of an FDNR analog filter that has virtually zero group delay. The deviation from zero phase error is less than 0.5° from 20Hz to 20kHz (see fig.2, actually run on the same GCD-575 sent to *Stereophile* for tests). This phase-error performance is, to the best of our knowledge, unsurpassed by any CD player presently available, regardless of price, and represents a significant innovation in the price category of the GCD-575.

C. Victor Campos  
Adcom

## Onkyo DX-G10 CD player

Editor:

Sam Tellig's unit, which is in my office as I write this, has anarchistically refused to exhibit the loading glitch he mentioned even though I've spent a decent part of the last four days force-feeding it every disc I could lay my hands on. Maybe it likes our (musical) veggies better? Once we induce a recurrence of its "digital indigestion," we'll be much closer to under-

standing why it happened. We'll keep you informed.

As you know, tracking ability is determined by many factors—the level of CIRC error correction, error-anticipation programs, servo operation, etc. In order to avoid what we believe to be audible penalties inherent in some tracking-enhancement schemes, we have adopted a more conservative approach that admittedly asks the disc manufacturer to adhere to accepted industry limitations for burst errors, etc. Silly us! We are pleased, however, that Sam found the DX-G10's tracking ability to be far better than CD standards call for.

D/A linearity, and its consequent effects on overall sound quality, is a much more delicate issue. Ambience is largely a matter of low-level musical dynamics. A non-linear D/A converter either expands or compresses low-level signals, thus altering those dynamics. As we have not yet seen any studies that attempt to correlate positive and negative nonlinearities with an enhanced or reduced perception of ambience, we can only suggest that one type of misalignment might be perceived as more desirable than the other. In reality, both are specious and it would be interesting to see efforts to resolve the question.

John Atkinson's observation that Sam's DX-G10 suffered from misaligned D/A converters is, through no fault of his own, not true—maybe. To explain: When Sam returned his unit, I asked our technical division to check linearity. Due to some quirks in a newly acquired Audio Precision test instrument, its accompanying Compaq microcomputer, and (yes) some initial ignorance on our part, we "identified" supposed nonlinearities that might have accounted for some of the things Sam heard. I told Sam. He told John. And, as it turns out, we're all wrong. What we identified was actually a computer RAM shortage that gave us spurious test results. Unfortunately, we didn't discover the procedural error until we had purposely twiddled with the alignment pots in an attempt to find out what was (or was not) going on. So, John, flip a coin—heads, it was (aligned); tails, it wasn't.

We appreciate Sam's enthusiasm for the DX-G10's dynamic capabilities. There is really no magic here—the key is power supply and there are no cheap substitutes for adequate transformers, adequate isolation and filter caps, etc.

We're also happy to see the DX-G10 helping

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lay waste to the baseless myth that disc players are incapable of proper soundstaging. Circuit topology and vibration damping (read "chassis design") contribute here.

As you know, we feel that "shifting bit" architectures have deleterious effects on musical reproduction. Actually, it isn't the bit shifting itself but the consequent analog-domain gain riding that results in Sam's well-described unease at hearing "something going on" behind the music. That's why we chose linear processing for the DX-G10—simpler is better.

There are two final points.

While we agree with *Stereophile* that any manufacturer who addresses the high end has an obligation to provide products whose unit-to-unit performance satisfies that market, we are somewhat suspicious of what some readers may latch on to as the "universal measurement of the month." Measurements by themselves may be misleading; the positive correlation between measurement and auditory perception is of real value. We are also concerned, as we know you are, that what comes home from a dealer's stockroom bears more than a passing resemblance to the unit that prompted either praise or criticism in the pages of a magazine. Thank you.

**Len Schneider**

National Product/Advertising Mgr., Onkyo

## **Theta DS Pre D/A preamplifier**

Editor:

Thank you!

We appreciate the tremendous amount of time and attention you have lavished on the Theta DS Pre. As well as coming to understand Theta's sonic advantages and varied applications, you have helped us realize some things we weren't aware of before.

The mysterious "ticking" sound you experienced has only been found to occur very near government installations. RF filtering in all but the earliest units eliminates that problem. (We did not set out to build a detection device for top-secret military installations. As it is, the government won't let us sell to Russia or Cuba because of the Theta's computing capability, so thanks for the tip!)

