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Larry Archibald muses on the state of sound reproduction

MAY 1988 VOL. 11 NO. 5
COMING ATTRACTIONS

The June issue of Stereophile coincides with the SCES in Chicago, exactly one year since Magnepan showed prototypes of their MG2.5 loudspeaker to excited reviewers—a Maggie, with a ribbon tweeter no less, for the price of a good box speaker, just $1550! It sounds too good to be true. JGH has been living with a pair of 2.5s and will be reporting next month whether Jim Winey’s new baby lives up to its promise. Other hot high-end components coming under our reviewers’ scrutiny include: the John-Curl designed Vendetta MC-to-line preamplifier; Meitner’s remote-control preamplifier and power amplifier combination; a whole bunch of loudspeakers from Epos, Snell, Sound Lab, Orpheus, Image, Camber, Nelson-Reed, and Monitor Audio; and yes, Dick Olsher’s long-awaited survey of loudspeaker cables will finally see the light of day!

Providing a framework for the reviews, Ken Kessler talks to loudspeaker designer Richard Vandersteen, Christopher Breunig offers useful modifications for the Well-Tempered Tonearm, Alvin Gold asks whether the high end is all it is cracked up to be—does price always equate with performance?—J. Gordon Holt reports on the new gear heard at Stereophile’s Hi-Fi Show in Santa Monica in April, and I will be offering a short list of Recommended Books on music and sound reproduction—read every one and you could edit an underground hi-fi magazine!

In the Music Section, Robert Deutsch will look at the Broadway musical on record, Christopher Breunig celebrates Herbert von Karajan’s 50-year recording career, and Robert Hesson kicks off a regular series in which our record reviewers talk about their tastes in recorded music and in playback equipment.

And Vol.11 No.6 sees the return of our cumulative equipment report index. Fully revised, it lists every component reviewed in Stereophile since 1971.

Works in progress due to appear in the next two or three issues of Stereophile include J. Gordon Holt on cost-no-object loudspeakers from Infinity, TDL, Altec—yes, Altec—and Synthesis, Arris Balgalvis on the Apogee Divas and the Swedish Air Tanteg Tonearm, Lewis Lipnick on the Mark Levinson No.23 amplifier, Thomas J. Norton on affordable preamplifiers from PS Audio and Sumo, George Graves on the new amps from Superphon, and full reviews of the Lineair turntable and the latest Oracles.

If you’re reading a friend’s copy of the magazine, how can you bear not to get your own subscription? Turn to p.134 for full details.

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©Stereophile - Vol. 11 No. 5, May 1988, Issue Number 99. Stereophile (ISSN 0058-2544) is published monthly. $3.50 per year for US residents by Stereophile, 208 Delgado, Santa Fe, NM 87501. Second-class postage paid at Santa Fe, NM and at additional mailing offices. POSTMASTER: send address changes to Stereophile, PO Box 364, Mount Morris, IL 61054.

Subscriptions
US residents (800) 435-0715,
(800) 982-0723 (Illinois).
From outside US call (505) 982-2366.

Stereophile, May 1988
During the late 1950s, when high fidelity exploded into a multimillion-dollar industry, product advertisements bragged about bringing the orchestra into your living room. Apparently, no one realized what an absurd concept it was, but there are still many people today who believe that's what audio is all about. It isn't. There is no way a real orchestra could fit into the average living room, and if it could, we would not want to be around when it played. Sound levels of 115dB are just too loud for most sane people, and that's what a full orchestral fortissimo can produce in a small room. A string quartet or Dixieland combo might fit, physically, but that doesn't mean you'd want to listen to them in your room either. Live instruments heard from that close in a small, confined space are positively deafening. No, the concept of instruments-in-your-living-room is strictly cart-before-horse, and most audiophiles have come to see that. Today, the goal of high fidelity is quite the opposite: to transport the listener into the room where the recording was made. The means exist now for doing that, but no one is taking advantage of them.

Before stereo, audiophiles who thought at all about what they were trying to do thought about high-fidelity reproduction as a window on the original sounds; sort of a hole in the living-room wall, through which the listener eavesdropped on the concert hall. But with only a mono source, it was a very small window. Various expedients were tried to widen the window—using two different, widely spaced speakers, bouncing the sound off a wall surface—but the result was only a broadening of the hole; there was no reproduction of directionality or spaciousness.

Stereo widened the hole in the wall, opening up the field of view enough that a listener could tell whether instruments were to the right, left, or center of the performing stage, and even encompassing some of the hall sound to the sides of the orchestra. Good stereo reproduction can give the impression that the whole listening-room wall behind the loudspeaker has become a picture-window on the concert stage. But it's still only a window. We're not in the concert hall, we're still just looking (or hearing) into it.

The acoustical space—the sound of the performing hall which is as much a part of live-music sound as the instruments themselves—is very audible on a good stereo system, but it's all on the other side of that window. Depth, too, stops at the window. While it is possible to reproduce an illusion of front-to-back perspectives behind the loudspeakers—and we must often cheat by calling on rear-wall reflections to help do it—there are no systems in existence capable of stable imaging in front of the loudspeakers. This is okay if all we ever listen to are conventional classical works in which the musicians always sit on a stage upfront, but if we try to reproduce such things as off-
stage brass choirs, or antiphonal works in which a choir or a group of instruments or a pipe organ were originally located behind the listening seat, it can’t be done. All these will come from up front, inextricably mixed with the onset sounds. There’s only one way of breaking through the window and moving into the performing hall, and that is by using rear speakers to reproduce the ambience and other sound sources which surround and flank us when we sit in a real concert hall. It’s called surround sound.

Reproducing ambience from a pair of rear-placed speakers does for depth what stereo does for direction: it draws the soundfield across the space between the pair of speakers— in this case, the front/rear pair. Image positions are no longer limited to the space behind the speakers, but can be located anywhere between the front and the rear wall of the auditorium—or the listening room. The effect is one of being surrounded by the hall; you’re right in it. It’s the ultimate reproduction of the original performing space.

And four-channel reproduction does more than just enhance the reproduction of space; it also improves the naturalness of musical-instrument sounds. Instead of receding layers of cardboard-cutout instruments, their sounds take on an almost palpable roundness and depth that make conventional stereo seem thin by comparison. So why doesn’t every serious audiophile have a four-channel system? Because four-channel, also known as quad, has never lived down its reputation as the biggest marketing disaster in audio history.

Quad—short for quadrophonic—sound was introduced to consumers in 1970, not because its promoters were dedicated to advancing the state of the art, but because selling two more amplifiers and speakers and a new control unit to every stereoophile looked like a great way to revitalize what was believed to be a stagnant audio market. But almost immediately, the industry started galloping off in several directions at once. A majority of record companies assumed that consumers didn’t know or care about ambience, and used quad to place the listener in the middle of a circle of instruments, like a moose besieged by wolves. And the quad decoders were a disaster; they didn’t separate the channels very well, and were loaded with every electrical distortion in the book. Add to that the fact that there were four ‘standard’ quad systems—all incompatible—and quadrophony’s demise was assured. Audiophiles learned early on to despise it, and the consumer in the street either didn’t give a damn one way or the other, or refused to choose among the warring systems. Buyers stayed away in droves, and quadrophony was a dead issue by 1977. Even today, “that word” is one that few industry people will dare to utter. But the concept did not die; it just changed its name and went to the movies.

So-called Dolby Surround was first used in A Star Is Born (1976), and has been featured in practically every subsequent Hollywood blockbuster. When stereo came to home videotape, and consumers learned that all those fabulous surround-sound effects were encoded into their videotapes of those same films, they started demanding decoders to separate the surround from the stereo. Today, there are more than 60 different models of Dolby-Surround decoders on the market, and they’re selling like rack systems in Racine. But few Dolby Surround users realize that it can be used for other program sources, like audiophony-only recordings.

Like two of the quad systems, Dolby MP uses matrixing to encode directionality as phase differences between the left and right stereo signals. No phase difference places images at front and center, a 45° difference places them at the left or right stereo speakers, and a 180° difference (reverse-phase) places them in the rear surround channels. If you add side speakers, a 90° difference places sounds at one or the other of those. For films, each sound image is panned² to its proper location so it appears there unambiguously in playback.

Conventional stereo recordings do not have rear-channel information specifically encoded into them, but they do contain some reverse-

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¹ When Decca/London released their landmark Das Rheingold recording in 1958, a judiciously worded press release by producer John Culshaw hinted that the careful listener would be able to hear, at the very end of the opera, the Rhinemaidens singing from below the soundstage. Critics and listeners alike, baffled by the impossibility of such an effect, nonetheless pointed out the phenomenon, asking in awed tones, “How did they do that?” In his 1967 book Ring Surrounding, Culshaw revealed the source of the “technique”: the self-fulfilling prophecies of well-placed PR.

² In stereo, panning is the placement of a mono source at a particular location between the speakers, by adjustment of the relative level of the signals in the two channels. In the case of Dolby Surround, it also involves phase shifting.
phase ambience information, because ambience has random phase and a certain amount of that randomness is reversed. A Dolby Surround decoder can separate out this ambient information and direct it to the rear channels. Subjectively, the effect is surprisingly like being in the hall where the recording was made. But Dolby MP differs from quad in one important respect: the surround information is monophonic. So even with two widely spaced rear speakers, the surround channel conveys no impression of space. What it does do, though, is draw the ambience from behind the front speakers into the listening room, enveloping the listener as it would in a hall. The result is usually a startling improvement in realism, mono ambience or not.

But Dolby Surround has never been used for audio-only recordings. In fact, Dolby Labs discourages such use of their system, for reasons they seem hard-pressed to explain. However, they cannot prohibit it, and considering the number of surround-equipped audio-video systems out there in consumerland, it seems surprising that no one is making ambience-encoded, or sound-in-the-round, audio recordings for them.

Actually, there's a much better system for ambience reproduction. It's called Ambisonics, and Bill Sommerwerck has described it often enough in these pages that I won't reiterate. But, like better Beta, Ambisonics has just not (as yet) garnered consumer interest. Purists dislike it in principle because there is so much active electronic circuitry involved, while the general public—even that sector now delighted with their Dolby Surround—either scorns Ambisonics because they see it as another quad, or is totally unaware of its existence. Only one record company, Nimbus, records Ambisonically, and their catalog is relatively small. It is unlikely that other firms will join them until there is more consumer demand, and there won't be more consumer demand until there are more Ambisonics recordings available. It's a classic case of Catch-22.

Is there no hope, then, for a perfectionist's surround-sound system? There are two possibilities: Compact Disc and R-DAT.

Few people realize that the CD can accommodate two more discrete signal channels, which could be used as a rear ambience pair. These would not require matrixing or de-matrixing; all four signals would be as clean as today's stereo pair from CD, and the soundfield re-creation would be as good as it is possible to get. But no one is hurrying to release surround-sound on CD either, because: 1) it would halve the playing time; and 2) there are no recorders or players capable of handling four digital signals in CD format.

The R-DAT system also has discrete 4-channel capability, the standard allowing for the sampling rate to be reduced to 32kHz to cope with the extra data-storage requirements, but there are no players yet in US homes and it's anybody's guess when there will be. Copycode may be a dead issue, now that the NBS has reported so negatively on its effects, but the music industry has nevertheless resolved to continue its efforts to prevent R-DAT's US introduction. (See George Graves's "Industry Update" elsewhere in this issue.) Several hardware manufacturers have announced Spring '88 release dates for R-DAT machines, but so many release dates have come and gone uneventfully, it's hard to put any credence in the latest ones.

Where do we go from here? I hate to say it, but the best bet for domestic ambience reproduction as of now is the worst system for it: Dolby Surround. Good low-distortion decoders are available for it; there are lots of them in American homes; and there are lots of CD players hooked up to home-video systems. (Vinyl discs have never been entirely satisfactory for encoded surround sound because any mistracking causes horrible rear-channel distortion.) Dolby-encoded rear ambience on CDs would not affect CD playing time, would appear up-front when played on stereo systems, and could be separated out and reproduced from the rear by anyone equipped to do so. The initial encoding could be done passively, so those who don't choose to decode wouldn't have to worry about signal degradation due to active devices. The results wouldn't be as good as discrete four-channel sound, but they would be much more realistic than what we're accustomed to now from stereo. And that, after all, is what we're supposed to be seeking.

---

3 Conventional stereo CDs have the data streams representing the two audio channels multiplexed/interleaved on the disc; on replay, they are demultiplexed by the appropriate data being alternately read out of a RAM buffer memory. Four-channel replay would be no more complicated in principle, but would require dedicated hardware.

---

Stereophile, May 1988
TURBOCHARGE YOUR CD PLAYER.
The Elite A-91D Integrated Amplifier

Now that the compact disc has taken the world by storm, ordinary amplifiers are failing their driving test. Because ordinary amplifiers simply can't handle the dynamic range and pure signal that digital sound delivers.

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When it comes to digital sound, there's no such thing as good vibrations. That's why the A-91D uses a special anti vibration honeycomb design in the chassis frame. In isolation barriers between electronic sections. Even in all five insulator feet. A large aluminum volume control knob with a specially balanced brass shaft also absorbs distortion causing vibration, and printed circuit boards are mounted in rubber for the same reason.

The A-91D is not only ready for digital, it's ready for the future. With six digital inputs (2 optical), and three digital outputs (1 optical).

So if you want your digital sound to drive you to new heights, you need to drive your digital components with the Elite A-91D.

For more information, call 1-800-211-104.
Audio is analog!
Editor:
The more you feature CD players, CDs, and video (including surround-sound), the less interesting Stereoophile becomes to me. If these trends continue, at some point the magazine will not be worth the price and I will cancel, just as I did with High Fidelity and High Performance Review. Audio is analog!

Marc Richman
Washington DC

"Ah, yes!"
Editor:
A friend recently introduced me to Stereoophile and lent me all his back copies. I have spent a delightful time reading the last two years' worth and I wanted to write and tell you how much I like your magazine. For years I have been disillusioned by the cursory record/CD reviews in the "major publications," and their technical articles on equipment have been totally lost on me. Stereoophile is the first audio publication where I find myself so often saying, "Ah, yes!" as some perceptive comment leaps out at me. And, in contrast to some of your more vehement readers, I am grateful for reviews of reasonably priced equipment which I can actually think of purchasing.

Above all I like the tone of Stereoophile; I definitely have the feeling that you all enjoy what you do and that you are committed to the idea of hearing "music" rather than just being dazzled by the technology. My only cavil is those occasional remarks that pop up like: "this is a speaker even the wives will like," etc. As a woman who looks forward to spending many enjoyable hours with future issues, I hope not to see these kinds of remarks, which, although there may be some truth to them, do not do your excellent magazine any justice. Interest in and passion for audio equipment and good sound should not be presented as the exclusive domain of the male species!

Nuala Hallinan
New York, NY

But perhaps not
Editor:
I have been reading the letters you print with great interest as of late. It seems that the letters in praise of your new approach to reviewing are always from new subscribers, and the criticism nearly always comes from those who have been reading your publication for many years. I have subscribed to Stereoophile for several years, and I, too, think your magazine is drifting away from what made it so attractive to me originally.

Although Martin Colloms usually has some interesting things to say in his reviews, his use of specs, technobabble, etc. remind me of Audio magazine more than Stereoophile. I'm always tempted to read his reviews the same way I do an Audio review: first and last paragraphs. When I first subscribed to Stereoophile, it was refreshing to read reviews based on what components sound like, not how they measure. Specs were used only to support what a reviewer heard.

Let Lewis Lipnick review music and talk about differences in instruments, orchestras, halls, etc. His reviews of equipment are very boring. I dare you to sit down and try to read the last three reviews that L.L. wrote, and that you published, without taking any breaks. I'll bet you can't do it. When you give up, read a review by JGH or JA or read the Cheapskate column. I think you'll see what I mean.

I guess the point that I'm trying to make is that I'm surprised that you have changed your goals. I still enjoy JGH, JA, the Cheapskate, and AG (as long as he isn't talking about voodoo), and I hope you will keep Stereoophile from drifting any further from its roots.

Greg Salatin
Anderson, NJ

Lipnick is a godsend
Editor:
Lord, Lipnick is a godsend, and it doesn't matter if he's English or Martian! He talks about listening to music in a way only someone with
a wonderfully trained, sensitive ear could. While everyone doesn't have such talent or knowledge or even want it, perhaps, there are those who understand and relish reading someone who does. Don't let this one get away. In fact, please turn him loose on the high end of the high end, otherwise his gifts will never be realized, and engineers and audiophiles alike might never benefit from the refinement such insight promises. Randall Peters
Clemson, SC

For the record, Lewis Lipnick is as American as George Washington.
—LA

A fond love of music
Editor:
The style and wit found on Stereophile's pages really portrays what this whole field of "reproducing sound" is all about: a very fond love of music. Please continue to write with all the humorous effervescence I have noticed since my subscription began (about three years ago). While I'm nostalgic about those first few issues I received (with their missing pages, misspelled words, and often slanted columns, I really felt like it was an "underground" magazine), I think the present format enhances your already good product. I shall continue to listen with my eyes and mouth shut and my ears open.
John Markley
Ventura, CA

Too much . . .
Editor:
Although I enjoy Stereophile, no magazine is worth $35 per year. I can ignore the "personal views" expressed in Stereo Review and check out the "technical data" for $5/year. If you ever lower your rates, please let me know.
Mark Jorgensen
Omaha, NE

. . .esoteric garbage
Editor:
Stereophile is obviously intended for the very pretentious "golden-ear" segment of the market—those who continue to think that there is a discernible superiority in Monster Cable over 12-gauge zipcord despite blind tests proving the contrary; those who believe no receiver can ever sound as good as separates; those who believe Klipsch speakers still sound inferior to more "advanced" designs. (An objective test of the Klipsch Forte would change their minds fast.)

I have read several issues of your magazine at a friend's house since I received your first issue last month. I was appalled at some of the esoteric garbage you choose to test. Bob Carver's top-of-the-line receiver runs rings around half the equipment you recommend—and it includes a great AM tuner! As for speakers, have you ever heard of Polk, Allison, Klipsch, and the superb new Altecs? Try Carver's new speaker with your favorite classical piece against any one of your A-rated speakers.

It's my opinion that you guys have a distinct prejudice against products that don't conform to your preconceptions about how music ought to be properly reproduced. If you would open your minds a little, you would find that Matthew Polk in his white coat might actually grace your pages. His product line reflects his genius, even though (heaven forbid!) it extends into the mass market.

Stereo Review, with all its faults, at least has an open mind and tries not to cater to preconceptions about what is "good" and what is "bad." More important, it has poked fun and destroyed many audiophile pretensions.
Richard C. Fletcher
Los Angeles, CA

But keep it coming
Editor:
I had planned not to renew my subscription to Stereophile because of your Godlike attitude, all the cute little descriptions of how you hear sounds, and the way you look down your noses at equipment under tenzillion-bucks and at the poor slob who can't afford anything over $600 but who would like the sound of something a little better.

However, in only four issues, you have introduced me to balanced interconnects and the PAS-01 passive preamp (of which I have already built a prototype, using Radio Shack hardware), and that is certainly worth another year's money—keep it coming!
Larry Campbell
Deerfield Beach, FL

Reviewers going overboard
Editor:
I have been reading Stereophile for only a short time, but I must say that I find it to be the
From Ortofon of Denmark, a new generation of moving coil cartridges designed to match perfectly any standard phono input, without the need for an expensive step-up device.

These products incorporate such advanced technology and provide such clarity, depth and musical detail that to adequately describe them here is impossible.

So instead, we want to describe the only features of these great phono cartridges that you really care about, THEY SOUND BETTER! We’re so confident that any of these new cartridges will make your records sound better than the one you’re listening to now, we guarantee* it!

Purchase any cartridge from a participating authorized Ortofon Dealer. They’re affordably priced. Compare the sound from your records. Even compare it to compact discs. If you’re not 100% convinced that a new Ortofon X-Series High Output Moving Coil Cartridge sounds better than your old phono cartridge, return it to your dealer for a prompt refund*.

*Your participating authorized Ortofon Dealer has all the details on this Better Sound Guarantee.
most enjoyable, refreshing, and honest publication of its type. I particularly like the humor in some of the writing, and the fact that the reviewing staff is "international" is an added plus; after all, music and its appreciation know no political or other artificial dividing lines.

A point I wish to make, however, is that although for the most part your reviews are fairly sober (I particularly like those of Martin Colloms for this reason), there are times when the reviewer goes overboard in his enthusiasm for a product. To tell the reader to rush out and buy a $3600 amplifier may not in reality have too much impact, or it might. Seeking perfection is a very human characteristic, as well as wanting to own the best, etc., and we are all usually very wanting creatures who are seldom satisfied with much of what we already possess. I have spoken to people who mention marriages breaking up over one or the other's audio pursuits, and people without much money literally going broke when owning "only the best" would do. Please do not misunderstand me; I do not hold you all accountable for these unfortunate kinds of situations, but please do not overlook your influence and responsibilities in these matters when reviews go to print.

Stew Glick
Springwater, NY

A question of satisfaction
Editor:
I would like to see a survey of satisfaction by brands. I rate JVC 100% on four components, Sanyo 25% on two, Radio Shack 10% on two, Sharp 5% on one, Harman-Kardon and Kenwood of long ago, OK. McIntosh (speakers), 95%. Or perhaps instead of percentage tables, classify brands as "never again," "happily again," and "maybe."

John Wesley Lawrence
Norfolk, VA

The current tube crop
Editor:
In recent months you have reviewed at least two tube amps that use 6550s in their output stages (ARC's M300 and the VTL 75/75). From my experience with these tubes, it would be prudent to warn your readers that the current crop from Philips seems exceptionally prone to early failure. I have gone through four of them in four months in a Conrad-Johnson MV-75A despite the burn-in at the factory. The amp itself checks out OK. So buyers beware. I shudder to think of maintaining one of the ARC amps with its banks of 6550s.

William R. Mitchell
Columbus, OH

Best sound?
Editor:
I tip my hat to the general intelligence of Stereophile's readership and the attendees of the recent Stereophile show in New York.

What puzzles me is this Best Sound at Show voting reported in Vol.11 No.2. What are the criteria? Obviously the almighty dollar plays a major role. The top five systems easily exceeded $20,000 each. Set up in a hotel suite in 48 hours, auditioned with good "demo" music in an environment full of noise and distractions, I guess is as valid a method as picking your wife in the Miss America pageant.

Why bother with this ridiculous tally? Who could claim the results carry any meaning?

All will concede that Steroeophile's show and magazine are a great asset to the industry and art of music reproduction.

Again, my hat is tipped to the intelligence of those attending the show. The fine print in the published tables reveals that those returning ballots numbered 237. I believe the New York Show attendance numbered roughly 8000.

Garth Leerer, Manager
Music by the Sea, Leucadia, CA

Actually, attendance was just over 6000, but your point is well made; a higher percentage of attendees voting would yield a much more representative sample. Presumably, those who voted were those with the strongest opinions.

—LA

Worst coverage?
Editor:
I was very disappointed with Stereophile's coverage of the New York Show. I had to wait until the January issue to read about it, and then there were only seven short pages of review; and by only one reporter!

In addition to the time I had to wait for this coverage, I thought the text was also disappointing. This was my first high-end show and I found it very exciting. Dick Olsher's report was boring and uninformative. Unlike past reviews of high-end shows, he caught none of the "feel" of the show.
I would like to cite two examples of what I refer to: 1) p.45: "Duntech . . . delivered the most gutsy full-bodied sound at the show." That's it?! Only eight lines on the gutsiest sound at the show?! And most of that wasn't insightful at all. 2) p.47: "Infinity . . . definitely the most intimidating sound at the show." Nothing else! I could have written that. Mr. Olsher is supposed to be an expert. I want more than this. What music did they play, what AR equipment?

I had high expectations for the report of the show, especially since Stereophile had sponsored it. I wanted to relive the feeling of the show, and check out whether I agree or disagree with your reviewers' opinions. I'm sorry I was disappointed.  

Richard Weil  
New York, NY

The January issue was the first in which a report could have appeared, owing to the two-month lead time dictated by the logistics of magazine production. Regarding the show coverage, I was actually in two minds about whether to publish a report at all, as the fact that Stereophile had a major role in the show's organization might make it appear dangerously incestuous. In the event, we decided to go ahead with a small report.—JA

Reiner, Brahms, & Mahler  

Editor: Richard Schneider's reviews of the Reiner recordings of the Brahms 4th (Chesky) and Mahler Das Lied von der Erde (RCA) in Vol.11 No.2 interested me because of my work on a biography of the conductor.

Regarding Reiner and Mahler, the international edition of Grove's obviously errs in stating that Mahler influenced Reiner during the latter's work in Dresden, which began three years after Mahler died. Reiner may have heard Mahler conduct in Budapest, but, from what we know of his conducting, Mahler's influence on Reiner would have been negative. So far as Reiner was concerned, Nikisch was his model. Reiner conducted Mahler's music sparingly, as RS pointed out, but throughout his career: Das Lied in Dresden and Pittsburgh, as well as twice in Chicago; Symphony 2 in Cincinnati, and one movement in Philadelphia; Symphony 4 in Dresden, Pittsburgh, and Chicago; Symphony 7 complete in Cincinnati, as well as one movement in Pittsburgh; Gesellen in Cincinnati and Pittsburgh, and had scheduled it in Chicago with Fischer-Dieskau before his heart attack in 1960; Kinder- totenlieder with Ferrier in Chicago; and miscellaneous songs with Dux and Schlusnus in Dresden and Philadelphia.

If memory serves me, for Das Lied Reiner had the soloists on a platform at the rear of the orchestra, which may account for the aural perspective noted by RS. The same goes for the Beethoven Ninth and Nevsky, but not for the Mahler 4th.

The Brahms 4th was recorded on October 2, 1962, not "summer 1963." What lured Reiner to an arduous trip to London was the fat fee offered by RCA/RD, which originally included the Tchaikovsky 5th. But he had a heart attack after the Brahms and never recorded the Tchaikovsky. After seeing the Reiners off to London from JFK, my wife and I agreed that might be our last visit with him; he was so gravely ill. I had never heard him say that that was his most beautiful recording, although I had heard him, at different times, apply that term to other recordings he made in Chicago.

Philip Hart  
Santa Fe, NM

CD & liquid sound

Editor: Remember the old song that went "Listen to the pitter patter of the fallin' rain, telling me just what a fool I've been"?

I have followed with interest the debate over the sound of LPs vs CDs for the last several years. I finally broke down and bought a CD player recently to listen for myself.

In general I find the quiet surfaces and lack of inner-groove distortions very nice, but there is one effect I have noticed which is paradoxical. On the 1985 album Promise by Sade (a "digitally mastered analog recording"), the track "The Sweetest Taboo" starts off (and concludes) with the sound of rain falling. The rain sounds much more realistic, obviously more "liquid"-sounding, on the LP than on the CD. I have A/B'd these tracks (presumably made from the same master tape) for non-audiophile friends, and they agree. The difference is not subtle, and everyone, concert-goer or not, knows exactly what falling rain sounds like.

Incidentally, I do not have a very revealing system, by audiophile standards: large Advents, Grace F9E in a Harman Kardon T-60, Harman-

Stereophile, May 1988
Kardon and Hafler electronics, and a Magnavox CD player being the primary components for this comparison.

Has anyone else had similar experiences of “non-musical” everyday sounds sounding more realistic on LP than on CD?

Bruce Goldberg
San Francisco, CA

Used black vinyl
Editor:
The decline of the vinyl disc is, at the moment, a good news/bad news situation. Those of us who feel the virtues of vinyl have yet to be equaled are all too well aware of the bad news. The good news, however, is that so many CD enthusiasts have unloaded their record libraries that a wonderful selection of used black vinyl is available at very reasonable prices. For anyone who has ever wanted to measurably broaden his library, find some of those marvelous out-of-print gems, or indulge in comparative performance listening—it’s never been more affordable.

Coincidental with Kevin Conklin’s Bay-Area black vinyl article in Vol.11 No.1, a friend and I made a rather thorough tour of the San Francisco and Berkeley used-record shops mentioned by Mr. Conklin. The Streetlight stores, Recycled Records, and, though the name escapes me, the shop beneath Leopold’s in Berkeley, all have excellent classical sections. But even better shopping is available in Los Angeles, where vinyl goes for about 30 to 40% less. We’ll look forward to Mr. Conklin’s survey of this area.

Phil Jones
Los Angeles, CA

The "shop under Leopold’s," we believe, is called Leopold’s Used Records. We are also informed that Recollections, 2743 8th Street, Berkeley, is worth checking out for used first editions of classical and jazz LPs in mint condition, as well as ’60s rock and C&W. In addition, Village Music in Mill Valley specializes in jazz, blues, and ’50s rock (originals, reissues, and 78s), as well as books; D.B.A. Brown in Oakland apparently has a good selection of jazz and blues; and the “jewel” in the Bay Area is said to be Wessex Books and Records, in Menlo Park just north of Palo Alto, which specializes in classical—prices are said to be reasonable.

—JA

The LP under threat
Editor:
I don’t know where you buy your LPs, but this sounds criminal. I received the following letter from the Berkshire Record Outlet Inc., RR 1, Lee, MA 01238 (just off the Mass Pike on Rt. 102 West).


“This past October, without prior notice, scores of specialty record stores across the country, including Berkshire Record Outlet, were dismissed as direct status accounts with PolyGram and were told it was to everyone’s ‘mutual benefit’ if they dealt with sub-distributors. Unfortunately, sub-distributors with prohibitively expensive stock, who are basically ‘pop’ oriented, would not benefit us or our customers.

“The explanation offered by PolyGram was that the volume of business being done by these stores had dropped or hadn’t risen sufficiently to justify PolyGram’s cost of ‘carrying’ these accounts.

“This reasoning seems odd in light of the fact that our own monthly orders consisted of several hundred LPs at an average wholesale cost of $5 per, with payment always being sent before the due date.

“Despite claims to the contrary, we feel this is, among other things, an attempt to help insure the success of the compact disc format.

“It has become apparent to us that not all record buyers are as sold on the new format as industry hype would have us believe. Feeling we could get more heavily into the CD market in our own time, we opted to specialize in the LP market since there were no lack of retailers willing to stock PolyGram CDs at their $10.92 wholesale price.

“Unfortunately, what we could not foresee was PolyGram slashing its LP catalogue to the point where nearly 40% of our monthly orders could not be filled, thus explaining our drop in volume.

“However, the most disturbing policy of PolyGram’s ‘new order’ is its latest practice of destroying these vast stocks of irreplaceable LPs rather than making them available to the public.

“It is true that PolyGram has the ultimate right to do as it pleases.

“If, however, you agree with us that their
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'bottom-line' reasoning is more suitable to the plumbing fixture business, please remind them of their esthetic obligation to ensure that even their dwindling LP stock deserves the widest possible distribution.

"Letters should be addressed to: Jim Urie, PolyGram Records, 810 7th Avenue, New York, NY 10019, or call him at 1-800-223-7512."

J. D. Griggs
Volcano, HI

Yet this new PolyGram policy merely mirrors CBS’s S.O.P. since the '50s. Rare Bear, our local nonclassical specialist store, tells us that CBS is recalling larger and larger numbers of LP titles (including Miles Davis’s 1982 We Want Miles, recommended so enthusiastically by JA last month in his review of the Sumo Samson subwoofer), simultaneously deleting them from their catalog. Barring an outraged public hue and cry (unlikely), these will not later appear as cutouts, overstocks, or "Nice Price" budget reissues; instead, CBS will continue their decades-long tradition of destroying large stocks of records that sell less than briskly. The only difference is today’s huge scale of deletion/destruction. Meanwhile, Capitol/EMI is dropping even more LPs from their back pop catalog; the few remaining titles are, as often as not, ‘abridged’ to save EMI the expense of paying songwriters’ royalties on budget reissues. Can you imagine a copy of The Band minus "When You Awake" and "King Harvest Will Surely Come"? Unfortunately, you don’t have to—check your local record store, if you still have one.—RL

The MOSFET question
Editor:
While I doubt that the letters column of Stereophile is ideal for plumbing the subtleties of amplifier design, Mr. Elliott ( "Letters," Vol.11 No.2) has muddied the waters about the temperature coefficient (tempco or Tc) of MOSFET output devices. I do not question the numbers he quoted, but suggest he look beyond the switching devices manufactured in this country. I am aware of Hitachi devices with a zero tempco for currents under 1A, and I expect there are others. So what? The tempco of an output device has absolutely nothing to do with how an amplifier will sound.

As a working circuit designer, I urge caution in making generalizations about given topologies. I have seen good and bad im-
plementations of all the popular types.

John H. Roberts
Hickory, MS

More on the MOSFET
Editor:
As an audiophile, electrical engineer, and longtime subscriber to Stereophile, I felt compelled to comment on Mr. Elliott’s letter in the February issue regarding MOSFETs. Dick Olsher was indeed correct when he commented on MOSFETs having a negative temperature coefficient (Tc) in his review of the Don J Cochran amplifier in Vol.10 No.8. While it is true that some MOSFETs do not exhibit this characteristic until relatively high levels of static bias current, the devices most commonly used in audio output stages do indeed have a negative Tc.

Although Mr. Elliott is involved with amplifier design at Counterpoint, he is obviously unaware of some of the more common MOSFET designs such as the Hafler series of amplifiers. Erno Borbely has documented the many desirable characteristics of power MOSFETs in audio applications. The devices he chose in his design of the original Hafler DH-200 are still widely used today. These devices, the Hitachi 2SK134 and 2SJ49, have a negative Tc as long as they are biased at a minimum of 100mA. This is a very reasonable bias current. The Hitachi data book is quite explicit on this.

The devices that Mr. Elliott mentioned are industrial power MOSFETs never intended for audio use. These devices employ a vertical substrate construction yielding lower on-resistance for industrial switching applications. In general, they are not available in matched P-type and N-type pairs for complementary audio use. The Hitachi devices employ a lateral construction and are available in complementary pairs, hence their widespread use in audio applications. They are much less prone to thermal destruction than bipolar power transistors, and require no special bias circuitry.

While suitable MOSFETs do have a few disadvantages in audio applications, a positive Tc is not one of them.

Mike Ranta
North Bend, WA

No consistency
Editor:
J. Gordon Holt has often stated in Stereophile...
that the soundstage should not extend beyond the positions of the loudspeakers with conventional recordings. Yet Harry Pearson has said that it is possible to obtain wall-to-wall soundstage with violins way out to the left of the left speaker and cellos and basses similarly extended to the right, and yet be able to get away with bloated images across the front of the soundstage.

I am pretty confused by these contradictory statements and observations. Can you please comment and enlighten me about extension of soundstage far beyond the sides of speakers in stereo recordings?

My second point concerns the statements by Lewis Lipnick on p.112, Vol.10 No.9: "and what sometimes appears as spatial information through the Monolith is obviously artificially induced reverberation and multi-miked bleed-through with the 801." Yet a couple of lines further on, he states: "The only area in which the Monolith is the clear winner is transparency: electrostats just simply do better with [than?] dynamic speakers in this category."

Aren't the two statements contradictory? They don't make any sense, do they?

Yip Mang Meng
Singapore

There is no lack of consistency between JGH's and HP's feelings on soundstage width: JGH is concerned with a reproduced soundstage that accurately reflects the information in the grooves/pits; from his published writings, it would appear that HP is talking about a soundstage that accurately reflects what he feels the original event to have sounded like, regardless of the accuracy or lack thereof of the intervening recording process. The answer to the final question is "No"; transparency concerns more than the ability to retrieve recorded detail. (And "with" should have read "than," of course: just a little typo we threw in for old times' sake!) —JA

A living, not a killing
Editor:
I thoroughly enjoyed JA's interview with Spica's John Bau in the February issue. My first pair of "real" loudspeakers were Spica SC-50s, purchased more than seven years ago in New York. I remember auditioning several pairs of inexpensive speakers (this at American Audio-philie in Manhattan) and getting that ho-hum feeling until the salesman, saying that I "probably have never heard of this company," brought out these funky-looking half cylinders. Well, they sounded so open and "unbox-like" that I bought them immediately, full of wonder at the music the tiny things could make. Two years ago I purchased a pair of the TC-50s—even more wonderful—and now use the SC-50s as surround speakers.

Last June, while attending Summer CES in Chicago, I stopped by the Spica suite and listened to the Angelus. While there I asked Claus Whiteacre, Spica's Director of Operations, how they could make a loudspeaker as fine as the TC-50 and sell it at $450 per pair. "We're trying to make a living," he replied, "not trying to make a killing." I think that says a lot about why Spica has achieved success.

Andrew Adler
Classical Music Critic, The Courier Journal
Louisville, KY

Unfortunately, making a living now means that Spica has had to increase the price of the TC-50 to $550/pair—which, however, includes added internal bracing and changes to the drivers for greater reliability and better sound.

—LA

Now that's service
Editor:
My system includes a two-year-old B&K 140 amp which I damaged (a blown MOSFET) by shorting out the leads to the right speaker. I called the factory for help in locating a local repair shop and was told that if I shipped them the unit they would repair it the day of receipt and ship it back to me the next day. I shipped the unit on Tuesday and received it back the following Monday in perfect working order. B&K's total charge to me, which included packaging and return shipping costs, was $10.

What B&K did, no questions asked, was to repair an out-of-warranty unit, which had been damaged solely by my negligence, quicker than I could have had it repaired locally and, most amazingly, _they did this essentially for free_. I know of no manufacturer of anything which stands so solidly behind its product nor goes to such lengths to ensure customer satisfaction.

Thomas Barr
New York, NY
Are we crazy?

Editor:
I have been a reader of Stereophile for two or three years now, and I wish to tell you that the new policy LA promulgated in his column, "The Final Word," in the January 1988 issue, is illogical enough to have been printed in one of the mass audio magazines.

First, from your point of view, you should have more faith in your position as an arbiter of good sound than to knuckle under to the manufacturer who refuses to provide you with a review sample. One of the following must be true of that manufacturer: 1) the product is substandard, and there is a wish to conceal the fact from your readers; 2) for some (unknown) reason, the manufacturer wishes to keep the sample from you due to fear of an irrational review (here, if at any time, you should keep the faith!); or 3) the manufacturer cannot afford to lend a sample. In this last case, there is presumably a likelihood that the company will go under and therefore you would be doing your readers a disservice by reviewing a product that no-one will be able to maintain or support in the future. The conclusion from your point of view is that you should stick to your guns: do not only buy products from manufacturers who give you a hard time.

Second, from the manufacturers' point of view, if I were Conrad-Johnson or another maker of high-quality audio equipment, and I read that you were about to buy hardware from any manufacturer who refused to lend it, I would refuse to lend you anything in the future. Why should I subsidize my competition when you are clearly willing to buy hardware which I had been lending you previously to your new policy?

Third, in terms of the conflict-of-interest issue, the only way to avoid the problem is to have a policy of buying everything in such a way that the manufacturer does not know of your purchase. This is the way Consumer Reports does it. Unfortunately, they don't do as good a job of reviewing things, especially audio components, as they do of setting unimpeachable standards.

The conclusion is that you are crazy.

Let me assure you that while I hold my audio dealer in the highest regard, I hold your magazine and TAS in almost as high regard. I recently purchased a PS Audio 4.5 preamp, largely based upon the review which appeared in your pages. I expect to continue to place high importance upon your words. For this reason I cannot understand your new policy.

To confuse matters further, you published a review of the Spica Angelus speaker (and an interview with John Bau, the manufacturer) in the February issue. Since you gave the impression in the January "Final Word" that Spica was some sort of offending manufacturer, and that you were forced to buy the new Angelus speaker, I don't understand the total lack of mention of any of this in the review or the interview.

William Parsons
Belmont, WA

The fact that the review pair of Spica Angelus loudspeakers was purchased from a dealer was, in fact, mentioned in the review, on p.98. We prefer that manufacturers send review samples; it is less expensive for us, and it ensures that we don't buy a sample that's been sitting on a dealer's shelves for many months, which would render the review obsolete. Most manufacturers are happy to send us products for review. The primary reason others don't want their products reviewed, as far as I can tell, is that a good review won't help them because they're selling all they can, but a bad review could hurt.

—LA

Harvey on the tonearm test

Editor:
Boy, am I stupid! After reading the Stromeyer/Greenspun tonearm comparison test in Vol.10 No.8, I had to take a hot bath, massive doses of thorazine, and two electric shock treatments before I calmed down enough to realize just how tricky you guys really are. Now I understand. Once or twice a year you print articles that are tests to see if your readers are paying attention. There is nothing better than an outraged, responsive readership. You editors are tricky devils!

What a set-up. Using Phil (whose research probing digital voodoo is a major contribution to this decade of audio journalism) as a trap. Well, Charles and Phil definitely win the David Clark Bogus Test Award for 1987. The reason I know that their article is a practical joke is because Phil is one of the most knowledgeable guys when it comes to sophisticated audio measurements and advanced testing techniques. Is this article a Julian Hirsch imitation? By discovering it did I win a prize?
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Forgive this digression for one moment—the question “Why do I prefer A to B” is one of the thorniest psychological, cultural, anthropological, and philosophical questions of the twentieth century. When we go beyond the tautology—I prefer A because I prefer A—we had better be well-versed in the last 200 years of expert thorny thinking about this dilemma (up to and including Jean Paul Sartre’s *Essays in Existentialism*) and the dangers in rationalizing our choices. It is because such a journey is fraught with such enormous intellectual perils that it is imperative that special care be taken to avoid being scientifically cute and thereby manipulating your readers.

Should the high-end audio community be content with making simple judgments of quality or should we risk seeking the causality between what we measure and our judgments of musical “goodness”? I, for one, believe that we must continue to investigate this relationship, but only if we do so at the highest standards of performance. As for the Bostonians’ tests, I quote Julius Caesar: “Proximo sed non corolla!”—close, but no cigar. I am sure that Charles and Phil are made of the right stuff, and will respond to my comments with that special MIT sagacity.

The Errors of Devilish Audacious Bogusity

1. The test is biased and not designed properly. The preference test designed by Phil and Charles could not be unbiased unless Phil invited both designers to equally participate in the design of test and set-up of tonearms. Bruce Thigpen did not participate. I am willing to bet that Bruce and Graham are more knowledgeable about tonearm testing than our Bostonians, and I can’t understand why they didn’t participate in the design of the tests. They have committed a Dave Clarkism; to wit: does the designer and manufacturer have a chance to comment on and criticize the test procedure before it is used so that the tests will not obscure the nature of the device under test? Some would say that Graham’s presence and Thigpen’s absence is *prima facie* grounds to dismiss these tests as biased.

2. The only thing that was measured was irrelevant—Where’re the Harmonics Boys?

In the 1870s, Hermann Helmholtz investigated scientifically for the first time the relationship between our perception of musical “quality” (preferences) and the propagation of sound. He discovered that tone, or timbre (the harmonic cross-section of tone) is the single most significant characteristic of musical quality. Harry Olsen reiterated again in the 1920s that the fundamental hearing/perceptual mechanism that we use to determine musical quality is the “goodness” of tone, pitch, and timbre—all being directly related to the spectra of harmonics. I would like to risk saying that the elusive high-end Holy Grail can be found in harmonics, because it is probably the best way to describe the quality of a sound system. Is it possible that the high-end audio community is made up of harmonics junkies? Give me a fix of some liquidity before I answer that! (This should put the current audiophile dilemma in perspective: in 1894, Helmholtz wrote an essay titled “On the Origin of the Correct Interpretation of Our Sense Impressions.”)

Therefore it is most peculiar that Phil did not use the same test procedures and equipment in this tonearm test as he did in his CD tests. *Why didn’t Phil and Charles do differential harmonic/time analysis of both tonearms before the comparison test?* (Very easy for him to do—MIT is littered with FFT equipment.) I bet you a ride on my Harley that, using the same turntable, the same cartridge, and the two different arms, you get a very different spectra of harmonics from the Graham and ET tonearms. *I bet you a Vanna White poster that there is an inherently different harmonic profile (tone) between the ET and Graham arms based solely on their design principals, and that difference should have been measured and described before the preference test.* Of course, once you had determined those differences you would then have to determine if your loudspeakers could reveal those differences. Did Phil run those tests on his speakers? Why should we accept his word that his Sound Labs can reveal the significant harmonic differences in the two different tonearms unless he proves it to us? Isn’t that the responsibility of the professional reviewer? “We cannot find any clue as to why the listeners subjectively preferred the Graham

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2 *On The Sensation of Tone As A Psychological Basis For The Theory Of Music*, Hermann Helmholtz, Dover Publications.
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arm or why they found the arm brighter and more lively’’ Phil, for writing those words you have slithered back into preNeanderthal Stereo Reviewism, and should be punished by being forced to review Radio Shack rack systems for six months. Of course you couldn’t find the clue—we have all known for years that comparative-frequencies response tests tell us diddly-squat about relative sound quality! Phil, you sly dog, you knew that because you got an A+ in High-End Audio Testing 101.

3. Let’s test both tonearms when neither is operating optimally.

“We were anxious to have precisely the same SRA with both tonearms, although we were not particularly concerned that the SRA be optimal in any sense.” Phil, baby, the whole point of optimal SRA (or VTA) is to get the harmonics right! You know—if the VTA ain’t right the odd-order harmonics are increased and there is shift in tone. How can you evaluate tonearms by distorting the very character that is essential to the judgment? Robert Graham must know this; for letting this slide by he should be forced to listen to a Pioneer CD player for six months. Harry Pearson reiterates, in *The Absolute Sound*, Vol.12, Issue 49, p.39, for the ten millionth time the importance of getting VTA right. Right on, Harry!

4. Let’s use an improperly set-up tape recorder (which, even if it were properly set up, would add significant distortion to the process) because it is more convenient.

The use of the Tandberg Tape Recorder may be convenient, but it invalidates the design of the test. Of course, the test is so badly designed to begin with that maybe it doesn’t matter. The general distortion characteristics of tape recorders are well known. Phil, would it be safe to say that, across the board, tape recorders add three, five, or ten times the distortion already inherent in the signal? What about phase shift in tape recorders? What about noise? Was the Tandberg’s contribution to harmonic distortion described with the spectrum analyzer?

A Commie Plot Revealed:
A Discourse On The Morality of High-End Tonearm Design
Musica Est Rex:
There is Only One “Good” Tonearm
The Lilac Gauntlet is Thrown Down

Here’s another quinella—Charles and Phil are part of a diabolical international communist plot to distract audiophiles from the central issues of tonearm design. This conspiracy has one objective: to make sure that getting the greatest musical pleasure from our beloved vinyl pancakes is as painful and as frustrating as possible.

There is only one “good” tonearm (good being that which gives the sophisticated, sensitive, intelligent, patriotic music lover the greatest possible musical pleasure from the greatest number of his records). Testiclius said most eloquently, “Musica est rex”—Music is King. Obviously, this “good” tonearm would meet the contemporary standards of design and construction, which means that it would be in the “high-end ball park” of sound quality, but it would have to do much more than that. By its very mechanical nature, it would permit me to get the maximum enjoyment from the hundreds of different brands of records produced by hundreds of different record companies, artists, and producers over the last 40 years, in spite of the fact that *there is great variation in tonal quality in each different record*.

For the moment, it doesn’t matter whether the arm is pivoted for straight tracking because ultimately its “goodness” is dependent on two factors: 1) A good tonearm must permit the easy installation of many different cartridges, so that I may choose the proper cartridge for the record I am listening to; 2) A good tonearm must have the ability to adjust the VTA of the cartridge while the record is playing without damaging the cartridge.

Without these two design features included in my one “good” tonearm, my only other choice is to own six turntable systems with six different cartridges. The logic and morality of this are obvious if the maximum musical fidelity is the highest guiding principle, rather than owning a “perfect” tonearm. Let me explain. Tonight I am going to listen to some jazz records produced by RCA in the 1950s, some 1960s Decca harpsichord music, 1970s Columbia orchestral music, and some 1980s Motown rock and roll. To get maximum enjoyment from those different brands of records because of the significant variations in their tonal aberrations due to differences in production techniques and manufacturing, I will need to listen with four different cartridges. Not necessarily the most expensive; just those car-

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tridges whose tonal qualities complement those very imperfect records so that they sound as "good" as possible. If I use only my state-of-the-art $5000 Crystal Kamikaze hand-made cartridge, only about 10% of my records sound great; the others sound very mediocre. Is the function of my tonearm to diminish my musical pleasure or increase it?

Let's face it, girls, the best music is not always found on those wonderful state-of-the-art pressings. I haven't spent $250,000 on audio equipment so that 5% of my records are enjoyable. I didn't sweat for months getting this system right to have a state-of-the-art system that looks good and sounds like dog doo-doo. I love Amanda McBroom, but what do I do when I want to listen to Lawrence Welk? Well, it is quite simple. I take out cartridge No.5, which I know sounds great with Larry's records; I pop it in, adjust the VTA, sit back, relax, light up my _Romeo Y Julieta_ (the finest Havana cigar money can buy), and tap the polka.

Dearest high-end reviewers and tonearm designers, how can you listen to a pivoted or straight-line arm that doesn't permit you to adjust the VTA for each record while the record is playing? Tonearm designers have avoided the essential aesthetic imperative in tonearm design by keeping their heads buried in tight bearings. Should they not be asking, "How can I give the audiophile the greatest musical satisfaction from that vinyl mess he listens to and use my mechanical skills to serve that end?" There is a morality in engineering. Machines must serve men. Modern tonearms have become engineering narcissism. Who says the highest standards of engineering can't be maintained while giving the music lover the flexibility of changing cartridges in a totally hassle-free way and the ability to adjust his cartridge for optimum quality?

I can imagine that some tonearm designers will wimp out in their response by saying, "You can't have rigidity and flexibility in use!" My response to that is—"Eat vinyl!" If one tonearm designer can do it, so can lots more. If ET's Thigpen can do it, why can't others?

**How a Very Bad Audiophile Found Goodness**

Some are very quick to point out the mechanical marvels of the ET tonearm. Balderdash! I've owned probably a hundred tonearms, and I am no longer impressed with mechanical wizardry. All tonearms look like they came from the planet Tron anyway. Bruce Thigpen, please forgive me for what I am about to say! The ET tonearm is my current favorite because it is the only tonearm I know of that aspires to "goodness." I don't care about its gizmological sophistication. I love it because it makes it easy for me to get the most pleasure from my mishmash of vinyl. I have six arm tubes with six different cartridges that have been weighted so that each tube, with its cartridge, weighs the same. 

When I want to change cartridges, no rebalancing is necessary, and the change only takes 30 seconds. And when Stefan Grappelli is fiddling away with Django Reinhardt at Le Hot Club, I can adjust the VTA of my Golden Decca Cabriolet (body by Park Ward) so that the bite of the guitar and violin strings are just right. I own the ET tonearm because it is the only tonearm that permits me to get the greatest musical pleasure from _all_ of my records—including The Monkees.

Here's my recipe for "goodness"—I put a small colored dot on each of my albums—my cartridge color coding. A blue dot means Decca, a green dot means Shure, a white dot means Grado, a black dot means Stax FM cartridge, etc.

Am I irrevocably committed to the ET tonearm? No way, Jose. I think tonearms are the most loveable gizmo in Liquidmidrangeville, so I eagerly await other tonearms that permit me to easily change cartridges and adjust VTA. Then I will throw my ET into my tonearm graveyard (which has an EPA 100, Lustre 801, and other arms with removable headshells and adjustable VTA).

**The Joy of Seeking Audio Goodness**

Inevitably, the high-end audio community must readress some fundamental aesthetic considerations in regard to the technology we develop. Sophisticated machines that inhibit the very process they are designed to stimulate are designed in bad faith. The only reason for the existence of high-end audio manufacturers, designers, and magazines is to enhance the music-lover's search for musical ecstasy in the home. This process is inherently troublesome and convoluted because it is, by nature, a uniquely personal search. A "good" tonearm probably makes the single biggest difference.
in the magnitude of pleasure you get from your system, which is why more attention must be given to this subject—and that is coming from an ex-electronics manufacturer. In closing, I wish to remind everyone what Cicero once said: “Vita nil sine musica subite cum pessimo tuo”—Life is nothing without music, so get down with your bad self.

Harvey Rosenberg
Peekskill, NY

Regarding Harvey Rosenberg’s criticisms of the methodology, I feel these have been adequately countered in the published letters from Messrs. Greenspun and Stromeyer (Vol.11 No.3, p.18) and from Robert Graham (Vol.11 No.4, p.193). Despite the smokescreen Mr. Rosenberg throws up about the use of a Tandberg tape recorder as a transfer medium, the fact remains that the blind test designed by the authors did prove to have sufficient resolving power for listeners to identify the tonearms by ear alone. Which was the objective. Harvey, of course, is right when he states that which one is then superior is truly subjective: the answer, of course, is that the superior tone-arm, or component, is the one that enables me to enjoy the music the most! On this topic, as fascinating as I found Harvey’s exposition of his rituals to get the maximum musical enjoyment from the widest variety of LPs, I can’t help thinking that there must be one simple system, somewhere, that does it all. Gentle reader, do you agree?

—JA

remarkable!

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INDUSTRY

USA: GEORGE GRAVES

Several months ago, in these pages (Vol. 11 No. 2), I wrote of the impending action by the Congress of the United States to cripple the DAT machine and eventually make all forms of legal audio copying impossible. Well, since that time the National Bureau of Standards has ruled that the CBS Copycode audibly degrades sonic performance, triggers falsely, and can be easily defeated by someone with a little electronics knowledge. The RIAA reacted to this announcement by quickly abandoning their support for the CBS system, but warned that this retrenchment was not a signal that DAT could now be sold in the US and further stated that anyone who tries to bring a DAT recorder to market will be sued. Somewhat bothered by this still belligerent anti-DAT stance of the RIAA, I called their public relations department and spoke with Trish Heimers.

GG: Why is the RIAA seemingly picking on DAT?
TH: First of all, I'd like to take this opportunity to clear up an industry-wide misunderstanding: The RIAA is not against DAT! On the contrary, we welcome it. Without a healthy consumer audio market there would be no recorded music, just as without recorded music there would be no audio industry. We need each other and we need to move forward and meet the challenges of new technology. But what we, the RIAA, are mainly interested in is seeing that the thousands of artists, composers,
TH: We tried that, but Congress didn’t like the idea. They said that such an action was too broad-based. People who used tape for purposes other than home copying (such as musicians, producers, and recording engineers) would end up paying a tariff that they shouldn’t have to pay.

GG: So what’s the answer?

TH: We don’t know. We now feel that a Copycode scheme is wrong. We at the RIAA do not endorse anything which would sonically alter the work of recording artists. As soon as we found that the CBS system was audible, we withdrew our support for it. We welcome any reasonable suggestion. That is why we would like to sit down with the manufacturers; we need their input, their ideas. The best idea that anyone has come up with so far is a tape tariff. It has worked in other countries; there must be some way to make it work here. The RIAA would be content with that if it were fair.

USA: PETER W. MITCHELL

Digital filtering has been commonplace in CD players (at least in those based on Philips chips) since the earliest days of the medium. Why, then, has digital filtering not been used in the digital tape recorders on which CDs are mastered? One reason, as noted in this space last month, is that there was little demand for it. In experiments with phase-compensation of analog brick-wall filters, many engineers heard no benefit, so the phase-linearity of digital filtering seemed unimportant.

There were also very substantial technical obstacles. In a nutshell, adding digital filtering to a digital playback (output) signal is a relatively simple application of existing technology; but a digital anti-aliasing (input) filter requires technology that was unavailable until quite recently. Evidently the consumer-product divisions of Japanese companies are more adventurous than their professional-product counterparts, because digital input filtering is making its first appearance in DAT recorders from Pioneer and Technics.

In PCM recording, the sampling process produces aliasing (distortion products) at a frequency equal to the difference between the sampling rate and the input signal. To prevent audible aliasing, the input signal must be cut off at least 20kHz below the sampling frequen-
cy. (In playback, analogous processes produce “image” signals extending 20kHz below the sampling frequency.) With the 44kHz sampling rate used for CD mastering, the input filter must have a reasonably flat “pass band” up to 20kHz, followed by a very steep rolloff to a “stop band” that blocks any signals above 24kHz (44 minus 20). In analog brick-wall filters the rolloff can be made this steep by adding many “poles” (capacitors and inductors) to the filter circuit, at the cost of increasingly large amounts of phase shift. The original Sony PCM-1610, for example, had 13-pole filters.

A basic digital filter cannot produce such a sharp transition between the pass band and the stop band. The transition zone is nearly an octave wide (a 2:1 frequency ratio); thus if a digital filter must be flat to 20kHz, its stop band will begin above 40kHz. To avoid audible aliasing, the digital sampling frequency must be at least 20kHz higher, or 60kHz. Digital circuits work most efficiently with powers of two, so the anti-imaging digital filter in a CD player is accompanied by an “oversampling” circuit that doubles or quadruples the 44kHz sampling rate up to an effective rate of 88 or 176kHz. (The word is misleading, because the circuit really doesn’t “sample” anything; it merely repeats samples or interpolates all-zero samples between the real data samples as they are read from the disc. Stan Curtis of Cambridge Audio calls it “resampling,” which may be a better name for the process.)

In digital playback, resampling is a trivial task, which is why Philips was able to use digital filtering in CD players as early as 1982. On the recording side, however, the situation is more complex. In the PCM (pulse code modulation) system of digital recording, the incoming analog signal must be sampled (frozen and held at a constant level) while the quantizing circuit computes the digital bit pattern that correctly represents the signal’s amplitude. The sampling rate is limited by two factors: the “settling time” of the sample/hold circuit; and the quantizing time, which depends on encoder design and the number of bits required. In a “successive approximation” A/D converter, the most common type, the 16 bits in each data sample are selected in a series of 16 consecutive comparisons of progressively finer resolution.

If the sampling frequency is 44kHz, the sample/hold circuit will recycle every 22 microseconds. But in early digital recorders the sample/hold circuit required about half that interval to settle to a constant level, leaving only 10us for the quantizer to do its job. This was barely enough, and the process was often inaccurate at very low signal levels.

In order to use digital filtering at the input of a recorder, the sampling rate had to be increased to at least 60kHz. In practice that meant it had to be doubled to 88kHz, cycling every 11us. That required two major technical advances—a drastic reduction of sample/hold settling time and new quantizer designs that could resolve with 16-bit precision in less than 10us. Until recently that couldn’t be done, so all digital recorders operated at 50kHz or less, with analog brick-wall input filters.

Faster circuits are available now. They could be used to make a digital recorder with a 100kHz sampling rate, but since 48kHz has been adopted internationally as the standard sampling rate for digital recording, the market for a 100kHz machine is too small for any major manufacturer to bother with. Instead, the technology is being used to make oversampled input circuits with digital filters.

The first product to adopt this approach is the Pioneer R-DAT, introduced last fall in Tokyo. Its successive-approximation A/D converter performs 16-bit conversions in 8us, aided by a remarkable sample/hold circuit that settles in only 2.5us. This system digitizes incoming signals at a 96kHz sampling rate. Its anti-aliasing input filter consists of a digital filter with first a linear-phase analog filter whose gentle rolloff spans a transition zone from 30 to 60kHz. For the sake of compatibility with the 48kHz DAT standard, the sampled data rate is then halved for recording, presumably by feeding alternate samples to the tape and discarding the rest. (The Japanese engineers call this “decimation,” unaware that the word originally meant sacrificing one-tenth of a population.)

In playback, the Pioneer R-DAT reverses the process—first resampling the data to double the data rate to 96kHz, digital filtering, D/A conversion, and gentle analog filtering at the output. As a result, the response of the Pioneer R-DAT is phase-linear from input to output, with a very flat group-delay characteristic. When we get our hands on this machine, we’ll see whether this approach delivers the anti-
Teac introduces a machine designed for people more interested in music than in black boxes. The Teac AD-4, CD/Cassette Deck Combo. On the left side we've installed our latest programmable compact disc player. On the right we've included one of our top of the line auto-reverse cassette decks with Dolby B and C noise reduction. To further simplify things, we made them both work via a wireless remote control. A 16-selection program lets you pick the selections you like on a compact disc and rearrange them in any order you prefer on your cassette. You can even listen to a disc while you're taping from an outside source. The Teac AD-4. All you ever wanted in a compact disc player, all you ever wanted in a cassette deck, all in one place.

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anticipated sonic benefit: transparent recordings without stridency or high-frequency congestion.

Technics took an entirely different approach in the design of its new SV-MD1 portable DAT recorder, which weighs three pounds (including battery) and measures 1.6" x 4.8" x 8.3". (For the sake of compactness, the SV-MD1 contains a 15mm head drum, half the size specified in the DAT standard; compatibility with other DATs is maintained by means of a 180° tape wrap around the drum, twice the norm. This mechanism is also used in the Technics in-car DAT player.) For playback, the Technics, like the Pioneer, uses resampling, digital filtering, and a gentle-slope analog output filter.

At its input, in place of a conventional PCM encoder, the SV-MD1 uses a so-called MASH circuit. Its heart is a "delta-sigma" quantizer, named after the Greek letters used in calculus to represent "difference" and "sum" respectively. A/D conversion is performed by three cascaded one-bit delta-modulation encoders operating at 3MHz, 64 times the normal sampling frequency. Their outputs are combined (summed), digitally filtered, and fed through a code formatter that converts the bit stream into 16-bit PCM codes for recording on tape. There is no sample/hold circuit to introduce nonlinearities, and no anti-aliasing filter to add phase shift. The SV-MD1 is phase-linear from input to output.

I have a bias on this topic: a decade ago I worked for three companies (Audio/Pulse, ADS, and DeltaLab) that produced digital audio processors employing delta modulation. I remember demonstrating a DeltaLab processor to a group of Matsushita (Technics) engineers at an Audio Engineering Society convention in 1979 or 1980. They marveled at the simplicity of the circuit and listened to its sound but, I suspect, didn’t quite believe it.

Contrary to popular impression, "digital" doesn’t mean only PCM. PCM (pulse code modulation) is only the most popular method of analog-to-digital conversion. Delta modulation techniques were developed by Bell Telephone researchers during the 1960s, to digitize video for picturephones. DM was explained in these pages last year, in Bill Sommerwerck’s review of the dbx 700 digital recording system. While a PCM encoder uses a relatively low sampling rate and many bits to quantize each sample, a DM encoder generates one-bit data words at a very high sampling rate (usually 0.5MHz or higher). Since a basic DM system has a limited dynamic range, encoders for high-quality audio use ADM (adaptive delta modulation). ADM circuits were the basis of the Audio/Pulse and ADS digital time-delay/ambience processors of a decade ago, and the DeltaLab line of digital processors that are widely used in recording studios and Broadway theaters. Professional Dolby Surround theater processors use a DeltaLab ADM digital delay for the surround signal, while dbx developed its own ADM circuit for the Model 700 recording processor.

A delta modulator has two basic advantages over a PCM system. One is that the ADM circuit is much simpler, therefore potentially cheaper to make. The other is that, with its high sampling frequency, ADM needs no anti-aliasing or anti-imaging filter and so is inherently phase-linear. This may be why, to some ears, the dbx 700 sounds smoother and more airy than PCM-based digital recorders. The dbx 700 is much admired but is not widely used because its recordings can’t easily be converted to CD format.

I wish that Congress and the anti-DAT lobbyists would get the hell out of the way so that we could hear whether the Technics portable DAT lives up to its promise. And now that the Pioneer and Technics DATs have paved the way, we can expect that the next generation of professional digital recorders will also be built with digital input and output filtering. With that, and with the widespread retrofitting of phase-linear Apogee filters into older digital recorders (described in this space last month), we can look forward to a generation of phase-linear CDs. My guess is that the elimination of high-frequency group delay may alleviate the “digititis” that prevents many audiophiles from enjoying the silver disc.

**UK: KEN KESSLER**

Embarrassed as I am to admit that this crept up on me so unexpectedly, I have to report...
that there's a revival in tube gear hitting the UK. The only reason I'm feeling sheepish is because I've got an alter ego as a tube fanatic, and I should have seen it coming.

UK-watchers will recall that 1983-84 saw a major rebirth in valve equipment in Great Britain, with both native and imported products benefiting. Beard flourished, EAR entered the record-cutting industry, VTL appeared (and then buggered off to the USA), Audio Research created a serious and devoted market, Croft emerged as one of the most eccentric manufacturers of all time (outre technology and low prices), Radford was reborn—the list goes on and on. It's now happening all over again, though the flurry of activity is hard to explain.

My surprise is due to the fact that I had accepted tube gear as established, no longer an oddball pursuit. Neither retailers nor journalists make a big deal about valve equipment, taking for granted that the specialist sector now treats tube products as simply another type of electronics rather than some form of perversity. But all of a sudden, everyone seems to be announcing brand-new tube products, and from some unlikely quarters.

Take, for example, Foundation of speaker-stand fame. While everybody expected Cliff Stone to diversify, who'd have thought he'd be launching a couple of under-$1000 preamplifiers? Brimming with nice touches, like damping rings on all the tubes and gorgeous wooden fasciae—to say nothing of sensible prices—these soon-to-hit-the-shops preamps are aimed at a pretty well-established market sector claimed by such native solid-staters as Naim, Cambridge Audio, and Musical Fidelity.

As for the latter-named company, Musical Fidelity (British Fidelity in the US) is currently undergoing growth that defies all reason, and their solid-state preamps are earning the kind of reviews which frighten the opposition. Still, there's a new subsidiary (to be called Michaelson Audio) about to release some all-new tube designs. It's not that unusual when you recall that MF's Anthony Michaelson is the Michaelson of Michaelson & Austin fame, responsible for the first UK valve revival in the late 1970s. According to the man himself, the new products he codesigned with tube maven Tim de Paravicini will include a 12Wpc single-ended class-A integrated amplifier and some "monster" power amplifiers, with a preamp to follow. The integrated amp, targeted at around £900, is described as a tube equivalent of the company's A-1, while the £5000/pair monoblocks are said to be capable of yielding 30 amps of current.

Another source for a soon-to-be-unleashed preamp is Vital Systems, who distribute Quicksilver and Superphon in the UK. Dubbed the Matisse (their mono unit may be called Van Gogh), the new piece is a seriously priced (ca £3000) four-tube minimalist design. Designed as a two-box unit, the power supply occupying its own chassis, the Matisse is constructed using only the finest components, employs a transformer rather than a headamp for MC duties, sports "lots of inputs," and is available in black or blue. (Remember the gorgeous Dynavector tube amps in a Bugatti hue?)

One all-new (to me, anyway) company is Rose Industries, who have sent me unbidden a slick little tube preamp, but I'm afraid to say anything about it because it's not yet available; I don't want some cretin lambasting me in print, screaming "Consultancy! Conflict of interest!" Still, I can say that the RV-23 is nicely made, and bargain-priced at ca £350-£400. The company describes it as a short signal path utilizing high-quality components with a well-regulated power supply. The unit has a full range of inputs, and has been optimized for MM cartridges, with unity gain in the line stage.

If that weren't enough, Woodside Electronics—which produces the revitalized Radfords—have their preamp ready for the retailers. It looks and sounds just fine, while Glenn Croft has a catalog of enough new or revised models to baffle any shop assistant. I've lost track of his model nomenclature, what with "Super" this and "Deluxe" that, but the range is fascinating as hell, and somehow Croft manages to update things without changing prices. He still has a basic tube preamp retailing for £150, which must be some kind of miracle.

On top of that, German manufacturer Klimo and America's Nestorovic now have UK distribution, and I hear tell that hungry distributors are sniffing around Cochran. I don't want to suggest that the UK has gone tube-mad, but it sure warms this reviewer's heart to know that his cherished valves are still aglowin'.

Update time: Regarding my earlier column on speaker stands (Vol.11 No.1), Russ Andrews Turntable Accessories has just released some all-Tortlyte stands for mini-speakers, the light construction taking a completely different ap-
proach to speaker support from the Parington and Foundation heavyweights. Features include spikes top and bottom, and they’re ideal for Celestion SL600s in gray finish. To add to the confusion, Mo Iqbal of Monitor Audio tells me that he’s about to unleash a new stand with yet another twist: It’s totally decoupled throughout, including top plate and foot plate. All I can picture is some rubbery or springy affair, but Mo will say no more. Watch out for Monitor Audio’s new R300 loudspeaker, which offers a metal-dome tweeter and gorgeous real-wood finish at budget-sector prices.

As for Wharfedale’s adventures with color and its effects on how we perceive sound (Vol.11 No.3), one of the instigators, Walter Mirauer, is no longer with the company. Wharfedale was recently the subject of a management buy-out, but I refuse to speculate on the buy-out and its relation to Mirauer’s departure. What is generally agreed is that the new team is pretty tough, and should put a stop to doom-laden gossip.1

1 It seems to have been axiomatic in journalistic circles for at least a decade that there is “one too many large loudspeaker manufacturers in the UK,” although no one can decide which company should be the one to obligingly go under. —JA

FRANCE: John Atkinson
At first sight, the Paris AES1 is familiar to frequenters of US AES Conventions: familiar brandnames peek out at the visitor from billboards; even Wheel of Fortune has been imported more-or-less intact to French TV. But then you become aware of fundamental differences. More so than any other nation, the French are loyal to their own car industry; with the exception of those yuppie flags of status the BMW and Porsche, taxis of which at least 30% are Mercedes, and, peculiarly, the English mini, all you see on the road are Renault, Citroen, and Peugeot—nary a sniff of Nissan or Toyota. And as for Hyundai, you must be joking. The relationship between those cars and the pedestrian is also different from that in the US. In aggressive New York, the signs say “Walk” or “Don’t Walk” and pedestrians obey, the traffic obligingly allowing them the space to do so. At marked crossings in civilized Paris, although little green or red walking men indicate whether it is safe to cross or not, pedestrians only check their stride if there is a car within 5 meters. And though cars don’t try to occupy your space on a marked crossing—that would be murder and illegal, unless it were une crime passionelle, of course— their pragmatic drivers don’t see why they can’t make use of the space you are not taking up. Crossing the road takes on the flavor of an automotive Russian Roulette!2

Entering the Palais de Congre a few blocks west of the Arc de Triomphe, however, all was comfortably familiar, with engineers and displays of their recording hardware occupying the view. I was more interested in what people were talking about than in nuts and bolts, however, so I made for the Salle Bleu, where technical papers were being presented.

The papers presented were an odd mixture. There are gems, of course, such as when a card-carrying genius presents the results from his last six years’ research, upsetting apple carts—chariots des pommes?—in toutes directions. (I always find it oddly disturbing when such illuminati as Manfred Schroeder, until recently supreme of Bell Labs and the inventor of the RPG Diffusors3 discussed in the April issue of Stereophile, rub shoulders with us lesser mortals.) There are also those occasions when a recent graduate, keen for employment

1 Appropriately, the French composer Pierre Henry (older baby-boomers will remember a musique-concrete-meets-rock Mass he recorded in 1970 with the English group Spooky Tooth) chose the opening day of the convention to present a performance of what he called Beethoven’s 10th Symphony at the Salle Pleyel concert hall. Why appropriate? I couldn’t understand the Beethoven connection, but the “orchestra” consisted of a large number of loudspeakers, ranging in size from piccolo to double-bass, fed by a multitrack recorder with M. Henry at the mixing console.

2 Paris looked grubbier than I remembered, despite the cascades of water which pour down the streets to the Seine every morning. A sign of the city which has done more than most to make the car welcome in its center, I guess.

3 For the mathematically inclined, the RPG Diffusors are based on Galois sequences, which distribute energy equally in frequency and time.
Over two years ago the staff at Madrigal Audio Laboratories began accumulating convincing evidence that solid conductors of rectangular cross-section would do a better job of carrying musical signals. Years of listening and engineering tests making use of ribbons of specially processed, high-purity copper with teflon insulation and the highest quality terminations, have resulted in the new Madrigal HPC and CPC cables.

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now that the source of his or her finance has
dried up, presents the results of doctorate
work that reveals a new wrinkle on what
everyone else had thought a played-out idea.
Some of the time, however, you have to sit
through poorly disguised new-product launch-
es, often in impenetrable Japlish—though
these have been much rarer in the last few
years—and, sadly, you get at least one pres-
etation by someone who, whatever they have
been doing, has singularly failed to keep up
with what everyone else is doing.

Is tape obsolete?
Astonishingly, in the country that tried to of-
ically ban such "Franglais" expressions as Le
Weekend, English appeared to be the official
language of the convention, in both the papers
and the many workshops. The first of the latter
concerned a topic where progress has been ex-
tremely rapid—the "tapeless" studio, where
the digitized music signal is stored on com-
puter Winchester (hard-disc) drives or in solid-
state RAM, rather than on moving tape. This
is particularly common in applications where
the speed and ease of random-access editing
on hard disc, compared with video recorder-
based systems such as Sony's original DAE-1100,
considerably ease the editor's task in terms of
logistics. It still is not as immediately "right"
as the traditional razor-blade technique, but
preserves such advantages of the VCR-copying
technique as the ability to rehearse the edit
before doing it for real, as well as accurately
matching the levels.

Depending on the software, however, the
feeling at the workshop was that random-
access editing can be made to feel like an
analog splice in terms of tactile feel—
Mitsubishi obviously feels this way, as they
presented a paper later in the week showing
how their open-reel multitrack digital recorder
could be edited with a razor-blade. Despite the
resulting physical discontinuity in the tape, an
on-board microprocessor using temporary
RAM data storage ensures that there is no need
for what would otherwise be extensive error
correction and concealment. The computer
even allows phase adjustment so that wave-
forms from the two joined tape segments can
be made perfectly continuous. However, put-
ting aside the body of razor-blade experience
possessed by thousands of skilled engineers,
I feel that this is a peculiarly anachronistic
development; the future of editing surely must
lie in the areas of non-tape data storage, where
all that is manipulated is the data.
This is typified by the work of ex-BBC
engineer Guy McNally, for example, respon-
sible for much of the digital implementation
of such previously analog functions as mixing,
EQ, and fading, in the groundbreaking BBC/
Neve digital console. McNally now heads an
aggressive company called Digital Audio
Research, which introduced at the convention
production models of something they term an
audio "Work Station," their SoundStation II.
The editor sits at what appears to be a rather
oversize computer terminal, the actual works
being contained in a separate rack. The digital
data are stored on hard discs, up to four Win-
chester drives being incorporated in the machine's standard rack. One drive was
quoted as holding 1 hour-track of 16-bit data.
At 44.1kHz sampling, I work out that as being
44100x60x60x2 8-bit bytes = 317.5M!
That seems a lot for a 5.25" drive to me, particularly
taking into account McNally's statement that
the drives can hold 20-bit data. Perhaps I
heard wrong. Or perhaps people are a wee bit
optimistic.

According to McNally, however, "Bolting on
commercial hard-disc drives, as many as you
want, is easy," but you then have to arrange the
system so that the engineer can work effective-
ly and quickly. DAR's work station offers a
wheel on the front so that the engineer can
rock'n'roll through the data to optimize the
edit point, much as in analog practice, though
access via timcode is also available. The real
joy, however, of the SoundStation II is that it
is almost totally menu-driven. The 12" orange-
plasma touchscreen shows a directory of the
music selections which have been downloaded
on to the hard disc, structured much like the
familiar MS-DOS tree directory, all of which
can be called for audition, manipulation, or
inging by touching the appropriate name on
the screen. Although a PC keyboard can be
used to enter alphabetical or numeric data, a
full qwerty keyboard can also be called up on
the touchscreen. At the bottom of the screen
in editing mode, a "Now Line" (the new
vocabulary springing up unbdden to support
the new concepts) shows where the operator
is on the music tracks to be edited. 18-bit audio
In/Out is incorporated; audio data conforming
to either of the two standard serial 16-bit

Stereophile, May 1988 35
Monitor Audio

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systems—AES/EBU and SDIF-2, the latter Sony's ipso facto PCM-1610/1630 standard—can also be imported/exported.

The SoundStation II seems easy to comprehend and operate. It offers total independence of audio channels for editing, not only in conventional terms of gain and EQ but including time and pitch—tracks can even slip past one another in time, resulting in perfect ensemble from even the clumsiest of timekeepers. If you want, you can have some tracks play in reverse while the rest play forward! With the kind of digital signal processing (DSP) incorporated in the SoundStation, there is the possibility of operating in sub- and supra-realtime. If you don't need real-time access to the decoded music, it is possible to do such things as reducing a 35s commercial to fit a 30s spot, without changing pitch or speed, or to remove identifiable types of noise, both of which take a lot of computing power and time. The end result, however, can be uploaded into some kind of archival medium and played back in real-time.

Guy McNally stressed the open architecture of DAR's SoundStation II, though whether this was due to altruism, or to the fact that computers with open architectures—Apple II and IBM PC in the US, the BBC B in the UK—find it easy to become industry standards, is hard to decide.

The company with most experience in tapeless music-data storage is New England Digital, who developed one of the music industry's standard sampling synthesizers, the Synclavier. Dave Whittaker of Harman UK, the new UK distributors for Synclavier, stated at the workshop that, unlike other tapeless systems which are just editors, NED's has evolved from musical instrument technology, it being six years since they first introduced a 50kHz sampling, 16-bit hard-disc system. No standards of functionality have yet been established for Random Access Editing—"It's a whole new world," stated Whittaker, who felt that the operator should be able to edit by whatever he/she is used to: timecode or frames (video), feet and frames (film), waveform (sound), or measures and beats (music). All should be possible and available graphically on the computer screen.

NED is less confident than others in the success with which computer drives can be used for music-data storage—"We are very skeptical

Stereophile, May 1988
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when it comes to hard-disc drive manufacturers' specs." — particularly the speed at which data can be written to and read from disc. A 44.1kHz sample-rate with 16-bit audio data gives a data flow rate of 88k-bytes/s (8-bit bytes). For stereo, this implies a data transfer rate of 176k-bytes/s, a rate which can easily be handled by several existing hard-disc systems. However, for editing, the operator often needs access to eight audio channels, ostensibly upping the data transfer rate to 705k-bytes/s. As the very best drives will handle a rate of 10M-bits/s = 1M25 bytes/s, the system is still OK. But wait a second—to edit 8 channels, you not only need to read the eight channels of data, but you need to write the edited data at the same time, and you get a sudden peak demand on data transfer that exceeds the drive's capability. You can get around this problem by using a RAM buffer — NED uses 32M-bytes— but unless this is intelligent, it will only be of limited help; the data still has to be read from the disc pretty much in real-time.

And while the hard disc working with fresh data will be as fast as spec, what about when the disc is messed up after a lot of rewrites, and data for a music track are spread over the disc? I imagine that the procedure adopted by all these machines is to read-only as much as possible; ie, during edit rehearsal the data will only be accessed and a rewrite will only take place when doing the edit for real. Or, most economically, the editing instructions will be stored and only operate on the data when they are uploaded to the archiving medium.

This aspect was glossed over by most participants in the workshop. While storing the data in RAM or on hard discs enables very quick access, making possible very versatile and quick editing, unless you are happy for your expensive system to be tied up with one job, you need to import — download — music data from somewhere, and at the end of the session, upload it somewhere else. To rerecord the data on a digital tape recorder can obviously only be done in real-time, an hours' worth of edited data taking one hour to record. How about the renowned WORM (Write Once, Read Many times) optical disc? The data transfer rate/access time is not particularly good, at maximum being around 150k-bytes/s. Forty minutes of audio program will therefore take at least 25 minutes to store on optical disc. How about a tape streamer of the kind used for computer hard-disc backup? These apparently are better, but one hour of audio will apparently still take 12.5 minutes to upload.

Peculiarly, so far in the workshop, not one person had mentioned sound quality as being relevant. This situation was put right by Bill Aitken of UK console manufacturer Solid-State Logic, who pointed out that although Random-Access Editing opens up new horizons, it will have inevitable tradeoffs analogous to the way in which CD and R-DAT both have major shortcomings at low levels compared with analog to be set against their unique advantages. (Talk like this is not popular at AES conventions.) Conversion quality will therefore be important — "We are in the audio business: We must use our ears!"

Aitken's final point was to indicate that a major advantage of this aspect of the manipulation of digital data is the increased integrity of the final result: "It is a shame, therefore, to then transfer it to U-Matic video tape, with all its traditional problems, for CD mastering!" A related point was made by a spokesman for Neve. Though originally an English company, Neve, a pioneer in the development of the all-digital console, is now owned by Siemens. Their latest digital console supports 20-bit data handling and transfer, and with 18-bit ADCs becoming available — dbx introduced an 18-bit ADC IC at the show, using 128x oversampling — it would seem that the data side of digital recording is in danger of running ahead of the storage medium; all existing recorders, whether stationary- or rotary-head, are still CD-standard 16-bit.

Do we need more than 16-bit words for digital audio? It may be that the 16-bit, 44.1kHz standard is good enough even for high-end audio — except that many pro engineers feel that consumers have never heard accurate 16-bit data. The use of the same standard for recording, mastering, and consumer playback results in degraded data on the silver disc. There is none of what Decca's Tony Griffiths (now a Governor of the AES) once called "professional headroom." Many attendees at the convention thought that to get accurate 16-bit data on a CD, you need to start with at least 20-bit data for the initial A/D conversion.

A point to note about this quickly developing area of professional audio is that it is taking place entirely in the Western hemisphere, particularly in the UK, US, and France. The ap-

Stereophile, May 1988

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parent lack of Japanese involvement is probably due to its heavy software dependence (an area where the Japanese have traditionally been very weak), and reflects the changing nature of Western society, as "work" evolves from manufacturing to service. According to The Economist, 70% of Americans now work in service industries, echoing what is happening in West Germany and the UK. The trend is for creative workers to produce intangibles—software, for example—which have lasting value, rather than for manually skilled operators to make things which inevitably depreciate. Hardware—apart from high-end audio—is evolving rapidly toward the disposable society, and Sony's acquisition of CBS Records should be seen in this light. I speculate, based on the editorial by Carl A. Snape4 in the February '88 issue of the pro duplication magazine One-to-One, that, rather than an attempt to take the wind out of Copycode's sails, the takeover is more a result of Sony founder Akio Morita's long-term worry that Japanese industry will be trapped selling hardware in a saturated market. Software, however, is self-renewing. Note that other Japanese companies have strong ties with record companies: Toshiba with EMI; Pioneer with Warner; and Denon, of course, with Nippon-Columbia. (Denon, I believe, is associated with/under the financial wing of Hitachi.) This was echoed at the convention by digital pioneer Tom Stockham: "The most important asset a record company has is its archive."

To return to the tapeless studio, two companies introduced systems for the mass duplication of analog audio cassettes. AMI/Concept Design's system uses hard-disc storage to replace the loop-bin master. The 44.1kHz digital master tape is downloaded into hard-disc storage, then read off four channels at once—two backwards—for duplication, although the multiplication factor was not mentioned. (To reduce production time and maximize efficiency, prerecorded cassettes are duplicated at up to 32x the correct playing speed from a 7.5ips copy master, which partly explains why prerecorded cassette sound is so dismal.) Given the hard-disc 1M25 bytes/s transfer-rate limitation, however, I suspect that an 8x duplicating speed will be the safe limit. The Tapematic company introduced RAM for mass-data storage for the same purpose, based on a 96x1M-byte memory module, and it is hard to see that reading data from RAM will have any kind of speed limitation. However, the signal still has to be converted to analog; where do these companies get 16-bit DACs capable of reliable operation when run at 3.5MHz? They don't. The Tapematic system uses 12-bit DACs and data storage, 16-bit chips being "unstable at high frequencies," and apparently the quality is still "far superior" to the results from a conventional cassette duplicator running at a 32:1 speed ratio. (Anyone out there still believe that the prerecorded cassette is anything but a junk medium?)

**Tape editing**

Despite the advent of tapeless data storage, the fact remains that nearly all CDs are produced at present by using a VCR-type copying editor, a device which Doug Sax once blamed for many digital ills: "When you go through a digital editor, even though the levels are fixed, the information has to be rewritten and the loss is traumatic. You go in apples, you come out oranges."

Sony delivered a paper in Paris announcing their latest DAE-3000 digital editor, the first example of which was delivered to Chandos at the show.6 This is said to overcome many of the problems in digital signal processing featured by earlier machines, and has modular architecture so that as many digital audio media as possible—Sony PCM-1610/1630, and Studer DASH open-reel, Mitsubishi open-reel multitrack, R-DAT—can be accessed via both AES/EBU and SDIF-2 serial data standards for editing. Digital delay is used to ease problems of synchronization between the different media, and an APIB (Audio Purpose Interface Bus) is used to implement remote control of the tape-machine transports. Fig.1 shows a block diagram of the editor's signal handling—probably the most important feature is the addition of triangular probability-density digital dither before the 32-bit words resulting from the mathematical operations on

4 In the '70s, Snape wrote intelligent, informed audio reviews under the pseudonym Carl Anthony for Practical Hi-Fi magazine in the UK, before working for a while for Linn's Aloi Records division. Nice to see a familiar name still in print.

5 HFNR, September 1984.

6 Renowned digital engineer Dr. Roger Lagadec, once with Studer, is now General Manager of Sony's Audio Products division (succeeding M. Nagami, whose monstrous domestic horn system I once described in HFNR).

Stereophile, May 1988
the signal are truncated back to the CD standard's 16.

Digital dither is nothing more than a digital random-number generator, adding its numbers to the 16 or so least-significant digits of the '3000's 32-bit internal words. (Triangular probability density means that the farther away the random number is from the average value, the less likely it is to occur.) Without such dither, the truncation will result in the introduction of audible quantizing distortion. This effect can be heard when, for example, a track has been faded in the digital domain: additional quantizing artifacts can be heard before the signal fades into the noise, which is why so many fades are done very quickly these days. Tom Stockham, too, stressed the degrading effects of truncated arithmetic operations on digital data and the importance of digital dither in preserving sound quality.

Not all progress is forward
The progenitor of digital dither was Stanley Lipshitz, whose controversial paper, "Are D/A Converters Getting Worse?"7, coauthored by John Vanderkooy, was delivered to a standing-room-only audience in Paris. The answer to that question was "Yes!"; Stanley finding that even expensive players suffer from cheap DACs and badly set-up DACs. It is ironic that when the golden-eared brigade has been widely critical of CD sound but has been unable to provide any evidence of what is wrong, it should be up to an advocate—"CD can have all the performance of a fine analog system; but should be better!"—to reveal the implementational inadequacies of the system when designed by engineers too tightly constrained by component cost. CD manufacturers should take less notice of the Cost Benefit Analysis so beloved of MBAs and use their ears.

Stanley's and John's paper is largely anecdotal, based on experience with 17 machines from Sony, Denon, Magnavox, JVC, Technics, and Yamaha, bought at retail, but it names names and gives specific examples of tracks which reveal problems. For example, the latest generation of CD players may have higher rates of oversampling, but: the higher the oversampling factor, the faster the circuitry has to be operated and the more arithmetic has to be performed, with, unless high-cost parts are used, an increased likelihood for error and even overload! The white-noise track (#79) on the Denon Test CD (38C39-7147), for example, produces more greater-than-20kHz products than a sinuswave swept across the audio band (#65) on Philips 14-bit machines, showing that the digital filter is being driven into overload! The noise-shaping filter used by these machines to truncate the data to 14-bit words to drive the DACs also produces very audible "chirps" on an undithered tone at -90dB, where the signal is described by only three levels: the +1, 0, and -1 LSB codes. It could be said that whereas the chirps on this test tone are audible, errors on music at -90dB will not be audible; SL countered this by saying that on music, problems at -90dB will be audible in a quiet room given only a slightly-above-realistic playback level.

Stanley pointed out that a practical problem

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7 "Are D/A Converters Getting Worse?" AES Preprint 2586, available from the Audio Engineering Society, 60 East 42nd St., New York, NY 10165.
with the two's-complement digital encoding chosen for CD is that the zero-crossing point of the music waveform coincides with the point where all 16 bits change value, from 1111111111111111 (−1) to 0000000000000000 (0). DAC errors will thus have a large effect here, particularly if they concern the MSB—the so-called "MSB glitch"—and even small errors of the order of 4 LSBs are audible, according to Stanley, on carefully chosen musical material. 8

A test signal on which all such DAC errors will be audible is the ramp-down 500Hz tone, encoded with dither and sweeping down in level from −60dB to −120dB, on the CBS CD-1 disc. 9 This disc was instrumental in revealing what appeared to be the increasing prevalence of DAC problems.

As expected, Lipshitz continued to stress the audible problems you get when the digital data are arithmetically manipulated, for the purpose of changing gain, for example. He tested the digital attenuator in a Technics SL-P250, and found that the level (monotonicity) error became significant as the level dropped below −80dB—high harmonics could easily be heard coming and going.

There is also the problem of corrupted data on the CDs themselves, as an error due to a bad or maladjusted DAC will be identical to that due to a bad ADC: SL instanced the CBS recording of Mozart piano concerti 5 and 25 (MK37267), which has serious level errors which are "painfully obvious at normal listening levels." The missing codes are easily heard as glitches and an astringency in piano tone and additional harmonics on horn tone. Other examples of "bad" discs are the Unicorn recording of Delius's Song of the High Hills—it won a UK award for engineering excellence—which has 10LSBs of missing codes on the RH channel, audible as 'pulsations and 'spits' in the music and background hiss" as it fades at the end of track 1, and Julian Bream's Music of Spain Vol.7, RCA RCD1-5306, which has about 16 missing codes on the LH channel, leading to a flutty quality to the guitar tone as mains hum takes it continually through this bad area.

From the sounds demonstrated by Stanley, I might even venture that these kinds of errors might be more objectionable than pure quantizing distortion on its own, which can be heard, for example, on the Ashkenazy Sibelius 2 on London, or on the solo guitar track on Ry Cooder's "I Think It's Gonna Work Out Fine" on his Bop Till You Drop.

8 To hear such effects, which happen at the zero-crossing point of the waveform, where all the bits change at once, the recording used must not have any DC offset as the zero-crossing of the data will not then coincide with that of the DAC.

9 This disc was described in Vol.10 No.1, p.63, and is used in Stereophile's CD-player reviews. It is available for $45 plus $1.75 handling and postage from Old Colony Sound Lab, PO Box 243, Peterborough, NH 03455. Tel: (603) 924-6371 (9-4 EST).

Among the high-tech digital gizmos exhibited at the Convention were these all-tube pramps and compressors from U.S. company, Summit Audio, of Los Gatos, CA.

High-resolution A/D conversion
It would seem that, tantalized by the open-ended signal-handling and processing prospects offered by having the music in digitized form, the engineers are still wrestling with the problem of getting the analog signal into the digital domain in uncorrupted form nearly two decades after the first commercial use of the technology. Some of the papers presented at the Paris convention revealed that a popular approach will be to use an oversampling ADC and then down-convert the data to get around the practical problems endemic to a 44.1kHz sampling rate. The simplest way is to use 1-bit A/D, i.e a sigma-delta modulator, running at a very much higher sampling rate. (See Peter Mitchell's "Industry Update" elsewhere in this issue.) The dbx 700, for example, reviewed by BS in Vol.10 No.5, runs at 700kHz. However, these appear to have problems all their own.

Stereophile, May 1988
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First-order encoders—those with first-order integrators—have a frequency-dependent threshold effect, where although 100Hz sinewaves down to ~80dB will be encoded, a 10kHz sinewave at ~40dB will not be captured. This can be ameliorated by dither. A voice from the floor insisted that, in practice, analog noise provides enough dither, but it is interesting to note that the dbx 700 compresses the signal before encoding, presumably to avoid such problems.

A particularly interesting paper was presented by an M. Richards, a digital engineer with a background in military digital applications. He looked at the areas of incompetence in conventional ADC implementation, in particular the anti-aliasing filter, quantizer, and sample & hold circuitry. The latter is often the dominant noise source in an ADC, and also introduces timing problems which translate as level errors. Richards felt that professional digital-audio circuitry seems under-engineered by military standards: he showed a transparency of a sample & hold circuit board for a military 20-bit/50kHz ADC—it measured 4" x 3" and held 200 components, including a number of very expensive UHF transistors!

The anti-aliasing filter is responsible, of course, for many audio ills, and has been discussed in these pages before, most recently by Peter Mitchell last month. Richards felt that quantizer accuracy is limited by DAC accuracy, in turn limited by component accuracy. (Every successive-approximation ADC has a DAC to provide the analog equivalent of its digital guess, which is then compared with its input voltage, presented to it by the sample & hold circuit. The accuracy of the ADC will thus be only as good as that of this DAC.) How can this DAC be made more accurate? One solution is to use single-bit (delta-sigma) modulation, as explained earlier. Alternatively, with a conventional DAC, you can trim its resistor ladder—this is expensive, however. You can use digital dither, but this is only effective on small errors.

Richards proposed an alternative approach, which is to use an oversampling/noise-shaping ADC (fig.2), which has a number of advantages. The sampling takes place at a rate very much greater than the Nyquist frequency within a feedback loop (the output is fed back to the inverting input of the integrator). Because of this oversampling, a converter with a resolution of lower than 16 bits can be used—"in effect you chop up the transfer function and move it around the signal, rather than the other way around." In fact, Richards proposed using a flash converter which can be made extremely accurate, to the best resistor tolerance of 0.01%, as each resistor/current source is of equal value, unlike a conventional R/2R ladder where the LSB of, say, an 18-bit encoder demands an unachievable resistor tolerance of 0.0003%. In addition, as the output of a flash converter appears pretty much instantaneously, tracking the input signal, a sample & hold circuit is not required. The high sampling rate means that most of the noise power appears out of the required band—"noise shaping"—so a digital filter at the ADC output can output an accurate stream of standard 44.1 or 48kHz sampling-rate, 18-bit data.