Also, regarding preamps: When we first designed the DS Pre, the high-level stages of even the best analog preamps were quite colored, as they were designed to be symbiotic with their phono stages. Flaws that the designer

couldn't get out of the phono stage would be corrected for in the high level. The only sources going directly through the high-level stage would be tuner and tape, and these weren't deemed to be important sources. As you have noted, the very best of the most recent generation of preamplifiers' high-level stages are sufficiently good that they help rather than hurt the sound of the DS Pre. We recommend the DS Pre to owners of all but the latest, most advanced preamps; for those who already own a state-of-the-art preamp, we recommend the DS Pro.

You pointed out that we have not fitted an optical digital in or out device to the DS Pre. We feel that the standard fiberoptical transmitter/receiver adopted by the major Japanese manufacturers (made by Toshiba) is insufficient in bandwidth for a 1.8MHz Manchester-encoded squarewave. In fact, our experiments have found that the sound of the optical input *changes* as one moves or bends the fiberoptic link. A recent Japanese-language paper authored by one of Pioneer's engineers noted this problem and suggested a duty-cycle correction circuit as a solution. We have found that this circuit does indeed handle 90% of the problem. Unfortunately, the 10% of the problem that remains is clearly audible. The best solution is to use fiberoptics of sufficient bandwidth to properly pass the digital signal, such as those made by Hewlett-Packard or AT&T. Since there is no agreed standard to use these, we choose to ignore a less-than-optimal input.

Regarding pre-emphasized CDs: We admit to an oversight in earlier units in the de-emphasis circuit. A resistor value was off by 200 ohms. Since very few of the discs we were using (5 out of 1500) during design were pre-emphasized, the original error was not detected until recently, as only an emphasized disc activates the circuit where the error lay. This has been corrected as of serial number 885101. Naturally, anyone owning an earlier unit is welcome to send it in for updating, free of charge. Likewise, of course, units that tick.

Lastly, we are glad you brought up the need for a good A/D converter. We are at work on an A/D converter and digital signal processor containing the same technology as the DS Pre/Pro. We hope to be out with it by summer for the professional audio market.

**Neil Sinclair, Mike Moffat**  
Theta Digital

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## Inouye line conditioner

Editor:

Thank you for JA's detailed appraisal of the SPLC. Ironically, our development of the SPLC dates back to 1984. At that time our feelings were that there would not be a consumer application for such a device. Perhaps power-line conditioning has now come of age.

Due to the close proximity of a power substation and airfield to our engineering facility, an elaborate power-line conditioner was an absolute necessity. Our SPLC is a compilation of various noise- and transient-suppression techniques.

Power lines act as transmission lines, not only carrying the 60Hz power that they were designed for, but also noise in the form of RF. Like an antenna, a power line has the ability to radiate and absorb EMI, distributing it through the power grid.

All noise that is generated by synchronous devices is harmonically related to the line frequency and can easily extend through the spectrum to many Megahertz. Even line voltage that appears to be clean on an oscilloscope may contain harmonics if the sinewave has been smoothly distorted in shape.

Conventional filters such as Chebyshev or Butterworth are designed to give significant attenuation at frequencies close to those which are least attenuated. These produce optimum performance when their ports are terminated at a specific impedance. Any deviation from this will cause a degradation in the phase and amplitude response of the filter. The SPLC was designed to accept a variety of load impedances without adversely affecting its sonic virtues.

In order to halt the propagation of high-frequency interference, a balanced low-pass filter is used in the line between the power source and the equipment being powered. The SPLC's ability to attenuate signals above its cut-off frequency makes it useful in reducing the transfer of noise from the source to the load, as well as from the load back into the lines. This was the rationale behind the dual power-line conditioner configuration, insuring absolute isolation between each pair of outlets.

Since the SPLC does not begin to show any significant attenuation until the multi-kilohertz range, there is virtually no reactance at line frequencies. The only loss exhibited at 60Hz would be the windage of the inductors them-

selves. The reactance of the inductors used produces less than 0.6V at 15A. Each 0.01 $\mu$ F capacitor has a reactance that produces a current of less than 0.5mA at 120V.