R-DAT

The subject of DAT was curiously quiet at the show, despite confidence that the US National Bureau of Standards would find against CBS's Copycode (which they did, on March 1; see Stereophile Vol.11 No.4, p.210). Many engineers, however, expressed hope that manufacturers would quickly implement some kind of hardware so that DAT machines could be linked via timecode to form a very cheap multitrack digital recorder. Understandably, manufacturers of expensive multitrack digital recorders do not think this a worthwhile pursuit—DAT as the poor man's multitrack is not what Sony, heavily into pro digital-audio equipment, dreams about. In addition, the timecode recorded on a DAT tape
is not compatible with the industry standard SMPT/EBU code, the frame-rate of the former being 33.3 frames/s, while SMPTE is 30 f/s. Sony and Fostex proposed different ways to impose compatibility, but the interest expressed by many engineers of using DAT as a mastering medium to replace inexpensive and basically satisfactory EIAJ systems such as Sony's PCM-FI, now celebrating its seventh birthday, will remain only interest unless we end up with just one pro timecode system for R-DAT! In fact, it emerged that nearly all requirements to make R-DAT suitable for professional applications, such as "confidence" heads to offer read-immediately-after-write, were "still to be implemented."

Some interesting snippets of information emerged, such as the fact that the R-DAT standard already includes the possibility of making 4-channel recordings using 32kHz sampling. Apparently, it is also possible to increase word length to greater than 16 bits by incorporating a floating bit. This, however, will be at the expense of consumer compatibility; most felt that pro DAT recorders should be identical to domestic models to ensure two-way compatibility.

**Analog etc.**

It was hard to find any references at all to LP technology, the only one of note being that the closure of the Pyral and Capitol lacquer plants means that LP mastering in the future will probably be predominantly DMM, which makes use of amorphous-copper masters. (Transcom in the US and MDM/Micropoint in Japan are the only two lacquer plants left in the world.) So far, however, cutting plants in the UK and Europe have been reluctant to invest in DMM hardware, implying that variable and limited supplies of lacquers will hasten the LP's rejection by the mass market.

Loudspeakers always engender interesting papers: it appears that Philips is developing ESL prototypes with particular emphasis paid to ensure true pistonic diaphragm motion. They are not yet ready to bring an electrostatic speaker to market, however. A Philips engineer also presented a paper on a high-quality ribbon midrange/tweeter unit. The most intriguing loudspeaker papers, however, indicated the future of crossover design. If the signal is in the digital domain, then why not use digital FIR (Finite Impulse Response) filters to apply all the signal massage? A number of papers addressed this topic.

Using such DSP chips as the Texas Instruments TMS32020 in conjunction with a minicomputer, it is apparently possible to implement crossover filters with very steep (up to 1000dB/decade) slopes but with linear phase response and flat-passband amplitude response. It can also provide on-axis drive-unit EQ (presumably including the time effect of any resonances), not just for generic drivers but even for individual drive-unit compensation. An example was quoted of digital EQ applied to a small two-way bookshelf speaker in an anechoic chamber. Even though the relatively limited number of coefficients allowed by the TMS32020 meant that the EQ had to be limited to under 4kHz, the result was an almost perfect delta function pulse response, with a correspondingly flat amplitude response.

The extension of this is to apply digital EQ to the listening room. Traditional amplitude EQ attempts only to correct the amplitude transfer function, ignoring the phase. However, by doing so, it introduces its own time-domain distortion which, ideally, should be compensated for, by all-pass filters, for example. Nearly always it is not, thus destroying the integrity of the time information, to the audible detriment of the music signal. As exemplified by Bob Berkovitz's AR ASDP of 1982, it would be much better to use a time-domain equalizer, which inherently will be time-correct within the limits of the number of its filter coefficients. (Although the EQ will still only be effective over a limited listening radius, 10-30cm, around the measuring mike position.) The room, however, with its delayed reflections and resonances, is a very complex processor, and a very long filter (around 4096 coefficients, compared with the digital filter in a Philips CD player's 96 coefficients) is needed. It will be possible eventually, but to run such

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14 A pioneering component, this was limited by the technology of the time and could only apply correction to room problems under 1kHz. Integrating the time-equalized signal under 1kHz with the untreated signal above that frequency proved to be an insurmountable problem.
EQ covering the whole audio band in real time demands a digital filter capable of carrying out a single arithmetical operation in 2ns, which is unfortunately not realizable at present.

A more practical example of professional equalization is the Cello Audio Palette from Mark Levinson (the man, not the company). I bumped into Mark at the convention; he told me that apparently both the Palette and its accompanying electronics—the Audio Suite preamp and Performance amplifier—are being increasingly used in studios. Such respected engineers as Tom Jung of DMP, Bob Ludwig of Masterdisk, and Dennis Drake of PolyGram prefer the Palette’s interactive controls to traditional 1/2-octave equalizers—not to provide room EQ, but to apply gentle tonal massage of the program before mastering.

The future

I conclude with two prophecies regarding the future of the classical recording art, one from me and the other courtesy of Tom Stockham, online begetter of the Soundstream digital recording and editing system and now of the University of Utah, who gave a fascinating paper in Paris on the past and future of digital audio.\(^\text{15}\)

My prediction concerns the near future and is based upon the above report on the state of the recording art ca 1988. If it sounds a little extreme, it is no more than an analogy of common production practice in magazines and newspapers: the bulk of copy editing is done on a fully loaded, fixed-station PC or Mac, using a versatile and fully featured word-processing and editing program such as *XYWrite III*. *Stereophile*’s favorite piece of software— all power to its authors! Wordstar and its descendants? Phooey! Actual creative writing, however, is very often done by the authors on a basic lap-top machine, such as Tandy’s aging Model 100/102. Facilities here are much less important than the ability to easily take this electronic workbook wherever you happen to be. In fact, the only essential facility is a serial data communication port.

Assuming that the engineers are pure of heart, they will conduct their recording sessions with, one would hope, a coincident microphone technique, preferably crossed figure-eights, using a matrix box to apply boost below 1kHz to widen the low-frequency stereo stage to match that at frequencies above the ear/brain’s area of confusion (between 1 and 4kHz). The location recorder will be a two-track DAT recorder, with a separate ADC box outputting a serial stream of two-channel, 48kHz sampling rate, 18-bit data. (Knowing that R-DAT can handle 18-bit data at a total loss of compatibility with consumer applications leads me to suppose that this will be a must for the above-mentioned pure-of-heart engineer.) The ADCs themselves will be of oversampling design, using a very-high-precision flash converter and a linear DAC in the feedback loop, operating with 8-bit words—this limits the need for 0.1% resistors to 512—and a sampling speed of just over 12MHz, implying a very-well-behaved analog anti-aliasing filter operating well above the audio band, with the final image rejection handled by a digital filter which also converts this mass of data into the 48kHz stream of 18-bit-precision words/s required by the DAT recorder. The DAT machine will be relatively small, although an unusual provision will be a plug-in PC keyboard for the producer to enter brief editing notes to be stored in the subcode along with the SMPTE-compatible timecode data. (Based on my experience with PCs, if I were the engineer, I would be using two DAT transports, just in case one went bad at any time.) The whole kit and caboodle, mike stand and cable drum apart, would fit into one medium-size flight-case.

Back at home base, the engineer uploads the audio data—the DAT recorder has full serial data output capability—into the mass storage unit of his or her digital audio workstation, whether this be hard-disc based, as in DAR’s unit, or RAM, as preferred by New England Digital. As with the writing analogy, this is where the massaging and editing of the raw product takes place, and the more facilities, which would only confuse the issue in the field, the better. Internal architecture of this machine will be 32-bit, placing rather high demands on the storage media. (At the speed that both RAM and hard-disc technology have evolved in recent years, I don’t see this as a problem.) Once the manipulative process has been carried out, the edited data would be translated to the 44.1kHz, 16-bit CD format and transferred to a transportable mass-storage.

\(^{15}\) TS is now working on the reduction of digital data for video; he foresees a time in the not-too-distant future when a 5" single-sided disc will carry a complete feature film with better-than-VHS quality.

*Stereophile*, May 1988
The Delta Mode Power Amplifier.

Emotional Technology.

The very essence of the Delta Mode differential topology is to intrinsically oppose distortion, yet effortlessly magnify the music while accurately preserving its harmonic phase structure to present an exquisitely detailed sonic picture of the live performance.

Regardless of your level of listening experience, the Delta Mode's unique sonic capabilities will transport you to center stage.

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Don J Cochran Inc.
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415-496-1900
system, a WORM optical disc, for example—I’m assuming that the monopoly of the archaic PCM-1610/1630 standard for CD mastering won’t remain so forever—which would be sent to the CD mastering plant. A point to note would be that the signal will have remained in the digital domain the whole time and that all arithmetical operations (gain changes, EQ, mixing and truncation, etc.) will have been carried out with correct use of digital dither to ensure that new quantizing errors are kept at bay.

Alternatively, and for movie post-production in particular, the edited stereo data will be transferred to two tracks of a digital multitrack machine so that further signals—speech, sound effects—can be added later. In this manner, not only would the creative people concerned be freed by use of the appropriate hardware to concentrate on the job in hand, best serving the needs of the music at every stage, but the end-user would be assured that the 16-bit data on the final consumer medium is as accurate as it can be.

Tom Stockham’s vision takes place in a more distant future, following the invention of an ultra-high-density mass data storage system. (Stockham pointed to the development of the tunneling electron microscope, which can read detail at the molecular level, as being a possible candidate for development here, putting to one side the fact that it operates at liquid-helium temperatures! Research is also being carried out on the development of organic molecular memories, though this is not expected to yield working technology until the second decade of the new century.)

In his scenario, the raw data from the recording sessions—all of it, alternate takes and all—is immediately converted to a high-precision format (32-or-more-bit) mastered on to this new medium. A clone of it is operated on by the editor and producer to result in an instruction set—take 5 minutes, 3 seconds, and 24 frames from Take 1, adjust the level and lap dissolve into the next 25 minutes from Take 2, etc., etc.—which, in conjunction with the right soft- and hardware, will give a polished performance. This footnote data is added to the directory data area of the master, and the resultant pressings (prints, clones) are sold to the end-user, who, of course, has all the necessary hard- and software already incorporated into his or her player. Digital dither, of course, is applied to all truncation stages to ensure that the consumer’s final bits are of the best quality. And who says this has to be just audio? Imagine the data storage demands of unedited digital video!

**USA: John Atkinson**

Just before closing, we received the following press release from Magnepan:

“March 16, 1988. James Winey, the President of Magnepan, Incorporated, White Bear Lake, Minnesota, manufacturer of high-quality planar and ribbon-type loudspeakers, announced the settlement of a patent infringement lawsuit which Magnepan had filed against Apogee Acoustics of Norwood, Massachusetts, on August 30, 1984, in the Boston United States District Court. Magnepan holds several basic patents on planar-magnetic and ribbon transducers. Mr. Winey stated that as the case came up for trial on the February/March, 1988 court docket, the settlement was reached in conjunction with a pretrial conference conducted by Judge Mark L. Wolf.

“The terms of the settlement were not fully disclosed; however, Mr. Winey stated that Apogee may continue their current products substantially as presently sold. In exchange, Apogee will pay Magnepan present and future considerations.”

**USA: John Atkinson**

We are sad to report the death at the end of March of Joseph S. Tushinsky at the age 78. Prior to Sony launching their own subsidiary in the USA, Mr. Tushinsky’s Superscope Corporation was the first US importer of Sony components. Joe Tushinsky had also bought the Marantz company from Saul Marantz in 1964; he retired as Chairman of Marantz in 1987, when he sold the troubled company to the Dynascan Corporation.

**Recommended Components**

Accidently omitted from “Recommended Components” in Vol.11 No.4 was an affordable amplifier from the San Francisco company Parasound. Originally included in Class D, the entry should have read:

**Parasound HCA-800: $335**

More than respectable performance in view of this amplifier’s cost, felt TJN, offering a viable alternative to the similarly priced Adcom GFP-535. Built-in level controls mean that it can be used direct with a CD player. Mk.II version soon to be available at same price (Vol.11 No.2)
How a 77 year-old became the first name in digital audio.

Denon's been involved in every phase of music reproduction since the days of wind-up record players. So after seven decades of breakthroughs in studio recording, disc pressing, home high fidelity and professional equipment, we were uniquely prepared to take the next step. A tape recorder so fundamentally different, it would obsolete every previously accepted notion of how good recorded sound could be.

of the original Denon DN-023R. But this heritage runs strongest in CD players from Denon. Because the same engineers who design Denon pro machines design Denon home audio. And the same ears that guide Denon recording sessions evaluate the sound of Denon playback components.

"One of the most finely engineered pieces of audio gear on the planet!"

Digital Audio's Ken Plotnikoff on the DCD-3000

For example, the D/A converter found in every Denon CD player comes directly from Denon studio recorders. Unlike conventional designs, Denon's Super Linear Converter detects and corrects D/A transfer distortion.

Perhaps that's why each succeeding generation of Denon CD players is eagerly anticipated by the world's audio critics. And why they've variously hailed our CD players as "a winner on every count," "the player I recommend most highly," "superlatives have to be used," and "in several respects, the best I've ever heard."

Reactions which simply demonstrate one point. It's a lot easier to make audio..."look into the interior of this player reveals that Denon engineers were not taking any shortcuts whatsoever." Germany's Hi-Fi Vision on the DCD-1500

sound like music when you really know what music sounds like.

DENON
DESIGN INTEGRITY

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Denon America, Inc., 222 New Road, Paramus, NJ 07652 (201) 575-7810
Denon Canada, Inc., 17 Denison Street, Markham, Ont. L3R 1B5 Canada

Stereophile, May 1988
Monitor Audio R952 MD speaker

I was in my local mid-fi store the other day to look at the used equipment shelf (you never know when you might see some old Marantz tube gear). A customer—I’d say he was in his early 30s and very much a burn-out case—was grooving on a Grateful Dead tape. The speakers were by the man in the white coat—you know... the genius.

"Great sound, huh?" the customer asked. I nodded, trying to hide the fact my eyeballs had rolled into the back of my head. The sound was all bass. And lots of it.

Not that the genius in the white coat was to blame. The room would have made almost any speakers boom rather than bloom. There were at least two dozen other pair of speakers, all resonating and adding to the bass energy. The Deadhead, however, was ecstatic—he thought the sound was great.

I wonder if the Monitor Audio R952MD has a chance.

They are very British. They don’t go low, don’t play loud. Thank you, JA, for warning me about how delicate these speakers are. I did not play pink noise overnight to "loosen things up" (heh-heh). Nor did I play the garage-door opening track from the HFN/RR test disc (tsk-tsk). Nor have I played real test discs at loud volume levels.

I have not blown up my Monitor Audio R952MDs. The Deadhead would have probably taken out the tweeters in under 10 seconds. I have to hand it to the genius in the white coat: his speakers did survive the onslaught. Great gear is often delicate—not for clods. The original Quad speakers, for instance, were easily fried.

Back to the Monitor Audio R952MDs. As JA said in Vol.11 No.1, these are not the speakers for everyone. As he’s blown at least two tweeters, I suggest that they are perhaps not the speakers for him.

A dealer friend, who sells Monitors, Spendors, and Vandersteens, and who likes the Monitors, reports that it’s still the 'steens that march out of the store—more bass, a warmer tonal balance.

An acquaintance recently called me for speaker recommendations—British chap in his late '40s married to a concert pianist. I suggested they audition the Monitors and the Spendor SPIs. They spent their money on the Spendors.


Well, maybe. There are some very good seats in Avery Fisher Hall, where the sound is astonishingly well-focused and transparent. I would say the comparison is more between the old and the new Carnegies. The Spendors are old Carnegie—warmer, but a little muffled. The Monitors are the new Carnegie—brighter, crisper, cleaner, clearer.

The Monitors also cram the Quad ESL-63s in the transparency sweepstakes, although I have not auditioned the latest version of the ESL-63s at home (I’ve heard them at a dealer’s). The Quads always struck me as a little, well, fuzzy on top, with the imaging slightly unfocused. They are open and airy, of course, but images can be hard to pin down. They sound a bit vague—I guess that’s the word. Compare Quads with Martin-Logan CLSes and you’ll hear what I mean—the 'Logans are cleaner, cleaner, crisper. Ditto the Monitors. For less money.

With some trepidation, I had my pair come up in Kenya Black, at the suggestion of Ross Ginn, the North American importer. I then had visions...
When you do something this well you can't do it for everyone.

Look closely. This is an audio cabinet unlike any other. Handcrafted from solid wood and gleaming marble. Accented by the glint of solid brass hardware and beveled glass. Hand rubbed to a deep gloss. Elegant. Timeless. A Talwar cabinet. Individually crafted to your exacting specifications.

Now look inside. At joints reinforced for rigidity. A shelf support system that provides proper air flow on all sides. Features such as an 8-outlet power strip, concealed wire management system, heavy duty casters, and removable back. Plus sophisticated options. Like equipment cooling, vibration isolation, power filtering, electrostatic control, time delay power-up, and grounding bus bar.

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TALWAR
Music to your eyes.
of zebra-striped wood in my sleep. What the devil would these things look like? I needn’t have feared, however. The finish is actually a dark brown, very rich and beautifully grained. Beautifully finished, too. I think the Kenya Black is Mo Iqbal’s native wood—bubinga wood, I believe—and I commend it to you.

Mo Iqbal, of course, is the Mo of Monitor (pronounced MOE-nitor) Audio. Mo is the antithesis of the audio snob, or snot—the stuffed shirts you often encounter in the high end. I remember Mo at last summer’s CES, where it was hot as blazes. Mo was running around in T-shirt and tennis shorts. What’s more, Mo is a veritable Cheapskate. No $3000, $5000, or $10,000 speakers from him. The R952MDs are his most expensive product at $1549/pair. And they need no stands—which, if they are any good, are expensive.

For this piddling price (well, almost piddling), Mo has given us a speaker which can hold its own when compared with such contenders as Martin-Logan CLSes, Celestion SL600s and ’70s, and even the Wilson Audio WATTS.

I am not saying the Monitors are better than the WATTS, just that the transparency is comparable, for less than a third the price. I can return home from a listening session with the WATTS and be quite happy with the R952MDs (MD stands for metal-dome tweeter), especially considering the balance in my checkbook.

Are the MOE-nitores for me?

You bet. No question. I heard these speakers and I knew. But they are not perfect. They lack deep bass, for one thing. This may bother you, but it doesn’t bother me a bit. The bass that’s there is tight, detailed, and interesting. With many speakers, the bass is a one-note boom. And speakers that have lots of bass may also create lots of standing waves. Cabinet coloration is very low—especially welcome with male voices.

As JA points out, the upper midrange is somewhat forward—in the range of 2-4kHz, which, of course, adds to the impression of clarity. But the clarity is real: the detail is actually there. It’s also true that you can’t—or shouldn’t—play the speakers particularly loud. Unless you feel like replacing the tweeters.

But, oh, the transparency.

JA has said it all in his review. You can see (hear?) the trees (leaves?), and you can see the forest too. The sound has what I call body, or wholeness. I think other people call it coherence.

I hear the fullness of a symphony orchestra. (I’m not talking about loud volume levels here, but a sense of listening to a whole orchestra rather than just parts.) At the same time, when the recording allows, I hear the superb imaging and the most delicate detail. This is a speaker that brings out all the subtle nuances of a performance and a recording. Nothing is lost.

And on older recordings, too. Especially on older recordings, before multimiking became the rage. Many of my old Melodiyas have never sounded better—Yevgeny Svetlanov’s recording of the Shostakovich Symphony 10, for instance, or Gennady Rozhdestvensky’s Sibelius cycle. If the sound is a little bright, the ear soon accommodates.

After the Monitors, I simply cannot go back to listening to a speaker that is less transparent. The Monitors make everything sound so interesting, so involving. They are so good that, one stormy evening, I thought to myself: why go out to a concert? I think I’ll stay home with my Monitors.

There is one thing I should warn you about. The R952s have been devastating with regard to CDs. LA suggests that this is because of the speakers’ forward midrange presence. Maybe so, in part. But I can tell what’s related to frequency response and what isn’t. As LA says, CD simplifies the music. It’s the same thing I refer to when I babble about lack of “palpable presence” and music getting lost between the ones and zeros. The music isn’t all there: there is less air, less ambience, less in the way of nuance—subtleties of intonation or whatever. CD isn’t strident—not with my Sony CDP-505ESD. It’s just boring. The Off button keeps beckoning.

And no amount of Sims Vibration Dynamics CD Rings can help the matter that much. I understand now why I was ambivalent about the rings in my last column. Not that the rings don’t “work.” But they still don’t make CD sound as good as analog at its best. Not only that, there’s the expense. CDs are too expensive to begin with. Then you have to pay a dollar a disc to ring them, and they still don’t sound as good as analog. That’s why I’m somewhat down on the rings.

I am reminded of the movie The Fly. You know, where Seth Brundle tries to send a steak through his teleportation device. He and his girl friend sit down to eat it and the steak tastes terrible—all the flavor and texture have been
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A New Generation of Audio Cable Performance.

Nothing we encounter in everyday life, including radio frequencies, TV frequencies, X-rays, or light frequencies, spins such a broad range as the audio spectrum. The complexity of 10-octave, 20,000 Hz music signals passing through a wire, each creating their own varying electromagnetic fields superimposed on each other, causes audible “time phase” and amplitude errors. And makes life difficult for an audio signal.

We'd like to introduce you to the M-Series solution, the ultimate expression of Monster Cable’s “Bandwidth Balanced” technology. Combined with our latest “MicroFiber” dielectric, the M-Series controls these distortion-producing electromagnetic fields with exacting precision. And provides you with two cables of unprecedented sonic performance: The M1000™ Audio Interconnect Cable and M1 Speaker Cable.

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Add to that Monster’s latest innovation, “MicroFiber” dielectric, the insulating material that immediately surrounds the conductor. Precision-wrapped around selected conductors, “MicroFiber” lessens the dielectric distortions that produce audible “harshness” and signal loss. “Intertransient noise” is now virtually eliminated. Highs become open and extended, with clearer midrange and deeper, tighter bass. Transient response and dynamic range are improved.

Your recordings are reproduced with a musicality and transparency only the M-Series can provide.

Quite simply, the finest cable available.

The advanced technologies of Monster M-Series, as heard in M1000 and M1 Cable, represent state-of-the-art cable. No other single technology, no matter how expensive or sophisticated—including linear crystal, long-crystal silver, or solid-core wire—accomplishes this task like the Monster M-Series.

Listen to your favorite albums, tapes, or CDs with the M-Series and the true sound of vocals and instruments will be revealed with newfound richness and depth.

We invite you to audition the M-Series in your system. It’s a technology you’ll not only hear, but love to listen to.
lost in the conversion from analog to digital. Aha! That's what happens to the music.

Of course, Seth Brundle perfected his teleparation device (and we all know where that led: Brundlelefty). Maybe there will be a player that comes along and restores my faith in CD. Goodness knows I've flipped back and forth on this a number of times. Yes, I like CD. No, I don't. At the moment, I don't. And Mo Iqbal is to blame. Thank you, Mo. I think.

The Counterpoint SA-3.1

What's a preamp doing in a speaker column? Well, I've been enjoying this preamp for the last six months, and it hasn't been reviewed in these pages. It makes for a perfect combination with the MOE-nitor speakers, using the Counterpoint SA-12 power amp, which I have written and raved about. (The rest of my system consists of an AR ES-1 table with Rega RB300 arm on Audio Advisor metal armboard with Shure Ultra 500 cartridge, Sony CDP-505ESD CD player, and Nakamichi LX-3 cassette deck.)

Like the SA-12, the Counterpoint SA-3.1 is a neat product. A little underwhelming at first, this is not the kind of preamp that sets audiophiles a-drooling the way, say, an SPII does. On the other hand, it is a product that many audiophiles can probably afford. For $1045 you can't expect a preamp that challenges the state of the art. And you don't get it. But, as with the SA-12, you do get a product that comes remarkably close. Just as there's nothing seriously wrong with the SA-12, so, too, there's nothing wrong with the SA-3.1. Nothing.

First, the looks. The Counterpoint SA-3.1, while made in California, has the appearance of Cambridge, Massachusetts—understated, elegant, rather compact. It's a tube unit, with three 6DJ8s—one for each channel in the phono stage (actually, only half of each tube is used), and a third for the line stage (two channels sharing one tube).

The unit is a pleasure to use. There's automatic output mute relay for protection, and no shortage of inputs or outputs. You have phono, tuner, CD, tape, and video inputs. Instead of a conventional tape loop, you have a control labelled "tape out" which sends the selected input to two sets of tape outputs. This lets you record from one source while listening to another. Also, you can use the second tape-out to switch an external processor in and out. Handy. But be warned: if you have "main out" and "tape out" both switched to tape and you hit record, your system will go into instant oscillation because of the feedback.

The Counterpoint SA-3.1 is one of those very special products which is exquisitely detailed, revealing of the source material, and yet easy on the ear. There's that naturalness of timbre which I find only with tubes. And nary a touch of tube glare.

This is a great preamp, and I have not heard anything else at or near the price that comes close. It's also a preamp that suggests (to me) the superiority of analog over digital, even with speakers less transparent than the Monitors.

Writing in Hi-Fi Heretic, Judy Davidson points out, quite correctly, that with the SA-3.1, string tones are a little thin. (Thank you, Judy, I hadn't caught that, but now that you mention it, they are.) This preamp lacks a bit of body—it sounds a wee bit lean compared to other, much more expensive preamps: the SPII, for instance. Incidentally, Judy seems to love the preamp as much as I do.

Dynamics, while good, are not exceptional. Soundstaging, too, could be a little more expansive. It's in dynamics and soundstaging that the Superphon Revelation II has it over the Counterpoint—and for less money. But the Counterpoint has tubes, and the tubes have magic. Ask KK.

The SA-3.1 should take moving-coils down to about 0.5mV, although that may be pushing it, especially if you take the impedance down. A medium- to high-output coil might be safer. It also works fine with my Shure moving-magnet.

Stereophile, May 1988
The Meitner turntable and tone arm.
Revolutionary. Precise. Timeless.

A Total System Approach:
Meitner Preamplifiers, Amplifiers,
Power Sources, CD Players;
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Museatex Audio Inc. (514) 333-6661
For $1045, you don’t sacrifice much. And you get a preamp that’s transparent enough to be used with the MOE-nitor R952MDs. (Memo to JA and LA: get this one on our “Recommended Components” list fast. Class B.) Meanwhile, if you are looking for components to go along with the R952MDs, and you don’t want to spend a lot of money, consider the Counterpoint SA-3.1 and SA-12.

Dynakit 70 returns!
Some of you may know of a mail-order company called Sound Values, of Dublin, OH, (614) 889-2117. Among other things, they offer close-outs on Dynaco equipment. They also offer spare Dynaco parts. Now SV is “reintroducing” the Dynakit Stereo 70 tube amp, in kit form, for $499. Circuit and appearance are said to be “as original.” Circuit boards are double-sided fiberglass (unlike the original) and the output transformers are said not to hum (the originals often did—and how!). Metalwork is by the people who make face panels for Audio Research. I don’t know any other way you can own a new 35Wpc tube amp for $499, at least here in the Free World. (Moscow audiophiles—and yes, there are a few (very few)—tell me that tube amps can be had in Hungary, but I haven’t been able to check it out. Could be another reason to crawl under the Iron Curtain again.)

SV also has 12AX7 tubes from India (very nice, good tube Karma—I use them in my SuperIt) for $4.95 a pop—buy five, get one free. Why not get on their mailing list? (No, SV is not giving me a professional discount.)

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High performance home audio and video systems from New Jersey’s premiere dealer. Only the finest.

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In less than a decade, high-performance cable has emerged as a critical component in any quality audio system. Since the early-1980s, MIT has been the acknowledged leader in superior audio cable. This audible superiority results directly from leading-edge computer design capability, rigorous testing and a unique understanding of the physics of cable performance.

MIT cable delivers neutrality, clarity and precise focus because it is designed to virtually eliminate "phase noise". Phase noise includes all forms of frequency and phase instability, and is an inevitable by-product of audio cable that is not phase correct. In fact, all other audio cables suffer significantly from phase noise. Only MIT cable is designed to be truly time aligned, phase coherent and thus, noise free. The result: MIT cable does not alter the sound as do other audio cables.

In a dramatic comparison of MIT's superiority, MIT ran head-to-head tests of one-meter lengths of MIT MI-330 vs. solid-core straight wire, employing a sequence of music tone bursts. Despite past regard for straight wire, and some observers actually recommending its direct application in audio cable, comparable lengths of straight wire simply cannot compete with MIT cable on crucial phase noise performance.

These test graphs, which illustrate only one of a series of music tone bursts, provide visual proof of MI-330's overwhelming phase noise superiority. From the instant each music tone is retriggered, MI-330's defined transmission is obvious. Equally important is what occurs before each music tone starts. This brief but critical time segment (to the left of the arrow in the exploded view) is supposed to be absolutely quiet.
Note that MI-330 is essentially quiet just before each music tone starts, as any audio cable must be for sonic accuracy. The length of solid-core straight wire, like other cables which are not phase correct, is noisy when it should be quiet. It is victimized by phase noise—stored energy which overrides and literally destroys quiet passages. Simply, true quiet passages cannot survive through incorrectly designed cable!

By comparison, MI-330’s quiet wave form and clearly defined wave form mean that the music starts and stops exactly when it is supposed to, yielding a more holographic sound stage, intertransient silence and minimal distortion.

MIT now offers unequalled neutrality, clarity and precise focus in two cable families: MIT and PC-SQUARED. MIT is simply the finest audio cable money can buy, and includes the top-rated MI-330 interconnects and MH-750 Music Hose speaker cable, MH-650 Junior Hose and the remarkable limited edition MI-330 Shotgun and MH-750 Shotgun cable series. PC-SQUARED provides exceptional performance, approaching MIT, but at a reduced cost in PC-2 interconnects and PC-18 speaker cable.

Minimal phase noise is but one significant advantage of all MIT products. For more information on MIT and PC-SQUARED product lines, and a more technical discussion of phase noise, please write for data to:

Transparent Audio Marketing
Route 202, P.O. Box 117
Hollis, ME 04042

A=10 mV dA=62 mV T=0 ps dT=34.132 ns

Music Signal Starts Here

Solid-core straight wire (1m length): This graph shows one of a series of tone bursts. Note the significant phase noise to the left of the arrow which is before the tone burst starts.

A=8 mV dA=18 mV T=0 ps dT=46.746 ns

Music Signal Starts Here

MIT MI-330 (1m length): This graph also shows one of a series of tone bursts. Note that the MI-330 is noise free to the left of the arrow which is before the tone burst starts.
VIRGIN AT ABBEY ROAD
Every time I drive past a record store, my nose begins to twitch. After all, record shops are to audiophiles what candy shops are to chocoholics. Just think of all those wonderful, undiscovered musical morsels lying in the bins waiting for someone to snap up! But I wonder how many fellow audiophiles ever stop to think, while flipping through the multitudes of musical titles at their local purveyor of musical treats, how the thousands of recorded performances got there. Of course, we all know that records aren't hatched, grown on trees, or delivered by the record fairy. But beyond that, most people probably don't know just how much blood, sweat, and money are expended in order to bring the finished products into their hands. The entire subject of recording seems to hold a great deal of fascination for audiophiles: the microphone setup, the engineering team, the personalities. And since I've been contributing to Stereophile as "Musician in Residence," several people have asked me to give them an inside view of the recording business from my vantage point as a professional orchestra musician.

There certainly has been no lack of articles about recording; almost every audio magazine has had its share of editorial comment on the subject. But I have yet to see anything written that takes the reader into the professional world of symphonic recording, exploring all aspects of the business, from initial idea to recording session, as seen from the viewpoints of performer, conductor, producer, and engineer. As a professional symphony musician, I have participated in my share of recording sessions. Recording is hard work—the pressure on all parties involved is incredible. Trying to write an article on recording while simultaneously having to perform under this very stressful situation would be difficult, if not impossible. I had to find an opportunity where I could effectively place myself in the performers' shoes without actually playing, while having the inside track on all the behind-the-scenes events.

Last December, I finally had my chance. Several months earlier, Andrew Litton, a close friend and on-the-way-up conductor, had told me he'd signed an exclusive three-year contract with the newly formed Virgin Classics label, and would be making several recordings over the next three years. His second group of sessions in London would conveniently coincide with my National Symphony Christmas vacation. When I suggested that this would be the perfect subject for my article, Andrew immediately extended a formal invitation to come to London and have full access to everyone and everything involved with his recording. He didn't have to ask twice.

The setup was perfect. I was well acquainted with the literature to be recorded (Elgar's In the South Overture, Enigma Variations, and Serenade for Strings); in fact, I had performed the first two pieces under Litton's direction with the National Symphony. My familiarity with the music and this particular conductor's interpretation allowed me to earn my keep by lending an extra pair of ears in the control room during the takes. The whole adventure sounded better and better.

But when I began to think about how many recordings of the Enigma Variations are in the catalog, combined with some reservations about this new classical record label (that seemed at the time to be nothing more than another addition to the classical-recording rat race), the whole idea of my project began to lose steam. Another classical record label? Who needs it? Since the advent of the compact disc, it seems that every Tom, Dick, and Harry is going into the recording business. And with the unprecedented uniform quality of CD manufacture, anyone with enough money can

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1 Litton has recently been designated Principal Conductor of the Bournemouth Symphony and has recorded for CBS, EMI, ASV, Hyperion, and MCA/RPO with the English Chamber Orchestra, Royal Liverpool Philharmonic, London Philharmonic, and Royal Philharmonic. I first met Andrew when he was appointed Exxon Arts/Endowment Conductor of the National Symphony in 1982. Knowing about my interest in audio, he first approached me, asking for help in upgrading his dismal inadequate stereo. The rest is history. Andrew is now a fully addicted audiophile and member of the musicians' audio listening group that I have written about in Stereophile.

2 Andrew had just returned from making his first recording for Virgin: Mahler Symphony 1 and Songs of a Wayfarer. In fact, the tape on which some of my musical colleagues heard "a rather loud truck outside the hall" described in my review of the B&W 801 Matrix Series 2 Monitor (Vol.10 No.9) was a second-generation cassette copy of the master of that recording. (The truck, according to Litton, was left in; I'll be curious to see if it can be heard on the finished product.)
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enter the marketplace as an entrepreneurial purveyor of canned music. Furthermore, do we really need another recording of the Enigma Variations? Why does everyone have to record the same literature over and over? There certainly must be some good unrecorded music out there just waiting to be put down on tape. All good questions, I thought, so I put them to Litton.

According to him, Virgin Classics is not going to be any flash in the pan. In fact, the former general manager of EMI Classics in the UK, Simon Foster, had been engaged as managing director. Foster is one of the most highly respected and successful executive producers in the classical recording field, having been responsible for the establishment of the Eminence Series at EMI, as well as several highly acclaimed recordings (ie, Simon Rattle's interpretations of the Sibelius Symphonies, and the Nigel Kennedy/Vernon Handley recording of Elgar's Violin Concerto, Gramophone's 1985 Record of the Year). Also, since Virgin already had a well-established sales and marketing network through their well-known and highly profitable pop recording enterprises, worldwide distribution of the classical releases would be assured. I asked Andrew why, even with these positive assets, he had decided to sign an exclusive agreement with an unproven new label, while he had already done several excellent recordings with such heavies as CBS and EMI. He felt that an exclusive would allow him more autonomy in choosing literature to be recorded (the Mahler Symphony 1 was his idea), as well as a highly visible profile due to Virgin's interest in self-promotion of their exclusive artists. He also felt that by getting in on the ground floor he would be more of "a big fish in a small pond," and not get lost in the shuffle as he probably would with one of the larger major labels that already have extensive rosters of established conductors. He also mentioned that Virgin was taking just as much of a risk with him as he was with them, since Andrew Litton is not yet a household name among conductors.

As to my concern about another Enigma recording, his response was pragmatic and to the point. First of all, a new record label cannot afford to have any duds in their catalog, so the literature chosen for recordings must be something that will sell. The public at large will not, according to Litton, buy recordings of unfamiliar works on an unknown label, at least not at first. Second, he suggested that

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3 This is the one area in which many of the smaller classical labels fall short. The finest recordings in the world won't be much good to anyone if product availability and marketing are inadequate.
there is always room for more recordings of excellent works. And third, since he had included In the South in his London debut with the RPO in 1983, and had performed the Enigma Variations with the same orchestra in 1984 to great critical acclaim (coupled with the fact that Virgin was looking for an opportunity to produce an all-Elgar recording), this choice of repertoire seemed a perfect idea for everyone involved.

With the majority of my reservations and caveats satisfied and defused, I made plans to go through with "The London Caper." My wife Lynn-Jane, on the other hand, had already long since put together her itinerary of British museums and shops.

We arrived in London two days before the first session. To make things easier, we decided to stay at Andrew's hotel (the Goring, a wonderful older hotel with lots of class). He arrived the next morning, and over breakfast we discussed the specifics of his contract with Virgin, his future plans with them, and the repertoire to be recorded the next day. His contract calls for a minimum of three records per year for three years. Repertoire to be recorded will include all three Rachmaninov Symphonies and Symphonic Dances with the RPO, and the six Tchaikovsky Symphonies and several tone poems with his own orchestra, the Bournemouth Symphony. All of these will probably be produced by Andrew Keener, who produced both the Mahler and Elgar recordings.

As far as the next two days were concerned, Litton planned to start the first recording session with In the South (hopefully finishing before lunch) and proceed to the Serenade for Strings in the afternoon. The second day would definitely start with the Enigma, finishing with the Serenade for Strings if required. This way, the winds and percussion could be excused early both days, thereby keeping costs down.

The sessions would take place at Abbey Road's Studio No.1, be produced by Andrew Keener, and engineered by one of the EMI staff engineers (EMI rents out their studios to many other record labels, as well as movie production companies). He mentioned that Virgin, EMI, and the RPO managements had been "warned" that I would be around, photographing everything and poking my nose into everyone else's business.

The next morning, Andrew and I departed for Abbey Road in his rented Ford Granada, and Lynn-Jane took off to do her bit for the English economy and see her beloved Raphaelites at the Tate Gallery. The trip to the studio with Andrew, terror of the London roundabouts, was hair-raising—I wonder if all conductors drive like that. We arrived at Abbey Road in one piece, and proceeded downstairs to Studio 1. EMI was completely renovating and rearranging the upstairs studios, so there was a great deal of noise and hammering, which would cause problems later. Although I had seen photographs of Studio 1, the cavernous dimensions really surprised me (actual dimensions are 94' long, 55' wide, and 42' high).

There were not as many microphones as I had expected, with what appeared to be the three front main pickup mikes mounted on booms 12' above the floor (the center, stereo mike capsule was elevated approximately a foot above the two other front pickup points, directly over the conductor's podium). There were also the usual spot microphones for the double basses (Neumann FET-47), woodwinds (pair of Neumann DM086s), timpani (Neumann KM-84), horns (Neumann KM-86), and harps (Neumann KM-86), all placed six to eight feet off the floor. The French horns, trombones, and tuba were on risers about a foot off the floor, with reflectors directly behind the horns. (Reflectors are often used for these rear-firing instruments to project the sound out to the front main mikes.) The orchestra was placed in the approximate middle of the studio, well away from any wall boundaries.

After getting an overall feel for the physical orchestral layout, we proceeded to the control room where I met the producer, Andrew Keener, and the engineer, Mark Vegars. While

4 He was actually being quite modest. As I mentioned earlier, I have played In the South and the Enigma Variations under Litton's direction with the National Symphony, and sincerely feel that his interpretations of these pieces follows the composer's idiosyncratic quirks far better than most others I have heard.

5 As Edward Greenfield wrote in The Guardian following this performance, "how many young American conductors, I wonder, have Elgar's Enigma Variations packed in their knapsacks? . . . yet here, Andrew Litton, 25 this year, took over at short notice . . . and proceeded to conduct a reading as authentic as any I have heard in years."

6 Unlike our national orchestral recording contract in the US, where everyone in the ensemble is paid for a two-hour minimum call even if they don't play, the English musicians are only paid if they actually play the session. More on this later.
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Andrew L. discussed the upcoming day's events with Andrew K., I asked Vigars about the overall mix he would use in determining balances, and his personal philosophy concerning his role as recording engineer. He immediately impressed me with his musical approach to engineering: minimal miking with main pickup at the front in order to obtain a natural, three-dimensional soundstage, no gain riding, and, once balances are set, no electronic manipulation (leaving all musical nuances to the performers). The principal pickup would be limited to the front-center stereo microphone (AKG C0422 set in Blumlein pair configuration) and the two ambience microphones on either side of center (Neumann M-50s). The spot mikes, if used at all, would be mixed in at low level, thereby not impinging on the natural three-dimensional perspective. The master would be simple two-channel, without EQ or digital delay. According to Vigars, engineering should not call attention to itself; rather, it should sonically document a musical performance without any editorial comment. What a breath of fresh air! This all-too-rare approach to engineering really piqued my interest, but since the session was going to begin in about 15 minutes, I asked Vigars if he would consent to an interview before the first session the next day. He agreed.

The musicians were beginning to arrive, and I returned to the studio to see if there was anyone I knew. Although well-acquainted with several wind players in the RPO, I could not assume that they would all be playing these sessions. First bassoonist Michael Chapman had just arrived, and remembered me from several previous meetings in Washington during their tours. He had a new bassoon, made by Jeremy Saulsby, and asked if I would like to take a blow on it. We didn't have the time just then, but arranged to get together the next day. Then, fellow contrabassoonist Dominic Weir arrived, and the party was on. He insisted that I try some of his newly designed contrabas-

7 The Neumann M-50 is a tube microphone, and is no longer produced. The pickup pattern is omni, and is not switchable. Although the use of valves adds some noise, this microphone is still favored by many engineers for its flat response and open sound. Kenneth Wilkinson used the M-50 extensively in his recordings for London/Decca. In all of the National Symphony recordings we did for Decca, he used five M-50s: three on the front "tree" pickup, and two on either side as ambience enhancers. Rumor has it that EMI owns the world's majority of remaining Neumann M-50s.

8 There is a very large pool of excellent wind players in the greater London area, and since all concerts and recording sessions are paid as "per service" jobs, musicians often shuttle back and forth between different ensembles to reap the best monetary benefits. There is a famous story of a guest conductor in London arriving at his concert only to find a wind section entirely different from the one that he had had in rehearsal; they had all sent in subs so that they could take other, more lucrative jobs.
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soon reeds, and suggested that we also get together the next day.9

The session was about to begin—I hurried back to the control room, staked out a seat, and set up my Zenith 181 laptop computer (definitely better than taking notes longhand). Andrew Keener told me that although I was welcome to take photographs, no flash pictures would be allowed during takes, and I could only be in the studio proper during rehearsal—not during takes. Fair enough. The control room of Studio 1 is quite large, with engineer and console (Solid State Logic SL-4000E, with 56-channel capability) placed directly before the window looking out into the studio. The producer’s desk is set about 6’ behind the engineer, with a telephone line to the conductor’s podium. Chris Brown, the assistant engineer, was seated with the Sony PCM-1630 digital processor and DMR-2000 tape transport in a separate, but open space about 10’ behind the producer’s desk. I noticed that my favorite speakers, the new B&W Series 2 Matrix Monitors (as well as Litton’s; he’s just bought a pair) were mounted on high stands on either side of the front window; driven by a pair of B&W MPA-810 power amps directly from the console.

The first work to be recorded was the In the South Overture, which Litton rehearsed for half an hour. I listened to the orchestra in the studio for a few minutes, then went back to the control room. Vigars was making some final adjustments to the balance, and I was immediately struck by how natural and spacious the pickup was. Clear and open, three-dimensional, and well-extended on top and bottom. There was absolutely no highlighting of any instrumental groups, but the perspective was on the forward side (as we in the orchestra business say, “as heard on the podium”). I thought it sounded wonderful. One full take of the Overture followed, after which the orchestra took a break and Litton came back into the control room for playback. After a minute or so, Litton reached for the monitor volume pot, turning it up about 30%.

He muttered something about “how could anyone hear what was going on at such a low level.” He wanted “to hear it as if he were standing on the podium.”10

Although the performance was generally good, there were the usual problems with missed notes and faulty woodwind intonation, which Litton said he had not heard on the podium. Litton felt that the new 801 monitors were doing their job of telling what actually happened out in the studio, but maybe a little too well.11 Back went Litton into the studio, and several patchup takes were done to fix the problem areas. At 12:30 we broke for lunch, and everyone made a beeline for the cafeteria located immediately outside the doors of the control room. When Litton and I arrived, some of the brass section were already at the bar, enjoying some of that wonderful English lager. The food was pretty awful, but the beer was so good I couldn’t have cared less.

Two pints of lager and an hour later, the second session began with a continuation of In the South. Following the first playback, Litton and Keener both agreed that there was not enough solo viola five bars after number 34; they asked Vigars if he would add a solo mike for Andrew Williams, principal violist. No, he did not wish to do so; he suggested that Williams should play louder. This was tried, unsuccessfully. Next, Vigars suggested that Williams stand during the solo, so as to be closer to the mikes. To no avail. At last, and reluctantly, Vigars gave Williams a solo mike, which he rode gain on very slightly so as to only bring up the instrument’s presence within the natural soundstage. The rest of the piece went quite well, with only minor problems.

In the South was finished at 1:30, with a total of 47 takes. Considering the brevity of the piece, this could be considered an unusually high number of takes. But Keener is a perfectionist, and will not let anything go that might ultimately affect the musical validity of the performance. Some of the musicians think he nit-

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9 Bassoonists are wonderful the world over; I have made close friends with colleagues from countries on both sides of the Iron Curtain. One of the first things one bassoonist asks another is “can I try your reeds?” I have learned more about making good reeds (most bassoonists make their own—the absolute bane of our existence) from trying samples made by other professional players. I have a collection of reeds made by Russian, French, English, East and West German, Swedish, Austrian, Hungarian, and other bassoonists.

10 Most conductors I have recorded with prefer the forward perspective and high playback levels that recreate the visceral presence experienced when standing on the podium.

11 With the principal microphone pickup points raised 12’ above the floor, the producer and engineer would have a closer sonic view of instruments at the rear of the orchestra than the conductor (the higher the microphones are placed, the more equidistant they are from the front and rear of the orchestra).
Litton rehearses the RPO before take of *In the South*.

Keener (left) and Vigars during first take of *In the South*.
Andrew Litton gives a smile during playback.
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picks a bit too much, making them play things over and over until they are quite exasperated. But that is his prerogative as producer. Some producers do not bother with fixing every small flaw, going instead for long, continuous takes. Although continuity is important, according to Keener even the smallest mistake becomes an irritation after several listenings to the same recording. Recorded mistakes don’t go away. In my opinion, Keener is about the best in the business. He hears everything, and demands excellence from the performers and engineers, as he should. In a recording session, the producer is the “captain of the ship,” and ultimately responsible for the final results. He cannot pass the buck to anyone, and must, therefore, exercise his authority when necessary to ensure that the recording company gets a quality product.

Following a 15-minute break, the string players returned to begin recording Elgar’s Serenade for Strings. Being a wind player, I have never performed this work, but it is, in my opinion, one of the best pieces in the string-orchestra repertoire. I knew I shouldn’t have had that beer for lunch. I did something really dumb just after Litton began the string serenade: My laptop computer’s “low battery” indicator had lighted. I attached the DC power supply and plugged it into the wall before remembering that my power supply was rated at 110V and what was coming out of the wall in the control room was 220V. I heard a loud buzzing sound for about three seconds, then silence. I had successfully fried my only computer power supply and recharge. Dumb. Where could I find another DC adapter in London? Thoughts of having to take the rest of my notes for this article in longhand made me feel very contrite and a little bit sick.

By the time I’d recovered from this trauma, Litton was on the second movement of the serenade. The takes were going well, but the musicians were hitting an abnormally high number of clams. They seemed to be tiring and were losing their concentration. But this was understandable: recording is tense, difficult work, even if you do it every day (as some of these musicians do). London orchestral musicians work harder than any I know; their schedules are grueling, often including two recording sessions, a rehearsal, and a concert all in the same day! As a matter of fact, following this recording session, the RPO had an evening Christmas concert somewhere outside of London. The next morning they would have to return to Abbey Road to do two more Elgar sessions. Keener could sense that the musicians were burning out, and suggested that they should only try to complete the first two movements, leaving the rest for the next day.

That’s just what happened. At 4:30, the

Vigars following score during take of Enigma Variations.

12 Keener is a freelance producer. Before starting his producing career, he wrote record reviews and music articles for HFN/RR and was therefore a colleague of JA. Although not a professional performer, Keener appears to understand the specific problems presented to the various instrumentalists during recording sessions, and therefore has a positive and helpful approach to session management (something very rare nowadays). It is my understanding that Keener will produce most, if not all, Virgin Classics recorded in England. If I were a conductor or soloist and wanted to make a recording, I would unquestionably request Andrew Keener as my producer.

13 Wind players use the term “clam” to describe a missed note that stands out like a sore thumb. A horn-playing friend of mine jokingly once said that he was going to invent a “clam filter;” a device placed between the horn’s mouthpiece and leadpipe that would catch all the clams before they could be heard. At the end of the concert, the musician would remove the filter and empty out all the missed notes. I said that this was an excellent idea, except for some not-so-good horn players who would be destined to play in eternal silence.

14 In the National Symphony, our contract restricts our workload to two “services” (service is defined as either a rehearsal or concert) per day, with a maximum of eight per week. Although we do have instances when our management schedules extra services, we are either paid an additional fee or given a lighter work week immediately prior to or following the extra services, but since we do not make more than three or four recordings per year (contrasted to possibly 15 or 20 recordings for the RPO), the workload that London musicians see almost every day is rare for us.

Stereophile, May 1988
musicians were dismissed, and Litton returned to the control room to listen to playbacks. After 20 minutes, all parties agreed that In the South and the first two movements of the Serenade for Strings were in the can. Andrew L. and I departed the studio, and decided to take a detour on the way back to the hotel . . . to the HMV record store! You would have thought that both of us had had enough records and music for the day. No way. After spending our money and getting our audio fix at HMV, we proceeded to search for a 240V adaptor for my poor computer. After walking for an hour and sticking our noses in every electronics shop (it was getting late, and the shops were beginning to close), we finally found a merchant who actually had a 240V adaptor. Day and article were saved.

Andrew and I discussed the day's sessions, and I mentioned that his rapport with the orchestra seemed impressively relaxed and positive. Litton ascribed his success with the several English orchestras he has conducted to his "American mannerisms" (straightforward, businesslike approach, but without pontification15). He also likens his success to that of several English conductors in the US: Raymond Leppard (music director of the Indianapolis Symphony), Christopher Hogwood (St. Paul Chamber Orchestra), and Sir Neville Marriner (past music director of the Minnesota Orchestra). Litton finds it easy to work with British orchestras; their willingness to learn new ways of performance and their easygoing attitude toward the stressful business of recording make working with them a pleasure.

Although Litton is very pleased with his English successes, he looks to a time of higher visibility in the US. American orchestras pay much higher fees to conductors and musicians than do the English, and conductors are ultimately judged by their accomplishments on this side of the Atlantic. At this point, our discussion turned to the actual costs of producing records on either side of the ocean, and why record companies prefer to work with English ensembles. Andrew and I agreed that it was a simple matter of economics. Symphony musicians in the US are paid about twice as much per three-hour recording session as their colleagues in the British Isles. Additionally, members of a US orchestra who do not play a particular session are still paid a two-hour minimum session fee.16

However, there are some limitations in the British orchestral recording contract that make them a bit less competitive. For recordings produced in the UK, the record company cannot use more than 15 minutes of finished product per three-hour session. In the US, on the other hand, 45 minutes of finished product can be taken from one three-hour session. In other words, a recording containing 60 minutes of music would require payment for four three-hour sessions to the British musicians, and payment for only two three-hour sessions to their American counterparts. Of course, it may take more than two sessions (four hours of actual recording time17) to successfully produce a musically acceptable recording, but I have participated in many recordings in which two sessions were adequate.18 On the way back to the hotel, we discussed the bottom-line pros and cons of recording in England vs the US, and concluded that, considering all of the above factors and the current dollar-to-pound exchange rate, it was still more cost-effective to record in England.

The next morning I was treated to another of Litton's high-speed tours of London on the way to Abbey Road. When we arrived, Vargas was checking the console and microphones, and I suggested that the interview could be done over breakfast (eating took up a great deal of my time while in England). The cafeteria was crowded with arriving musicians,

15 This was confirmed by several members of the RPO. They really like Litton, not only because he is a very talented and gifted musician, but because he treats them with respect and doesn't attempt to "teach them how to play," as many conductors do. (I can identify with that.)

16 As stated in the 1983 American Federation of Musicians' Phonograph Record Labor Agreement, "all members of the symphony orchestra, whether called to the engagement or not, shall be paid for at least the first two hours of the basic session call and shall not be called or required to attend if they are not scheduled to perform." The British musicians' recording agreement has no such provision. All of their recording sessions are paid on a "per service" basis: those who don't play don't get paid.

17 The American recording agreement obligates the orchestra to one hour of break time per three-hour session. This is often split as 30 minutes about halfway into the session, and 30 minutes at the end. The British musicians have only one 15-minute break per session.

18 In order to avoid scheduling an additional three-hour session, one hour of overtime is sometimes added to the second session (only one four-hour session is allowed per day). Many conductors feel that American symphony orchestras produce recordings in much less time than do others throughout the world, thereby keeping costs down. I can remember some sessions with the National Symphony Orchestra conducted by Antal Dorati in which we completed two full recordings in five hours of playing time.
and the construction hammering upstairs was deafening, so the interview lasted only a few minutes. Mark had been with EMI Studios for 16 years, starting at the age of 17, and had worked his way up through the ranks to his present position of staff classical recording engineer (one of two, soon to be three). He reiterated his philosophy of classical recording engineering: "Don't get in the way of the music." According to him, two-track mastering is musically and sonically superior to multitrack, and spot microphones should be used with discretion, if at all.

I asked him about what appeared to be an abnormally high elevation for the three principal front microphones. He explained that temperature and humidity dictate microphone placement: In cooler environments, the overall sound is clearer and more transparent, allowing higher placement of microphones. This gives a more natural perspective, with better instrumental focus (I did notice that the temperature in the studio was on the cool side19). Vigars doesn't like warm recording environments; the microphones must be placed lower, and the overall sound is more aggressive and less focused. We talked about the present state of classical recording. I relayed some of my horror stories of having to deal with one particular German recording outfit, and their less-than-musical approach to the whole subject. He suggested that with the advent of CD and DAT, recording engineers will not be able to get away with all the sonic manipulation that has become the norm. I hope he's correct.

On my way back to the control room, I noticed the Allen organ console and a line of eight debauched-looking speakers lined up behind the podium, facing the orchestra. This was obviously for the organ entrance at No.76 in the finale (Var.14, the self-descriptive "EDU") of the Enigma Variations. Litton came into the control room, mentioned to Keener that he wouldn't bother rehearsing the Enigma, and suggested that they do a single take from the beginning theme straight through to the end of Variation 4. But first, Litton wanted to officially introduce me to all the members of the RPO (who was this pain in the neck, running around asking questions and taking pictures?). As soon as he told them that I was a member of the NSO in Washington, and was covering their session for a very esoteric audio magazine in the US, they cheered and made me feel very welcome. Nice people.

19 The problem with this, according to Vigars, is that musicians do not like cold playing environments. He is correct. Below 65°F, wind instruments lose pitch stability; high notes tend to go sharp, while lower notes go flat. String instruments are also adversely affected, losing sonic depth and resonance.
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The first session began at 9:30 and was uneventful. After playing through the introduction and first four Variations, Litton came back to master control to hear playbacks. There were the usual clams and intonation problems, so retakes were done. This is when the hammering began. In the middle of the first variation, some faint banging could be heard through the monitors. Vigars shot up out of his chair, uttered some unprintables, and left the control room with muttered oaths to "break someone's kneecaps." The hammering suddenly stopped, and Vigars returned without mentioning a word about what had happened. After doing all necessary retakes through Var 4,Vars 5 through 7 were recorded. The orchestra was playing extremely well for Litton, even though they had probably performed the Enigma Variations hundreds of times before. He undoubtedly knew that they could play the piece with their eyes closed, and used their light, transparent sound and familiarity with the piece to his advantage. I could, for the first time, hear delicate inner voices that had always been buried in the murk of Elgar's heavy orchestration. But at the same time, the RPO was playing with a drive and sonic presence not often heard from English orchestras.

After Vars 5, 6, and 7 were in the can, the orchestra took a 15-minute break. The usual playbacks were done, and after the break, Litton continued with Vars 8, 9, and 10. Variation 9 ("Nimrod") is a sample of Elgar's true orchestral genius, and is the one movement of Enigma that everyone waits for. Litton interprets this variation as just one episode within the overall musical flow of the piece, rather than as an entirely separate, and often melodically overblown entity. Nimrod has one of those climaxes that grows out of incredible harmonic tension rather than sheer volume, and can give the listener major goosebumps. Litton played it for all it was worth. Everyone should go out and buy this Enigma recording, if only to hear this once-in-a-lifetime performance of "Nimrod."

It was 12:30, and time for lunch. EMI Studios were beginning their annual Christmas party in the cafeteria, so we got our food and took it back to the control room. Litton, Keener, Vigars, and I spent lunch hour talking about the art of record producing, high-end audio, and the new B&W 801 Matrix monitors that had arrived in the studio just prior to the sessions. Vigars did

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20 Elgar's orchestration suffers from the same problems as that of many other English composers of the period. The melodic flow from one orchestral voice to another is often obscured unless the conductor takes great care in balancing the primary lines against the less important accompanying figures. Litton is one of the few conductors I have seen who takes the time to do this properly.
not like them as much as the earlier 801s, finding the sound to be harder.\(^{21}\) But he did agree that they were more revealing than their predecessors. And after living with the older version for so many years, he felt that perhaps it was more of a case of familiarity with the old vs the difference of the new. Both Andrew L. and I suggested that he bi-wire the new monitors and allow them to break in before making any definitive judgments.\(^{21}\)

The second session began with Var.10, and proceeded rapidly to the *finale*. Two bars after 76, the organ came in. Keener didn't like the registration. After a few minutes of trial and error with various combinations of stops, the right sound was attained, and the *finale* was recorded. I found it hard to believe that those funky speakers I'd seen in the studio could reproduce such deep bass. The floor really shook!

After some patch-up retakes, *Enigma* was in the bag. The orchestra took a break, the winds and percussion were dismissed, and the session continued with the remaining three movements of the *Serenade for Strings*. By this time, the Christmas party next door in the cafeteria had turned into a zoo. Upon leaving the control room to get to the plumbing facilities, I encountered a great deal of hollering and singing, as well as someone being chased by someone else with a bucket of water. Didn't they know that we were trying to make a record? Don't be surprised if you hear some *ad lib* extraneous vocalizing in the background of this version of Elgar's *Serenade for Strings*. We finished at 3:35pm, 55 minutes early. Litton and Keener listened to playback for 20 minutes and agreed that it had been a good two days' recording. Total number of takes for both days amounted to 166, not an insignificant number, but not as many as I have seen in some other situations (particularly when recording movie soundtracks).

Now that the hard work was over, we could all relax (even though I was not directly involved in the recordings, I felt as if I had been one of those musicians out there in the studio). Lynn-Jane had just arrived, and Andrew L. invited us to Virgin Classic's Christmas party, to commence shortly in their offices across town. We piled into Andrew's rented car and took off at a spirited pace—white-knuckle time for Lynn-Jane). We got to the party an embarrass-

\(^{21}\) These speakers were not bi-wired, something I found absolutely necessary when writing my review of this product for *Stereophile*. If these particular samples had been bi-wired, the hardness that Vigars complained of would have probably disappeared. In his opinion, the omission of the environmental controls for midrange balance on the new version of the 801 (the original 801 had two trim controls for this, mounted on the rear of the midrange/tweeter head assembly) did not allow enough latitude in obtaining maximum speaker/room interface.

\(^{22}\) After living with the new B&W Matrix 801 Series 2 Monitors for the past 12 weeks (I bought a pair in rosewood—gorgeous!), I can attest to the fact that they require a significant time to break in. After writing my review, the speakers continued to significantly improve over an additional four-week period. They are, in fact, much better than the review suggests.
ing hour early (Andrew had been apparently misinformed as to the starting time), but this was actually a blessing in disguise. Simon Foster, the driving force behind Virgin Classics, was getting everything ready, and since we were already there, he consented to an interview. After hearing his plans for this new recording venture, coupled with the positive vibes felt during the sessions, any doubts I had concerning the viability of Virgin Classics vaporized.

Foster, outgoing and personable, gave me the impression of someone who gets things done. He had engaged several young artists who, like Litton, have been making names for themselves but remain unsigned to exclusive contracts with other record companies. Among them are: Stephen Hough, English pianist, winner of the Naumberg Award, and 1987 Gramophone Award for Hummel piano concerto on Chandos; Steven Isserlis, English cellist; Dmitri Sitkovetsky, Russian violinist; and Mikhail Pletnev, Russian pianist (who has recorded the Rachmaninov Concerto 1 and Paganini Variations, to be released by Virgin later this year). In addition to Litton, two other conductors have been signed by Virgin Classics. The first, Czechoslovak Libor Pesek, will record all of the Dvorak Symphonies with the Czech Philharmonic (the "New World" Symphony and American Suite are already in the can, and will probably be included in some of Virgin's first releases). The second conductor is a young Finn, Jukka-Pekka Saraste. Foster pointed out that he would continue to search for "good talent without exclusive contracts elsewhere."

Orchestras presently recording for Virgin Classics (other than the RPO) include the Royal Liverpool Philharmonic, Czech Philharmonic, Scottish Chamber Orchestra, and English Chamber Orchestra, and, at the time of our interview, Foster was negotiating with the Minnesota Orchestra. I was also told by Sir Neville Marriner, during a two-week guest conducting appearance with the National Symphony, that his Academy of St. Martin-in-the-Fields will probably record for Virgin Classics during the 1990-1991 concert season. Foster has also made a significant investment in the recording of early music. Virgin Veritas, Virgin's early-music label, has formed a close relationship with the Orchestra of the Age of Enlightenment in London, which has already made some recordings (among which is probably the first recording of Schubert's Symphony 9 with original instruments, conducted by Sir Charles Mackerras). Fretwork, a smaller English group dedicated to the performance of early music, has also been signed.

Virgin Classics' first 10 releases (which should be available by the time this article goes to press) will include: 1) Mahler Symphony 1 and Lieder eines Fabrenden Gesellen with mezzo Ann Murray and Andrew Litton conducting the RPO; 2) Sir Michael Tippett's Concerto for Double String Orchestra, Fantasia Concertante on a Theme of Corelli, and Songs for Dov, with John Tunnel and Rosemary Ellison, violins, Kevin McCrane, cello, Nigel Robson, bass, and Sir Michael Tippett conducting the Scottish Chamber Orchestra; 3) Heart's Ease (works by Holborne, Byrd, Bull, Ferrabosco, Dowland, Gibbons, and Lawes), with Fretwork (on Virgin Veritas); 4) French Impressions (works by Debussy, Faure, Pierre, Massenet, Satie, Saint-Saens, and Tortelier), with Paul Tortelier conducting the English Chamber Orchestra; and 5) a Franz Liszt collection (including Mephisto Waltz No.1, Tarantella, and Rapsodie Espagnole) with Stephen Hough, piano. All of the above will be released on LP, cassette, and CD.

As the reader can see, Virgin Classics is hardly a small-time operation. Foster is going for broke, and I predict that this new entry into the classical recording market will give some of the big boys a run for their money. During the party, several of the artists signed by Virgin dropped in, and I had a chance to get their feelings about this new recording venture. By the time we left the merrymaking, I was convinced that Foster was not going second class.

The next morning, Andrew L., Lynn-Jane, and I flew back to DC on the same British Airways flight. We watched some forgettable movie and had a generally good time (Andrew always flies business class, so I upgraded our tickets to join him—definitely better than steerage, also known as "tourist"). The following day, after unpacking and getting everything in the house in order, I found myself driving over to Tower Records to buy some CDs for Christmas gifts. There I stood among the thousands of recordings, trying to calculate how many hours of sweat was contained in that room. Think about that the next time you nonchalantly flip through the CD racks at the local audiophile candy store.
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Act One, Scene One. This is how I first get to hear of the new Mission amplifiers: First, I learn of rumors that Mission is to withdraw altogether from making or dealing with high fidelity. I don't believe it. On the other hand, Mission, which is nothing if not well-seasoned and professional in its approach to manufacturing and distribution, recently entered the IBM PC-clone market with some distinctive and well-received top-of-the-market computers based on a high-speed version of the Intel 80386 chip. Presumably these are selling in good numbers. Maybe they decided that high fidelity is just too fiddly and too much like hard work for the relatively modest returns involved, and they are going to scale their commitment down. On the other hand, they had only recently opened up a brand-new loudspeaker cabinet plant, and nobody had rung to cancel the two days of anechoic-chamber time I had booked just a week or two earlier.

Scene Two—only a day or so later, substance is added to the original claims via the rumor mill. Mission has terminated their sales agreements with all existing dealers, I am told, and the Cyrus amplifiers have been discontinued. What exactly is going on? Nobody I talk to knows for sure, and nobody is available from Mission with a coherent story to tell.

Of course, rumor is what happens when the flow of real information is cut off, and I have learned through bitter experience that it is always wrong. Eventually, of course, the truth—or something close to it—seeps out. Mission hasn't pulled the plug on amplifier manufacture. What they have done is replace their Cyrus-range amplifiers, which is hardly surprising in itself. What is surprising is the way they do it. First they do, indeed, terminate all their existing sales agreements with dealers. Next they invite to their Huntingdon head office for the new product launch just those dealers they want to handle their new range of amplifiers, amounting to around half the original number. The existing dealer force is retained, but the other 50% become very much second-tier outlets, excluded from all the real goodies.

Next thing, I'm commissioned to write a group review of budget amplifiers for a hi-fi magazine. Included in the 10 amplifiers is—guess what? That's right, one of the new budget Harman/Kardon range. And also a Mission Cyrus One, replacement for the Mission Cyrus One, no less. But alone of the 10 amplifiers in the list, the Mission doesn't turn up.

Scene Three opens on a bleak February afternoon for which 100mph winds are forecast, the highest since the previous October, when a biblical vengeance was wreaked on the trees and shrubbery of old England, and which itself was the severest wind storm for half a millennium. But maybe that was just rumor.

Anyway, there I am, twiddling my thumbs (the only two I have left), when there's a call from Farad Azima of Mission to tell me what it's all about. "We decided not to release the amps to the press," he told me, leaving unspoken the corollary that Mission is strong enough to manage without reviews, at least for now. But I talk him out of that, at some cost—I have to go to Huntingdon, about 60 miles away, to pick it up for myself, so that I can be indoctrinated in person. And why not? Not only am I keen to see the amplifier story from the inside, I also rather relish the prospect of being able to drool over one of Mission's 20MHz 386 computers. All that power; all that speed. Yummy! Anyway, Farad, like the heads of many other successful outfits, knows an inexhaustible supply of fine restaurants.

He lived up to his reputation, too. We did go restaurating, me myself mit about half a dozen others, after a quick half-hour buffet down a particularly exposed stretch of divided highway that I was later to learn was the scene of several overturned lorries—sorry, trucks—before the winds blew themselves out. We ate Chinese in a splendid restaurant among the redolent spires of the venerable university town of Cambridge. But this wasn't before having a quick drool or two as promised—and an hour or so of listening to the Cyrus One and Two in Mission's awful glass-and-concrete demonstration room, in the case of the Two with and without dedicated outboard PSX.
power supply, driving a pair of Mission Argonaut loudspeakers. Used as source was Mission's new Philips-clone CD player, which is better than the previous model, but it needed to be; I wasn't that excited.

But I am excited by the amplifiers. The most startling epitaph for the original was bestowed by Martin Colloms, who remarked (whether directly to me, or in a review, I no longer recall) that the Cyrus One was something he would cheerfully buy to stick in a drawer and forget until his Krells broke down. Apart from saying that he liked it, the remark also places the One where it rightly belongs—as a surrogate for an esoteric amplifier for those unable to afford the entry ticket for a real one. Confirmation of its classic status wasn't hard to come by from various sources, including the Flat-Earth section of the industry who always hated it with a passion denied any other aspirants except DNM and Musical Fidelity (of course).

That's another story, but I am reminded by this that Mission has also introduced a new loudspeaker cable, based on a flat-ribbon solid-core construction, with slightly thicker conductors than DNM's (around 0.75mm², I believe), but more importantly with better-quality OFC copper and a stronger insulating sheath which maintains separation between conductors with great precision. The present understanding of how this type of cable works includes the proposition that this spacing must be very accurately maintained, since variations here upset the field interactions between conductors and consequently the sound quality of the cable.

I was at first disappointed when told of the changes that had been made to the Mission. Most sacrilegious of all, the old plastic casework had been ditched in favor of solid aluminum diecastings. "Nonferrous," I was quickly reminded, but I already knew that, all things being equal, plastic ought to sound better than anything in which currents can be made to flow, as long as due care is taken to ensure that the plastic is prevented from becoming the site of large electrostatic potentials. What I had forgotten, though, was that although the original did indeed have a plastic upper shell, the chassis was pressed steel, which is definitely ferrous.

In fact, the diecasting has some attractive features, not least of which is that the heatsink is part of the single-piece base diecasting, which leads to some useful rationalizations at the manufacturing stage, and better cooling too. From the user's point of view, the diecastings, along with a whole raft of other detail changes, result in a product that looks a whole lot better. I liked the oddball looks before, but not the finish. Mission has effectively tackled the latter without sacrificing the former. There is also an extra line input (four including tape, plus MC and MM inputs for Cyrus One and Two alike), a balance control (why?), and a more rational set of control graphics for the "listen" and "record" functions. Finally, the headphone socket, formerly much criticized for being on the back, is now fitted to the fascia, but has shrunk to the 3.5mm personal stereo standard for space reasons. I hope all you complainers out there are good 'n' satisfied at what you've accomplished.

The technical story is interesting too, not for the basic circuit configuration, which is almost exactly as before, but for the detail. Almost every component has been upgraded with the declared aim of improving auditioning quality. Particularly noteworthy changes include the adoption of slit-foil capacitors, rerouting the ground and repositioning of components to reduce interactions, and more, the whole making more than a nod in the direction of DNM practice (slit-foil caps and solid-core cables are dead giveaways, of course).

I've only heard the Cyrus Two at Mission; the One is the model I took home that day, and it is, by any standards appropriate to its price, a remarkable package. It was impressive even at the works. The Argonauts, as some of you may know, are among the hardest of loudspeakers to make sound good. Under almost all conditions of use, they sound stubbornly and terminally synthetic, usually because the treble has an unrelievedly horn-like steeliness, and because the bass sounds lean to the point of sparseness. Yet there's usually something there, beneath the rather glacial sonic attributes, that says there is something here worth getting out.

The One almost manages it, only really failing when the power demands become such that it cannot be expected to cope. Within its operating envelope, the amp has the same gem-like qualities as its peers. It is limpid, li-

1 US price for the new Cyrus Two amplifier will be $799.
quid, and altogether as free in the way it molds itself to the feel and substance of the music as any super-class amp. But compared to the older version, which additionally tended to emphasize detail, and which by common consent sounded a little too light to be dismissed as merely light-footed, the new Cyrus One is warmer, richer, and more colorful. In fact, the amplifier is now superbly balanced tonally and in every other sense. There's just as much sheer information as there ever was, but it's better organized and there's no loss of clarity. Just the opposite, if anything.

At the time of writing I haven't finished the work for the 10-amplifier test mentioned above, but I've done some, and I know most of the amplifiers quite well anyway—not to mention most of the other really strong models currently making the rounds. I am not entitled to state definitively where the One fits in the expanding budget-amplifier market, but I'm pretty damn sure it won't be far from the top.

We'll take a closer look at some of the key models in subsequent issues, along with some more specialist machinery at higher prices, from Musical Fidelity and others. The key points to be abstracted, however, are plain. There has been a general slow, upward drift in prices, along with some very well-informed improvements as each manufacturer in turn attempts to leapfrog the next. British designs have tended to lead in this area of the market, but a number of Japanese designers have been taking the subject very seriously and producing some fine, clean-sounding amplifiers of their own. Marantz and (shortly) Kenwood stand out here. At the same time, I see typical US low-end designs—at least those that make it to the UK—treading water, which in effect means falling behind.

But on the whole, sound quality is improving rapidly, more rapidly than with any comparable type of high-fidelity component. With some UK manufacturers there is also a belated recognition of the need for excellence in design and finish, and the Mission is certainly a fine example. In these senses and more, the Cyrus One is perfectly representative of market trends. It's a wonderful amplifier. The really exciting thing is that by tomorrow, it will merely be another competent one.
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John Atkinson reviews the Mark Levinson No.26 preamplifier and No.20 power amplifier

No.26: Dual monaural preamplifier with remote power supply. As supplied: one MC phono input with adjustable gain and loading; five line-level inputs. (Can be supplied with six line-level inputs, one of which can optionally be balanced; phono input can also be supplied in MM/low-gain form.) Input impedance: see text. THD: less than 0.005%. IMD: less than 0.005%. RIAA accuracy: ±0.2dB. Maximum output: greater than 13V (balanced). Dimensions (preamplifier chassis): 175" W x 3" H x 13.375" D (add 3" for connecting plugs). Dimensions (power supply): 7625" W x 3" H x 13.125" D (add 3" for connecting plug). Weight: 30 lbs. Price: $3990 (no phono module); $4650 (with MM module); $4750 (with MC module). Approximate number of dealers: 56. Distributor: Madrigal Audio Laboratories Inc., PO Box 781, Middletown, CT 06457. Tel: (203) 346-0896.

No.20: Monaural power amplifier. Output: 100W into 8 ohms; 200W into 4 ohms; 400W into 2 ohms (all continuous sinewave power, 20Hz-20kHz, with less than 0.4% THD/SMPTE and less than 0.2% IMD). Continuous available current: 24A. Damping factor: greater than 400, 20Hz-20kHz; 1000 at 1kHz and below. Frequency response: 3Hz-140kHz, -3dB at 1W output. S/N ratio: better than 80dB, unweighted, below 1W output. Input impedance: 50k ohms in parallel with 1nF. Dimensions: 175" W x 8.5" H x 22.1" D. Weight: 65 lbs. Price: $10,800/pair. Approximate number of dealers: 56. Distributor: Madrigal Audio Laboratories Inc., PO Box 781, Middletown, CT 06457. Tel: (203) 346-0896.

I must admit, right from the outset, that I find reviewing electronic components harder than reviewing loudspeakers; the faults are less immediately obvious. No preamplifier, for example, suffers from the frequency-response problems endemic to even good loudspeakers. And power amplifiers? If you were to believe the older generation of engineers—which includes some quite young people!—then we reached a plateau of perfection in amplifier design some time after the Scopes Monkey Trial but well before embarking on the rich and exciting lifestyles afforded us by Reaganomics. (In the UK, it is generally felt by these people that the date coincided with the introduction of Quad's first current-dumping amplifier, the 405, in 1976.)

Yet, though I can quite happily live with any number of loudspeakers (I have my favorites, of course), I am extremely fussy about the amplifiers that grace my system. Perhaps because it acts as a bottleneck on the signal, the quality of an amplifier or preamplifier is far more important than that of a loudspeaker when it comes to preserving or destroying the musical values of the signal. This would appear to be heresy in the US where, to judge by the letters I receive, large, complicated, expensive loudspeaker systems are often driven by relatively inexpensive, modestly performing electronics, the rationale behind this being that, to quote one correspondent, "It is the loud-
speakers that produce the sound, therefore they are where the majority of the budget should be allocated."

I feel, however, that this wastes much of the money spent on loudspeakers—the amplifier will be incapable of extracting the performance from the loudspeakers that the customer has paid for. In my experience, the opposite philosophy is nearer the truth—you should always spend more on your amplification than you do on your loudspeakers. Consider the Quad 405 mentioned above. Ten years ago, in the summer of 1978, I took part in a series of blind listening tests organized for *HFN/RR* by Martin Colloms, in which the panel tried to distinguish by ear between two solid-state power amplifiers—a Quad 405 and a Naim NAP250—and a tube amp, a Michaelson & Austin TVA-1. The result, as so often is the case with blind testing, was inconclusive, the panel, overall, being unable to distinguish between one amplifier and another! (Though examining the results on an individual basis indicated that perhaps one or two listeners had, in fact, done so—at least on those tests. Whether they would do so again is open to question.)

Having been involved in the tests and seen how carefully Martin had organized them, I believed in the results. In the words of the Bob Dylan song, "I was so much older then; I'm younger than that now!" I sold the Stan Curtis-designed Lescon APIX amplifier; I had been using with great enjoyment until that moment and bought the significantly cheaper Quad 405.

Now, however, though the sound was the same, the magic was gone. Changing loudspeakers, from Gale GS-10Is to Rogers LS3/5As, then to old Quads, changed the sound but didn't bring back the depth of musical enjoyment. Listening to records started to play less of a role in my life—until I replaced the 405 with a TVA-10 tube amplifier two years later.

The lesson was duly learned. Whether or not they can be told apart under blind conditions, I am now very fussy about the amplifiers I use.

**Mark Levinson No.26**

The No.26 is the first Mark Levinson preamplifier to be designed by Madrigal Audio Laboratories. Only the third wholly new component to come from ML since the company was taken over by Madrigal, the No.26 was launched at the 1988 WCES and consists of a neat, black-finished preamplifier chassis with a remote power supply, connected via a lead with 9-pin connectors on each end. The power supply must be placed away from the preamp chassis, or, if it must be next to it, to its right, away from the phono circuitry. The preamp chassis has a sculptured, black anodized, \( \frac{\%}{-} \)-thick front panel, with the labeling inset in white in traditional Mark Levinson style. Milled circular counterbores recass all the knobs. The main controls, level and input select, utilize the regular ML-style flanged knobs and occupy the center of the faceplate. To their left and right are triads of smaller knobs, to control the subsidiary functions. On the left are the two tape-loop controls, one switching between tape loop 1 and tape loop 2, the monitor switch also offering a third "defeat" position where the tape loops are completely out of circuit. An even smaller switch offers the choice between inversion and non-inversion of absolute signal polarity. The "soundstage" controls are to the right, the stereo/mono switch and balance controls, the individual level-adjust controls for each channel offering a maximum swing of \( \pm 5\text{dB} \) in detented 1dB steps.

On the rear panel, all inputs and outputs are implemented with unbalanced Camacs sockets with gold-plated contacts. Though totally incompatible with conventional jacks, these give a locking, gas-tight connection with the ground made first. (If only Camacs, developed by the European nuclear industry for instrumentation purposes, had been adopted as the industry standard rather than the clunky RCA system!) The main disadvantage is the need to use adaptors if the No.26 is to be used with source components having RCA output sockets—as nearly all do. Madrigal supplies both female and male Camac-to-phono adaptors, the latter seeming more mechanically robust. In practice, one would expect the dealer to fit Camacs to at least the customer's turntable leads. In addition, the No.26 provides gold-plated three-pin Neutrik XLR sockets both to deliver balanced outputs for each channel and to offer the option of a balanced input. This, Madrigal feels, is a superior method of im-

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2. The Lescon equipment was one of the few examples of the maxim: "If it looks good, it will sound good."
plementing a true balanced connection to using two pairs of unbalanced RCA connections, one inverting, one non-inverting. It enables the optimum cable to be used for balanced operation, this consisting of an intimately twisted pair to give the maximum common-mode noise rejection.

"Balanced input?" The No.26 offers perhaps the widest range of input options I've seen. The appropriate position of the input-selector switch is labeled "PHONO/AUX 2." In its most basic form, the No.26 lacks any disc circuitry, this pair of Camacs offering a sixth line-level input. An increase in price of $660 gets the customer a conventional, unbalanced-input, moving-magnet module, the gain switchable between 38dB or 44dB; an extra $760 over the basic price gets an unbalanced MC module, the gain again being switchable but now between 58dB or 64dB. To come in the future will be first a balanced line-level input module, to be used with such CD players as the Accuphases and Denons that have balanced outputs or with professional tape recorders, using the XLR sockets already installed. After that, an outboard phono preamp will become available.

Input impedance for the line-level inputs is 14k ohms in parallel with 220pF. Output impedance is not stated, but the load impedance should be 600 ohms or greater. Maximum output voltage is 6V, unbalanced. The No.26 should have no problems driving long cables. The tape outputs, however, should see at least 10k.

How about the circuitry? Taking the fundamentals first, as with the Krell KRS2, another no-compromise preampifier, there is no on/off switch, the No.26 being intended to be left on all the time. The PLS-226 power supply incorporates AC RF filtration and spike suppression and delivers two pairs of rectified and smoothed ±27V rails; these are then regulated to deliver completely separate ±17V supplies to each channel of the phono- and line-level circuits. The umbilical also supplies a completely separate supply to drive the signal switching relays. Conventionally, either the input signals are taken via long pcb traces or ribbon cable to a preamp's front-panel input selector, or the switches have long extenders between the knob and the switch body, which is positioned at the rear, near the input sockets. The Madrigal design team felt that even the latter compromises the integrity of the signal; instead, they chose to use high-quality, hermetically sealed relays, using bifurcated, gold-plated silver contacts. The front-panel switches control just the DC relay-operating voltages. As well as allowing a switching topology to be used which minimizes the number of contacts in the signal path (there being only two contacts between any source and the main outputs and only one between any source and either of the tape outputs), the relays can be placed adjacent to the input sockets on the rear panel, minimizing the crosstalk between inputs. These relays are said to have a lifetime in excess of 10 million operations and are also used to implement the phase-inversion and tape-monitor switching. The only front-panel controls that operate directly on the signal are, in fact, the balance and mono/stereo switches, and the volume control.

The latter is a silky-feeling Penny & Giles conductive-plastic component, with interchannel tracking specced at better than 0.5dB, even at maximum attenuation. (Ben Duncan, having investigated the possibility of using a similar pot in his passive preamp design, informs me that this is a very expensive component.) The gain of the line-level stage can also be set internally via DIP switches at 6, 12, or 18dB via the unbalanced Camac outputs. (The balanced XLRs offer an additional 6dB gain due to the fact that twice the peak voltage exists between the "hot" and "cold" signal lines as exists between either one and ground.) Taken in conjunction with the adjustable gain of the phono stage and the range of the balance controls, the No.26's gain structure can be configured to give the best balance between sensitivity and noise for any source and loudspeaker.

Nearly all the circuitry is carried on one...
large double-sided pcb occupying the entire internal area, the exceptions being: the output switching plus the absolute-phase inversion switching, both contained on a shallow double-sided pcb running the length of the back panel; and the phono circuitry, carried on an approximately 9" x 4.5" double-sided pcb piggy-backed over the mother pcb's left-hand side, and connected to it by soldered connections using flat, insulated, solid-core ribbon conductors. Factory-set to an input impedance of 1kF in parallel with 825 ohms (MC), or 47k in parallel with 100pF (MM), the phono boards carry DIP switches offering 30, 100, 825, and 10k options (MC), or 825, 10k, 22k, and 47k options (MM), in addition to a user-defined setting in which resistors and capacitors can be plugged into gold-plated circuit-board jacks. A quick check of the RIAA EQ revealed any error to be below that of my inverse-RIAA network. This phono amp is flat! The response also extends well into the infrasonic region, implying that any turntable/arm/cartridge to be used with the No.26 will have to be at least Linn standard, if very-low-frequency problems are not to be faithfully passed on to the power amp and speakers.

Those familiar with earlier Mark Levinson electronics, where elaborate heatsinking was used on the various modules to ensure that the transistors accurately tracked one another thermally, will find the No.26's interior a surprise. The circuits have been designed not to need the mechanical thermal coupling previously used, resulting in a cleaner-looking layout. Despite the pcb commonality, construction is totally dual-mono, the regulated power supplies being separate for each channel, the board layout also keeping the channels separate—LH channel to the front, RH to the rear. High-quality parts are used throughout: Roderstein, WIMA, and RIFA polypropylene-dielectric capacitors; close-tolerance, metal-film resistors; and all transistors and end-mounted resistors and diodes are supported by plastic cradles. Add in a labor-intensive quality-control procedure, where every stuffed pcb is checked visually before even being powered up, and the No.26's performance should remain consistent over many years of service.

Mark Levinson No.20

I first heard the Mark Levinson HQD loudspeaker system some ten years ago, at the Festival du Son in Paris, in the days when it was a real hi-fi show. Perhaps even more so than by the speakers, however, impressive as they were with their stacked Quads, Decca ribbon tweeters and Hartley 24" woofers, all in beautiful beech woodwork, I was bowled over the amplification used: six Mark Levinson ML-2 monaural power amplifiers. Capable of just 25W output each, these class-A monsters were the first true high-end amplifiers I had ever heard. The memory of effortless low-frequency reproduction, coupled with a magically liquid mid-range, lingered on.

Then, some two years ago, the first Mark Levinson product to emerge from Madrigal Audio Laboratories was a modern recasting of the ML-2. Sharing its predecessor's physical size and appearance, the No.20 offers not 25 but 100W into an 8-ohm load, this doubling as the load halves down to 2 ohms, indicating that the peak output voltage of 40V (28.3V RMS) doesn't droop into the lower-impedance loads. This is true voltage-source operation. Like the '2, the No.20 is a class-A amplifier, offering up to its 100W rating into an 8-ohm load without either npn or pnp output transistors turning off. (Into lower impedances, the same peak voltage requirement will turn off upper or lower transistors, giving class-AB operation on such peaks.) Although true class-A operation results in total freedom from crossover distortion or thermal modulation of the output transistors' transfer characteristics, the penalty is higher running costs: each No.20 sucks 500W from the wall when sitting, quietly mind- ing its own business. (This is equivalent to almost 5A; prospective No.20 owners should ensure that they will not have any other current-hungry appliances on the same mains circuit. The circuit-breaker might not pop, but it
is probable that the sound quality will be compromised.)

The power supply is larger and more sophisticated than you would expect for an amp of this rating: after RF filtration and spike protection with large MOVs (Metal Oxide Varistors), the AC line feeds a separate 600VA toroidal transformer/35A rectifier bridge/24,000uF filter combination for each unregulated voltage rail, positive and negative. Three traditional ML-style heatsink clusters line each side of the No.20 chassis; the pair nearest the front carry the series-pass bipolar power transistors used to regulate these rails; neither driver stage nor output stage is therefore perturbed by voltage fluctuations which would otherwise result from heavy current demands. As the impedance of the secondary of the line transformers is in series with the output transistors, the higher the current drawn from them to recharge the filter caps, the lower the voltage they can supply. Regulation increases the steadiness of the voltage rails by a factor of up to 60dB or so, depending on the topology and transistors used, but is rare among amplifier output stages. Essentially, it demands a second power amplifier, delivering current at a constant DC voltage, upstream from the audio amplifier, which considerably increases the basic cost. Following the regulator, each of the No.20’s regulated rails is then further filtered by a 9000uF capacitor. All the electrolytic caps are bypassed with plastic-film types.

The No.20 has two sets of inputs: inverting and non-inverting via Camacs, and a balanced input via a Neutrik XLR socket, offering three modes of operation. If the amp is required to be used unbalanced, a shorting Camac plug (supplied) is inserted into the socket not used to connect the other “half” of the balanced input to ground. Input impedance is moderately high for a solid-state design, at 50k/1nF.

All the active circuitry is contained on plug-in circuit boards, using gas-tight, mil-spec, Varicon edge connectors to facilitate easy service. The input and voltage-gain circuitry are carried on two boards near the unit’s rear and consist of a differential amp, both halves of which are driven in balanced mode. This in turn drives a second differential amp, which includes a current inverter to convert from differential to single-ended signal handling while maintaining push-pull operation. This stage also includes a type of soft-clipping circuitry: the amplifier’s open-loop gain is reduced if it appears that the signal is nearing a level liable to drive either this stage or those downstream into clipping. The driver stage is compound, a complementary emitter-follower driving in turn three more complementary emitter-followers in order to get sufficient current gain to fully drive the output stage. This consists of eight complementary push-pull emitter-followers in parallel, two pairs of bipolar power transistors occupying each one of the remaining four heatsink clusters.

Like the Krell and Naim amplifiers (and the Hafler XL-280), the No.20 lacks the conventional series output inductor used to define a low-pass pole with the cable capacitance and thus ensure unconditional stability with an amplifier that might otherwise be a little doubtful in this respect. This output inductor both raises the output impedance at high frequencies and is thought by many to be a source of audible ills. All voltage-gain and driver stages are said to run in class-A, and the amp is DC-coupled throughout.

Rather than the ubiquitous 5-way binding post, Madrigal chose to use gold-plated Fischer sockets to connect the loudspeaker. These are rated at 50A continuous, 80A peak, and provide a gas-tight connection. (There is a satisfying “pop” when the plug is removed.) A color-coded pair of plugs is included with each No.20; your ML dealer should be willing to fit these to the cables of your choice, though Madrigal’s own CPC cable can come prefitted.

To aid changing cables, I used 5-way-to-Fischer adaptors for my tests, but I wouldn’t recommend this for a permanent installation.

A matter of concern with an amplifier such as this, which has a considerable amount of stored energy, is what happens when things go wrong. Comprehensive protection circuitry monitors the following parameters: AC mains current; positive and negative rail currents and voltages; heatsink temperature; DC offset; power dissipation in the output stage, phase angle dependent; and whether the output is short-circuited. If a fault condition is detected, fuse, thermal breakers, and/or the relay-trip on/off switch hopefully shut things down. During the time I used the No.20s, which involved one inadvertent shorting of the outputs and one occasion when the No.26 was accidentally unplugged from the wall while an LP was playing, the amps seemed burstproof.
Auditioning

Madrigal stresses the importance of an appropriate warm-up period for all Mark Levinson products. At least one hour is recommended for the No.26; I left it on for 24 hours before doing any serious listening. Because of their profligate demands on the electrical supply, I didn’t leave the No.20s on all the time, but in general turned them on in the morning to do serious listening in the evening.

The No.26 and No.20s were used both for my recreational listening and to drive various loudspeakers under review over an eight-week period. Source components used included a Mission PCM 7000 CD player (used both direct and driving a Sony DAS-703ES outboard decoder from its digital output), an up-to-date Linn Sondek/Iltok/Troika combination (with the latest composite armboard) sitting on a Sound Organization table, an LP12/SME VI/ Koetsu Red player sitting on a RATA Torlyte stand, and a rather ancient but well-preserved Revox A77 to play my own master tapes. Loudspeakers predominantly used for serious auditioning were Celestion SL600s, placed on heavy, single-pillar Celestion stands spiked to the floor. True to my exposition of the relative importance of electronics and loudspeakers, you will note that the ratio of the respective prices approaches 10:1!

It could be fairly pointed out that use of just one loudspeaker may lead to idiosyncratic results; however, although I had originally intended to use B&W 801 Matrices in addition to the Celestions, circumstance dictated otherwise. As delivered, the 801s had defective tweeters (a problem due to an out-of-spec plastic molding and prevalent among the first US shipment), While I was waiting for the replacement tweeters, the speakers were stolen! That was that.4 Ultimately, I used the Celestions in combination with stereo Sumo Samson subwoofers (the main speakers being fed full-range) to get a handle on the No.26’s low-bass performance. In addition, at the end of the review period, I took delivery of an intriguing pair of English loudspeakers which positively sang when driven by No.20s. The Acoustic Energy AEIs combine a version of the ELAC aluminum-dome tweeter used in the Monitor Audio R952MD with a 5" aluminum-cone woofer, and possess exceptional lower-midrange clarity.

Due to the ML gear’s use of Camac and XLR connectors, and a limited supply of adaptors, interconnect choice was limited. I used Madrigal’s new HPC (Helical Planar Copper) interconnect5 both for connecting source components and for connecting the No.26 to the No.20s. I tried the latter both in unbalanced and balanced fashions. I also carried out some preliminary balanced auditioning with solid-core, twisted-pair RS232 cable (the only symmetrical cables I had that were long enough). Differences were subtle, but ultimately I felt that the balanced connection using HPC had the most authority across the band. For connection of the speakers, I first used Monster MI cables, then switched to Madrigal’s CPC (Co-Planar Copper) solid-ribbon, Teflon-insulated speaker cable. Less fat in the midbass than the Monster, and a little more incisive in the treble, this gave a more even tonal match with the Madrigal interconnect.

How did the ML components sound? First, a minor digression: You may have noticed that a minor debate has been raging recently in Stereophile concerning whether the “accuracy” and “musicality” (for want of more precise language) of a component are mutually exclusive. In his “Final Word” column last month, LA commented that “if accuracy isn’t musical, what does that say about what we’re doing in and with high fidelity?”

In my opinion, “accuracy” or “neutrality” is something that designers strive for but nearly always fail to achieve, particularly regarding preamplifiers, which fall short in one of two major ways. The first is when the component is not particularly neutral, but still delivers a fair degree of musical enjoyment, despite the detail being smeared over to one degree or another. Based on my experience with specific models, into this camp fall such UK models as the original Naim NAC32, the Exposure VII/VI, and Ben Duncan’s DIY AMP-01 design (published in HFN/RR in 1984). In the US, the Conrad-Johnson PV5, Counterpoint SA-7, Audio Research SP8, and (on a higher plane of achievement) the ARC SP10 and Conrad-Johnson Premier Three, all fit into this class.

4 If anyone is offered these loudspeakers, which are finished in black, serial numbers 555 and 556, telephone Stereophile at (505) 582-2366.