We would like to mention that, similar to the burn-in period necessary for speaker/interconnect cable, so, too, the SPLC requires a few hours of operation to fully benefit from its design.

**Brian J. Inouye**

President, Artech Electronics, Ltd.

## Audioquest 404i-L cartridge

Editor:

Thank you for TJN's consideration of the AQ 404i-L cartridge. I just want to add a little background.

As of November 1988, both output levels (404i-MH/1.4mV and 404i-L/0.5mV) use an FPC (Functionally Perfect Copper) coil. This highly refined copper has single crystals over a mile long in this size strand. This means the coils are only one crystal long. The FPC replaces the LC-OFC that was in the sample reviewed. This does not make it a different cartridge. It is the same cartridge with a little more information, a little more separation, and a smoother, silkier top end. In the "L" model it is simply a welcome refinement; in the "MH" model the FPC replaces an OFHC coil. This is a major difference that brings the absolute performance of the "MH" to within a hair's breadth of the "L". I believe that today's "MH" will yield better results than the "L" used through any pre-preamp, especially a separate unit, but also a built-in unit. However, a pre-amp that has sufficient gain in its phono stage to accommodate 0.5mV (many preamps today) should be used with the "L" version of the 404i.

The AQ 404i requires an average of 10 hours' playing to be broken in. The effect of this break-in can be very dramatic. Anyone purchasing a 404 should not listen seriously until after this break-in period.

**William E. Low**

Audioquest

## Airtangent tonearm

Editor:

Thanks, Arnis Balgalvis and *Stereophile*, for an excellent review of the Airtangent tonearm in the February issue. The review is indeed detailed, and covers every aspect of the arm, leaving me with little to clarify.

The difficulty with connecting the wires in

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the termination box is now well-known. The following changes have been made to solve that:

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- The six wires for the armlift are now equipped with miniature connectors.
- Azimuth adjustment should be done with the armtube locking-screw "half open" so that the friction of the clamp enables the user to fine-adjust.
- The special Litz wire referred to is Teflon-coated, multi-strand silver wire made for us by Siltech in Holland. Many different wires were tested during the years of the Airtangent's development, and these proved the most enjoyable.

**Leif Haggmark**

Airtangent/Audionord, Sweden

## JVC TD-V711 cassette deck

Editor:

In reading "Pure Gold" in the November 1988 issue, I was pleased to see the well-deserved praise given to the JVC TD-V711 cassette deck. However, I was somewhat disconcerted with the comment that our digital amplifier (AX-Z911) simply had a D/A converter "stuffed" in it. I believe that there is a misunderstanding here that deserves some explanation on our part.

Although the AX-Z911 does have a D/A converter built in, it is done so with a purpose—to operate in class-A up to 100Wpc! That's correct, 100W of class-A power in an \$1100, 44-lb box. Here's how it works.

When utilizing any of the digital inputs on the AX-Z911, the digital signal is split into two signals identical to the original. The first signal, called the prediction signal, is forwarded to a logic circuit which compares the input level and volume setting. If it determines that the output will require more than 20W, a signal is sent to the variable voltage power supply to increase its voltage to the amplification block (at idle, the amp operates at 20W class-A, but when the source demands, it can operate at 100W class-A). The other digital signal is forwarded to a digital storage circuit which delays the signal 150ms. It is then sent to a D/A converter, and finally to the amplifying stage.

By delaying the signal 150ms, the variable voltage power supply has ample time to

increase its voltage output from 20W to 100W operation. Also, by delaying the signal in the digital domain, there is no loss of signal integrity.

I believe that you will agree that this is more than just the refinement of putting the DAC further down the line. This truly represents a breakthrough in amplification design.

And this is just the beginning. . .

**Karl Bearnarth**

Assistant General Manager  
JVC High Fidelity Division

## DNM Solid-Core speaker cable

Editor:

I would like to reply to Dick Olsher's review of loudspeaker cables in the July 1988 issue of *Stereophile* (Vol.11 No.7). I regret that I am behind all the other replies, but your advance copy inviting comment was not passed on to me and so my first reading of the review was on receipt of the magazine.