5 This is a low-capacitance design with wound “solid-core” flat conductors for both signal and ground. The shield doesn’t carry any current and is connected at one end only. (Arrows printed on the insulation point away from this end.)
The second, more common category is that of components which appear neutral but actually have subtle problems which detract from the enjoyment of the music, resulting in cold, rather clinical sounds. Examples which spring to mind are the original PS Audio IV, the West German Burmester, the Klyne SK-5A, the Krell PM-3, the original British Fidelity MVT, the Meitner, the now-obsolete Meridian 101, Quad's 44, and the Audio Research SP9.6 These models are termed "accurate" by many listeners (and their designers, of course), who point out that if the music isn't enjoyable, it is because the "accuracy" allows the faults in the recording to be clearly heard—it is not the preamplifier's fault that the truth is unpleasant. I feel, however, that unless you have a masochistic streak, the negative effects on music cannot be overlooked. In my opinion, a truly accurate preamplifier will make all varieties of music more listenable, even music that wasn't well recorded in the first place.

Until the Mark Levinson No.26 came along, the only preamplifier of all the ones I had used which I felt to be both accurate and musical was the Krell KR52. (Although listening to Threshold's FET10 in Gordon's system leads me to believe that it, too, might be a contender.) Now there is another! While sounding different from the Krell, the similarly priced No.26, too, appears to impose no significant sonic signature on the music. Read that last sentence again. Yes, it's self-contradictory. If both preamplifiers are neutral, then they should sound the same, right?

The fact is that, to judge by my previous standards of preamp performance, both are neutral. Insert either one into one of the tape loops of the other; flicking the tape-monitor switch reveals there to be no change in the sound. Over a longer period of use, however, as my range of experience broadened above what I previously found to be the limit of neutrality, I found that they are slightly different, the Krell having a more forward presentation, a more "robust" sound. By comparison, the No.26 offers a slightly more transparent, more detailed midrange with, overall, a more delicate quality. Both have extended, tight bass performance and a treble refreshingly free from grain. Both have soundstaging that borders on the breathtaking, with the ability to throw a deep, well-focused image. (Those who say that this is purely a result of the "false ambience" tubes possess should make the effort to hear either of these solid-state preamps.) More importantly, both let the music through unscathed by the perils of its passage. Either could be the "best" preamplifier in a particular system.

I suspect that what I in fact hear from these two preamplifiers is the slight imposition of the designers' own personalities on their products. Though neutrality is always the final goal, when it comes to the fine print of that neutrality—the choice of components and wiring, the layout of the pcb traces, what in a loudspeaker is termed the final "voicing"—the designer's own taste will inevitably imprint itself on the final sound.

When it comes to the No.26, its sound—or lack of it—seems to impose nothing negative on the sounds of instruments and voices, the reproduced soundstage, or the music. It is a reference-standard, truly transparent preamplifier.

A power amplifier could be said to have a harder job than a preamplifier. Whereas the latter operates under electrical conditions which remain pretty constant, an amplifier has to be able to track its input voltage with its output to a very close tolerance while delivering arbitrary and often extreme peak currents into the loudspeaker. In addition, it has to be able to sink back-EMFs from the loudspeaker motor system, reaction voltages produced after the event, without these having any influence on the signal. The No.20 could be thought massively over-engineered by conventional standards, yet in practice, faced with real-life loudspeaker loads and on all kinds of music, it never failed to deliver the musical goods.

Conventionally, a reviewer is expected to dissect a component's performance, band by band, pointing out deficiencies here, positive aspects there. With components like the No.20 and No.26, this is hard to do: it is the whole performance that impresses—as it is with the real thing. But if there is one aspect that should be picked from the whole with the No.20, it is the low end. Even with the SL600s, low frequencies took on a weight, an authori-

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6 You will notice that missing from either list of preamplifiers, all of which have spent time in my system, is Audio Research's SP11. Not having used one in my home, I am wary of mentioning it. Based on my experience of it in other systems, however, I am ambivalent concerning its ultimate performance. The sound of the Mk.I didn't persuade me to replace my SP10; the Mk.II I have yet to hear.
ty, that totally belied the measured extension. This has always been a characteristic of the Krell amplifiers; the No.20 goes even farther in this direction. The New York Times tells me that a Led Zeppelin revival is under way. Would you believe that the No.20s made “Whole Lotta Love” sound like heavy metal was the natural diet for the SL600s? With amplification of this caliber, small speakers can deliver what my friend Ricardo Franassovici terms “The Big Sound.” (He thinks that I am too liable to be seduced by this—but then, he is a Krell and Audio Research distributor.)

This is not at the expense of smeared-over detail. Listening to the late-'50s Bruno Walter Mahler 2 recording on CBS, I was made very aware of the artificial nature of the recording—the solo violin echo of the contralto’s “Hast nicht umsonst gelebt, gelitten!” is both in a different acoustic from both orchestra and singers and has a different quality of tape hiss—but was still swept away by the music. And when the organ pedals underpin the timps’ and basses’ falling-fifth motif at the work’s conclusion, even small speakers driven by No.20s destroy you with the sheer weight of the sound.

Presumably due to its combination of regulated power supply and class-A operation (though such conjecture over the correlation between art and technology is treading on thin ice), the No.20 proved more capable than almost any other amplifier I have used in the ability to “decode” dense musical lines. Take the heavy left-hand block chording in Liszt’s B-minor piano sonata (in particular, the superb new Reference Recordings version with Minoru Nojima, RR-25). In the double-speed recapitulation of the triple-time Grandioso theme, Liszt has written 1-3-5 F# triads an octave below the bass clef. With less than the best amplification, this tends to be heard as a muddy, F#-tinged roar. The No.20s enabled me to hear the overall effect and the individual texture of the notes comprising the chord, both the forest and the trees making up the forest, to fall back on an analogy I’ve used before to illustrate what I mean by “transparency.”

This ability to combine synthesis and analysis also applies to the soundstage presented by a pair of No.20s. Dense spatial lines, such as the complex mix of percussion, synthesizer, and vocals on “Rhythm of the Heat,” from Peter Gabriel’s third album, are presented in such a spatially separated manner, with respect to both width and depth of the soundstage that, as in real life, the listener can focus on individual lines and stay in touch with the musical whole. (This album, Gabriel’s first digital, recorded in 1982, tends to be unlistenable with lesser amplification due to the morass of digital artifacts. With the No.26 and No.20s, the mess is resolved into music and distortion, more easily allowing the latter to be dismissed.)

If the No.20 has a sonic signature, it is a slight softness in the upper midrange and treble. For my tastes, room, and system, this is a plus; for other tastes, a more incisive high end might be preferred, such as that from the Levinson No.23.

**Conclusion**

In his April discussion on the dichotomy between accuracy and music, LA concluded that “a truly great preamp lets everything through, both music and distortion, but with such generosity that neither music nor distortion is cramped and narrow. Such a preamp is more accurate, and, in my opinion, more musical.” The Mark Levinson No.26 is such a preamplifier, and truly great. Yes, it is expensive, but in my opinion, there is not a preamplifier that can approach its performance for less money.

The No.20 is a worthy successor to the classic ML-2. Capable of sounding much louder than its relatively modest power rating might suggest, it drives loudspeakers with authority analogous to an iron fist gloved in velvet. It joins that exclusive group of power amplifiers, including the Krell Reference, Audio Research M300, and Threshold SA/1, that, in acting as pure voltage sources with subjectively unlimited current reserves, enable a loudspeaker to perform at its best. I said earlier that I feel that the quality of an amplifier is far more relevant to the ability of a system to play music than that of the loudspeaker. Having lived with the No.20s for almost two months now, I would go even farther: with an amplifier of this quality, you could balance the cost of the SL600s’ $1900 and use even cheaper loudspeakers, without too much compromise of the overall musical performance. It is just a shame that the price of admission to this level of amplifier performance is so high. Them’s the breaks, I’m afraid.
Mod Squad Prism CD player


While it can't exactly be said that the folks from The Mod Squad invented the game of audiophile modifications of existing, current-production hardware, they certainly have grown to be one of the major leaguers. Their mods have a reputation for being well-thought-out, nearly always offering improvements over the originals. And while they weren't the originators of the concept, any company which brought the world Tiptoes (probably their most famous product) will probably have a niche in the 21st-Century Museum of High-End Audio.

It's hardly surprising, therefore, that the folks from Leucadia would turn their attention to that most modifiable of components, the CD player—specifically, the ubiquitous Magnavox CDB 650. I had a great deal to say about CD in general, and Magnavox players in particular, in a recent survey (Vol.11 No.3), so I won't go into detail here concerning either. Suffice it to say that the stock 650 is basically a good player with plenty of room inside to tempt a modifier, and plenty of room for improvement in its basic analog-output stages—the area concentrated on by all modifiers, The Mod Squad included. It also needs improvement in its rather clunky, plastic-y transport mechanism. Fortunately, Magnavox (manufactured by Philips) has solved that problem in the new 470 series. These less-expensive models have a silky-smooth, robust transport. The Mod Squad is also working on mods for these players, but, for now, the subject at hand is their 650 mod, renamed the Prism.

On the surface, what The Mod Squad does is not so different from what other modifiers do in its upgrade of a player's analog stage. But there is one feature I haven't yet seen in other modifications I've examined: an external transformer drives a separate power supply for the electronics, leaving the original supply to drive the transport mechanism. The Mod Squad also considers power-supply polarity to be important, and goes to the extra trouble of properly annotating the leads and providing instructions for hookup; if your home outlets are keyed with wide and narrow slots (as is most recent construction), and assuming your house or apartment is properly wired, correct hookup will be simple. The Prism also remains permanently on—the external power switch is disabled.

The Mod Squad player is also designed with considerably higher output than other players I have tested—about 8dB higher than the Aria and Audio Concepts players. The reason for this is unquestionably for use with passive line stages—including the Mod Squad's own Line Drive. I didn't use it that way, but fed it through the high-level inputs of my Klyne SK-5A to facilitate comparisons with other players of more normal output. No overload problems were encountered with this setup, but a potential problem might exist with lesser preamps. On a positive note, some of the more recently introduced low-cost preamps have a switch—

1 The use of pointed spikes, especially on loudspeakers, to couple a component to its supporting surface, seems to have originated in the UK. I witnessed Linn, Exposure, Russ Andrews, and other companies demonstrating the idea in 1982.

—JA

Stereophile, May 1988
selected bypass of the high-level stage (the new PS Audio 4.6 and the Sumo Athena, for example). I have found that the typical output of most Magnavox players, and modifications thereto, don’t really have enough output for passive drive; the Prism should be an exception. Both of the above-mentioned preamps recently arrived for evaluation; use of the Mod Squad player with them is definitely on my agenda. Stay tuned.

The Prism, unfortunately, arrived with a defective transport, joining the three other defective Magnavox-based players I have encountered (out of a total of seven units) in recent months. Two of the other three flaws (see comments on the Aria, below) were undoubtedly in the original, unmodified machines. The Prism’s problem was a transport which, about half the time, refused to turn the disc. It was promptly repaired by the manufacturer (apparently, replacement of the transport is a simple task) and the evaluation commenced (although the delay did postpone this review’s publication).

The Mod Squad recommends the use of a CD damper 2 and Audioquest Sorbothane feet with short Tiptoes embedded in them. I also used the damper along with standard Sorbothane feet with the players to which I compared the Mod, but made no attempt to characterize the specific effects of the damper and feet. Let’s just say I treated them like chicken soup.

Associated equipment used in this comparison included the Klyne SK-5A preamp, Aragon 4004 power amplifier, and VMPS Tower II/R loudspeakers. Connecting cables were by Monster: M-1000 interconnects and M-1 loudspeaker cable. There was one exception: Straight Wire LSI was used with the Audio Concepts player in the comparisons. An explanation is in order for this. Recall that in my recent review of several CD players, I determined that the solid-state Audio Concepts player sounded best with Straight Wire LSI cables, while the California Audio Labs Aria seemed to prefer the Monster M-1000. The LSI brought out the openness and transparency of the Audio Concepts (at the cost of an occasional dryness and fine graininess), while use of the LSI with the Mod Squad somewhat enhanced the upper-end detail at the expense of midrange definition. I tried all four possible combinations of cables and players; if you start figuring up the number of possible permutations with three or more different cables, you’ll know why I didn’t try more than two—JA really didn’t want this review as a Christmas present. I compared these two machines using dissimilar interconnects, deciding to use that cable with each machine which I felt presented it at its best.

The Prism ranks with the best solid-state CD players I have yet auditioned. It may well be the best, but I won’t make such a claim lightly; it has real strengths, but also some minor weaknesses which only became apparent on comparison with competing players. First, the good stuff. The Mod Squad was superb at rendering midrange detail and definition, together with excellent vocal reproduction. Several of the cuts from Gordon Lightfoot’s If You Could Read My Mind (Reprise 6392-2) have long been favorites of mine for naturally recorded pop vocals, and I was delighted to find the CD to be excellently remastered. 3 The Prism provides Gordon’s voice with a natural balance of body and resonance. I found this on a range of other recordings, instrumental and vocal; the palpable presence through the midband, if not quite up to the level of the best I have heard (that distinction belongs to the CAL Aria), was nonetheless convincing.

Part of the credit for the Prism’s midrange reproduction must concern its transient response and dynamics. I refer here to the subtle shadings of level and impact which make music come alive. Whether this involved a transition between soft and very loud (try the explosive dynamics of La Folia de la Spagna, Harmonia Mundi HM 90.1050), the impact of a well-recorded piano as on Norijima Plays Liszt (Reference Recordings RR-25CD), or the subtle shadings of a talented guitarist (Leo Kottke’s A About Tow Noon, Private Music 2007-2-P), the Prism didn’t fail to provide impressive but totally natural reproduction.

The weaknesses of the Prism were not

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2 For those recently returned from a long space voyage, a CD damper is a thin rigid or semirigid disc placed atop the CD during play for improved sonics. Or so the ads say—many users seem to agree, though it’s still rather controversial. The damper will not fit in all players, but seems to work in all those of Philips origin.

3 This is for me, far and away Gordon Lightfoot’s best recorded album for Reprise, before the powers-that-be at that label decided to juice up his arrangements with excess instrumental backing and artificial reverb. Try “Me and Bobby McGe” “Sit Down Young Stranger” (the original title of the album before the much inferior “If You Could Read My Mind” went megahit), and “Pony Man.”
serious, but were heard in comparison with another solid-state player I have been recently impressed with—the lesser-known Audio Concepts/Brasfield modification of the Magnavox 650. The latter player was superior to the Prism at the frequency extremes. Listened to on its own, the Mod Squad was not at all deficient at either end of the spectrum, but the Audio Concepts had an open, airy transparency in the uppermost octave that the Prism could not quite match. It was, on occasion, accompanied by a slight dryness or fine graininess, but I suspect it was merely revealing flaws in the program material. At the low end, down to about 35Hz, there was little to choose from between these two players, though a subtle midbass leaness of the Audio Concepts slightly improved its apparent clarity through this region, while conversely drying out male vocals a bit. Below 35Hz, however, the Audio Concepts came out a winner. Both players had a deep, extended low end, but the AC had the better definition. On Widor's Toccata, Symphony V from *Encores a la Francaise* (Telarc CD-80104), the deep, guttural shudder of the deepest pipes was more clearly obvious through the Audio Concepts. The Mod was equally potent, but lacked the final word in detail. If your speakers give out below 35Hz, as do most, this difference will mean little to you.

Both players were also comparable in imaging and depth. I have to say that the improved top-end transparency of the Audio Concepts more often gave it a slight superiority in this area, but the differences were not pronounced, the improved "air" of the AC probably more responsible for the subjective improvement than any esoteric quality. The soundstages of both units were consistently well-defined; though neither quite equalled the best of analog in reproduction of depth, both were excellent in presentation of a lateral image.

But the dynamic shadings and detail in the all-important midrange were definite winners on the Prism. With the exception of the low bass, band three on the aforementioned *La Folia* was a capsule demonstration of the differences heard between these two players on a wide range of program material. As the band begins, the softly played instruments and bells are more open on the Audio Concepts, with a slightly more palpable depth. As the midrange content begins to predominate, the Mod Squad comes into its own with improved body and definition. Neither machine blew the other away; I feel it's important to emphasize this as there are entirely too many things being "blown away" in audiophile circles these days. If I ultimately came to prefer the Mod Squad because of its superior and all-important midrange, that doesn't mean I wouldn't miss the improved frequency extremes of the Audio Concepts. I could live happily (though perhaps not ever after, given the unpredictability of progress) with either player. Neither is likely to be used as a boat anchor any time soon.

But where does this leave the Mod Squad player *vis a vis* my current champ, the CAL Aria? As I write this, an improved version of the Aria is due (a sonic update, not just the improved Philips transport, which my sample doesn't have either), so any comment I make now must necessarily be tempered. The sample I now have is also a slightly more recent sample than the one I reviewed; that unit suddenly ceased making sounds in both channels in an apparent fit of pique and was returned to CAL for repairs. But the new sample is every bit as good as the returned unit—perhaps better. It was, simply and obviously, more alive and open (a superb expansiveness up and down the frequency range), and more three-dimensional (both between instruments and in the reproduction of individual instruments and voices themselves), than either the Audio Concepts or the Mod Squad (with the exception of the deep bass, where it was very good but not quite as taut as the solid-state players). It took only a brief audition, after extensive listening to the other players, to indicate the Aria's superiority, at least to this reviewer. But that takes nothing away from my high regard for the Prism. Besides, the Aria costs $400 more.

Should the Prism be your CD player? It depends on your priorities and budget, and on how you weight its strengths against those of the competition. I have not yet had, in my system, any of the $2000+ "super players," but the potential superiority will be moot for most readers. In the real world of here and now, I find it difficult to believe that any other solid-state machines at any comparable price will substantially better the Prism sonically. The real world, however, is an unpredictable place. It's perhaps enough to say that this analog-first fan is at least hopeful about the digital future with such companies as The Mod Squad striving to make it work.

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Stereophile, May 1988
VMPS SUPERTOWER IIa/R LOUDSPEAKER SYSTEM (SPECIAL EDITION)

J. Gordon Holt


It may have been audio pioneer Emory Cook\(^1\) who once observed that "nobody has ever been able to miniaturize a bass violin." His point, of course, was that bass sounds involve a lot of movement of a lot of air, and it takes a large object to do this. While small speakers can now produce deeper bass than they could 40 years ago, we still have not managed to make a dent in that law of physics that says "Deep bass demands a large radiating area." VMPS has accepted this view, not only philosophically, but practically, with enthusiasm.

The VMPS Supertower IIa/R, the largest speaker system I have ever had in my home, is also the most complex by far. Each speaker has 13 active drivers, arranged in two more-or-less vertical rows on the front panel. The low- and midrange driver cones are all made of polypropylene—a material noted more for its high inherent damping than for its rigidity—while the woven-fiberglass tweeter radiators are inverted domes from the French Focal company, similar to those used in the Wilson Audio WATT. (The concave shape is claimed to give wider, smoother dispersion.)

The Supertower's woofer loading is a sophisticated bass-reflex system using a large passive radiator. Conventionally, in a reflex system, a port is tuned (via its length and diameter) to add in-phase output below what would be the fundamental resonance of the drive-unit in a sealed-box enclosure, resulting in an increase in the LF extension of the system. The air in the port, however, which acts as a low-mass, large-excursion drive-unit, can often produce wind noise, a problem solved by replacing the open port with a passive radiator. Essentially

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\(^1\) On the other hand, it may not have been.
a damped bass-reflex port, a passive radiator uses a mass-loaded cone diaphragm instead of a resistance-loaded vent to accomplish the same thing, but because no air is being driven through small interstices, it has the advantage of producing no wind noise.

The Superflower's passive radiator is mounted face-up at the top of the system, radiating forward through a large slot. It is a high-compliance 15° cone of relatively light weight, which normally provides fairly little damping, to give a rather high system Q of around 2. This is adjustable, down to a Q of 0.5, through the addition of mass elements—small circular wads of what look like soft rope putty, supplied with the system. The wads are added, one at a time, to the center of the cone until the system's damping is optimized for the amplifier, the speaker cables, and the speaker placement. A clever idea, but it's not original. Paul Weathers\(^2\) used the same material for woofer damping as far back as the early 1960s.

The five crossovers in the Superflower are what designer Brian Cheney terms "Quasi-Second-Order Holosonic" QSO is a recognized design approach, wherein each side of the crossover has two different crossover points, so that the transition is first gradual, then steepened to approach 12dB/octave, yielding a high degree of phase coherence at crossover while still providing fairly steep attenuation well beyond the crossover point. But the "Holosonic" aspect of a QSO crossover is unknown to the author of any reference book I know. I presume it's VMPS's way of touting QSO's allegedly superior rendition of depth. [See also TJN's review of the smaller VMPS Tower II/R elsewhere in this issue—Ed.]

The upper three of the driver-operating ranges have individually adjustable level pots (located at the rear, above the cable connections), each with an adjustment range from completely off to a few dB higher than that of the woofers. There are no detents, but the midway setting of each pot is recommended by VMPS as the starting point for system setup. (The midway settings were also, incidentally, what I ended up using.)

The original Supertower IIa/R was more than bi-ampable; it was only bi-ampable. You had to purchase an optional kit in order to use it full-range. The so-called Special Edition, which I tested, has the single-amp "module"—two additional inputs and a toggle switch—already installed, and the SE also includes IAR Wondercap crossover capacitors (instead of conventional polypropylenes), Monster Powerline I internal wiring (instead of regular Monster cable), and the latest Focal 1" "Super-dome" tweeters, each claimed to be able to handle 250W of program.

Even before my first listen to the Ila/R, I had some misgivings about its impressive array of drivers; there are as many cons for this approach as there are pros. Among the pros: 1) the narrower the range over which a driver operates, the easier it is to optimize its performance through that range; 2) the more crossovers, the less power any one driver or sets of drivers must handle; and 3) multiple drivers increase conversion efficiency, typically by 3dB for each doubling of radiating area, while decreasing by the same amount the power each driver must handle. But the cons are just as persuasive, among them: 1) the simplest way of doing something is usually the best; 2) many crossovers increase the possibility of many phasing errors and discontinuities, where one driver sounds slightly different from another; and 3) interference effects due to the differing height and lateral positions of the drivers can cause timbral and phasing irregularities. The literature for the Ila/R assured me that it embodies all the pros and none of the cons, but I was still skeptical, even though I had heard some impressive sounds from these behemoths at the last few CE and Hi-Fi Shows.

Equipment used for my tests included the Ortofon MC-2000 cartridge in the Well-Tempered Arm, the SOTA Star Sapphire turntable, Sony CDP-705ESD CD player, PCM-F1 digital tape system, Revox A-77 15ips open-reel tape deck, and Threshold's FET-10 preamp/line controller and SA-1 power amplifiers. Audio interconnects were Monster M100s, speaker cables were MIT Music Hoses, and the listening room is extensively treated with ASC Tube Traps. Program material was some of my own and others' original tapes, as well as CDs and analog LPs from Sheffield, Opus 3, Telarc, HFN/RR, and Bainbridge.

\(^2\)This is the string-shaped Plasticine-like stuff sold in hardware stores for temporary window caulking.

\(^3\)Although remembered (by old-timers) only as the inventor of the first FM phono pickup, Paul Weathers manufactured a complete line of audio components during the early 1960s.

\(^4\)Pronounced "Fo-cal."
The Superflowers were delivered by truck, a day before designer Brian Cheney arrived in Santa Fe to set them up and tweak them in my listening room. We were all appreciative of this, if for no other reason than that he is accustomed to manhandling these monsters, and knows the easiest way to unbox them. (You open both ends of the box, lay it on its side, and push the speaker out from the other end.) The two speakers are, of course, configured as mirror images of each other, and, as usual, must be placed with the upper-range drivers toward the center, with both systems toed-in toward the middle of the listening area. Despite their size and multiplicity of drivers, Brian started with them located in my usual loudspeaker locations, about 7' from the sofa and 6' from the rear wall. This produced rather poor driver blending and a paucity of low end, so they were moved back, bit by bit, until they ended up about a foot out from the rear wall. Brian balanced the drivers for some recordings with which he was familiar (including some he had recorded himself and issued on his Itone label while living in Munich), and after several hours declared everything to be in pretty good shape. Then he went back to California's sunshine while I stared sullenly out the window at yet another early-Spring snowfall.

Listening at my leisure, I started to observe a few minor problems involving imaging and tonality (midrange colorations) that I was confident I could solve with a little more experimentation with placement, orientation, and driver balance. But achieving perfection with these speakers turned out to be an exercise in frustration. Changing their angles by a few degrees or their spacing by an inch or two had dramatic effects on imaging, soundstaging, and tonality, and whenever I got rid of one problem, another surfaced. It was like trying to hold 10 ping-pong balls under water at once.

First there was a rather pronounced picket-fence effect. Changing the toe-in by about 3° for each speaker got rid of some of that, but then the whole soundstage became unstable, shifting to the right or left as I changed my listening position. Some more tweaking seemed to correct both of those problems, but then the soundstaging presentation had gone to pot, with instruments bunched near the speakers rather than "floating" as a coherent group between them. And so it went. After a week, I gave up trying to optimize everything and went for those few things I consider most important: tonal accuracy, imaging stability, and a reasonable presentation of depth. The only positive thing I can say about that week was that the speakers proved a lot easier to move, when on a shallow-pile rug, than I ever imagined they could be. I could do it easily myself, even though each one outweighs me twice over.

But because the VMPSes are so chameleon-like, it is difficult to describe what they do and do not do, except in rather broad terms. I can say that they have immensely impressive dynamic-range capability, and are quite capable of approaching the original, in-the-room volume level of a jazz band or a full drum set, even with the modestly powered (160Wpc) SA-1 power amps. I can also attest that they have a truly incredible low end, with extension fully equal to what I got from the pair of Nelson-Reed 1204 subwoofers I had been using previously, but with rather better definition. In fact, low-frequency performance is unquestionably the Superflower IIa/R's strongest suit. Bass was subjectively flat to an ear-popping 25Hz in my room, and was very tight and detailed, with superb pitch delineation. Bowed double basses had a most authoritative "thrum" to them, and the leathery voice of organ diapason pipes was rendered as well as I've ever heard. At the same time, the woofers were agile enough to produce a tremendous feeling of impact from the abrupt bass attacks of plucked double-bass strings and kickdrum.

Overall, the sound was slightly veiled, lacking the delicacy and transparency of a full-range electrostatic, but taking a back seat in that department to few other dynamic systems I know of. Focus and inner detailing were both outstanding. The extreme high end, too, was superb, being at once smooth, open, and superbly delicate. String reproduction was remarkably good—sweet, gutty, and remarkably airy. But outside of that? Well, there's enough range on the driver balance pots to give you almost anything you want in the way of spectral balance, but not quite everything. The biggest problem was a deep midrange suckout, centered at about 2kHz, which seemed to be almost totally unaffected by adjustment.

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5 Also called vertical-venetian-blind effect, this is a phenomenon in which stereo images seem to hop back and forth between the speakers as you move your head small distances either side of dead-center.
of the appropriate balance control. Advancing the control increased the amplitude of the 5kHz range but had little effect on the suckout region, even though the lower crossover into that driver is supposed to occur at 600Hz (see the frequency-response curve on this page). The suckout was not broad enough to produce a laid-back quality, but instead affected only the accuracy of many musical sounds. Trombones, for instance, sounded anemic and lacking in authority, while an original tape of a familiar tenor voice that I recorded some years ago (for commercial release), and which still serves as a real-world reference for accuracy, sounded gutless and muted, as though heard through a burlap bag.

And there were other minor problems. The Superflowers seemed to exaggerate differences between different recordings, making some sound more realistic than they usually do, and others less so. It could perhaps be argued that this is because the system is more revealing than most, but it can also be argued — and I will so argue, based on my many years' experience with this phenomenon — that it is because of the system's unusually irregular frequency response, revealed when I finally got around to running my response tests on it. The curve shown is an average of 10 different curves, all taken with the probe mike between the system and ear height across the middle two feet of the listening area, but it does not show the extent of the variations which resulted in moving the mike a mere 6" in any direction. Since the irregularities changed somewhat in frequency as I moved the mike, the final averaging reduced their severity to some extent, but the deviations shown on this page were common to all mike locations, which would suggest problems a little more serious than intradriver interference effects.

The Superflowers also proved to be suscep-

tible to the effects of varying listening height. The whole output from the midrange array seems to be lost when you rise above a sitting position, and a lot of the output from the supertweeter is lost when you sit down. But the sound was least colored when heard from a typical listening height (about level with the lowest midrange unit), the tweeters could be balanced-out for that listening height, and the audible effects of movements to either side of dead center were much less noticeable than the frequency-response measurements would have suggested.

Summing up, then, all the synonyms for the word "impressive" apply in spades to the VMPS Superflower IIa/R. If that, the ability to play loud with relatively low distortion, or world-class bass performance, are what you're looking for in a loudspeaker, this is the first system you should check out — particularly if you also value imaging and soundstaging. But if you're picky about freedom from coloration and accuracy of musical timbres, you can do better than this for less money. Among the systems we currently recommend in the SuperTower's price class are the Magnepan Timpani IVA ($3800/pair), the Apogee Scintilla ($3995/pair), and the Quad ESL-63 at $3600/pair. All are less colored than the VMPS Superflower, but none can really be considered competition for the VMPS, both because all are panel dipoles, which have their own set of problems, and because none sounds even remotely like it.

Whether that is construed as praise or criticism of the Superflower will depend on your reaction to its sound. After two weeks of listening, I still have mixed reactions to this system, but am certain of one thing: Because I value highly that quality of midrange accuracy which the IIa/R lacks, I could not live happily with it. This, of course, does not guarantee that you will agree with me.

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Since the VMPS SuperTower IIa/R has so many positive attributes, but also such a unique personality, it is one speaker you should never even consider buying without a prior audition. (You shouldn't buy any speaker without auditioning it first, but that caveat applies to this one much more than to most.) All in all, a mixed bag.

VMPS TOWER II/R LOUDSPEAKER SYSTEM

Thomas J. Norton


When JA suggested I review one of the "smaller" VMPS loudspeakers, I felt the hot breath of controversy in the air. The recent debate in these pages concerning the "proper" amount of bass required for true high-fidelity reproduction, and the inability of small loudspeakers (according to one camp) to provide it, hadn't yet cooled off, nor showed any sign of doing so. VMPS, a small West-Coast manufacturer most famous for its humongous Super Tower IIa/R (at 6-plus feet and 250 pounds per side, first reviewed for Stereophile by AHC in Vol.9 No.3 and the latest version of which is examined by JGH elsewhere in this issue), is hardly a fence-sitter in the debate; they are clearly pro-low-end response. I chose to request the Tower II/R, an upgraded version of the smallest of their floor-standing systems, for review; with a rated 3dB-down point of 22Hz (the same as their standard subwoofer), it's not exactly a member of the restrained bass brigade.

The Tower II/Rs (the R designation for the ribbon supertweeter option—more on that anon) arrived on a Thursday. On Saturday Brian Cheney (President of VMPS and designer of their loudspeakers) arrived with soldering iron, glue gun, power drill, and obvious enthusiasm for the project at hand. The VMPSes, like their larger stablemates, have very flexible, user-accessible adjustments: separate mid-tweeter, and super-tweeter level controls, and user-adjustable bass damping. Brian spent two days ensuring that everything was copacetic before surrendering his loudspeakers to this critic's clutches. It promised to be an interesting weekend.

VMPS Tower II speaker

It was, but before getting to that part of the story, a more detailed description of the Tower II/R is in order. Two 12" woofers are employed; one has a free-air resonance of 22Hz with a natural (acoustical) low-pass rolloff around

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200Hz. The second active woofer has a free-air resonance of 60Hz and, with a lighter magnet and lower moving mass, responds up to the 600Hz woofer/mid crossover point. It is designed to be the "faster" or transient woofer. Reflex loading of the bass is by means of a mass-loaded 12" passive radiator facing downward at the bottom of the cabinet, firing into a slot which vents out the front.

At 600Hz, the 12" upper woofer crosses over to a 5" midrange driver. All three cone drivers in the system are polypropylene and manufactured by VMPS. At 4.5kHz a soft-domed tweeter takes over, augmented at the extreme high frequencies (above 15kHz) by a leaf-ribbon tweeter! An additional supertweeter (a pieceo) is wired in series with the "ribbon" and mounted on top of the enclosure, firing toward the ceiling. Crossovers are quasi-second-order at 600Hz, and first-order (6dB/octave) elsewhere, with the exception of the high-pass on the super tweeter (2nd. order—12dB/octave). (A quasi-second-order network is a series network providing first-order rolloff at and near the crossover frequency, steepening to second-order about an octave above and below that frequency in either direction, thus preserving good phase characteristics through the crossover region.) The physical layout of the drivers is rather unconventional: the three upper-range units are spread horizontally across the top of the baffle, super-tweeter on the inside (in the preferred setup—the systems are mirror-imaged), tweeter in the middle, and midrange to the outside and slightly lower than the tweeters.

The pricing and available options of the Tower II/R require some explanation. The basic Tower II has a pieceo supertweeter (not a ribbon/leaf) and sells for $1198/pair. (It is also available in kit form with an assembled cabinet for $878/pair). The ribbon/leaf tweeter option adds $130/pair for a total of $1328/pair. Additional options included in the review units were a better soft-dome tweeter (a Morel) at $45/pair, all WonderCaps in the crossover at $152/pair, and Powerline II internal wiring at $50/pair. Grand total: $1575/pair (the price shown in the review heading).

Since I had requested all of the tweaks and upgrades in the review pair of Tower IIs, Brian Cheney arrived prepared to do battle with the interior of the loudspeakers; several of the WonderCaps remained to be installed. Next, the mass-loading of the passive radiator was adjusted; the system is "tuned" by the user by adding or deleting mass in the form of Mortite rope putty. That effort, combined with the adjustment of the mid, tweeter, and super-tweeter level controls, took an hour or so. Brian made all the adjustments; I must say I found his choice of level settings to be on the mark, and never felt the need to fiddle with them after he left. The bass loading was another matter—I did do some limited experimentation later, on my own, with this adjustment in an effort to tighten up the low end somewhat. But more on this later.

I used the VMPSes with several amplifiers. They were not particularly amplifier-sensitive, but of the three which saw the most service in the system—the Aragon 4004, Motif MS-100, and PS Audio 200C (not the latest version)—the PS Audio was the best match, its taut, lean low end being particularly well-suited to the warm balance of the Tower II. The VMPS was, however, a relatively easy load to drive, though its sensitivity appeared somewhat lower than specified. My efficiency measurements were strictly relative, not absolute, but the Tower II measured about 2dB less sensitive than the Synthesis LM-300, rated at 91dB/W/m. If all of the level controls of the VMPS were cranked up to maximum, there would be about 4dB more output above about 600Hz. This would increase the apparent sensitivity of the loudspeaker, but I wouldn't want to listen to it that way.

I have mixed feelings about the use of level controls on a loudspeaker. They do give the listener a degree of control to improve the overall balance in his or her own environment, but they also make it possible to mess up the balance, and are sources of potential trouble. Still, many listeners can make good use of the flexibility provided by these controls, especially in a complex, multi-way loudspeaker. And as long as the controls are within a few notches...
of the center position (mine were set between 11 and 12 o'clock), you'll be within tweaking distance of a good overall balance.

Other equipment used in auditioning the VMPS included the Monster Alpha Two cartridge in an Eminent Technology II tonearm on a Luxman PD-300 turntable, Klyne SK-5A preamp, several CD players (predominantly the California Audio Labs Aria and Audio Concepts), and Monster M-1 loudspeaker cable and M-1000 and Interlink Reference A interconnects. The Tower II/Rs may be bi-wired. Most of the auditioning was done with monowiring; bi-wiring offered some improvements in improved focus, but was not a dramatic upgrade. In fact, if you must limit your wire outlay with these speakers, I recommend mono-wiring with heavier wire instead of bi-wiring with a lesser gauge. Substituting a bi-wire set of Kimber 4TCs for the mono-wire Monster M-1 resulted in a definite deterioration in low-frequency definition.

With the grilles removed (the recommended mode of operation), the multi-driver front panel of the Tower II/Rs presented a rather busy visage. Combined with the slightly somber walnut veneer, this appearance will not be universally admired; I found the II/Rs' styling slightly inelegant. I mention this to alert those for whom it matters, especially those who must consider the WAF (Wife Acceptance Factor, not Women's Armed Forces).

VMPS has gained a reputation as a producer of big-bass high-db reproducers, and I approached my auditioning of even one of their "smaller" models with trepidation. Would I have my internal organs rearranged (a career change as a medical curiosity was not in my plans) or, at best, be severely pummelled about the head and shoulders? Not to worry. VMPS's reputation is vindicated with respect to low-end extension and power, but the Tower II/R also had qualities which make it suitable for use at typical domestic levels and with program material which doesn't necessarily loosen the plaster.

But it is the bass response of the Tower II/R which demands the most discussion; it is likely to be the loudspeaker's most controversial characteristic. A loudspeaker with the bass extension and power of the VMPS will be more room-sensitive than normal. Most loudspeakers depend on room reinforcement for adequate low-end response, and if a loudspeaker itself rolls off in this region, the inevitable bass peaks and dips caused by the room will be less troublesome. My room has an emphasis in the 50-60Hz area. Nearly all rooms have a problem somewhere between 50-100Hz; the higher in frequency, the more noxious. Extended low-frequency response will tend to excite room modes you didn't know you had, which is precisely why many audiophile loudspeakers steer away from it. But VMPS has plunged ahead; if its Tower II/R sacrifices some "speed" for extension (and I believe that it does), and is thus more room-sensitive than most, that tradeoff is one VMPS is willing to make. I have heard superior low-end transient response in my listening room, but have not yet heard greater power and bass range at anywhere near the price.

If that sounds like faint praise, it isn't meant to be. But it is meant to alert you to the fact that the Tower II/Rs do not have a "typical" audiophile bass—a lean low end which varies from well-balanced to rather thin, depending on the room, associated equipment, connecting cables, or (particularly) program material. The VMPS can, on the other hand — and depending to some degree on those same factors — sound full, deep, and solid, or rich, warm, and overripe. I did experiment some with mass loading of the VMPS woofer system, adding about 30 grams to the passive radiator of each system (plus placing each speaker on Tiptoes, which VMPS states is equivalent to adding another 30 grams). Brian Cheney had loaded each system with about 60 grams, and preferred the balance without Tiptoes. Increasing the mass loading and Tiptoeing the cabinets did tighten up the bass somewhat, but the change was not dramatic. Repositioning the loudspeakers and/or listener had a more significant effect. I ultimately settled on the original long-wall loudspeaker placement, with the listener a bit further from the rear wall than during the initial auditioning and consequently about two feet closer to the loudspeakers. But I still encountered the same problem DO had in his review of the VMPS subwoofer in Vol.8 No.4 (not surprising; the Tower II/R has the same bass system): I never found a truly satisfying compromise between extension and tautness. Even with the Tiptoes and the 90-gram mass loading per system, the sound of the VMPSes' low end would be better described as a bit full and expansive rather than tight and punchy.
But the same might be said for many loudspeakers attempting to reach below 30Hz—even some costing several times as much. A small percentage of program material did appear over-endowed in the low-frequency end through the VMPS, but by no means the majority. Well-recorded plucked double bass was reproduced with a good balance of snap, resonance, and detail; *Essential Pentangle, Vol. II* (Transatlantic TRACD 606), a somewhat variable CD remastering with several superb cuts, makes extensive use of it. So does *Seren-dipity* (Reference Recordings RR-20CD). On these recordings and others, this instrument, while not as tautly rendered as I have heard it, was nevertheless presented with a realistic weight up through the midbass, which gave it a natural sense of size and scale.

Percussive bass was often striking through the VMPSes. The deep, reverberant quality of the body of the drum predominated over the sound of the struck drumhead or skin, but the results more often than not were very effective. The Big Drum in *KODO* sounded like the 700-pound behemoth it is. Well-recorded kick-drum and orchestral bass drum, while again never exceptionally tight through these loudspeakers, could definitely raise goosebumps and even, on occasion, roll down your socks. On the negative side, the infamous Telarc bass drum, never in my experience overly taut, came over on the Tower IIs as very deep but sometimes rather fat and overripe. But a Telarc bass drum is not a Telarc bass drum is not a Telarc bass drum; it has substantial variations from recording session to recording session, from orchestra to orchestra, and the VMPSes preserved the differences, never homogenizing them into a generic sound.

Organ-music lovers may well constitute the largest potential market for the Tower II/R; the power and extension it brings to reproduction of this difficult instrument is virtually unheard-of in this price range. While it should be clear by now that I would not use the term “fast” to describe the low-end qualities of the VMPS, that is not a characteristic of overriding importance in organ-music reproduction. What is required is low-end reach and output capability, combined with good pitch discrimination at the low end—no “one-note bass,” please. The Tower IIs provide these qualities in abundance. If your sole exposure to Saint Saens’s “Organ” Symphony has been through loudspeakers with a limited low-end response, and you haven’t heard a rare live performance in a proper venue, then your first listen to the closing movement of this work with the magnificent Davies Hall Ruffatti organ (de Waart and the San Francisco Symphony, Philips CD 412 619-2) through the VMPSes may well reduce you to quivering protoplasm. The same for the Boston Symphony Hall organ as heard on *Enco- res a la Francaise* (Telarc CD-80104). Don't say you weren't warned.

The slight bass warmth of the Tower IIs extends up into the midbass, but does not affect male or female vocals to any significant degree. It may lack the “snap” and transparency of the best loudspeakers, but is well-defined and acceptably quick—certainly quicker than you might expect from a 12" driver. And while there’s no room to delve into the subject here, the “large drivers are slow, small drivers are fast” argument is not accepted by VMPS, and they have a point. One should also add “everything else being equal.” It never is.

I’ve spent considerable time attempting to characterize the low end of the Tower II/Rs, since that is where their reputation lies. I was not a little surprised, however, by their naturalness through the mid- and high frequencies. The midrange is easier to describe in terms of what it does not have—no obvious hollow-ness, nasality, cupped-hands colorations, or troubling colorations of any other kind. Well-recorded vocals had an excellent balance of warmth and resonance, with perspectives ranging from neutral to just slightly forward of neutral. I’m not talking here of the palpable realism of the very best reproducers—Apogee Divas these are not—but I am talking about an open, detailed, low-coloration midrange.

Despite the printer’s ink expended here on its low end, the high-frequency response of the Tower II/R may well be its greatest strength. It was not, on initial exposure, particularly dramatic; its balance was very slightly subdued in the brightness (lower treble) region, but delicate and open in the uppermost octave. It had a clear yet unexaggerated high end, never bright, never excessive in the sibilance region, not obviously analytical. But the detail was there; like the best designs, it grew more appealing with extended exposure. Changes in associated equipment were clearly revealed; the high-frequency qualities of various CD players, and the cables used with them, as
determined in my recent CD player survey, were audible (though not exaggerated) through the VMPSes. If the treble response of these loudspeakers err, it err in the direction of sweetness—that brightness-range dip. Its overall balance is well-suited to all types of music, including classics and opera, the latter being well served by the VMPSes’ combination of low-end power and unexaggerated high end.

The dynamic range and output level of the VMPSes were also well-matched to program material demanding of these characteristics. I did, however, find VMPS’s claim of a peak 126dB output capability more than a bit of wishful thinking. I have yet to find a loudspeaker comfortable at continuous levels greater than the high 90s (with peaks to perhaps 105dB), and the Tower II/R was no exception. But I find such levels more than adequate for any reasonable listening requirement. And while the Tower II/Rs didn’t best, in dynamic range, the ProAc Studio 3s (the most dynamic loudspeakers of good neutrality I have lived with over an extended period—now no longer in-house for direct comparison, I should add), it was no slouch in musical or seismic crunches. The explosive sound effects in La Folia de la Spagna (Harmonia Mundi CD HM 90.1050) will definitely make your guests drop their cheese dip, and the garage door in the HFN/RR Test Disc will likely spill the contents of every glass not fastened down. I wouldn’t care to perform this test with most smaller audiophile loudspeakers; the VMPSes simply went about their business of rearranging the refreshments to suit themselves and calmly waited for more input.

VMPS discusses, in their advertisements, what would appear to be some sort of imaging-enhancement system called QSO Holosonics. They have a two-sided handout which purports to explain the system, but which actually discusses the negatives, as VMPS sees them, of multidirectional radiators, their feeling about the importance of absolute polarity, and their useful recommendations on loudspeaker placement. I discovered, in discussion with Brian Cheney, that QSO Holosonics refers merely to his design concepts of the importance of phase and absolute polarity (both in the setup, under listener control, and in the internal design of the system). I don’t take issue with any of this, but do feel that some of the VMPS advertisements I have seen, which imply that QSO Holosonics is some sort of special image-enhancement circuitry and ambience-recovery system, are very misleading. It has no such circuitry, merely an apparently effective crossover network designed according to VMPS’s priorities.

“QSO Holosonics” or not, the Tower II/Rs are capable of excellent imaging and a well-developed soundstage. It is, however, very much a “sweet spot” loudspeaker. VMPS’s claims to the contrary, I found a noticeable drop-off in image specificity as the listener moved laterally away from the center. This is not at all unusual in loudspeakers, but the image presented by the VMPS tended to snap into focus to a pronounced degree as the listener moved into the correct position, and became a bit “phasey” as one moved a couple of feet in either direction. This dispersion pattern is clearly a function of the lateral placement of the upper-range drivers and the slow-slope crossovers which give substantial sonic overlap between these drivers. All systems comprised of displaced drivers and finite-slope crossover networks will develop “lobing”—position-dependent dips in the frequency response in the vicinity of the crossover and considerably beyond it in either direction (and the slower the slope, the wider the frequency band effected because of the broader overlap between the drivers).

Lateral driver orientation causes these dips to appear in the horizontal plane. A vertical layout puts them in the vertical plane—in theory less likely to interfere with imaging (though in practice causing seating height to be important). But in the “sweet spot,” and with the speakers set up in the recommended, slightly toed-in fashion, the soundstage of the Tower II/Rs was solid; lateral imaging was very good; centrally placed soloists were particularly well focused, with no tendency to recede into the soundstage. Overall lateral specificity was good, though the image almost never appeared to extend beyond the sides of the loudspeakers. (I’m not yet convinced of the importance of this, or if its presence represents a flaw or a virtue in a loudspeaker.) Depth was not remarkable—the overall soundstage was not holographic or finely layered—but was developed more than sufficiently to provide a convincing illusion of dimensionality and front-to-rear positioning.

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The Tower II/R offers qualities not common at the price, most notably a strong, deep, low end. That low end will not be everyone's ideal bass—I personally found it to be less than ideally damped. And while the quantity of low-end output was not generally a problem in my (large) room, I do recommend caution in trying to use it in a small listening space. But I also find it difficult to name another loudspeaker at anywhere near the price offering comparable bass extension. And remember that the impecunious can get the same low end in the bare-bones, non-tweaked model, in kit form, for $878/pair (though at some potential sacrifice in high-end refinement). While I would personally sacrifice some bass extension for a tighter transient response, it has not yet been proven to me that it's possible to obtain both at this price.

If I could make a wish list for improvements to the Tower II/R, it would include the above-mentioned tighter bass without a concomitant sacrifice of extension, and a modified enclosure to permit vertical layout of the mid-and upper-range drivers for better lateral dispersion (with perhaps slightly spruced-up cosmetics). Even as it stands, however, the Tower II/R offers a unique blend of low-end range, detailed, nonaggressive mids and highs, and convincing soundstaging, at a very attractive price.

PSB STRATUS LOUDSPEAKER SYSTEM

J. Gordon Holt


PSB, which stands for Paul S. Barton, is a small, Toronto-based manufacturer that has been collaborating with Canada's National Research Council to try and take some of the guesswork, some would say magic, out of loudspeaker design.

The NRC, financed by the Canadian government, does basic research in many technological areas and makes its findings available to any firm wishing to use them. (Most other countries provide or encourage this kind of government/business cooperation. It is against the law in the US, to our great disadvantage.) The NRC's audio division, headed by physicist Dr. Floyd E. Toole, has devoted the last several years to the rather formidable task of defining, and assigning numbers to, the various aspects of loudspeaker performance that affect listeners' subjective assessments of their sound.

To many audiophiles, much of Toole's research is tantamount to reinventing the wheel, in that his conclusions simply confirm what we have all known for ages to be true. But, in fact, his are the first efforts (on this continent, anyway) to provide irrefutable scientific evidence of what was previously only anecdotal knowledge based on informal and uncontrolled personal observations. Among the not-too-startling (to audiophiles) things Toole has proven are that 1) frequency response accounts for the most noticeable differences between different loudspeakers, 2) the audibility of a given amplitude of response irregularity depends upon its width and its location within the audible spectrum, and 3) the degree to which a loudspeaker's frequency response is affected by the listening room depends on its dispersion characteristics—that is, the proportion of its radiated sound bouncing off the room boundaries. Any audiophile could have told him "I knew all that," but Toole's contribution to the body of knowledge we call audio is that he has irrefutable statistical proof of

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these contentions, as well as numbers that can be assigned to these parameters for defining, objectively, how good a loudspeaker sounds. No audio subjectivist can do that.

What's the point? Simply that, while the ultimate assessment of loudspeaker performance must still be done by ear, the initial design phase is an engineering process, and the more relevant numerical data there is to be dumped into the design hopper, the more efficient and successful the design phase can be

Toole's long-term goal is to codify all of the things which affect a loudspeaker's sound, with the ultimate hope that any kind of sound the designer wants can be engineered into the speaker right on the drawing board. If he succeeds, it could be a boon to everyone concerned: to manufacturers, who would be able to design marketable products with the least possible fuss and expense; to consumers, who could (conceivably) profit by the reduced cost of designing newer and better loudspeakers; and to the audio field in general, which could see an across-the-board improvement in the quality of reproduced sound in the home.

While there are several loudspeaker manufacturers in Canada, it would appear that PSB is taking the most advantage of Toole's findings, actively collaborating with the NSC's audio project. The Stratus under review here is the latest product of that collaboration.

To date, Toole has only investigated the most fundamental aspects of loudspeaker performance, such as those related to frequency response. (This kind of long-term, statistically based research takes time to do right.) Such refinements as time alignment, amplitude linearity, doppler distortion, and enclosure-panel radiation will be addressed in future projects; his team is now working on the audibility of resonant problems. That does not mean, however, that PSB's designs ignore those "questionable" areas of loudspeaker performance. It's just that, with the Stratus, we have a design based on a few proven principles and several that, as of now, are unproven but probably valid.

The PSB Stratus is a floor-standing two-way dynamic system, with a soft-dome tweeter and an 8" woofer in a ducted-port bass reflex enclosure. The tower-type enclosure has bevelled corners to reduce edge-diffraction interference, and the panels are assembled by means of tongue-in-groove aluminum corner pieces for increased rigidity. The walls are almost totally inert, producing nothing more than a "pock" (and acute pain) when struck hard with the fist. The woofer is semi-isolated from the front panel by rubber shock mounts, to "eliminate unwanted panel resonances"—a feature about which I am more than a little dubious. Floor spikes are used with loudspeakers to minimize the tendency for cone motions to "kick" the drive-unit chassis and

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1 It should be pointed out, however, that all loudspeaker firms are welcome, even encouraged, to use Toole's NRC facilities to evaluate designs they've already completed. —LA

2 KEF pioneered the decoupling of drive-units in their R105, which floated the woofer on rubber grommets. Certainly this eliminated one particular problem, but apparently was not the hoped-for panacea; recent KEF designs, such as the R104/2 and R107, appear to use a very rigid drive-unit/baffle mounting. See the introduction to Martin Colloms's review of Mordaunt-Short's System 412 in Vol.11 No.3 for a more complete discussion of the merits of drive-unit decoupling. —JA

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cabinet in the opposite direction. They have been shown to improve both the range and the detail of midrange reproduction.\footnote{It could be argued that such motions will be immeasurably small compared with the cone excursion. However, given a typical modern lightweight cabinet and a relatively heavy plastic or doped-paper cone, the reaction motion of the enclosure, which will be dependent on the ratio of the masses, will be of the order of the tweeter excursion and thus will not be insignificant. —JA}

A two-way system of this size and price is unusual; PSB opted for a two-way design, not as a cost-cutting expedient, but as a means for minimizing the number of crossover points (with their attendant phase problems). The crossover is a 24dB/octave Linkwitz-Reilly type, which, to quote PSB's literature, "provides a seamlessly accurate transition between drivers, not only in amplitude but also in phase." The three inductors are all air-core types, wound with 14-gauge wire (heavy!), and the capacitors are 150V film types with "very low dielectric absorption." Time alignment, usually attained by positioning the tweeter slightly behind the plane of the woofer, is achieved here by placing the woofer above and the tweeter underneath, on the same plane, so the tweeter output has a longer path length to the listener's ear than the woofer output. However, the alignment is predicated on a listening-ear height of 36°, rather high for some of today's low-slung sofas.

PSB obviously does not believe in the use of so-called "exotic" loudspeaker cables. The instructions recommend using various gauges (depending on amplifier-to-speaker distance) of zip cord, and the input connections discourage the use of anything else. The 5-way binding posts are too fat to accept anything but the very largest spade lugs, which are generally found only on cables so stiff and heavy that it is almost impossible to attach them to the Stratus's posts. These are recessed inside a 3 ¼"-diameter, ¼"-deep well in the bottom of the enclosure, and although they are offset toward one side of the well, they are offset in the opposite direction from which the wires come in from the rear. This means that, if you use stiff speaker cable, it must be looped all the way 'round toward the cabinet front (underneath) in order to gain access to the terminals. Making things even more difficult is the shoddy design of the binding posts themselves. Instead of the usual plastic collars with threaded brass inserts, the hold-down collars here are all plastic, and the internal threads are tapered, so that the more you unscrew them, the looser the thread fit becomes. With the thick spade lugs terminating most heavy speaker cables, the collar threads barely take hold by the time the collar grips the lug, and because of the tight loop between the incoming cable and its terminal, the lug remains under too much tension for a finger-tight collar to hold in place. For cables with large lugs, the best solution I found was the addition of banana-plug adaptors, such as those sold by Monster Cable (X-terminals) or Odyssey.

Equipment used for my tests included the Ortofon MC-3000 cartridge with its T-3000 stepup transformer, the Well-Tempered Arm in a SOTA Star Sapphire turntable, Sony CDP-705ESD CD player, PCM-FI digital tape system, the Threshold FET-10 preamp and line controller, and Threshold SA-1 power amplifiers. Audio interconnects were Monster M1000s, and speaker cables were the aforementioned Straight Wire Ribbons. My 24'x19'x9' listening room is extensively treated with ASC Tube Traps. Program material was live-performance PCM tapes, and CDs and analog discs from Sheffield, Opus 3, Telarc, and Reference Recordings.

I started with the speakers in my usual optimum locations: 7' from the rear wall, 6' apart, and 7' from the center listening seat. This gives the best soundstaging and low-end performance from most speakers I have used, but the low end from the Stratus system was quite weak in this location. Moving them two feet toward the wall behind them brought the low end into balance but at the expense of some LF smoothness. (Note: The frequency-response curve shown was taken with them in their startup positions; the final positions gave what sounded like about 3dB more output at around 60Hz.) The best and most stable imaging was obtained with the speakers toed-in to converge on my forehead. I also found it necessary to tilt the rear of each enclosure so that the speaker was leaning about 15° forward, to make up for the facts that 1) I am short, and 2) I was seated on a low sofa.

First, it must be said that these are eminently listenable loudspeakers. Their sound is relaxed and easy, yet they have remarkable dynamic range and quite respectable detail. They are very clean, image superbly, the highs are silky-smooth but rather closed-in, their low-end ex-
tension is impressive for their size, they throw an excellent soundstage—comparable to that of the Celestion SL600s—and they reproduce depth quite well. In fact, they are what I would call very well-behaved speakers; they don’t do anything wrong. But I found them rather uninvolving. I wouldn’t exactly use the word “bland,” but I’m tempted. These are speakers guaranteed to offend no-one, of which I’m afraid the opposite will be equally true: They fail to elicit a great deal of excitement.

To briefly cover their shortcomings: they were slightly veiled; there seemed to be a subtle darkness to the sound, and, as a result, nothing ever quite came to life. They were a little laid-back through the upper midrange/lower high end—a quality which I have come to loathe in loudspeakers, even though, in this case, it was present only to a moderate degree. The low end in particular was a disappointment, despite its impressive range: audibly flat down to around 37Hz in my room. Although it did not seem to have the usual bass-reflex lumpiness, neither did it have very good detail or pitch delineation. Different LF pitches were distinguishable, but were by no means readily so.

To say the least, I was unimpressed with the PSB Stratus. The importers then informed us that all the first units delivered to the US, including our samples, had the wrong woofers installed. Another, “correct” pair was shipped immediately, for a second bout of auditioning.

Addendum: the revised loudspeaker

Without even comparing them directly with the first pair, it was immediately obvious that the second pair sounded very different. The new Stratuses (Strati?) were clearly better than the first samples in bass performance. Although there was no perceptible change in LF extension, the quality of bass was notably improved. Bass attacks, as from kick drum, had more impact, and pitch delineation was improved, being now what I would describe as better than average. And the laid-back blandness of the original pair of speakers was gone. Unfortunately, there was in its place a rather irritating short-“i” (as in “sit”) coloration that made the sound almost shrilly strident. It sounded much like a moderate 5kHz peak, and although I did measure a small hump at 5kHz, it was no larger in amplitude than what I had measured on the first samples, which seemed to have none of this coloration.

As I was writing this addendum, Paul Barton phoned me to ask what I thought of the second pair. After I'd told him, he suggested I remove a capacitor to reduce the tweeter level “by about a half a dB.” I doubted that 0.5dB would have much effect on that coloration, but tried it anyway. I was wrong.

The problem was not completely eliminated, but it was reduced to the point where I had to pay close attention to hear it at all. The difference certainly sounded like more than 0.5dB, but a response check confirmed that, indeed, that’s about what it was. It wasn’t until I was halfway through the HFN/RR Test CD that I realized I was actually enjoying what I was hearing. The drum-kit cut was an experience! Almost as impressive as I’ve ever heard it. (Only the Nelson-Reed 8-04/Bs have done better.) The system was still a little lacking in guts and liveliness, but no more so than

4 It seems the vendor that supplies PSB’s woofers made an unauthorized “insignificant” change in the cones, which proved to be more significant than they thought. This kind of thing happens all the time in manufacturing, which is why there’s so much gray hair at our Hi-Fi Shows.

5 This might be described as the ability of forcefulness, like the voice of a drill sergeant. It affects a system’s ability to reproduce the power instruments—the trombones, tuba, and cellos.
95% of its competition, so I can hardly single it out for criticism on that count.

I am, however, uncertain at this point as to the status of the Stratus. If PSB continues to manufacture them with the tweeter level set where mine now is, I will happily see the system added to our "Recommended Components" list, in Class C. There is now very little the matter with them, and the only reason they aren't in Class B is because of some minor errors of omission which some other systems (of higher cost) omit less of. But if PSB futzes with them some more, I have no way of knowing what the result might be, and would hesitate to recommend them at all until I hear that version. Perhaps Paul will enlighten us about his plans in a Manufacturer's Comment.

So we have it. A volte face if ever we saw one in these pages!

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**DENON TU-800 AM/FM TUNER**

Don Scott

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**Denon TU-800 FM tuner**


Highly selective tuners have been scarce the past three years. Choices have been limited to the Tandberg 3001A and the Onkyo T-9090 because McIntosh has decided no longer to manufacture such super tuners such as the MR-80 (last production, January 1986) and the famed MR-78. Nor has Kenwood produced a tuner as selective as the 10-year-old, 3-IF bandwidth 600-T. However, manufacturers have shown interest in rounding out product lines with good tuners in order to aid total system recognition and increase sales. Harman/ Kardon recently broadened its line with the excellent Citation 23 tuner, reviewed in Vol.10 No.8. The latest member of the super-tuner camp is the high-technology Denon TU-800.

The TU-800 is complex yet easy to operate, with all-business features: 30 presets, auto memory programming of scanned stations, preset scan, computer or manual locking of all modes except mono/stereo switching; three mute levels, three IF bandwidths, record calibrate, a useful seven-level signal meter, and mostly ineffective noise reduction. All modes are operated and displayed to the right of the bluish-white fluorescent, five-digit frequency display. The power switch is on the left, a large tuning rocker is on the right. Tuning is in 100kHz segments, with direct 88.1-107.9 access.

1 A fix is promised.
**Circuit Features**

The TU-800 uses a newly developed Dynamic Twin Drive Demodulator FM detector, also used in the later TU-600. Instead of using two conventional diodes and a transformer tuned to the zero axis of the IF signal, Denon uses four precision varactor diodes in a balanced-bridge circuit in conjunction with a phase-locked loop detector. The circuit is said to be less subject to phase shifts in the IF strip when multiple ceramic filters are used due to its I-don't-care self-balanced nature. It works well at preserving exact-center tuning with minimum distortion in all three IF modes.

**Specifications**

40-50dB adjacent-channel selectivity and other specifications in the 80-100dB range are among the best obtainable. Selecting the super-narrow mode on the TU-800 or similar tuners makes available stations not heard on lesser components. I feel this is important, because FCC requirements place adjacent stations 65 air-miles apart, and there are many short-spaced exceptions. This means that reception of the stronger of two signals will win, making the reception of a station only a few miles away impossible, especially if it is low-powered.

The one technical shortcoming of the tested unit was its effective stereo sensitivity in the high-blend mode. The blend did not take a big enough bite to reduce noise, only dulling things a bit; Denon promises a fix in actual production units. I tested a sample of the first small production run. If consumer units have improved high-blend, and the mono/stereo switching threshold is correspondingly lowered to take advantage of effective noise reduction, I will have little to fault.

**FM Audio Quality**

This is one of the few tuners in which RF and audio performance are highly dependent on each other. The three IF-bandwidth windows are well chosen to extract the best audio from each station received. No matter which of the 100 stations I listened to on the TU-800, individually there was a perceived drop in distortion when choosing the optimum bandwidth. Logically all weaker stations needed Super Narrow to avoid splatter, but in most instances, even highly modulated stations cleaned up with the filtering action of Narrow or Super Narrow. Only 10 stations sounded cleanest in Wide. All stations with SCAs sounded best in Super Narrow, presumably because the bandwidth restriction adds an extra 20dB of attenuation to SCA sidebands when compared with Wide.

The audio section itself is smooth and tube-like while maintaining extended treble response. Bass is well controlled, and the midrange has good presence when the optimum bandwidth is chosen. It is not as articulate as the NEC T-710, but is never edgy, and very listenable with signals over 25uV in stereo. Stereo distortion does get out of hand below 20uV when noise is correspondingly annoying (the blend fix should help). A switch to mono cleans up the act.

Stereo separation is open and spacious in Wide, decreasing only slightly in the narrower modes. Effective stereo sensitivity can be enhanced with external use of the Magnum 205 aerial booster (Vol.10 No.6). In terms of raw stereo sensitivity, the Onkyo T-9090 and the new Luxman T-117 offer good, quiet stereo with 10uV signals, but are slightly less selective.

**AM Section**

There is abundant sensitivity, selectivity, and a slightly overactive AGC that keeps gain at maximum. This approach yields good daytime reception of weak stations, but aggravates distortion when semi-distant stations fade from ground to skywave. Although it receives many stations without undue noise, response is only borderline musical, and not up to the hi-fi-class AM audio of the H/K Citation 23.

**Conclusion**

Denon has progressed technically this past year. The company's CD players are among the best, its silver discs are much improved, and the POA-6600 mono 250Wpc amplifiers with balanced inputs won my vote for the best sound at Stereophile's New York High-End Show. The POA-6600s sound velvety at low levels, and considering their tank-like build quality, are a bargain at $699. The TU-800 is equally impressive in dollar/performance value. In January 1986 the aforementioned McIntosh MR-80 sold for $2600. Two years later, the TU-800 offers equal performance at $475. Enthusiastically recommended.
ONKYO T-9090 II FM TUNER

Don Scott

Onkyo T-9090 II FM tuner


The T-9090 II is a technical refinement of the T-9090, which was introduced three years ago. An added feature is complete remote control of all operating functions and modes. As in past experiences with Onkyo RF products, I found little to fault.

From left to right, the front panel contains: power on/off, remote sensor, a sharply focused aqua six-digit frequency display, and two signal-level meters (10-level bargraph and dBf). Farther to the left are 10 A/B presets with 20 displays, memory controls, selection of three IF bandwidths, separate three-level mute and stereo mono switching, blend on/off, manual and automatic tuning, output level control, and five-event controls for use with an external timer. Each time the tuner is powered up, it steps to the next of the first five presets, which can be set to a different or the same station for absentee taping. Preset scan can be started above a selected preset rather than scan from the lowest-frequency station in memory. All selected modes and functions are displayed in aqua, orange, or blue.

Hidden two-thirds of the way across the tuner, among the 29 controls, are two small frequency up/down buttons. The elder T-9090 has much larger frequency-change controls on the lower right, which are less difficult to use. Only the pre-sets can be changed by remote control; otherwise, the T-9090 II cannot be tuned at all via the remote. Construction is super-rugged—I had no second thoughts about placing a 40-pound amplifier directly atop the tuner. Interior construction is also first-grade, with neat harness dress. The tuner is also deeper than the original and may not fit in some racks.

The rear panel contains jacks for an oscilloscope to observe multipath conditions, fixed and variable audio, and two F connectors.

Circuit Refinements

One fault of the original 9090 was that the APR (Automatic Precision Reception) system would change its mind, often making questionable decisions after post-tuning. The newer version, once tuned, stays tuned. A separate APR button can be pushed to see if better operating parameters can automatically be selected; for instance, after an antenna-direction change. There still is no provision for disabling the APR for complete manual tuning. Fortunately, the APR computer makes correct decisions 95% of the time in selecting IF bandwidth, local/distant, mono/stereo, effective high-blend on/off, and A or B antenna selection. APR settings for each station can be entered or reentered for each station; the last setting is retained from power off to on. Manual APR
changes are possible once on station.

The older T-9090 used a feedback scheme to increase gain and lower distortion. The critical nature of this circuit in mass production could cause oscillation or an audible high-pitched whistle if misadjusted or drifted out of alignment due to component aging. The T-9090 II does not use IF feedback, but maintains high gain by careful conventional design. Tuning is in 25kHz increments in manual and 50kHz in auto-tune. Neither has any use in the USA, but allows the tuner to be sold in foreign markets with minimal circuit change. To fine-tune cable FM or aid in separating strong adjacent stations, 10kHz increments are needed, 25kHz being equivalent to mistuning a station by 33.33%. Variable tuning flexibility, as found on the ADS Atelier T2 and the Citation 23, is the only real way to make a digital tuner act as if it were analog.

Onkyo claims airborne vibrations have a detrimental effect on tuner sound quality. To combat this, the T-9090 II includes an SFR (Sonic Noise Filtering Reception) system. I could not compare or attest to Onkyo's claim because the indicators on the tested units were always on, even in a silent room. Certainly there are better-sounding tuners than the T-9090 II that have no vibration control (Luxman T-117). On the other hand, the Kyocera T-910 has extensive vibration control and sounds very clean.

Specifications

All specifications and measurements correspond to a high level of performance except in two areas. AM suppression is 60dB. 40dB is the least acceptable, and a figure of 70dB does much to lessen multipath interference, static from power lines, and other sources of electrical noise. Its suppression is okay, but could be better. 50dB stereo quieting is given to the useless DIN specification in the domestic instruction manual. Still it is not as good as I'd like to see to bolster the tuner's excellent selectivity for station-pulling ability. I measured 35uV/36dBf without noise reduction, and 28uV/34.1dBf with. These are mediocre figures. For weak-signal stereo nearly as good as mono, a tuner should have 30uV/34.7dBf without noise reduction, and considerably better with noise reduction. The Luxman T-117 and Proton 440 tuners meet this criterion as hot fringe-area performers.

Audio Quality

This is an excellent-sounding tuner in Wide, offering superb S/N and stereo separation. Tonal balance is correct, and bass response is quick and dynamic. Switching to Narrow or Super-Narrow noticeably degrades audio quality, which is to be expected when using conventional IF filtering systems. I was not happy with the degree of degradation I heard, and requested a second sample. Indeed, this one was more in line with expectations and about 20% better in all modes.

Experiences such as this are not unusual with tuners that take a very thin slice of the RF spectrum, and Onkyo should not be singled out as having mass-production problems. It is very difficult to mass-produce a precision narrow-band tuner; parts tolerances and alignment become five times as critical with more circuitry vs that in less complex wide-band varieties. To illustrate the point, the first H/K Citation 23 tuner I received for review worked perfectly. A second sample, received by error, had poor sensitivity and 10dB less selectivity, although it sounded just fine. When testing two Mac MR-80s, I found vast differences between them. One, supplied by a dealer, was very clean in the narrowest mode; another, shipped directly from the factory, was raspy and distorted. I tested two Tandberg 3001As, both severely out of alignment. However, I did observe one at a dealer in Danbury, CT that was excellent. The Yamaha T-85, which I still like very much, has to have its IF offset very finely set or it becomes just another tuner. And, as I found out post-review, it is subject to some drift. The Mission/Cyrus is still one of the best-sounding tuners and has at least 20dB adjacent-channel selectivity. Your chances of getting a good one are about 50-50. Magnum/dynalab is also in the variable-quality group, although their make-good policy can not be faulted. To Denon's and Luxman's credit, I have never received or observed any of their RF product that was out of alignment. This is not to say that I wasn't the winner of a technical lottery.

Where does this leave the consumer who isn't happy with a Sound Design rack system? Try two of a selected unit, if possible. Many times the display model works better than the one in a sealed box, despite some minor scratches. Take home the one that performs better under exactly equal conditions.
Of course, if you are buying from a discount house, check their return policy.

Conclusion
Without a doubt, Onkyo has bettered the former T-9090 by 10-15dB additional adjacent-channel selectivity. Other characteristics are nearly equal between the two vintages. Its nearest competition is the Denon TU-800 ($475). At low- and mid-dial frequencies, the Denon exhibited 5dB more adjacent-channel selectivity—enough to make the difference between splatter and no splatter from strong adjacent stations. On the high end of the dial, the Denyo has the selectivity edge. Example: I was able to receive a 30-37dB signal at 107.1MHz next to an 80dB signal at 106.9MHz in stereo better than with any tuner tested to date. On the other hand, the Denon TU-800 sliced signals better at 95.9 vs a stronger 95.7, and the Citation 23 was the only tuner ever tested that received a station at 92.7 vs a stronger signal at 92.5. The T-9090 II has quieter weak-signal stereo reception than the two mentioned tuners. However, the TU-800 always sounded better than the other two in Narrow and Super-Narrow on the same stations. The T-9090 II has no AM; the Citation has truer hi-fi AM than the TU-800.

The Luxman T-117 is the best of the recently tested tuners in sensitivity and fidelity. It does have above-average selectivity (20dB), but is not in the same league as the T-9090 II and TU-800. However, it is a good choice except for circumstances needing extreme selectivity. The Nikko NT-950 ($259) is still my pick as the high per-value leader to date, offering 12dB adjacent-channel selectivity and reasonable audio quality. Onkyo's own T-4087 ($400) is a cut-above-average tuner, especially on cable FM.

Despite my nitpicking, Onkyo has done its job fairly well. The T-90 II gets stations clearly that are hopeless splatter on most other tuners. A tuner to be recommended on an equal footing with the Denon TU-800.

RADIO SHACK TM-152 AM STEREO TUNER

Don Scott


There are CD and vinyl samplers. Why not an AM stereo sampler? That's what you get with the TM-152—a taste of the real thing. And though the real thing may be very good, it is withheld from the consumer by poor marketing, receiving equipment, and, to a lesser extent, by the broadcasting stations themselves. The last quality AM Stereo component was the now-discontinued Sansui TU-D99AMX AM/FM stereo tuner that was capable of receiving both Kahn and Motorola/Harris C-Quam. Until recently, what was left on the home market were Carver's TX-11A (FM and C-Quam AM stereo) and Radio Shack's TM-152 (C-Quam AM stereo only). The latter has now been discontinued, but many Radio Shack stores have several TM-152s in stock at half-price or less. I bought mine for $27.50; as it turns out, it is fairly good and opens a new source of semi-high fidelity at a bargain price. It would be rare for anyone not to pick up at least five or six strong AM stereo signals in C-Quam at night in the US or Canada or the same number in the daytime in metro areas. Hence, there is some justification for a review of this Tandy Dandy appearing in Stereophile.

The TM-152 is about one-third the size of a typical FM tuner. Its front panel features basic but adequate controls: power on/off, mono/stereo, and tuning. Included are the usual red stereo indicator, a lit slide-rule dial, and a useful 5-level signal meter. The rear panel contains audio output jacks and external antenna/ground connections.

Circuitry
No wizardry or exotic circuits here. The TM-52 uses a typical superheterodyne circuit with

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a two-gang tuning capacitor, some whistle filtering, and is fitted with a Motorola MC13020P stereo decoder.

Specifications
None are given; no standards for measurements have been established. There is movement in the broadcast industry to standardize AM preemphasis and stereo parameters. When this happens, some meaningful measurements can be taken. However, sensitivity can be measured, and is 200uV/m from 550-1400kHz with a decline at 1600kHz. A touch-up alignment yielded only slight improvement, indicating fairly accurate factory alignment. Overall reception is slightly better, even in mono, than that found in typical AM/FM tuners. Because of the fixed mounting of the AM loop antenna inside the cabinet, I found the cabinet had to be rotated to obtain best reception. Oddly enough, the tuner receives better on its side than horizontal on most stations. For the record, the best AM receiver I have experienced, in terms of sensitivity and low distortion, is a three-year-old Radio Shack 12-656A portable which has a tuned RF stage and was sold as a long-range receiver.

Audio Quality
In the C-Quam system the L+R mono signal is amplitude-modulated and the L-R difference is angular-phase modulated (a type of FM) at the same carrier frequency. Since AM and FM have different propagation characteristics, there is considerable stage wandering when stations fade from groundwave to skywave in non-daylight hours. The stage wandering occurs because the AM portion of a stereo carrier (L+R) changes phase and the FM portion (L-R) does not. This does not happen in the Kahn system because both channels are amplitude-modulated, R in the upper sidebands and L in the lower sidebands (see Vol.9 No.3).

Separation is 20-30dB, about what you would get from a phono cartridge, and is sufficient for reasonable stereo staging. Useful frequency response extends to about 7kHz as compared to 12-13kHz with the Sansui TU-D99AMX (Vol.9 No.3), which explains why WQXR uses a Sansui tuner as an air monitor (WQXR broadcasts a Kahn-system signal). However, overall audio quality is pleasing, and long-term listening is less fatiguing than listening to sometimes overly sibilant FM.

Even in mono, the TM-152 has less distortion and better high-frequency response than typical AM receivers, although it doesn’t have the same FM-type audio quality as the AM sections of the Citation 23 and Luxman T-117 tuners.

Conclusion
In 1956 the FCC mandated that TV receivers receive both VHF and UHF. Correspondingly, I fail to see why the FCC should not make it mandatory that AM stereo receivers be compatible with both systems. Right now Leonard Kahn, progenitor of the best AM Stereo system, is getting the shaft, Motorola promoting themselves as having the system. I urge all manufacturers to incorporate provisions for both systems in AM/FM tuner designs. In the meantime, if you can find a TM-152 at your local Radio Shack, it is an inexpensive way to try C-Quam AM stereo, at least.

Apogee Duetta II loudspeaker
Even though Apogee Acoustics’ Duetta II, a full-range ribbon loudspeaker, has been reviewed a couple of times already in these pages (by Martin Colloms in Vol.10 No.1, by Tony Cordesman in Vol.9 No.7), their findings do not tell the whole story of the Duettas’ sound in my opinion. In my efforts to elicit the very best from these loudspeakers, I’ve found them so cable-sensitive that one’s opinion of how Duetta sound will depend to a very great extent upon what cables were used and whether or not the speakers were bi-wired.

The Apogee Duetta IIs are the most cable-sensitive speakers I have ever encountered. With Magneplanars, my regular speakers,
cables make very little difference. The good
ones may improve the character of the top end
a smidgen, or slightly deepen or widen the
soundstage, but these changes are, at most,
subtle. With Duettas, however, in spite of the
relatively easy, mostly resistive load it presents
to the amplifier and speaker cables, the type
of cable will make or break this speaker.

Apogee supplies shorting bars to strap the
separate inputs for woofer and tweeter to-
gether, but recommends bi-wiring, whereby
two sets of speaker cables are run back to the
amplifier. They mean it! Conventional wiring
results in a poorly defined sound with very lit-
tle soundstage that, in view of their not incon-
siderable cost, is very disappointing. Bi-wiring
should be regarded as mandatory.

When I first received my Duettas, I had on
hand only a pair each of Monster Cable Power-
line II and FMS Gray cables. Since the Power-
line was of a heavier gauge than the Gray, I
naturally put it on the woofer, and connected
the Gray to the midrange/tweeter ribbon. The
result was terrible: The speakers had an un-
pleasantly honky, forward midrange. I was
about to give up (being used to the unfussy
Magnies, it never occurred to me that the
cables could be at fault), so I called a friend
who was an Apogee dealer. Upon hearing of
my plight and listening to my explanation of
my set-up, he made one suggestion: "Swap the
cables." No, that couldn't be it. Cables never
have that much effect on speakers. Out of
desperation, I tried it. Whaddya know? Putting
the FMS Gray on the bottom and moving the
Powerline II to the top fixed the problem.
Suddenly the speakers were fairly well-balanced
in frequency response, except for a slight
tubiness in the midbass (about which more
later) and a slight darkening of the top. The
midrange glare was gone.

A couple weeks later, Monster supplied me
with a set of their new top-of-the-line M1
speaker cables. I was able to replace the FMS
and the Powerline II with these, and the quality
of the sound changed again! This time the en-
tire upper two octaves darkened considerably.
At the same time, the soundstage grew wider
and deeper, and imaging improved. The bass
became tighter and better focused, with much-
improved transient response. A mixed bag. I
liked everything except the high-end darken-
ing (the Powerline II did enough of that al-
ready). I finally found a good compromise by
using the M1 on the woofer (which crosses
over at about 500Hz) and going back to the
Powerline II for the tweeter. But I still wasn't
happy with the sound.

I spoke with Jason Bloom, of Apogee, on the
phone and told him of my cable saga. He
agreed that the speakers were indeed picky,
and suggested that a Swiss cable, the Symo,
that he'd used on the more expensive Diva
model might just do the trick on the Duettas.
He then shipped me two pairs of sufficient
length to use with my system. The Symo cable
(retailing Stateside for about $15 a foot) is un-
prepossessing indeed. At first glance it looked
a lot like Monster Cable's cheap Superflex. A
closer examination, however, showed that this
similarity is superficial. Both cables look like
pinkish-clear 300 ohm TV twinlead that has
contracted elephantiasis. But there the similarity
ends; where the Monster consists of two loosely
braided bundles of copper strands per con-
ductor, the Symo has a single bundle of copper
strands wound so tightly around a solid core
that the windings appear almost perpendicular
to the cable. The solid core also makes the
Symo stiff.

Replacing the Monster M1/Powerline II com-
bo with Symo changed the sound of the Duet-
tas drastically: The top end was now open and
fast, the highs sparkled, and triangles floated
over the rest of the ensemble. The brasses had
more bite, and the bass was tighter and better
defined than ever before. All instruments had
more air around them, and the imaging was
the best so far.

Recommendations: If you can afford it (and
if you can get it—this stuff is hard to come by),
I suggest you have your Apogee dealer sell you
a full set of Symo. This will add about $600
(for four 10' lengths) to the overall cost, but will
save you a lot in the long run. At today's speaker-
cable prices, you can easily spend twice that
just searching for the right cable. If you can't
swing the Symo right away, then I would opt
for the Powerline II by Monster. It's cheap
(about $2.50 per foot) and degrades the per-
formance of these speakers much less than do
most other cables. The difference between
Powerline II and the Symo is much less than
between single wire and bi-wiring, so whic-
evener cable you buy, buy four runs.

One of the more curious aspects of the
Duett II design is that Apogee provides no
way of bypassing the speaker's built-in cross-

Stereophile, May 1988
over. So even though there are separate sets of terminals for the woofer and tweeter on both speakers, it is impossible to actually bi-amp them. The Apogee instruction book does show how to use double amplifiers with a separate amp for the woofer and tweeter, but these amps are both fed a full-range signal from the pre-amp without the use of a low-level crossover. I can see no real advantage to this scheme except in the case when one’s amplifier size is marginal.

Though the Duettas are less of a problem to drive than some of the older Apogee models, they still require gobs of current. Apogee recommends a minimum of 100Wpc, but after living with them for a while, I recommend at least double that. It’s not the power that the speakers need so much as it is the current. Amplifiers get their power ratings by figuring the power using the output device’s voltage swing across the load (usually 4 or 8 ohms), expressed as Power (P) = Voltage (V) squared, divided by the load Resistance (R). It should be obvious that an amplifier’s power supply must be able to supply enough current for the voltage to swing high enough to develop its power rating across the load, but often, due to cost restraints in a very competitive market, a power supply will be designed to do this with little or no reserve. When the impedance drops below 4 ohms or so, the power supply just cannot provide enough current, and the DC voltage available across the output devices drops.

When you try to drive these speakers with less than about 200Wpc, they suffer in dynamic contrast. It might be advisable (for cost reasons if no other) to purchase a duplicate of one’s current amp and double-up by using one channel of each amp to drive the woofer, and the other channel to drive the tweeter. This will divide the load evenly between the two available channels, thus reducing the power requirements on each. By dedicating one entire stereo amp to each speaker, you will end up with the advantages of a “dual-mono” amplifying set-up as well.

The sound: First of all, the most striking aspect of the Duetta sound, and the one that first assaults the sonic senses, is the bass. It is, in a word, unbelievable. In my main listening room, the -3dB point seems to be about 25Hz. The bass is not only plentiful, but is tight and quick to boot. Organ music is visceral in a way that I would have thought impossible from bipolar speakers.

In large measure, the manner in which a bipolar speaker couples to the room determines the ultimate low-frequency performance which can be expected. As stated earlier, the Duettas like to have lots of room around them. When I first set up my pair, I placed them the same distance from the back wall as I had placed the Magneplanar Tympani 3Cs which preceded them. The low end was impressive enough, but the midbass between about 80Hz and 120Hz exhibited a slight, broad peak, which, although it did not give the feared “one-note-bass” effect, was nonetheless unpleasant. I found that in my listening environment, it was necessary to move the Duettas out to about 40” from the rear wall to totally remove this midbass hump. This experience, of course, merely reinforces the fact that bipolar speaker placement is largely a matter of experimentation, and what works or doesn’t work in my listening room has little to do with what might work in yours. I can promise you bass extension rarely heard in audiophile speakers these days, and I can tell you that the quality of that bass can be startling.

The midrange in the Duettas is also excellent. After fixing the aforementioned cable problem, the midrange glare was replaced by a finely balanced midrange which has the rather unusual ability to really belt when called upon to do so. If you’ve ever been in a room where live brass are playing, you have probably noted how really “brassy” they sound. The sound just sort of blats at you in a rather loud and raucous manner, and is anything but polite. Very few speakers can capture this blast of wind and make the listener sit up and take notice. The Apogees do this very well. They also have the ability to separate instruments and delineate dense orchestral textures. It seems that no matter how loud and complex proceedings become, the speaker never loses composure, and things never become thick and congested.

The high frequencies are, of course, the range of the Duettas most affected by cable differences. With the Symo cable the highs are flat (with the tweeter switch in the up position) and well-extended. (Measuring nearfield frequency response with a calibrated microphone coupled to a Hewlett-Packard model 400 audio voltmeter and a swept frequency
source, I was unable to correlate MC's rolled-off highs in Vol.10 No.1, finding the -3dB point to be at 18kHz (MC measured -3dB at 12kHz). Jason Bloom explained that this was due to the fact that these speakers have been improved considerably since MC reviewed them, and in fact not only have much improved highs, but are 5dB more efficient across the board as well!

The most impressive characteristics of this speaker's top end are the speed and the utter lack of coloration. The high-frequency detail is astounding. The tweeter ribbon's ability to recreate the resinous quality of properly miked strings gives me goosebumps, and triangle and bells have the proper attack and decay (very difficult for most speakers; the only other speakers I know of which have this quality are the ribbon-tweetered Magneplanars and some electrostats). Very impressive.

**Conclusion:** Apogee Duettas are capable of near-state-of-the-art performance, but are so sensitive to cables that without the right ones, you won't get the performance you paid for. They are also amplifier-sensitive. To sound their very best they need a good power amp with lots of current-sourcing capability. If in doubt, don't buy these speakers without first hearing them with your own amplifier. My experience with dipole radiators is that even though they are room-placement-sensitive, it is a rare room indeed where there isn't a place where they will sound satisfactory. Be prepared to experiment.

—GG

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Barbara Jahn talks to Michala Petri

Michala Petri,¹ the internationally renowned Danish recorder virtuoso, debuted at the Tivoli Concert Hall in 1969 at the age of 11. That same year, she founded the Petri Trio, consisting of herself, her mother Hanne on harpsichord, and younger brother David on cello. Since then she has appeared as a soloist with the English Chamber Orchestra, the Academy of St. Martin-in-the-Fields, the New York Chamber Symphony, the St. Louis Symphony Orchestra, and the St. Paul and Los Angeles Chamber Orchestras. Ms. Petri talked with me just before the beginning of her month-long tour of the UK in November last year. Although on stage she is poised and demure, overcoming what seems a natural diffidence by her enthusiasm to communicate, in interview she is comfortably relaxed and open about herself and her career.

BJ: How do you cope with limited rehearsal time when arriving at new venues and meeting new orchestras?

MP: Sometimes I've played with orchestras that have not been that good, but after many rehearsals and a tour with seven or eight concerts, the last concert has often been very special musically, because we all knew exactly what we wanted by then.

The top professional orchestras can play perfectly the first time. But that's another thing—sometimes things never change for them.

¹ "Michala" rhymes with "Nicola."
It starts a certain way and it keeps the same all the way through: it never gets any better. But there is not much rehearsal time, never as much as I would like. Sometimes the rehearsal is late in the day and then it is difficult to save my energy for the performance in the evening. Once I flew from Denmark to New York for a single concert with the English Chamber Orchestra and George Malcolm. After one rehearsal, at 5:00 in the afternoon, we gave the concert at 8:00.

BJ: That must surely affect the performance.

MP: Yes, it does. All the notes may be perfectly right, and it may be "note-true," but it's not right. It's not time enough for the musicians and for me to get used to each other. Everybody just plays through the notes without really
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feeling what they are about. But if the circumstances are not ideal, that is the way it is. I don't try to do the impossible any more. I wouldn't be able to survive, as I do so many concerts.

**BJ:** *When did you begin to play the recorder?*

**MP:** I was three. My father gave me something to get started on, something of my own, so that I would stop disturbing my mother's practice, but neither of my parents thought I should stay with the instrument if I wanted to change. When I was five I gave my first Danish Radio broadcast, playing the recorder, and my first live concert at the Tivoli when I was eleven. That same year I enrolled as a student at the Hochschule für Musik in Hanover, to study with Ferdinand Conrad. *(Conrad is a much-admired recorder teacher and soloist. — BJ)*

I went the first time because my mother had been advised to take me to him and ask if I had any chances of becoming a recorder player. He heard me play and said he would be happy to take me as a pupil. My mother and I traveled 300 miles from Denmark to Hanover every week for my 1/2-day tuition—I was too young to enroll as a full-time student.

Starting so young had one disadvantage, though. I have kept some bad habits.

**BJ:** *Given your technical facility and immaculate intonation, I find that difficult to believe.*

**MP:** If I'd started playing when I was 17, I would have been more mature and it would have been easier for me to develop musically and to express myself in the music. As a child I prepared everything very carefully and I knew exactly if this note was going to be short or long. I could reproduce a performance exactly and I completely missed the spontaneous element of playing. Then, some years ago, I went completely the other way and said I have to play just as I feel in the moment; I don't want to prepare too much because it will spoil the music. But now I think I have found a good balance between the two, where I am able to prepare the music in advance and also experience it in the moment.

**BJ:** *Was Ferdinand Conrad as thorough in his teaching of interpretation as technique?*

**MP:** Yes, but much of it I was too young to understand. He would say, "this is deep sorrow," or "this is the greatest pain you can imagine," and it didn't mean anything to me.

**BJ:** *Yet you finished studying with Conrad at 17, when most students are just starting.*

**MP:** Yes, but now I've grown to feel it in my own way. But starting young had great advantages technically, because it has made it very natural for me to play. I still practice for four or five hours a day, although at times I feel lazy and need a push. If I take out an old recording for study purposes, I normally always feel that I played it much better than I do now. I forget that it was the result of several hours' concentrated work in the recording studio, and I think, "I'd better get practicing."

**BJ:** *Is it possible to get something new out of a piece that you have practiced and played so many times before?*

**MP:** Yes, it is, but it is difficult. I must always try to play it as if it was the first time. I can develop my recorder playing all the time, but sometimes I come to a point where I think, "Now it's enough, I can't do anything more with this instrument." Then, one month later, I find a completely new possibility I have to explore.

**BJ:** *Does this have something to do with the nature of the recorder?*

**MP:** No, it has more to do with me, my personal development. It's probably the same with everyone. Once you reach the point where you think, "I can't go any further," you find a new possibility. It was like that with *The Four Seasons*. When I was first asked to do it I turned it down, and then later I thought I should give it a try, and I found out that I could do it. Making arrangements is a challenge. I enjoy it and I learn a lot from it.

*(Petri's own arrangement of these four Vivaldi concertos (see Vol. 11 No. 2) is her first release for RCA, following her move from Philips at the end of last year. The recording was made in the Henry Wood Hall in London, in July 1987, with the youthful Guildhall String Ensemble. Petri had taken the work on tour with that group a few months earlier, and the resulting issue is deeply imbued with an empathy, freshness, and enthusiasm typical of these artists. — BJ)*

It was good for me to work a little like a director with the Guildhall String Ensemble because it gave me a more complete view of things. Also, I decided what we were going to do and took more responsibility for the orchestra. We also recorded Vivaldi's Concerto in C for that disc, with harpsichord continuo by George Malcolm. I've performed and recorded with him many times before. When I go about and meet different musicians I just
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get an idea that it may be nice to do a record with them if I feel we match well musically. That's the way it was with George Malcolm.

I'm looking forward to starting afresh with RCA, but I'm happy that I'll still be able to record with such artists as George Malcolm and the Petri Trio.

**BJ:** Are there any other reasons why you moved from Philips to RCA?

**MP:** Philips was not too keen on me doing modern music, but I like the challenge of it; RCA will give me the opportunity to record it. In fact, I've just completed a recording of contemporary pieces, and hope to do another in the future. I still have many modern works in my concert repertoire, mainly by Scandinavian and English composers.

**BJ:** I'm reminded of your enthralling performance of Berio's Gesti on your first recording for BBC records (REC 298) in 1976. Is that piece still part of your concert repertoire?

**MP:** It is a fantastic piece, and it was fun to play at the time, but somehow I am past that period of wanting to do very extraordinary things. The pieces I play now are not completely traditional or in a Classical style, but there is more melody in them, they are not just noises. There seems to be a general tendency among composers today to write more understandable music, but sometimes it can be more difficult to make something out of a piece that is purely melodic. It does happen occasionally that I don't understand the meaning of a piece until I come to record it. I'll think some section is a little fill-in, or bridge passage, and then suddenly it makes a completely different sense in recording because I am concentrating so much. But normally, by playing the music and really feeling it at the same time, I can understand it.

**BJ:** It sounds very much as if you prefer twentieth-century music to the standard Baroque repertoire.

**MP:** I couldn't stand playing only Baroque music—it always stays the same. In modern music you can bring out something new.

**BJ:** But couldn't your ornamentation be constantly changed to bring contrast to each performance of seventeenth- and eighteenth-century pieces?

**MP:** Yes, but I still prepare it in advance; I'm not an improvising sort of person. I don't think I ever will be. But it occasionally happens that I start improvising if I am completely on top of things, and that feels good. But I'm working very much with dynamics now—it's something of a specialty of mine.

I don't find acceptable the practice of blowing the recorder harder to produce a crescendo, or less to make a diminuendo—this makes the notes go horribly sharp or flat. I developed the technique of finger shading: when you blow more, another finger can be used to partially cover a hole, keeping the note true.

I don't claim this to be my own discovery, absolutely not. I got the idea to a certain degree from my teacher. He said, "you can use another fingering for this note," but he didn't say I could make a diminuendo by taking my fingers off gradually. I do it most of the time in slow movements now, and as I am getting better at this technique I can also do it on most notes in fast movements, without having to think too much about it.

**BJ:** Would such a range of dynamics have been used during performance in the Baroque era?

**MP:** I think not, but audiences now are used to large orchestral works and want more dynamic interest in music.

**BJ:** "Authentic" performances are becoming very popular, though.

**MP:** Yes, that's true. I've listened to lots of performances of The Four Seasons, and the ones I like the most are the authentic ones; they are the most lively and detailed. I don't think the way I play is that much different from the way old-music specialists play, but I find I do change my blowing style automatically, without thinking, when I get an old-pitch recorder in my hands.

I rejected an offer to play in an authentic performance because I didn't have the right instruments, but I've just agreed to perform with Christopher Hogwood and the Academy of Ancient Music in the USA in 1988. I'll be acquiring a suitable instrument at the end of the tour in order to begin preparation.