Some of the explanatory background given in the review is informative, and I imagine it will be of interest to those of your readers who have not delved deeply into cables before. However, as a full-blown cable review it disappointed me because it did not cover the subjective descriptions as well as earlier Martin Colloms writings in *Hi-Fi News*, and the credence given to the subject of cable-stranding golden ratios was extraordinary. By comparison, these theories make the solid-core and Peter Belt controversies seem like established, scientific fact.

The review comments on the DNM Solid Core Cable show a real lack of understanding about the cable's characteristics and construction. Despite his comments about the spacing of the send and return conductors, Dick has not noted that the constancy of this spacing along the cable length might be important. He mentions that conductor cross-section, stranding, and the conductor spacing could all have eddy-current implications, but his imagination does not go beyond the resistance consequences of this. If eddy currents only caused resistance problems, things would be so much simpler and your review of cables probably would not be necessary!

I saw a spark of light in the review when Dick talked about fat cables and their sonic characteristics, but this did not last long. The problems he encountered probably come from the

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partnering equipment he used. For example, he noticed the "nice sense of focus and the grainy and coarse treble." This is exactly what a field-correct cable shows in a system where everything else has been assembled with a total disregard for field principles.

We have carried out trials on twisted, insulated, multiple solid cores of the type liked in Dick's review. There is nothing special about how they perform—in fact, quite the reverse: they all show the same tendency to soften and round. The lack of defined spacing between the send and return conductors gives a false bass warmth to the program signal which may be liked in the short term, but is ultimately fatiguing and devoid of vibrancy. These deficiencies stand out like sore thumbs on field-corrected amplifiers. On signal like massed voice there is an intriguing but unnatural enlarging and spreading of the image.

The electronics are like the cables—the heavier they are constructed, the harder they will fall. Smaller, lighter, and simpler amplifiers—even budget ones—generally perform well with solid-core cable. In other words, the cable is behaving in what we would describe as a correct way.

DNM cable is produced from the finest-quality materials using one of the most expen-

sive production processes. Our choice of wire is high-purity, oxygen-free annealed copper—the same as that used in some of the cables that Dick liked. He suggests variation in copper cross-section, but how much scope can there be for any variation in the cross-section of a single 22-gauge round conductor in comparison, for example, with the inevitable variation in a stranded cable cross-section? Does Dick seriously think we would market a cable without checking the effect of different surface finishes on the copper?

DNM solid-core cable has now been available for nearly three years. Even before this, DNM Design began examining the implications of "the field-effect" approach on all parts of the audio system, including the amplifiers. It is therefore a little ridiculous for Dick to dismiss our product as if the basic idea was right but we missed out on the details.

Even the results with the two different types of speaker suggest that Dick's conclusions about the cable are, at best, unreliable. The recommendation to use only short runs conflicts totally with our general recommendation to use 3 meters or more. There is a good reason for this too—if only Dick had asked!

**Denis Morecroft**  
DNM Design, England

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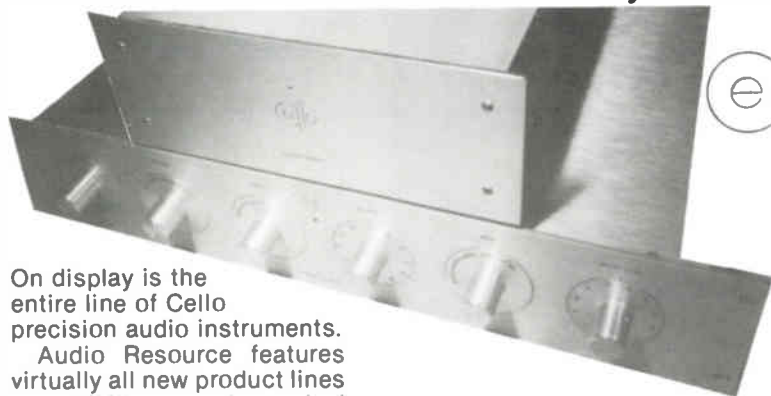
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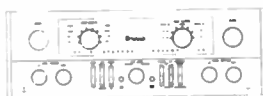
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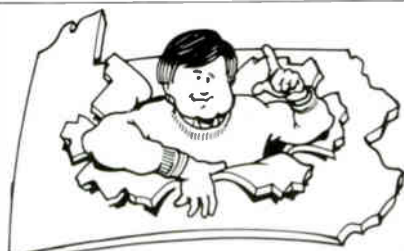
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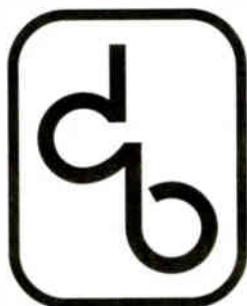
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# THE FINAL WORD