**BJ:** Did it help, when you arranged The Four Seasons, to model your solo on the original violin conception?

**MP:** It was actually a problem. I tried to do the same things the violinist does with dynamics and tone and so on, but the recorder and violin are strong in different ways. So in the end I gave up trying and just made it as musical as possible. But I did think of the images when playing. I don't usually play like that, but I imagined ice and snow and birds singing. I
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hope it will come across in the recording.

**BJ:** So you are sometimes disappointed on hearing the playback of a recording?

**MP:** Oh, I am never satisfied with my performance when I hear my recording! (laughs) I always think, “Now I am ready to make a really good recording.” But it has sometimes happened that I’ve known I’ve done a lot of things, crescendo and diminuendo, which simply haven’t come out because there has been too much echo or I have been told to stand too close to the microphone. Then it sounds pushy all the time, and I’ve been a little annoyed because that makes people say the recorder is a boring instrument and incapable of such things.

**BJ:** Is it difficult to play without an audience?

**MP:** No, I get adrenalin going just as much in recordings, maybe even more so, but I do need to know that I have only one chance. When I practice for a concert I have to know that I can play this moment true, without any mistakes.

**BJ:** And if mistakes do slip in?

**MP:** It doesn’t bother me at all. I think ahead, I never think back; that is an ability I have developed over the years. But I need to know that I can play without mistakes, otherwise I would get too lazy about my practice. I strongly believe that an artist should be able to go into a recording studio and play a perfect take the first time through. That is normally the best and the freshest for me. The thing to do, though, is to play the piece through twice, in case there have been any squeaks or traffic noises that the producer wants to take out. But sometimes, even if I’ve played a piece without mistakes, I play it again and again until suddenly it’s right.

**BJ:** It’s becoming easier to understand the humanity behind the technical perfection of your performances. But how do you unwind after such intense concentration?

**MP:** When I have been recording for several days, I don’t feel like being alone; I don’t like to leave the recording studios immediately. I read a book recently which said that actors very often don’t like to leave the set after intensive filming—it becomes a part of you for a little while. But after a concert I just wait by myself.

(Yet she was not able to do this after the concert she and her mother gave in Preston, Lancashire, within a few days of our talk. Instead, she came out to meet the eager members of this provincial music society, to answer their questions and sign autographs. Their appreciation for her stunning performances of Bach, Telemann, Handel, and Quantz Sonatas, and two eighteenth-century pieces by Ole Buck and Malcolm Arnold, could have left her in no doubt that her seemingly effortless playing was an inspiration and joy. Demand for encores brought her back to give performances of Marais’s Le Basque and Gossec’s Tambourin that were breathtaking for their speed and virtuosity. — **BJ**)

**BJ:** I’ve noticed at concerts that you carry two or three instruments of the same make and wood onto the platform for each work.

**MP:** I see that I have two good recorders that I can change onto if necessary, but I always have one favorite that I prefer to play. They are all Moeck Rottenburghs, made of Grenadilla. When I started studying in Hanover I was told to go and get a Moeck recorder. The Grenadilla instruments were the most expensive, and I thought in the beginning that they were probably the best for that reason (laughs). But I do think they are the best; they project better than the others and they don’t change as much.

**BJ:** Even so, I noticed you had condensation problems with them at the Preston venue and sometimes had to change instruments between movements of a piece. Are these instruments made especially for you?

**MP:** No, I just go to the factory and choose a good one. Moecks suit me very well, because I can blow a lot of air into them. The ideal is to breathe from as far down as possible, from the diaphragm, like a singer. The recorder needs to be blown in a very fluent way to keep the tone constant, and I always blow the maximum on each note. I blow until I feel a slight resistance, just to the limit of where the tone would no longer make the nicest sound. In that way I can blow naturally; I don’t have to hold any air back, I just let it go out.

**BJ:** Your repertoire is quite impressive, despite being limited through the instrument’s decline in popularity in the Classical and Romantic periods. Would you be pleased to see a greater number of people playing the instrument if a wider variety of pieces were to improve its image?

**MP:** I am not a recorder fanatic. I don’t think everybody should be playing the recorder. I see myself more as a musician who just happens to play the recorder.

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Brahms’s D-minor Piano Concerto

There is a handful of works, major encounters, that remain our milestones in the explorative journey through music. So many of these are minor-key works, and Brahms’s First Piano Concerto is no exception. Like Beethoven’s Ninth Symphony, or “Tempest” Piano Sonata, much of Mahler’s Ninth, and the Mozart Piano Concerto K.466 (reviewed last month), it is in D-minor, patently a tragic medium—even one redolent of death, I believe. (When Brahms’s mother died and he conceived his consolatory Deutsches Requiem, the second movement, “Denn alles Fleisch,” was a reworking of a Sarabande first intended as a slow scherzo for the Concerto).

Brahms first heard a performance of Beethoven’s Ninth within a month of Schumann’s attempted suicide (1854). He was intensely involved with Clara Schumann, and was equally an admiring young friend of Robert. Nearly 21, he was impelled by these experiences to write a piece in D-minor, a Sonata for two pianos. With the composition more or less complete in May 1854, he then sought to recast it as a symphony. But he realized that he could more potently express his feelings with the conflict of orchestra against piano; after many revisions, the complete D-minor Concerto, Op.15, was premiered under Joachim (with Brahms at the keyboard) at Hanover on 22 January 1859.

The indifferent reception was followed five days later by open hostility from the press and a Leipzig Gewandhaus audience. A surprising exception was the Neue Zeitschrift, the paper founded by Schumann, but then under the editorship of a pro-Liszt/Wagner, New German School champion. There it was declared a “sign of significant and original creative powers.”

Under the guidance of the influential Joseph Joachim, Brahms continued revising details until the publication of the piano and orchestral parts. In Mannheim, in 1865, a performance under Levi first swayed a German audience. The drama of the massive opening Maestoso reflected the shock of Schumann’s attempted drowning; the inscription over the sublime Adagio, “Benedictus qui venit in nomine Domini!,” was an unashamed declaration to Clara (whose husband pupils referred to as “Domini”); the finale contrasted Brahms’s love of Hungarian music—to which he had been introduced when partnering the refugee violinist Eduard Remenyi.

Stereophile, May 1988
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We don't hear the piano until after 90 bars of stormy exposition; it makes a quiet entry under trumpet and drum pulses, but after 20 measures echoes the angry trills in the orchestral strings at the beginning of the work. The measure of the pianist can usually be gauged at the solo pages Poco piu moderato (nowhere more persuasive than under Serkin's hands!). Brahms saves his cadenzas for the finale, where a short and difficult cadenza passage unexpectedly evolves some 90 measures after the conventionally heralded, written-out cadenza (quasi Fantasia). The orchestral forces are scaled down for the Adagio.

Increasingly, the Brahms D-minor is being used as a competition piece by aspiring young pianists (such as Kimura-Parker, or the Moscow winner Barry Douglas, whose forthcoming RCA recording can only improve on the live Russian performance issued on an Olympi a CD, where the playing is a disgrace). But I can't help feeling that, though written by a young man, it is best left to the mature and wise: Arrau, Serkin (both 85 this year), Curzon. An exception, though, is Daniel Barenboim, whom one might say was middle-aged before he started. In 1968 he recorded both Concertos with Barbirolli and the New Philharmonia and, albeit digitally remastered, No.1 is still available on LP (EMI EMX 41 2085 I). This would go on my shortlist (in preference, say, to either the Pollini/Bohm or Ashkenazy/Haitink recordings, both technically fine but rather unmemorable). If it were still listed I might except, too, the debut recording by Bruno-Leonardo Gelber, made by Pathe in 1966; Gelber never became a prolific recording artist, but his Beethoven Variations program on Orfeo should not be overlooked. The EMI reissue tends to spread romantically, but what commitment! There is trenchant playing from the orchestra, and Barenboim is far more stimulating here than in his thoroughly disappointing CBS remake with Zubin Mehta.

The surge of back-catalog material now coming out on CD means that a lot of important, but neglected, recordings by major artists are reappearing (Richter on EMI, for example). Last year the Arrau/Haitink Brahms I came out as a mid-priced Philips CD; more exciting, though, is the renewed availability of his more richly expressive version with Giulini/Philharmonia, remastered for CD by EMI (CDM 769177 2). And, in March, Decca marked the centenary year of the Amsterdam Concertgebouw with three Van Beinum reissues (he was Mengelberg's postwar successor). Former Chicago Daily News critic Bernard Jacobson, in his The Music of Johannes Brahms, finds the 1953 Curzon/Van Beinum mono recording (Decca/London 42 143-2) "more successful" than the Curzon/Szell/LSO collaboration of '63 (Decca/London 417 641-2). While I disagree strongly, I recommend the Concertgebouw option for the greater senses of fantasy and masculinity Curzon projects there in (i). The slow movement is very ordinary by comparison with that with Szell; so is the finale, for that matter. (See John Culshaw's memoir Putting the Record Straight, p.116-7, for an anecdote on the 1953 sessions. There's also a story that Szell heard Curzon rehearsing with Knappertsbusch, and left him a note of congratulation "despite all that was going on around you!")

Curzon's remake is one of the great classical recordings, and in the CD remastering the transfer is so good that you are almost persuaded that it sounds as good as the LP. Maybe that is so, considering the PolyGram "Jubilee" copy, rather than the original SXL from England. Certainly the CD makes you aware of the extraneous noises, and vocalizations from both conductor and pianist. Regrettably, the coarsening of trumpet tone (through digital processing) underlines Szell's errant taste in encouraging the players here.

What sets this version apart from all others is the hushed atmosphere of the slow movement, even more electric than on another Decca/LSO I treasure: the Katchen/Monteux of 1960 (when last seen: London STS 15209). The sound is inevitably a little more dated in orchestral strings, and the pianoforte sound doesn't have the bloom or pedalling subtleties of the '62 Curzon. Monteux took the Adagio at a more flowing speed, too—though Katchen's awareness of the gravity and loveliness of the solo writing is moving, and his masculine, strong style is generally more apt. With Curzon, you feel he's achieving miracles with willpower, but with a weaker technical armory. Monteux's light hand in the finale's delicious fugato does seem a shade casual after Szell's taut handling.

Szell recorded the work with Schnabel, Fleisher, and twice on LP with Serkin. He was dissatisfied with the balances on the 1968
Cleveland recording with Serkin, and wrote an open letter of complaint. (It was remixed afterwards by CBS.) Listening to it again, I was impressed with some silkiness in the strings, though woodwinds/brass are throttled and harsh, the piano is far too close, and hiss levels are high. Wonderful, vibrant playing from Serkin, supported to the hilt by Szell’s crack orchestra, but as synthetic a recording as you could have.

On Melodram (MEL234, 2LPs) there’s the infamous Glenn Gould/NYPO 1962 performance that was “disowned” beforehand, in a rostrum speech by Bernstein. This long-winded preface is preserved too, uncredited at the end of Side 1, and very silly it sounds when you think of Bernstein’s later indulgences in Brahms with the VPO, most notably in his DG Concertos with Zimerman (the B-flat is worse than the D-minor). Gould’s conception is individual, but his playing is technically elegant and illuminating—I rather think Bernstein undermined credibility by taking the exposition in (i) so slowly. On his 1984 DG the characterization is pretty well unaltered, and the basic (?) pulse eccentric still.

In 1984 the prewar Backhaus D-minor, with BBC SO/Boult, was transferred to LP (EMI 290345 3), a typical example of this pianist’s austere manners. What is unconventional here is the rapid speed for (iii)—Boult generously goes along with his soloist. Backhaus sets different tempi for different episodes, but the total effect is somehow refreshing (though with not much depth to offer in the Adagio.) Twenty-one years later (1953) he recorded it again with VPO/Schuricht (French Decca 592 135), and (iii) is there rather slower. Only a few seconds longer, the Adagio shows a slightly more reposeful, but still matter-of-fact approach. In February this year, Soloman died. His old Philharmonia recording with Kubelik was available in an HMV boxed set (SLS5094) more highly regarded for the couplings—Grieg, Schumann, Tchaikovsky, Brahms 2—but the slow movement preserves that fine artist’s luminous tones, quiet authority, and utterly compelling eloquence. Sounding a little uncertain of his conductor in the outer movements, Soloman plays in a reserved, understated way there. In a slow-paced Maestoso the passionate feeling in Kubelik’s music-making, with some attendant untidiness in orchestral control, marks a certain affinity with Barbirolli’s Brahms.

Of the deleted Firsts I wouldn’t be too excited by finding a copy of Dichter/Masur, Woodward/Masur, Lilli/Loughran, or the two later Rubinstein recordings (Leinsdorf, Mehta). The one with Reiner contains some fabulous playing from the Chicago SO, and the 1954 RCA recording is intriguing as a very early stereo production (under John Pfeiffer). Some of the level-riding is undone, notably in the slow-movement crescendos. For all that he was a Joachim protege, Rubinstein has never struck me as a true Brahms pianist: his touch was too brittle, and although he treats this work with great seriousness, now and again a certain flip attitude to a phrase intrudes.

Finding a Bishop Kovacevich/Davis copy, or a Lupu/de Waart, would be a different matter. The former has a wonderful jubilant kind of urgency in the finale, and it is a pity that dim sound led to pretty universal critical dismissal. Radu Lupu is perhaps the best of today’s Brahmsians—witness his Decca/London CD of Rhapsodies and late pieces, 417 599-2. In his 1975 Concerto with the LPO he is far broader in the finale than Bishop, and in (i) poetically introspective. Finely imaginative, with good Kingsway Hall sound, this warrants reissue—Decca again!

Gilels learned the Concerto especially for his DG recording with BPO/Jochum. I confess to finding his playing far too studied and objective, marvellous though it is in terms of technique. This, for me, is the marmoreal side of Gilels (with Concerto 2, 2 CD: 419 158-2). Given that (iii) opens at an identical speed to Arrau/Giulini, why is it that the latter brims over with life, while the German one is preserved in ice?

The newest recording (Philips 420 071-2) is by Alfred Brendel, partnered by Abbado/BPO, and replaces his 1974 Concertgebouw recording with Schmidt-Isserstedt (lovely analog sound, noble conducting). Brendel has quickened his Adagio/finaie very slightly. Well, I’m not happy with it. In (ii) the Berliners dispense a rather slick kind of beauty, while Brendel delivers not so much a performance as a master-class commentary, full of pauses and spurts of pace that suggest an nth degree of detachment from it all. If this pianist’s track record were unknown, it would be dismissed as posturing.

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Stereophile, May 1988
BRAHMS: Piano Concerto I
Alfred Brendel, Claudio Abbado, Berlin Philharmonic Orchestra

Brendel's stature as a pianist is such that any new recording by him, even of a work so well represented in the catalog as this, must demand attention. Yet even though there is much to admire here, this is not a performance I could recommend. In this reading he does not have the necessary degree of empathy for Brahms's harmonic concept to be entirely convincing, and he tries to point motifs and draw attention to lines that just don't need it. The end result is a bitty, fussy reading that is unsettling and ugly in its angularity. So often Brendel sounds dispassionate, almost perfur- tory, particularly with second subjects, and in much of the Adagio movement. Meanwhile, the BPO soars and swells rapturously, emphasizing the Romantic qualities of this score, but Abbado is unsuccessful in cajoling its soloists to greater emotional commitment. It is strange that Brendel plays here with an uncharacteristic waywardness that often robs the phrasing of its basic pulse; at the wonderfully original piano entry in the first movement he sounds as if he wants to slow the tempo, while after the orchestral statement of the second subject he is obviously pressing on, only to settle down, eventually, in line with Abbado's more consistent pace. Even more surprising are some technical disappointments: the ponderous and flustered multiple trills of the first movement, and a general lack of tonal finesse that drains textures of their warmth and sensuousness.

Perhaps the least contrived aspect of this issue is its recording. There is width, if little presence, to the soundstage, and the natural reverberance of the Berlin venue warms without over-thickening textures. Dynamic gradation is faithfully reproduced in terms of both the orchestra and the naturally balanced piano and, while the orchestral sound is not the best I've heard, it has none of the glare and overemphasis that make many digital recordings unpleasant on the ears. Would I then recommend one of the other performances of this work from the catalog? I wouldn't dare after Brendel's recent, frank comment on such choices: "There will be few reviewers who know the piece as we know it; who have dealt with it for many years, who can master every voice in the piece, and who have tried to solve the problem of bringing it to life. So they have to resort to comparisons in order to like something better than something else—sometimes without knowing whether it serves the purpose or not!" Enough said, I think.

—Barbara Jahn

BRUCKNER: Symphony 8
Gunter Wand, Cologne Radio Symphony Orchestra
EMI Deutsche Harmonia Mundi CDCB 47749 (2 CDs). Otto Nielen, Hermann Ranz, engs.; Dr. Hermann Lang, prod. ADD. TT: 81:26

BRUCKNER: Symphony 8
Eliahu Inbal, Frankfurt Radio Symphony Orchestra
Musical Heritage 9220671 (2 LPs). DDA. TT: 75:20
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As is so often the case with Bruckner symphonies, the two versions here use two different texts, though both are labeled "original" and "first version," terms established at the 1980 Bruckner symposium in Linz as meaning one and the same thing. Inbal's performance follows the first-draft score of 1887, the one not actually heard live until 1973. It will prove a revelation to ardent Brucknerians, for it shows not only structural and textural differences, but also that many of those original thoughts that Bruckner later revised were badly conceived in the total structure of the score, and would have proved great weaknesses had they been allowed to remain. Perhaps the worst of these is the 30-bar-long fff peroration to the first movement. Not even the FRSO/Inbal's commitment can make this sound less incongruous than it really is! Wand and the CRSO end with the familiar revised version that is so forbidding and tragic, yet so indisputably fitting here: theirs is, throughout, the more moving performance of this opening Allegro.

The strings, so disappointing in many of the other symphonies in this cycle, are impressively strong, a vibrant and warm tone exuding from the accented, steady tread of their obsessive rhythm. There is such confidence and power from all sections of the orchestra, and an inevitability not to be had from Inbal's equally positive but less atmospheric reading. His first movement is episodic and lacks coherence, while his rawer string sound in the monotonous pounding of the Scherzo second-movement theme brings with it none of the elation to be experienced in the hands of the magic Wand. Where the latter wins through is in his instinctive pacing of this movement and the pull and release of tension within the theme that can so often sound needlessly prosaic in the hands of other conductors. I have never before been convinced by this Scherzo, but Wand seems to have got to the heart of it for me. He is helped by a less reverberant acoustic than that of Inbal's recording venue, and with better clarity of inner textures comes a more convincing balance of intentions.

Strangely, though Wand wins hands down for his interpretation of movements one and two, it is Inbal who seems to shape the immense and difficult Adagio and Finale with more sensitivity and understanding. His is a Mahlerian approach to the Adagio, but how wonderfully it works: phrases are seductively shaped, dynamics ebb and flow with passionate yearning, details of color and timbre are exploited to the full, but small-scale detail never gets in the way of full-scale integrity. This is thrown in stark relief against Wand's less dramatic and eventually less moving interpretation.

Wand is incapable of drawing all the Finale's disparate elements into a convincing summation; Inbal is more farsighted in his view. While there is no sense of rushing, he keeps the speed buoyant, creating forward momentum and holding his listener's attention for the great apotheosis, and how powerful and determined that is.

Both orchestras play with a conviction that makes some moments of untidy playing relatively unimportant. What I found more disturbing was Inbal's "singing" with parts of the score, and the comparative lack of clarity in recording offered him. Wand's 8 receives one of the best sounds of his cycle: brass and strings are better balanced, there is a fine sense of ambient space around the orchestra, and all extremes of dynamic are coped with without the slightest loss of inner clarity. So, no outright recommendation can be given, but if, like me, you can have both recordings, you will get the best of both sound worlds.

—Barbara Jahn

**HAYDN: Symphonies 93 & 99**
Georg Solti, London Philharmonic orchestra
London 417 620-2 (CD), Stanley Goodall, eng.; Michael Hass, prod. DDD, T: 52:48

This is the fifth release in a series that now seems destined to encompass all of Haydn's London symphonies directed by Sir Georg Solti. Like its predecessors, it disappoints. Aside from rather stodgy tempos in both Minuets, nothing here is conspicuously unstylish. But a number of less obvious matters prevent these readings from reaching the front rank. For one thing, the sonority is too bass-heavy and suffers from balances that, at times, mask key details and, at other times, highlight solo passages to excess. As a result, the general instrumental blend smacks more of the control room than of the concert hall. Then, too, Solti misses some of the music's intentionally coarse wit. The most notable example is his underplaying of the scatological bassoon blast in the slow movement of 93, a passage that
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George Szell, far more attuned to the music's brusqueness (in a two-decades-old recording recently reissued on a CBS CD), milks for all its worth.

But most of all these readings suffer from a prevailing joylessness. This has nothing to do with tempo. It is particularly interesting, taking a key case in point, to compare Solti's way with the finale of 93 to that of Sir Colin Davis (on a Philips CD). The tempos favored by both conductors are virtually identical, yet Davis, by securing cleaner articulation, more judicious balances, and more clearly molded phrases, produces a crispness, clarity, tension, and buoyant sparkle that elude Solti. Furthermore, Davis's Concertgebouw Orchestra is a far suaver group than Solti's LPO, and is recorded with considerably greater tonal allure. These distinctions, let it be added, also favor Davis in his older recording (non-digital) of 99, which will probably appear on CD before long. Solti, like Davis, observes all exposition repeats. Those who must have this specific coupling might find Solti acceptable, but he is simply no match for Davis in either symphony, or for Szell in 93.

—MORTIMER H. FRANK

LISZT: Piano Music

Earl Wild, piano

Sonata in B Minor (G.178); Polonaise No.2 in E Major (G.223); Etudes de Concert: La Leggieressa (G.144); Un Sospiro (G.144); Gnomenreigen (G.145); Waldesruaschen (G.145); Etudes d'Execlution Transcendante (G.139): Nos.2 in A Minor. 7 ("Enrica"), 9 ("Ricordanza"), 10 in F Minor, 3 ("Paysage"); Hungarian Rhapsodies (G.144) Nos.4 in E-flat Major, 12 in C-Sharp Minor, & 2 in C-Sharp Minor

Etcetera KTC 2010 (2 CDs). DDD. TT: 102:14

Les Jeux d'EAu a la Villa d'Este (G.163-4); Consolation No.3 in D-flat Major (G.172:3); Apres une Lecture du Dante (Fantasia quasi Sonata) (G.161-7); Sonetos del Petrarca: No.47, 104, & 123 (G.161 Nos. 4, 5, 6); Mephisto Polka (G.217); Ballade No.2 in B Minor (G.171); Liebestraum No.3 (Nottunno) (G.541 No.3); Valse Oubilee No.1 (G.215 No.1); Funerailles (G.173 No.7); Liebestraum No.2 (Nottunno) (G.541 No.2); Mephisto Waltz No.1 (G.514)

Etcetera KTC 2010 (2 CDs). DDD. TT: 106:47

Both: Kelly Higgins, eng.; Michael Rolland Davis, prod.

Earl Wild's 1985 recording of Liszt transcriptions (Etcetera KTC 2011), reviewed most favorably by me in Stereophile (February 1988, p.141), was part of a three-volume, 6-CD set devoted to three different aspects of Liszt. Although not so specified by title, the present remaining volumes represent the composer as the virtuoso and as the poet. These ever-present characteristics are found in abundance, but are most often intermingled, so that one cannot declare categorically that KTC 2010 is flashier and necessarily less reflective or contained than KTC 2012. Altogether, however, I find all three sets about as well-defined a survey of the basic pianistic Liszt as could be imagined. Throughout, Earl Wild shows his consummate understanding of the 19th-Century rhetorical ideal. There is visceral excitement aplenty. His tonal palette is wonderfully wide-ranged, at a time when the average pianist of the final quarter of this century tends to exhibit surface technical perfection but, sadly, precious little in the way of dynamics or color.

I cannot, of course, forget the recordings of a number of pianists of the past who brought their unique qualities to some of this repertoire: Lipatti, Horowitz, Rosenthal, Cortot, Grainger, Rachmaninov, or Moisewitsch for example. However, if we are describing present-day panache, beautiful tone, technical brilliance, poetic inspiration, and—yes, even humor, then Earl Wild's performances here should provide a most enjoyable experience and one that easily deserves to join those of his illustrious predecessors. The recorded sound, with the single exception of the KTC 2010 Etudes de Concert (reproduced at a slightly higher level from the pieces that preceded them and, additionally, not at all free from distortion), is generally satisfactory; the piano in its living-room setting emerges quite full in the bass, but not ideally transparent in the treble in the loudest passages.

—IGOR KIPNIS

MONTeverdi: L'Orafo

Anthony Rolfe Johnson (ten), Orpheus; Julianne Baird (sop), Euridice; Lynne Dawson (sop), Music; Anne Sofie von Otter (mez), Messenger; Nancy Argenta (sop), Nymph; Mary Nichols (mez), Hope; John Tomlinson (bass), Charon; Diana Monnagué (mez), Proserpine, Willard White (bass), Pluto. Monteverdi Choir; His Majesties Sackbuts and Cornets; English Baroque Soloists/John Eliot Gardiner


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Stereophile, May 1988
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very direct sense, the theme of Monteverdi's Orfeo.

To call La Favola d'Orfeo (its full title) the first opera is not only questionable on historical grounds, it is also, perhaps, to expect too much of it. At the time of its composition (ca 1605) there was a lively debate going on in Italy as to just what opera should be. On one side were Monteverdi and his cohorts, who argued for the preeminence of music over text, while on the other were composers and librettists such as Marco da Gagliano and Rinuccini (whose La Dafné premiered simultaneously with Orfeo), who championed the superiority of poetic lyrics. We know which side won: listening to some of the greatest works of the pre-Baroque—Byrd, Campion, Dowland—I am not always certain it was the right side. I must, however, admit that Monteverdi makes an extremely persuasive case for his party and for the power of music.

We can argue that Orfeo was not an opera as we understand the term; it was a grand courtly entertainment, a sort of glorified masque without the spoken dialogue. We can also see it as an allegorical presentation of the musical/dramatic debate I alluded to above. At the climactic moment, Orpheus stands on the bank of the Styx, imploring Charon the ferryman to carry him over to his lost Eurydice. His words are in vain; the grim boatman is unmoved—but such is the beauty of his music that Charon is at length charmed asleep, and Orpheus achieves his crossing. We may call this opera or masque, but there is no denying that it is a work of dramatic development and force.

It may be that John Eliot Gardiner takes a different view of Orfeo; certainly his performance does not convey the sense of a fully realized theatrical work. We could not ask for better playing than he draws from his musicians, nor could we hope for a more fascinating variety of sound than is given here, but dramatic unity is lacking. This recording is an object lesson in how to orchestrate early Baroque performance, and Gardiner's players give a similar lesson in technique to other instrumentalists, but the necessary degree of involvement and continuity are missing, and we feel their loss.

Some of the individual vocalists are excellent: I would single out Anne Sophie von Otter's Messenger, even if her performance is married by a peculiar offstage perspective, and Mary Nichols's marvelous Hope (perhaps the best of the lot). It is a pity that Julianne Baird has so little to do as Eurydice, for she sings well and expressively. Otherwise among the smaller roles, technique is fairly good but dramatic context is lacking.

All of this, however, is not ultimately important. Orfeo must succeed or fail on the performance of the title character. Anthony Rolfe Johnson is capable and assured, his tone excellent, his command of the musical vocabulary exemplary, but his grasp of the role as theater is frequently inclined to slip. Only in the Echo scene (a familiar Renaissance motif) do I find him truly at one with Orpheus. Part of this must be blamed on Gardiner, whose direction seems rather to disjoint the work than to unify it, but the tenor must carry his own share of the guilt. If I were this Charon, I might have fallen asleep for the wrong reasons.

Lest all seem dark, there are a number of redeeming factors. I have already mentioned the instrumental playing; let me add the very fine singing of the Monteverdi Choir, the effective use of what the director calls the "continuo groups," and the lucid exposition of the musical line. If these are not enough to save the show, they are at least sufficient to induce me to listen more than once, and a listener in tune with a more extreme view of the work's dramatic nature may well disagree entirely with my conclusions. And by all means, do not take this review as a wholesale condemnation of Gardiner. Any number of his recordings take pride of place over the competition (Messiah, to give one example); this is the only time I have heard him truly falter.

Sonically, this recording begins on a wonderful note, with those Sackbuts and Cornets sounding appropriately brazen and rich. Unfortunately, soprano Lynne Dawson's Music gets rather unmusical recording, with an excessive metallic edge. This reoccurs at a few other points, but your system may be more forgiving than mine.2 Otherwise the sound is good to excellent, with bass strings having good weight, reeds sounding reedy enough, and balance admirable throughout. I find almost nothing to choose between CD and LP (as I would expect with a digital master); even

Stereophile, May 1988

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—Les Berkley

MOZART: Symphony 41, K.551 ("Jupiter"); Overture to La Clemenza di Tito, K.621
Frans Bruggen, Orchestra of the 18th Century
Philips 420 241-2 (CD); 420 241-1 (LP). Dick van Schuppen, eng.; Gerd Berg, prod. DDD. TT: 46:00

These performances, like all period-instrument presentations of 18th-century music, generate a considerable number of shocks, most notably in an orchestral sonority that differs from that of "modern" ensembles: textures are exceptionally clear, with winds and brass cutting through the relatively small body of strings (supported by only three double-basses) to enrich color and highlight important dissonances. Then, too, the timbre of vibratoless strings, with their rather nasal tone, is utterly unlike that of modern ones. This is immediately evident at the beginning of the "Jupiter," where the strings' answer to the initial orchestral tutti acquires a haunting eeriness that runs counter to the "traditional" cantabile character of their motif. And timpani, with heads of skin rather than of plastic, have a tight, well-focused bite that adds considerably to the overall expressivity of these readings.

Such traits, of course, also characterize Christopher Hogwood's recording of the "Jupiter" with the Academy of Ancient Music. That, however, is where similarities end. Frans Bruggen, conducting from the podium, produces a far more intense, rhythmically supple, and more appropriately imperious reading than Hogwood's unyielding metronomic race through the music. Favoring considerably broader tempos in outer movements and employing considerably more dynamic as well as rhythmic inflection, Bruggen demonstrates that the kind of flexibility that has characterized the work of such eminent Mozartists as Sir Thomas Beecham and Bruno Walter (among others) is equally applicable in the search for stylistic rectitude.

To be sure, there is none of the sentimentality here that often marred the Mozart of Beecham and Walter. Especially impressive in this regard is the second movement, which Bruggen moves along at a true Andante rather than quasi-Adagio. And despite Bruggen's relatively small ensemble, this sounds (as it should) like a large-scaled reading in which forte chords, in particular, come crashing in with bold assertiveness. Admittedly, a few features border on affectation, Bruggen's occasional imposition of diminuendos at the end of a phrase and his slurring of the finale's main theme being the two most conspicuous examples. Nevertheless, one always feels that an imaginative and intelligent recreative musician is in charge. Note, for instance, at the beginning of the finale's recapitulation, how the conductor heightens tension by broadening the tempo, a practice that serves to italicize the way in which this recapitulation (atypically for Mozart) fails to echo the exposition that preceded it. A similar approach typifies Bruggen's account of the La Clemenza di Tito Overture, here given a grandiose, expansive, supple reading that is almost Beethovenian in its raw power.

In the "Jupiter," Bruggen observes exposition repeats in the first, second, and fourth movements, and also includes the repeat of the development and recapitulation in the finale. This latter practice, in addition to lending the finale stature, serves to set off its richly polyphonic coda as the only portion of the movement to be heard but once. Unlike Hogwood, Bruggen (wisely) eschews repeats in the reprise of the Minuet. Still, with the many repetitions he does include, his performance runs to more than 40 minutes, making this release less skimpy than it might superficially seem. Philips' in-concert recording is gorgeous: richly detailed, impactive, and impressively wide in coloristic and dynamic range, with the CD featuring a quieter background and slightly greater presence than the LP. All in all, then, a most impressive release that demonstrates how "authentic" Mozart may also be pointedly expressive.

—Mortimer H. Frank

RAVEL: Alcyone and Alyssa
Marina Nicolesco, Nadine Denize, Hein Meens, Wolfgang Glashoff; Hubert Soudant, Bamberg Symphony Orchestra
Rizzoli 2005 (CD). DDD. TT: 53:15

These two short cantatas should, if nothing else, be useful for evenings of musical trivia. If you are entertaining friends with "Guess who wrote this," no one will come up with the right answer. The music is pleasant, not de-

Stereophile, May 1988
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manding, and might be by Faure or Massenet. It bears no traces of the later and more famous Maurice Ravel. Both works were attempts at winning the Prix de Rome, a two-year scholarship to study in Italy. The list of winners is a catalog of the nonentities of French music, the losers, as in this case, often gaining greater fame.

The embarrassing librettos are of the highly perfumed sort so popular in France at the turn of the century. One deals with ancient Greece, the other with a mythical Ireland. The performance is curiously unbalanced: the Bamberg Symphony plays sweeterly and is clearly recorded, with plenty of orchestral detail, while the soloists, who carry the weight of the works, are given a much more resonant acoustic. This, added to the fact that both of the ladies have rather woolly voices to start with, makes their contributions sound cavernous and odd.

To sum up, these are interesting works—not great or even particularly good, but certainly of value to Francophiles. And it is always interesting to hear the juvenilia of composers whose mature works are so well known.

The present recording is only adequate, but it’s the only one there is; nor are these works likely to storm the market with multiple versions. If you’re particularly fond of Ravel, or only inquisitive, you might wish to explore this disc.

—Harold Lynn

WAGNER: Parsifal
Peter Hofmann, Parsifal; Hans Sorin, Gurnemanz; Walter Meier, Kundry; Simon Estes, Amfortas; Franz Mazura, Klingsor; Matti Salminen, Titurol; others; James Levine, 1985 Bayreuth Festival Chorus & Orchestra
Phillips 416 842-2 (4 CDs). Peter Jutte, eng.; Rupert Fauslie, prod. DDD. TT: 278:45

WAGNER: Parsifal
Warren Elsworth, Parsifal; Donald McIntyre, Gurnemanz; Walter Meier, Kundry; Phillip Joll, Amfortas; Nicholas Folwell, Klingsor; David Gwynne, Titurol; others; Reginald Goodall, Welsh National Opera Chorus & Orchestra
EMI/Angel CDC4-49182 (5 CDs). Stuart Eltham, eng.; David R. Murray, prod. DDD. TT: 286:24

No discussion of Parsifal seems able to escape the issue of performance length. Götterdämmerung and Meistersinger can easily take longer to stage, but a longish Parsifal seems automatically longer than it actually is. To be sure, there are no “fast bits” in the opera, no sharp edges or sudden contrasts (Wagner called his music “the art of transition”). Having listened to Wagner’s last music-drama seven times in the last month, however—versions by Knappertsbusch, Boulez, Solti, Karajan, Jordan, Goodall, and Levine, with playing times that differ by as much as 70 minutes—I’ve come to the conclusion that, unlike others of Wagner’s works, performances of Parsifal do not take place in time; that performances fail, in terms of tempo, only when this massive work is not allowed to stretch out to its full length. This was Boulez’s problem: his 1970 Bayreuth recording, seemingly conducted with one eye on the clock, rushes through in 3:37:48. It fails dismally, and is the only one of these recordings to do so: Boulez seems embarrassed by the Prelude’s brass choirs, Marches the Gralsritter in and out in double-time, turns the Blumenmadchen into a G&S chorus, loses the orchestra entirely in the Act III scene-change, and exhibits a deathly fear of silence throughout, fermata’d rests seldom observed, and then only minimally. Boulez helped prove to me that although Parsifal may indeed be taken too fast, it simply cannot be taken too slowly.

Knappertsbusch’s 1962 Bayreuth recording, long the standard, remains unparalleled for sheer vocal power. Hans Hotter remains the quintessential Gurnemanz (closely seconded only by Gottlob Frick in Solti’s 1973 recording), his mature, compassionate humanity palpable as no other’s. With Jess Thomas as a powerful, sensitive Parsifal and George London an impressive, albeit too-robust Amfortas, this performance will probably not be bettered vocally for some time yet. But orchestral, the seams are beginning to show—what passed for decent ensemble playing in concert in 1962 is barely acceptable today. For better or worse, we have the recording industry to thank for this—audiences simply expect better playing nowadays, playing that matches, as closely as possible, their (usually) note-perfect recordings at home. To compare the two earlier rough-and-ragged Bayreuth Festival recordings of Knappertsbusch and Boulez with the studio-quality-and-then-some (this is Bayreuth) discipline of Levine reveals a true advance in performance standards.

The two recordings reviewed here are the longest of the lot. Goodall, notorious for slowing things down to a crawl in his English Ring (now available through Musical Heritage), here turns in, at 4:46:24, the longest Parsifal on record—and in German, thank God. This time, however, unlike his Ring, there is seldom
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Stereophile, May 1988
a false step or loss of pulse or momentum. This performance, the farthest from Bayreuth in terms of venue and national origin—with the exception of Waltraud Meier, all the singers are native English (or even Welsh) speakers—seems nonetheless closest in spirit, with a hushed, stately grandeur in the astringent cadences, as if Goodall had all the time in the world in which to wander through this great sonic edifice. We are fortunate that he did.

The Goodall was released several years ago, but only last fall on CD. Each CD corresponds more or less to one of the 5 LPs of the original edition (now deleted), with overlapping fades, instead of cutoffs at convenient rests. If you can find a copy of the LP set, get it—the surfaces, some as long as 35 minutes, are pristine, and virtually identical to the CDs. The only difference was a slight veiling of the highs on LP, but the CD tends toward stridency anyway. I found not a single pop or click on 10 well-packed sides. No technical notes accompany either format, but I suspect multikicking: the center of the soundstage tends to drop out (more so on CD). This studio performance, done in only nine days in takes of up to 40 minutes long (admittedly, it can take that long for Goodall to build up steam), is a marvel of musical recording values.

Goodall's Prelude is perhaps my favorite now, and three minutes shorter than Levine's. Though possibly too reverential for some, Goodall makes it clear that his reverence is directed toward God, not Wagner. Though the orchestral sound lacks the luminosity of Levine's, remember that Levine did have Bayreuth as his venue. The Act II opening is too lax, not fast or sharp enough, but this is the only tempo problem I found (other than the timpanist, who manages to avoid most beats, rushing and lagging randomly). What sounded at first like a too-distant chorus in Act I ("Nehmet vom Brot!") turned out to be Goodall holding his slowly gyring forces in reserve until the last possible moment. The Welsh National Opera Chorus shows admirable power and control throughout, but they're no match for Bayreuth.

As Gunemanz, Donald McIntyre has the pipes, and is expressive enough, but in the end impresses more as a dependable exponent than as a characterful sage. Philip Joll's Amfortas is too lugubrious to be taken seriously, a misfortune little helped by his near-terminal vibrato. On the other hand, Nicholas Folwell's Klingsor sports a convincingly inverse nobility far from the cartoon villainy of Zoltan Kelemen (Solti), though the bitter Act II colloquy between Klingsor and Kundry lags, lacking true vitriol. Warren Ellsworth's dark-timbred Parsifal is too often out of control, especially in piano passages, his tone swinging wildly from hollow, hooty darkness to a more acceptable lightness. The young Waltraud Meier, as Kundry, has all the right dramatic instincts and almost none of the musical; she screeches through the all-important Act II scene with Parsifal (more of her below). The Flower Maidens are wonderfully womanly here, not, as is so often the case, girlish. Goodall brings out the darker side of a chorus all too often used for comic relief in an otherwise somber work, and it pays off.

All in all, a conservatively visionary, almost entirely satisfying performance whose importance grows, as does Goodall's own momentum, in its own slow time.

Despite Goodall's greater overall length, Levine takes the longest time of all with the Act I Prelude. However, he declines all opportunities for tension, dramatic or otherwise, by simply directing the orchestra to play one note after another, with little dynamic shading, as the audience coughs and coughs and coughs. This may evidence great humility, and be theoretically in keeping with the opera's argument, but it makes for heavy, turgid, affectless going in the Festspielhaus. The Communion motif rises out of the depths less like the holy spirit than like a freight elevator, and the Faith theme is unconscionably blared. Sheer bombast, in the bad old Wagnerian style.

This, and the fact that I'd never heard anything conducted by Levine that could keep my attention, made me gird my loins for close on five hours of such misconducting—but it miraculously ended with the Prelude. From the first notes of Act I proper, Levine's conducting is gripping, passionate, overwhelmingly confident. The journey to the Hall of the Grail is overpoweringly majestic, out-of-tune brasses and all, and at least as good as Solti's (my reference). Levine's Act II is by far the best I've heard, certainly the most exciting and dramatic, and the Act III Good Friday music, usually a rosy affirmation, becomes in Levine's hands an electrifying, white-hot revelation. He also manages to get more sound out of Bay-
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reuth's sunken orchestra pit than any conductor I've heard—always welcome. The Gralsglocken sound electronic, but that's a small matter. The Philips recording is among the best that company has done, and comes as close to capturing the unique Bayreuth acoustic as any I have heard—even closer than the Nelson Hollander, also recorded by Philips during the 1985 season.

A word about the Bayreuth sound: It is appropriate that so many Parsifals have been recorded there; it was the only one of Wagner's operas composed with the sonics of the Festspielhaus specifically in mind. Midway through construction, in fact, he tested the acoustics by having a brass chorale play the Faith ("Dresden Amen") motif from the pit while he paced the seatless hall above. Just one example of how Parsifal works uniquely in the Festspielhaus: the descending trombone figure at the end of Act II, as Klingsor's castle collapses, sounds disproportionate and awkward in all non-Bayreuth recordings, which use more or less standard orchestral seating plans. But coming from the bottom-most level of the Bayreuth pit, this same figure blends perfectly with the rest of the orchestra. That Wagner could keep this acoustic in his aural memory while composing Parsifal during the six spielfrei years following the Ring's premiere is remarkable.

Vocally, this is the most satisfying recorded Parsifal in at least 15 years. Hans Sotin is certainly the strongest-willed, if not the warmest, Gurnemanz I've ever heard; his "He! Ho! Waldhuter hier!" is truly a wake-up call after Levine's turgid Prelude. It's fascinating to compare Sotin's brusqueness with Hotter's mellow gemutlichkeit. Peter Hofmann's Parsifal is entirely satisfying: involved, vibrant, and ringingly brash at his Act I entrance, then suitably hushed and awed, musically piano, in II and III. Hofmann waxes wobbly in III, but this is a live recording of a slow performance of a long opera. Simon Estes is a strong, almost raging Amfortas, producing fine tone and volume somewhat at the expense of the complex dramatic nuances of this operatic Richard II. Though I have no technical complaints, Franz Mazura's Klingsor seems to be trying very hard to be thoroughly nasty; his evilness sounds trumped-up, "operatic" in the worst way.

Then there's Waltraud Meier, without a doubt the most physically beautiful Kundry ever to guile a fool. Though her performance is greatly improved over the Goodall recording of a year before, a great deal of the considerable dramatic power she brings to the role is still at the music's expense; too often she forsakes pitch and phrasing to shriek and scream. I've always preferred the more dramatic recordings, having cut my teeth on the Solti/Culshaw Wagner cycle, but this is too much; it probably worked a lot better on stage. Nonetheless, her all-important seduction scene with Parsifal that takes up the nether half of Act II, so off-the-wall in the Goodall recording, is here strong, committed, musical, and dramatic throughout. In a few years, she might be hard to touch in this role. Norbert Balatch's choral direction is, as always, impeccable, and forms the rock-solid link between the Levine and Solti Parsifals. Unfortunately, Solti's remains the only recording to use a boys' choir (the Wiener Singknaben, no less); once you've heard it that way, it's hard to go back to sopranos.

Not only is this a live recording, but a live recording of a Gotz Friedrich production. This means a hyperactive cast—there is a lot of stamping, running around, and assorted stage noise. Say what you will about the numbing old Bayreuth "acting" style of "plant your feet, extend one arm, and sing" — it did make for quiet recordings! (But the rousing '85 Hollander is even rowdier. Who knows? Nelsen and Levine may have to force so much sound out of the pit simply to be heard above the stage noise.)

Between these two recordings one can spatchcock together as good a Parsifal as we're likely to get for a long time. For a perfect Prelude and a monastic deliberation that refuses to be rushed, take Goodall; for ecstatic revelation, topnotch singing, and orchestral sound as close as possible to what Wagner heard in head and hall, take Levine. If I had to choose, I'd take Levine.

—Richard Lehnert

ROCK

RY COODER: Get Rhythm
Warner Bros. 25639 (LP). Ed Cherney, eng.; Ry Cooder, prod. TT: 40:43

JOHN HIATT: Bring the Family
A&M SP5158 (LP). Larry Hirsch, eng.; John Chelew, prod. TT: 45:26

There are a few white men in American music—Delbert McClinton, Jerry Jeff Walker, John Fogarty, Van Morrison, Joe Ely, and Steve Earle all come to mind—whose music is con-
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sistently true, believable, honorable, and unpretentious. Ry Cooder has been one of those names since his solo debut in 1970; with Bring the Family, John Hiatt’s must now be added to the list.

Bring the Family is what Robbie Robertson’s overrated new album should have been (sorry, GSK): simple, strong, mature, its feet rock-solid on the ground. “Thing Called Love,” in fact, sounds much like the album The Band might have made between The Band and Stage Fright.

The two LPs under review were recorded with many of the same musicians, at the same LA studio (Ocean Way), and within a short time of each other. Hiatt’s producer, John Chelew, went at the project like most producers should and seldom do: he introduced the band to the songs two days before the sessions, then spent but four consecutive days recording the album. The result is a simple inevitability and solidity of arrangement reminiscent of Dylan and The Band’s Planet Waves, or Presley’s Sun Sessions.

And what a band: Hiatt on guitar and vocals, with Ry Cooder on slide, Nick Lowe’s bass, and drummer Jim Keltner. Cooder and Keltner have played together for almost 20 years, developing some of the best-honed rhythmic chops in the business; and, if nothing else, Lowe’s uncanny ability to consistently find and develop Elvis Costello’s best work should earn him a place in history. Throughout the album, the emphasis is on gutbucket R&B, with a good dose of New Orleans second-line; no frills, no electronic drums, no synthesizers, no punched-in session men. This is the sort of unpretentious, chunky rock’n’roll that makes the Stones sound like poseurs. As far as I can tell, most of the music was recorded live in the studio.

There’s a lot of Otis Redding in Hiatt’s big, honky voice and singing style—listen to “Have a little faith in me.” But this is the music Redding might have made had he lived longer, stayed hungry, and had a different color skin. The post-romantic songwriting is that of a man who can no longer afford the rock’n’roll myth of the travelin’ man, lovin’ em & leavin’ em, but for whom home, family, and some sense of place have grown more important.