## Commended Recomponents

Here we went again! Main guns JA, RL, and I have just waved good-bye to faithful contributors (a mini-group this time, consisting of senior main gun JGH flown in from Boulder, CO, and our Senior Contributing Editors: ST, DO, TJN) assembled to praise and damn in the form of "Recommended Components."

The small size of the group (smaller, that is, than our free-for-all last August) meant less total dispute, but no less virulence. JGH is in despair at the number of products we include (especially those he can't abide), ST seems to feel that the mere fact of a good review six months ago is no reason to keep recommending it—I mean, after all, this *is* 180 days later! Things change. TJN and DO essay stability (though DO's can be a bit acerbic), while JA and I strive to keep heads above water.

You may rest assured that the "Recommended Components" you see next month will have sufficient variety, but that we have been strict. If there are doubts, or any weakness in the defense, out it goes. This should not be interpreted to mean that the rejected or deleted product is *bad*, or that we scorn its purchase; only that we cannot be confident in its recommendation.

How, then, can we be confident in recommending so *many* products, and with such diversity? The answer is system matching.

Once upon a time, back in the dim 1970s, JGH had the courage to publish a list of recommended *systems*. What a great idea! What a huge uproar! The immediate response was outrage—JGH recommended not only scrapping your current faithful preamp for the Aural Opulence AO-13ai, but the whole shebang. It's hard enough to come up with the \$2-4000 for one major component update, but impossible to redo the whole thing at once.

Predictably, once the stink died down, we started to receive a steady trickle of requests for a repeat. (It's sort of like the mix of critical letters we get: one half say we're bleep-bleep snobs for reviewing all the megabuck gear, the other half say we're trying to out-Julian Hirsch *Stereo Review* with all the "mid-fi" gear we review.) As JGH kept crying out, the idea of system recommendation is a noble one: it is only through excellent system matching that you do,

in fact, approach audio nirvana.

One suggestion that reared its head at our mini-conference was an "Editor's Choice" that featured a different contributing editor in every other issue. (This is not entirely novel, it must be confessed: HP of *TAS* originated this format, and without a doubt it makes up for its lack of encyclopaedic intensity and personality. Other *TAS* editors are not, however, accorded the privilege—or onerous burden, as JA would surely affirm.)

Through such an Editor's Choice you could see, at the very least, particular combinations which work. At most, you would begin to divine the secrets of discovering where to look to get components to work well together as systems. What complementary interconnect might alleviate that persistent hardness; what cartridge will pull some life from your sluggish tweeters; what amp will control your underdamped woofer's tendency to whump; which *type* of component might solve particular problems. In our listings we try to suggest what types of combinations to avoid, but much of it begins with *your* personal taste, perception of musical reality, what *you* like to listen to.

The preferable alternative is to find a trustworthy dealer that you make familiar enough with your system that he or she can guide you through the treacherous slopes of equipment purchase. I don't know enough about the audio world out there to affirm that such dealers are almost impossible to come by, but I can certainly say that system-matching is an art of which there can't be an adequate supply. And my experience talking to subscribers on the phone, listening to demos at CES *and* at reputable dealers—not to mention the odd off night at a contributor's house—bears out this dearth of knowledge. Perhaps an Editor's Choice could give you something approaching a regular session at the feet of—well, maybe not *masters*—but at least people who do this all the time and are quite good at it. After all, "Recommended Components" is there not just for feathers in people's hats, or to augment manufacturers' sales, but to allow you to better make music in your home. **S**

Larry Archibald

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