The album begins with the mythic, cleansing pilgrimage from Nashville to Memphis: “Memphis in the Meantime” is a breath of fresh air, sweeping out all those cobwebby Billy Sherrill strings, stripping the floors down to churning Sun Studios Stax/Volt bedrock. As Hiatt sings, “I don’t think Ronnie Milsap’s gonna ever record this song.”

One of the many things meant by “maturity” is the recognition of what can’t be regained and the taking of responsibility for that loss. “Tip of My Tongue,” in which Hiatt regrets the devastating results—a failed marriage—of “some words that flew out and made a crash landing,” is so much stronger a statement than Billy Joel’s “Big Shot.” In the same situation, Joel wallows in guilt, keeping his own emotional drama center-stage; Hiatt simply apologizes, knowing that it’s too late for anything else.

“You’re Dad Did,” however, is the centerpiece here, by turns funny and harrowing. Chronically those horrible moments when one recognizes one’s father’s (or mother’s) exact words and tone in one’s own mouth, the song is partially based on the Stones’ “Street Fighting Man,” with a hilarious sitar break by Cooder. I can’t help thinking that Hiatt is saying that those days—when all a poor boy could do was to sing in a rock’n’roll band—are gone. That boy is now a man, and rock’n’roll is hardly a life for anyone who wants to live long. It’s hard to resist lines like “You’ve seen the old man’s ghost come back as creamed chipped beef on toast.”

Almost as good is “Stood Up,” a bartender’s story of partial triumph hard won. Hiatt tells how he finally stood up to his own lost life after walking away from too many confrontations. As he says about alcohol, “I couldn’t stand up after one, no, ’til twenty had me down on the floor; Now the first one doesn’t get me even though I’m the last one out the door.”

These are hard, sad, humble songs of loss, though not tragic: “And I don’t pretend to know how you ever saw it through, ’cause I only got to where I am right now learning how to love you.”

Rock’n’roll leads to or away from marriage and family; it is seldom created within or about those complex states. But Bring the Family is steeped in blood ties; it’s what American music is all about.

Ry Cooder’s last solo album, The Slide Area, came out in late ’82. Its overbearing machismo, the final development of a trend begun in Bop
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Till You Drop and continued in The Borderline, evidently proved as unpopular with the marketplace as it was with me; Cooder put out nothing under his own name for five years.

He kept busy, however, scoring many films, the soundtracks of Streets of Fire, Blue City, Alamo Bay, Crossroads, The Border, and Paris, Texas all resulting in LP releases. All but the first are well worth listening to as Ry Cooder albums, and testify to his remarkable eclecticism in musical sources, which include Tex-Mex, Hawaiian, Jamaican, black country blues, old-timey, ragtime, Chicago blues, rock’n’roll, C&W, and Mexican music.

But, in the end, they’re not Ry Cooder albums, and must serve the films for which they were written. Ry is back in force on Get Rhythm, his best album since 1977’s live Show Time, and with many—in fact, all—of the musicians associated with his best work: Jim Keltner on drums, pianist Van Dyke Parks, Flaco Jimenez on accordion, and gospel singers Terry Evans and Bobby King.

One of The Slide Area’s problems was that Cooder wrote half the material himself (soundtracks excepted, he seems incapable of writing a decent song for an album of his own). Ironically, one of his greatest strengths has been his ability to perform the oddest, most obscure songs from the bottom of the American barrel—“novelty” songs in anyone else’s repertory—with total conviction. “Alimony,” “FDR in Trinidad,” “How Can A Poor Man Stand Such Times and Live,” “How Can You Keep On Moving Unless You Migrate Too”—even the titles defy serious performance. Cooder’s committed performances of them were all the more impressive.

I’m happy to say he’s back on track here, having written only one song, “Going Back to Okinawa,” which sounds like a remake of Alamo Bay’s “Gooks on Main Street” and is the least interesting song on the album. Johnny Cash’s “Get Rhythm” couldn’t get any more if it tried; the tight, funky, bursting-at-the-seams arrangement was, I’m sure, a revelation to Cash himself. Ry plays Chuck Berry’s “13 Question Method” on acoustic slide with skin-tight rhythmic drive, and combines Caribbean phrasing with Flaco’s Tex-Mex accordion in “Women Will Rule the World.”

It’s hard to believe that, in this day and age, someone could make “All Shook Up” as much his own song as Cooder does here. The arrangement, for all its brilliance, is so fresh it sounds as if made up on the spot. This is big-beat music stomping around in seven-league boots. Fidgeting like the man in the fuzzy tree doesn’t tell the half of it—this man is real shook up.

But in “I Can Tell By the Way You Smell,” as in much of Slide Area and Borderline, Cooder seems to be ruining his throat trying to sound mean and black. It’s unconvincing, and ultimately condescending. He’s much more believable in such ballads as “Across the Border Line,” on which he’s joined by a liquidly crooning Harry Dean Stanton, encores here his Paris, Texas soundtrack cameo. And, as has been his custom on his preceding four albums, the closing song is a showcase for his quartet of backup singers, all gospel-trained.

In this day of synthesizers, rhythm boxes, and vacuous videos, I’m happy to report that Ry Cooder is back in a big way. You’ll wear this one out. Get Get Rhythm’s rhythm.

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lyrics have been printed in full, along with most, if not all, of the original album-cover art and gatefold spreads. Connoisseurs of Zappa's Conceptual Continuity should be thankful.

During my listening and writing for Part I of this survey (Vol.10 No.8, Nov. '87), I found few nuggets of new or reinstated material, and those almost exclusively in the remastered CD edition of *We're Only In It For The Money,* in only some cases were there substantial differences in sound between the original releases and the reissues.

Not so in this batch. *Cruising With Ruben & The Jets* and *Hot Rats* are virtually different albums entirely from those to which Zappists have listened for 20 years. Unfortunately, this is not all good news. But let's take things in chronological order.

**Freak Out!** Parts of this, Zappa's first album, are still scary 23 years after its initial release. "Hungry Freaks, Daddy," "Brain Police," "Trouble Every Day," and "Help I'm A Rock" remain as discomfitting as they were intended to be. I remember sitting in Billy Jagust's living room (his folks were out for the evening) hearing this for the first time, watching that blue Verve label going 'round on Billy's teenage record player, scared to death that his parents would find out what we'd been listening to, and totally delighted that somebody was making music with words that I could believe in; that sounded true. *Freak Out!* was a studied, concerted assault on American middle-class complacency that still sounds fresh and angry. In fact, "Trouble Every Day" is probably the first pop song to directly attack the media's handling of a major "news event" — in this case, the 1965 Los Angeles Watts riots.

The remastering to CD has been handled well. Bass! From the first chord, full, rich, solid bass where it was only hinted at before. The electric bass's doubling of the kazoo part in "You're Probably Wondering Why I'm Here" is a new delight. But the treble is harsh and strident, consistent with my experience that the harshest CDs are those made from analog masters. Twenty-three years on, Zappa's mixes are still appropriately, baroquely impenetrable — hear "Who Are the Brain Police?" In fact, throughout this release, the background arrangements for strings, brass, and cocktail piano are a consistent revelation: I've been listening to this album on all sorts of equipment for 20 years, and have heard very little of this music before. The brass and string chart on "You Didn't Try To Call Me" is no longer lost in HF glare, and a similar orchestration on "I'm Not Satisfied" is revealed in all its *Rubber Soul*-like stringency. Also note piano and vibes on "Wowie Zowie" and "Go Cry On Somebody Else's Shoulder.

"Help I'm A Rock" has some subtle kick-drum that simply never made it out of Verve's grooves, but the moaning bass vocal is not half as present as on the LP. "The Return of the Son of Monster Magnet" is notable for kick drum, again, and theremin that is mixed very much farther forward than on the LP.

Overall, this reissue's sound is much more deep, full, and rich than the LP's, which now sounds quite flat and dry (besides which, it's unavailable). Recommended.

**Cruising With Ruben & The Jets:** When first released, *Cruising* was "an album of greasy love songs and cretin simplicity," as Zappa wrote in the liner notes. After digital remixing in 1984, however, the grease and simplicity were thrown out with the analog bathwater.

I wish they hadn't been. Zappa has said in print that, after the pleasing (to him) results of the newly recorded bass and drum parts for *We're Only In It For The Money,* he decided to do the same for *Ruben.* It remains unclear to me whether the latter's rhythm tracks were in the same unusable state as *Money's,* but Zappa has attacked these old masters with revisionist vengeance. From the first chord, the newly recorded (and uncredited) acoustic (?) bass fairly leaps out of the speakers. The multi-miked drum kit is so different in every way from the original mono drums in relative volume, style, and sound that the entire album is hopelessly skewed toward the present. In the process, whatever '50s spirit that the original attained — and it was considerable — is undermined and lost.

"How Could I Be Such A Fool" illustrates this: the first verse sounds much like the LP version, the drums and bass light and dry; then, for the chorus, heavy, overbearing bass riffs enter, making the song a different performance altogether. "Deseri": as with so many other songs here, the background vocals are now mixed *very* forward, at least equal in weight to the lead. This may make for a rich, fascinating mix, but it's not the album I grew up with. The funny little vocalizations over

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rhythm track in "Jelly Roll Gum Drop" are so buried as to be effectively absent. And it gets worse. Entirely gone are: the guitar glissandos in "I'm Not Satisfied"; the last four spoken lines of "Later That Night," in which the backdoor man hiding in the closet is given the all-clear; and, unkindest cut of all, Roy Estrada's pachuco falsetto singing the opening bassoon passage of Rite of Spring in the fade of "Fountain of Love." (But then, this last was cut off of late-edition LPs as well.)

I have notepages full of more peccadillos, but it's too depressing to go on. Let this last suffice for all: There is—rather, was—a wonderfully dramatic moment at the end of "Stuff Up The Cracks," the last song on the album, in which, after an entire LP's worth of '50s doo-wop, a state-of-the-art (ca 1968) electric guitar wah-wah solo of dead seriousness suddenly shoots the whole enterprise up to the (then) present. It's a beautiful entrance, but it's new history; on the CD, Zappa starts fading in the guitar solo halfway through the last chorus, undermining the total effect. What can he have been thinking of?

I said that the original is history, but it's not even that: the original has been out of print for years; the present essay in revisionism is the only edition we have, or are likely to have. I go on at such tortured length here because the issues implied are large. To wit:

No pop/rock artist has done more to maintain his own artistic freedom and integrity and yet remain within the dull gaze of the mass media than Frank Zappa. He has, from the beginning, retained rights and ownership to all of his master tapes. They belong to him, and he has earned that right. The nine-tenths of the law that is possession guarantee that one can do with one's possessions as one wills. However, in an age in which we are all too used to callous negligence of artists' works by large multinational corporations, I don't think it ever occurred to anyone that the artist himself or herself would end up perpetrating such abominations. There is some truth to the notion that, after a work has lived in the public eye for a time (in this case, 20 years), the artist owes some respect to the independent life of that work in its original, now public, form. After all, some of these albums sold in the hundreds of thousands; one assumes that people bought and listened to them because they liked them that way. But those recordings are now old, out of print, and will not be replaced. The precedent is disturbing: Zappa is not an old man yet; 20 years from now, will he decide to revamp these recordings again, to keep them in step with whatever he's doing in 2008? For an artist to go to such lengths to retain control of his work, only to subvert it, is wrong-headed in the extreme. Surely, of all American musicians, Frank Zappa has better things to do than the dead-end exercise of rewriting the musical past.

With old-style analog mixing to LP, hard choices were required: because of the inherent limitations of the playback medium, one had to choose which line was most important, which track was to be highlighted at the expense of the others. With the unlimited capabilities of digital master tapes, the result can easily be what Ruben examples: a horrendously democratic mix, with all instruments and voices seeming of equal weight, resulting in an indiscriminate wall of sound.

Ruben may now hold its own sonically with music being recorded today, but it is no longer true to the spirit of the crudely recorded pop music of the '50s to which, at one time, it paid such loving tribute. What was once a fine rock'n'roll album is now just another rock CD. Take very good care of your old Verve pressings; they're the real thing.

Uncle Meat: The obscure and little-bought Lumpy Gravy aside, 1968's 2-LP Uncle Meat, "most of the music from the Mothers' movie of the same name which we haven't got enough money to finish yet," was Zappa's first major musical statement. The complexity and density of this music, even almost 20 years later, is staggering, and all the more remarkable when one realizes that, at the time of recording, at least half of Zappa's musicians could not read a note of music. They learned these thorny, post-Vienna-School scores entirely by rote. For those who have yet to hear Uncle Meat, this will be hard to believe.

The music itself beggars description, being a combination of electronically transmogrified reeds, percussions standard and exotic, Vareseian musique concrete, '50s doo-wop, Balinese gamelan, Ornette Coleman-style free blowing, big band, and straight-ahead rock, jazz, and fusion. Those familiar with the music may be surprised to learn that no synthesizers were used—the many strange sounds were all achieved by electronically altering the sounds.
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*Stereophile, May 1988*
of standard instruments. There are a handful of brief songs, but, as Zappa says in the liner notes, “The words to the songs on this album were scientifically prepared from a random series of syllables, dreams, neuroses & private jokes that nobody except the members of the band ever laugh at. They are all very serious & loaded with secret underground candy-rock psychedelic profundities. (Basically this is an instrumental album.)” Suffice it to say that, of the 50 or 60 Zappa discs released, Uncle Meat remains my favorite.

Throughout my notes for Part II of this survey, one word reappears several times on each page: “clarity.” This is nowhere more appreciated than on Uncle Meat. Zappa’s first album on his own Bizarre label (distributed by WEA), Meat had quite good sound for the time; my first-edition set has withstood scores of playings over the last 20 years, and still sounds fine. But, quiet as the board at Apostolic Studios may have been, there are only so many tracks one can build into an analog master tape before hiss starts to take over; and there are often over 40 tracks at a time here.

The CD improves all of this subtly and remarkably. The bass and organ parts are clean and clear throughout; saxist Ian Underwood’s stage-prowling on the live “Ian Underwood Whips It Out” is much more audible than on LP; “Mr. Green Genes” includes an alto sax descant that I’ve only heard hints of before; the complex “Project X” is revealed in its full glory as the precursor to last year’s “While You Were Art II” (Jazz From Hell); the vocals on “Cruising for Burgers” and “Electric Aunt Jemima” are velvet-smooth; the rhythm and reed overdubs on the six “King Kong” variations are now in perfect proportion to the basic rock-band track, and Zappa’s acoustic guitar overdubs in the same section are fully audible. The editing, such a problem in the digital remix of We’re Only In It For The Money, is flawless here, at least as tight as on the LP, and sometimes better: witness the segues over the former LP side breaks.

The total time of the original LP, 70:35, could have easily fit on a single CD. However, Zappa has seen fit to include 50:14 worth of audio excerpts from the finally completed Uncle Meat film (available on videocassette from Honker Home Video). These excerpts seem to be the soundtrack of a documentary film about the making of a film whose primary subject is itself. Pretty self-referential. Even a hard-core fan such as myself found the going tough and unrewarding. Endless repetitions of the phrase “I’m using the chicken to measure it,” and equally endless takes and between-takes blather about showering with a hamburger-wielding monster add up to considerably less than the sum of their parts. And the inclusion of the previously unreleased, 3:46 “Tengo Na Minchia Tanta,” a musical nothing with heavy breathing, adds little class to the proceedings. But here as elsewhere, Zappa attempts to have his ironic cake and eat it too: I’m sure he would jeer just as loudly if this stuff was taken seriously as he would if it was rejected as swill. Zappa has always had that contemptuous edge, periodically releasing garbage like Thing-Fish, which spends much of its energy calling attention to its own worthlessness, then deriding his audience for agreeing or disagreeing with such a self-assessment. “Cheesy” is a term Zappa has used ever since 200 Motels to describe his own movie sets, music, and general aesthetic sensibility; he can hardly blame us if, from time to time, we agree.

In short, the original configuration of Uncle Meat is very well served here; considering that the entirety of that original release could have fit on a single CD, however, this double package (which I’ve seen retailing for $34) is not a good deal.

Hot Rats: The only early Zappa LP that many serious musicians ever owned, 1969’s Hot Rats is straight-ahead fusion that, at the time, set some new standards for arrangement, production, and sound quality. Zappa the revisionist reappears here, but, unlike his (mis)handling of Ruben, seems bent on fulfilling rather than rethinking his original intentions.

In that spirit, this collection of big-band heads framing long instrumental solos by Zappa, keyboardist/saxist Ian Underwood, and violinists Sugarcane Harris and Jean-Luc Ponty, is, for the most part, expanded and spiffed up. Throughout the entire album, Underwood’s piano is mixed in several times louder than on the LP. This is good news: his comping on “Son of Mr. Green Genes” deserves to be heard, and his rhythmic interjections on “It Must Be A Camel” are welcome in the stronger voicing. On “Little Umbrellas,” however, the piano is so much louder than on LP that it entirely changes the tune’s proportions (though not for the worse).

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"The Gumbo Variations," at 12:58 the longest cut on the LP, is here expanded to what I assume is its full, uncut, 16:57 length. The change is all for the better: Underwood's previously heavily edited tenor sax solo makes a great deal more formal and dramatic sense unedited. And, throughout the tune, previously deleted bars, choruses, and little snippets here and there are reinstated to make the whole a much more satisfying and organic experience. Not surprisingly, Sugarcane Harris's dramatic, bluesy solo had been uncut on the LP; he sounds great here as well. "Willie the Pimp" is also slightly rearranged, with extra bars of riffing inserted between the verses of Captain Beefheart's demented verse. Too, Ponty's violin is brought far to the fore during the chorus.

The justly famous "Peaches En Regalia" sounds quite different here: the familiar wall of sound is gone, replaced by a fuller, richer specificity of voicings. This is great, but, after the bridge, Underwood's dramatic organus maximus pedal-point—one of my favorite parts of this recording—is simply gone. In its place is what sounds like the previous two bars edited in as a repeat. Why?

The LP's rich, thick sound was always a bit muffled and flattened. Not so here; there is great freshness and—again—clarity, the large choirs of reeds that appear throughout now much more audible as collections of individual instruments, however often overdubbed. And no digital harshness, either. Highly recommended. (By the way: Ryko has chosen "Peaches En Regalia," along with two other Zappa tunes, as the program of the very first pop 3" CD, or "subcompact" disc.)

Joe's Garage: At the other extreme, the differences between the Zappa Records LPs and the Rykodisc reissue of Joe's Garage are quite subtle. There is no difference in program here at all. Stan Ricker's disc mastering for these releases on the short-lived Zappa label (distributed by PolyGram) was, well, masterful. The only difference between CD and LP that I could detect was slightly more presence—and I do mean slight—in Ike Willis's lead vocals, and then only in Act I. Zappa has complained about the unfortunate loss of bass due to the half-speed mastering here employed, but I have no complaints.

For the record, Joe's Garage is an extended (3 LP/2 CD) suite of songs and situations about a not-too-distant future America in which music is outlawed (as it already is, as Zappa cogently points out in the liner notes, in Iran). Unfortunately, other than three remarkable guitar solos, and much like Thing-Fish, there is precious little music here. The title song, "Catholic Girls," "Dong Work for Yuda," and "Lucille" are interesting, the riff-rocking facile enough, the vocals stunning, the arrangements angular and surprising, but much of it is rather disposable.

Except for those guitar solos. At an average of ten minutes apiece, there is one each of slow, medium, and fast tempi, each highlighting a different facet of Zappa's impressive guitar mastery. "Packard Goose" is modal metal machine music at frenetic pace, while "He Used To Cut The Grass" is ruminative, lonely, like the distress signals of a lost alien spacecraft. The pinnacle of the album, however, is "Watermelon In Easter Hay." This languid elegy, main character Joe's last imaginary guitar solo, is fitting requiem to any garage guitarist who ever slammed a whammy bar, and a side of Zappa—the heartfelt, soulful, vulnerable side—rarely shown in public.

For those guitarists who consider Shut Up 'N Play Yer Guitar an important part of their reference libraries, the final third of Joe's Garage is a must-have. The CD, however, offers very little more than the Zappa Records or Barking Pumpkin sets.

The Perfect Stranger: In 1983, Pierre Boulez commissioned from Zappa a piece for his 29-member Ensemble InterContemporain. The result, "The Perfect Stranger," and two other pieces for chamber orchestra, are included on this release, along with four Zappa compositions for the Barking Pumpkin Digital Gratification Consort, otherwise known as Frank Zappa and His Synclavier.

Again, Zappa's talent for finding new and previously unheard voicings among the standard orchestral instruments is well evidenced here. His eclectic, Stravinskian compositional style seems particularly well suited to chamber orchestra; more to the point, his works have never been conducted by a conductor of Boulez's stature and acumen. The latter's legendary attention to detail finds a worthy foil in Zappa's demanding scores.

Zappa's orchestral pieces, like Strauss's tone poems, tend to the extremely programmatic.

Stereophile, May 1988

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As his notes to these seven "dance pieces" hint, and listening confirms, he graphically indicates ringing doorbells, raised eyebrows, vacuum cleaners, and "an elderly Republican couple trying to make love while breakdancing." Though this often reduces his music, particularly the title piece, to the level of a well-made cartoon, there is still plenty of musical information to repay repeated listenings.

"Naval Aviation in Art," a tense, foreboding vignette, receives a much better reading here than on 1979's ill-fated, entirely uncredited Orchestral Favorites LP. It is also a rare instance of a Zappa composition in which there are very few notes, and all the more striking for that. This is an area I'd love to see him explore further.

"Dupree's Paradise" owes much, again, to Stravinsky's works for small orchestra, particularly his Symphony in C. Depicting in early-20th-Century musical language a jam session in a Watts bar in 1964, it is fresh, acerbic, funny, and sharp. I particularly enjoy the double piano passage soon after the beginning.

The remaining four syncclavier pieces function as a primer in the use of that remarkable instrument, and as the rough draft for last year's Jazz From Hell. Listen carefully to the album's finale, "Jonestown," a terrifying tone-poem in which Jim Jones is musically depicted banging a child's skull against the side of a steel vat full of poison, droning "Come and get it!" in nightmarish slow motion. The nth chapter in Zappa's crusade against organized religion, and the most effective.

The sound is virtually identical in black and silver formats, with the LP sounding just a hair more lush in resonance and bass. Both are highly recommended.

**London Symphony Orchestra, Vol. II:**
This release is a bit of an afterthought, being the last takes from the LSO sessions that resulted in LSO I's very different LP and CD configurations. The LSO I CD replaced the LP's "Pedro's Dowry" and "Envelopes" with "Bogus Pomp"; LSO II also contains "Bogus Pomp," along with the third version of "Strictly Genteel" and the new "Bob In Dacron."

Zappa's notes explain that he held up release of these recordings for over three years in the vain hope that someone would develop a piece of digital hardware that would allow him to edit out the considerable number of wrong notes. He complains bitterly of the LSO's brass section, which popped out for a drink *en masse* during the last break of the last day of sessions, returning too late to rerecord "Strictly Genteel." This and other orchestral problems forced Zappa to make 50 edits in 6:53 (as he fumes in the liner notes), and it's still far from perfect.

Truth to tell, it doesn't help that "Strictly Genteel" is the least interesting of Zappa's large-scale orchestral works; the orchestration is tame, diffuse, and fuzzy in all three of its incarnations (it's also on 200 Motels and Orchestral Favorites), and its film-soundtrack origins are awkwardly betrayed in the closing electronic fade. The melodic content is a tired English-style hymn, although the harmonic permutations are interesting.

"Bogus Pomp" sounds much better, in all ways, on CD. The brass, in particular, suffer on this LP, conveying only a fraction of the CD's bite and presence. I'm afraid, however, that I'll still have to recommend LSO II to owners of the black and silver discs of LSO I: "Bob In Dacron" is muscular and dramatic music. Another ballet, this one about an urban make-out artist's adventures in a singles bar, "Bob" is a consistently tough composition that does not pull the rug out from under its own feet with cartoonish humor. Particularly fine is the writing for middle strings, brass, and English horn.

A definite buy for Zappists; all others should let the LSO I CD and The Perfect Stranger take precedence.

**Still More To Come:** Now that Zappa's won a Grammy (for Jazz From Hell) and is in the midst of a months-long US tour, complete with voter registration booths at each concert, there's no stopping him: Next on Rykodisc's release list is the 12-CD (!) *You Can't Do That On Stage Anymore,* a retrospective series slated for release this month, along with another 2-CD set of guitar solos. *YCDTOSA* consists of six double-CD sets recording unchronologically the "live" histories of Zappa's various bands, from 1965 through 1988. Zappa intends to take full advantage of CD's 74-minute-plus program capabilities (which Ryko has just pushed to 80:05); we can anticipate at least 12, and as many as 15, hours of previously unreleased music. Then there's the 2-CD/3-LP *The Helsinki Tapes,* Box III of the Old Masters, *Lumpy Gravy Phase III,* and... JA, LA, can I write Part III? Please? —Richard Lehnert

Stereophile, May 1988
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In Vol.11 No.4, JGH enthusiastically reviewed a series of recordings made with the new Colossus recording system (p.153). The reason for his enthusiasm was that these recordings totally lacked any sign of the dreaded "digitalitis" so prevalent in modern classical recordings, leading him to proclaim that the Colossus "could justifiably be included in any contemporary listing of the seven wonders of the audio world."

My appetite whetted, I listened to one of these recordings, Stephen Kates playing Rachmaninov's Cello Sonata in G Minor—one of my favorite pieces of chamber music—accompanied by Carolyn Pope Kobler on a Bosen- dorfer piano (Bainbridge BCD6272). JGH had declared that this was the most natural-sounding CD recording of a cello that he'd heard. I have to agree that the tonality of both instruments is very natural, although the acoustic surrounding the instruments is very close and dry. In my opinion, a less closed-in, more reverberant recording venue, one sounding less like a small, modern, heavily draped hall, would have been more sympathetic to the music. That, however, is a matter of taste, and not germane to this followup report.

Something I found much more disturbing was the fact that the music was accompanied by often quite severe distortion at climaxes, sounding just as if an amplifier had been clipped. Instances from the first movement are at 0:44, 0:55 (left channel only), 7:20 and 7:24 (right channel only), 7:50, 8:34, 8:41, and 12:12. To ensure that this was not due to the playback system being driven into overload, the disc was auditioned on three systems, at a variety of levels, the final listening being done via a pair of Stax Lambda Pro headphones. Checking the recorded level against a 0dB reference indicated that the distortion appeared to be due to the recorded waveform "banging its head" against the maximum possible digital encoding level on the CD.

The 1981 copyright date on the CD jacket and the ADD SPARS code imply that the Colossus digital processor had just been used as a transfer medium for the mastering of an original analog recording. In view, therefore, of what I can only term an obvious error on the part either of the engineer who made the digital copy of the original analog tapes or of the engineer who prepared the CD master, Stereophile's recommendation for this recording must be withdrawn, as natural as the recorded sound may be. —John Atkinson

WAGNER: Lobengrin
Georg Solti, Vienna Philharmonic Orchestra, soloists London 421 053-1 (4 LPs). James Lock, John Pellowe, engs.; Christopher Raeburn, prod. DDA. TT: 222:54

The LP version of this 4-CD set, originally reviewed in Vol.11 No.3, has finally arrived. Up until a few years ago, an opera of this length would have automatically been released on 5 LPs. Here, however, with sides of up to 36 minutes long, and no DMM, the LP seems doomed to run a very far second to the CD version. The dark, veiled LPs lack the top kHz or two of harmonics, and the longer sides are perforce so compressed, and the S/N ratio so low, that turning up the gain does little good. This unit-for-unit, procrustean squeezing of formats—one CD = one LP = one cassette—is just the latest manifestation of the Paraquat Syndrome: spray a relatively harmless drug like marijuana with a poison like Paraquat, then condemn the drug as dangerously toxic. Once again, PolyGram refuses to let an otherwise decent analog version of a digital master have a fighting chance. —Richard Lehnert

1 Bainbridge says that the SPARS code is, in fact, incorrect; the original recording was digital. Engineer Leo Kulka confirms that it was made with a highly modified Sony PCM1 PCM processor. Regarding the "clipping," the disc is being remastered, Mobile Fidelity Productions of Nevada's Manufacturer's Comment elsewhere in this issue giving the facts of the matter.
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—Ken Kessler Hi Fi News & Record Review, January 1988

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Stereophile, May 1988
The Mod Squad
Prism CD player

Editor:
We appreciate TJN’s attention to our Prism CD Player. Like all reputable manufacturers, we work long and hard on each product before it is released into the marketplace. His recognition of our achievement is deeply gratifying.

There are a few points brought up in the review that we would like to clarify for your readers.

First, there is one major difference (besides the additional power supply) that distinguishes our work on the 650 machine from that performed by many other companies. Instead of confining our improvements to the analog section, we extensively rebuild the digital section of the player as well. Much of the sonic improvement is a result of this work.

Second, while it is true that the Prism offers higher-than-average output levels, it is not correct to assume that we do this so it will perform better with our Line Drive or with any other piece of equipment. We increase the gain because it makes the circuits sound better. We would like to increase the gain even more, for even better sound, but this is not practical because of potential overload problems with associated equipment.

Third, the concept of using pointed spikes under components apparently originated in the 1930s. We brought Tiptoes to the market in 1982 and initiated the current recognition of this concept’s validity.

Steven McCormack
The Mod Squad, Inc.

PS: What’s this about our modifications nearly always improving the original?

Colossus recordings

Editor:
Upon receiving the critique by John Atkinson [see Follow-Up at end of Record Reviews], a laboratory examination of the specific compact disc in question was made by Lou Dorren. Lou’s comments are as follows:

1) The original PCM-1 digital master is clean, with no distortion as described by JA.

2) When the PCM-1 to Colossus transfer was made, the digital medium was truly exercised with regard to program level.

3) This push of the medium may cause the kinds of distortions referred to by JA. The levels on this disc were recorded within 8 bits [LSB] (hexadecimal notation FFF4) of the maximum level for a 16-bit system (hexadecimal notation FFFF). Any offset error in the D-to-A converter or the sample-and-hold system of the CD players that exceeds the 8-bit margin (hexadecimal notation 0008) will cause the distortion described, due to nonsymmetrical playback of the reconstructed audio signal.

4) The assumption made during mastering was that CD player manufacturers were adhering to the EIAJ standard. Apparently some are not following the standard to the full 16-bit dynamic range of the system.

5) This disc in its current configuration will certainly verify the offset accuracy of one’s own CD player. We have one player in the lab now that will not play this CD at all.

6) As a consequence, a new master transfer will have been prepared on April 4, 1988, in which the level was reduced by 3dB (hexadecimal notation F800). This translates to a 2048-bit margin (hexadecimal notation 0800) instead of an 8-bit margin. Any owner of this CD who would like to trade it for a remastered version may do so at no charge. However, one should consider the retention of the disc as a test medium for one’s own edification, being certain to mark this particular disc for identification.

Brad Miller, Lou Dorren
Mobile Fidelity Productions of Nevada

Itone/VMPS Super Tower IIa/R and Tower II loudspeakers

Editor:
I am delighted that veteran Stereophile staffers JGH and TJN tackled reviews of our burly, bulky floorstanding systems. I will address myself first to the negative aspects of both commentaries and admit, going in, that both the Tower II and the ST IIa/RSE can sound perfectly awful (surely a first-time admission from a manufacturer in these columns), and that their ability to do so was deliberately designed into each speaker.
The Best Preamp Under $1000?


The best preamp under $1000? It's the Moscode Minuet in "A". The sweet sound of the Minuet in "A" is legendary. George M. Graves from Stereophile (Sept. 1987) comments:

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Both units have been on the market a long while (Tower II, born 1974; ST11a/R, first sold in 1979), and I have had plenty of time to ponder on how they should be made to perform. Over the years they have been refined in the direction of flatter pressure amplitude and pressure phase response, rather than toward the aggression commonplace in large arrays, which has given them a reputation for gross coloration and sock-it-to-you sound. Both systems are extraordinarily sensitive to reflective objects between, beside, behind, or directly in front of them; late arrivals from such objects cause comb filtering which is especially obvious due to the "classical flat" tonal balance I prefer. In JGH's room, a concrete basement on the squarish side, I ended up bunching Tube Traps (absorbent side out) between and around the speakers, which were placed about 14' from the back wall (in my final setup) in order to provide the back-wall coupling the system is designed to be comfortable with. Unfortunately, there is a pillar, apparently a 4"x8" stud, supporting JGH's basement roof, which bisects the listening area about 3½' smack in front of the listening seat. Previous setups in that room placed whatever speakers were in use much closer to the listening seat, beside or in front of the pillar, making it much less a factor in producing reflections which would tend to disturb tonal balance (that "veiled" quality or sharp notches/peaks in amplitude response).

TJN's room, with its long wall between the speakers, proved less problematic. Some readers will remember AHC's review of an earlier incarnation of the ST11a/R (Stereophile Vol.9 No.3, p.71), where the speakers were successfully mounted approximately 10' from the long wall of the listening room, with a large open space leading to an adjoining room between the speakers. Such open spaces act as absorbing surfaces and also lessen comb filtering from late arrivals, a great advantage for critical listening.

Measuring such an array with a microphone is very difficult. We use ½-octave warble tones in-room and measure no 2kHz dip as JGH does; however, a vertical array exhibits severe lobing in the vertical plane and much depends on measuring microphone height. Drivers are arranged somewhat weirdly on the baffle (visually, I mean) to compensate for boundary-effect response anomalies; the theory is that...
the driver above will fill in the dip in the output of the driver below caused by energy reflected back from the floor along different path lengths.

For speakers such as the Tower II and the ST11a/R, large rooms (with at least one 20' dimension and over 1900ft³ volume) are preferable, as is a listening position greater than 10' from the speakers. The listener is then more in the reverberant field and sharp notches tend to be filled in by other, later arrivals.

Here are some suggestions to prospective purchasers of these systems, tips which also apply to setting up other front-radiating speakers:

1) If you can place the speakers on the short wall (preferable), get them within 1' to 2' of the back wall and 1½' to 3' from the side walls. If you must set up on the long room wall, move the speakers closer to the back wall, say 8" to 12".

2) Clear all reflective objects away from the speaker end of the room. If you must have furniture between or in close proximity to the speakers, cover them with absorptive material (just while listening; I can imagine the Wife Acceptance Factor of a credenza upholstered in Sonex).

3) If you have a flexible floor, elevate the speakers off of direct contact therewith; Tip-toes work well.

4) Damp the wall between the speakers, and if possible on either side of them, with material such as 3' Sonex. To go all out, make a live end/dead end kind of environment with one third of the room, the speaker end, covering walls and ceiling with 3' Sonex. Tube Traps are also good.

As TJN discovered, adjusting the passive radiator moving-mass affects the sound of our speakers in unexpected ways. There will be one correct damping for best tonal balance for each placement in the room and for each given set of associated components such as amps, preamps, and speaker wire. Adding mass reduces the warmth region and lowers system resonance; if you do add mass you will generally find that the tonal balance requires correction by the level controls, generally a slight reduction. Taking mass away makes the PR relatively louder, the warmth region more prominent, and mid and treble levels must be boosted a small amount. As a rule of thumb, 5gm change in moving mass by the user will generate a considerable change in system tonal.

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balance (what JGH calls "chameleon-like"). TJN, by experimenting with ±30gm, probably went overboard. Make the smallest possible change in bass damping, adjust the level controls the smallest possible amount to match, and continue in that direction if the sound improves. Reverse the procedure if what you have done made things worse.

And now the confession hinted at in my initial paragraph: the user can really screw things up with these speakers, and we deliberately give him the wherewithal to do so. Why? Because without independent bass damping and midrange/treble level adjustment, you can almost never get a speaker to perform at its optimum, even in a very good listening environment. We give you plenty of rope in adjustment range; the unwary audiophile can easily hang himself. Or, once he gets a feel for the capabilities of the speakers, achieve very fine results.

My comment on the "good parts" of both reviews: extended, low-distortion bass, dynamics and dynamic impact, neutral balance (when properly adjusted), low price. Yup. That's us!

Brian Cheney
President, Itone/VMPS Audio Products

PSB Stratus loudspeaker
Editor:
Thank you for your favorable review of the PSB Stratus. Since this is the first time one of our products has appeared in the pages of Stereophile, we naturally have some comments on JGH's review.

1) The status of Stratus that JGH asks for at the end of the review addendum is simple to answer. We are currently in full production with our finalized product. It is identical to the speaker that JGH reviewed in his addendum, with the tweeter levels set correctly. All "futzes" are complete.

2) The PSB Stratus was designed to blend not only accurate and pleasing sonic performance, but also tasteful styling and aesthetics. We felt it important to let your readers know that the handcrafted fit and finish of our cabinets need to be seen and touched to be realized. There is more to the Stratus than meets the ear.

3) Finally, PSB is being distributed in the USA by Lincolnwood Ltd., based in Norwood, MA. The Stratus, along with the full line of PSB Speakers, is currently being sold through some of the finest specialty audio retailers in North America. I am sure that JGH adding Stratus to his "Recommended Components" list will lead more prospective speaker buyers to audition these speakers in this dealer network.

Again, thank you for your time and effort in reviewing the PSB Stratus. We look forward to JGH listening to some of the other speaker projects Paul Barton is currently working on.

Gordon Simmonds
President, PSB Speakers

Onkyo T-9090 II FM tuner
Editor:
Thank you for the opportunity to comment on your review of the Onkyo T Series II tuner.

The reviewer noted a sound-quality improvement in the second sample he received. Your readers should be aware that the first sample shipped to Don was a pre-production version; the second sample came from our regular stock.

Don noted that the tuner was easier to use via the supplied remote; this is expressly our intention. As Don pointed out, various tuner parameters have a direct relationship with sound quality; it is always better to make any adjustments from the listening position, if possible, and that is why the 9090 Series II is supplied with a remote that duplicates every front-panel function, except for power on/off.

Although it wasn't mentioned in the review, the 9090 Series II features remote adjustable volume, via a motorized analog potentiometer.

David Birch-Jones
Product Manager, Onkyo USA

Lineage or Vendetta
Editor:
I would like to correct an error in Gordon Holt's CES report in Vol.11 No.3, specifically his mention on p.48 of John Curl's SCP 2 phono preamp as a production of Lineage Corp.

While Mr. Curl has designed several products for Saul Marantz which are to be marketed under the Lineage name, as yet no such products have been released. The SCP 2 is John's own product, handbuilt and tested by him, and is marketed under his Vendetta Research trademark. VMPS distributes Vendetta products and interested readers should contact us for product literature or ordering information. Price is $1895.

Stereophile, May 1988
Stereophile, May 1988

Brian Cheney
Itone Audio/VMPS Audio Products

Dolby Stereo
Editor:
In your article evaluating seven surround decoders (March 1988), Mr. Sommerwerck (BS) attempted to articulate several policies of Dolby Laboratories Licensing Corp. To our regret, however, he was frequently in error. It is unfortunate that these statements were made without benefit of as much as a confirming telephone call to us, something usually practiced by responsible reporters. At this late date after the fact, we nonetheless wish to address those points in the interest of clarification.

In an overall sense, it seems BS is intrigued with the idea that the Dolby MP matrix should be redefined to make it better at handling music in the home. He refers often to stereo and wideband surround channels, concert halls, and all the bygone quad-sound audio systems, as well as Ambisonics. But this misses the main point. Those other systems are music systems—for audio only. Dolby MP (for Motion Picture) is a sound-with-pictures system, the only one of the bunch that claims to be so. That this fundamental distinction leads to differences in system priorities should be of little surprise. We make no claims for the use of Dolby Surround as a music-only medium, and for one to unilaterally expect it to be so merely invites inevitable disappointment, as BS has found.

BS also concludes that since Dolby Stereo was originally conceived as a theatrical medium, it has no rightful place in the home environment. This is illogical. If the goal is to recreate a theatrical sound experience at home (and this is our goal, as well as that of many of our licensees), then the use of program material and reproduction techniques as found in the theater are necessary. To do something else will give a different result. It is that simple.

The passive “MP/UHJ” system theorized by BS might well have the spatial characteristics claimed, but it will also have a serious drawback he failed to mention: the effect will only be obtained at one location in the listening room. While this makes it obviously useless for theatrical presentation, it is equally restrictive in a typical home environment, where comfort, aesthetics, or the presence of other viewers may prevent one from sitting in the “sweet spot.” Conversely, the Dolby Stereo and Pro Logic systems were conceived with the goal of giving good spatial imaging over a wide range of seating positions, the value of which is easily appreciated.

BS then falls into the same trap he accuses others of stumbling into: that of focusing on the number four. He claims that “Dolby MP is defined in a ping-pang-pong-pung fashion, as four channels to be fed to four speakers.” He fails to realize that the encoding and decoding equations allow for infinite resolution of sound placement at any compass heading. By design, however, the theater system uses a wide array of surround speakers, so no pinpoint placement to the rear location is possible whether a delay line exists or not. The surround channel is structured and used in a way very different from the three front channels. This property of the system was deliberately chosen to enable enhanced placement resolution across the front, where it is imperative that sounds correlate with their visible on-screen sources, while also being able to bring sounds right into the theater from no apparent source.

On p.124, BS states that “there are no standards for testing surround decoders,” and that “there are no Dolby standards for sound quality or decoding accuracy, even in decoders using Dolby Pro Logic.” I must tell you this came as a flash to our four technicians and five engineers in the licensed product testing group. Considering that none of the products BS tested and none of the manufacturers he consulted regarding this article utilize Pro Logic decoding, it is not clear how he arrived at this conclusion. To say that he grossly understated the case would be generous. We would refer him to any of our Pro Logic licensees such as dbx, Lexicon, or NEC in Japan for their firsthand assessments of our standards and procedures. Furthermore, we would be happy to discuss and demonstrate our laboratory testing and listening practices to BS or any interested reviewer, and we welcome the opportunity to do so. (This might be a good idea before future decoder reviews are undertaken.)

Some historical perspective is in order. As BS implies, Peter Scheiber holds some basic patents in North America covering sound matrixing under which surround decoders of any kind fall, Dolby or otherwise. In order for
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Stereophile, May 1988
us to manufacture our cinema processors and to license the manufacture of Dolby Surround decoders, we obtained specific rights under those patents; rights which limited us to the licensing of passive (non-logic) decoders.

Those few companies wishing to explore the state of the art in decoders naturally wanted to produce full logic designs. Shure and Fosgate (but strangely not Aphex) are among those who obtained additional rights from Mr. Scheiber to pursue that end. Even though some of these decoders display the Dolby Surround logo, we are only licensing the same processing chain as in passive decoders, not the logic steering sections. This may contribute to why BS concludes no two Dolby Surround decoders sound alike.

One year ago, Dolby obtained additional sub-licensing rights under Scheiber's patents which made it possible for us to offer a logic steering design to our licensees. Knowing, as BS does, how difficult it is to develop and manufacture such decoders, which he calls "the most complex signal processing devices available," should answer both the questions of why many companies might choose to "look alike" and adopt our licensed design, and likewise why those companies that have worked so hard to develop their own designs feel comfortable in sticking with them.

BS speculates that another reason why licensees might be reticent to adopt Pro Logic is that its parameters are not fixed, and that unscheduled modifications of the product might be required. BS is probably unaware that once Dolby approves a design for production, we do not require running changes, even in the rare case that some change is made to an operating parameter of the licensed technology.

Finally, we should return briefly to the required delay line that BS claims is so damaging. As he found out, however, even the Aphex 7000 (which did not need DSR for Clash of the Titans) nonetheless "couldn't keep the bells... out of the rear channel; the spillage was quite noticeable." No better justification than that need be sought.

Roger Dressler
Dolby Laboratories Licensing Corp.

PS: Two points about JGH's CES review in the same issue. The Lexicon DSP Pro Logic decoder does not have a full-bandwidth surround channel, claims to the contrary notwithstanding.

ing. It would be of little practical value since the surround signal is initially bandlimited in the Dolby Stereo encoder, so no true surround signals exist above 7kHz. Second, the Synergex product does not require the blessing of Dolby to have its wideband surround channel, since it is not licensed by Dolby.

CSA Audio
An apology is in order for retailer CSA Audio of Upper Montclair, New Jersey. In my analysis of which room was voted as having the best sound at our New York Hi-Fi Show (Vol.11 No.2), I inadvertently referred to this company as CSA Electronics. Accordingly, LA has instructed me that I must stay in after hours writing: CSA Audio is the correct name; CSA Audio is the correct name...—JA

Radio Shack TM-152 AM-stereo tuner
Editor:
I found the advance copy of Mr. Scott's review of Radio Shack's now-discontinued C-Quam AM-stereo tuner important and refreshing. His findings of "stage wandering" are supported by similar reports of "Platform Motion" by AM broadcasters all over the USA.

Your readers may now wonder why receivers for our system, which Mr. Scott calls the "best AM Stereo system," are so difficult to find. The answer is that Sony and other quality receiver manufacturers have been threatened by Motorola re. a patent that should never have been applied for, and certainly not without informing the Patent Office of my prior issued statement.

The US Patent Office, on December 2, 1987, officially found my earlier patent "material" to be necessary to the Motorola examination. We now have proof that Motorola knew of my patent before they filed for their patent. Therefore, future Motorola threats should be ineffective.

AM radio must be free to use the best technology available. We at Kahn Communications will continue to fight for free and honest competition. Stereophile, by fearlessly publishing the truth, is supporting AM's right to survive.

Leonard R. Kahn
President, Kahn Communications, Inc.

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Stereophile, May 1988
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<table>
<thead>
<tr>
<th>Model</th>
<th>System Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Audiophile 101</td>
<td>Introductory Audiophile Reference System</td>
<td>$1,499.95</td>
</tr>
<tr>
<td>Audiophile 201</td>
<td>Advanced Audiophile Reference System</td>
<td>$3,495.00</td>
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<tr>
<td>Audiophile 301</td>
<td>Experienced Audiophile Reference System</td>
<td>$6,784.20</td>
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<tr>
<td>Audiophile 401</td>
<td>Graduate Audiophile Reference System</td>
<td>$15,799.00</td>
</tr>
<tr>
<td>Heavenly Sound</td>
<td>The Ultimate Reference System</td>
<td>$58,075.00</td>
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</tbody>
</table>

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Stereophile, May 1988
I'd like to expand on the "expensive electronics/inexpensive speakers" discussion begun by JA in his Levinson No.26 & No.20 reviews. To the best of my knowledge, the "primacy" question was first launched in this country by Consumers Union, who opined back in the '60s that the two transducers in a system (cartridge and speakers), being inherently most error-prone, made the biggest differences in the sound; therefore, the largest portion of your audio budget should be spent on them. (Of course, these are the same people who won't admit that either amplifiers or CD players sound different, so no wonder!) The approximate recommendations I remember were 50% on speakers, 20% on cartridge, and 30% on everything else.

Then along came Ivor Tiefenbrun in the mid-'70s to announce that the 'umble turntable—hitherto almost completely overlooked as a candidate for primacy—had to be considered first. After all, it doesn't take a genius to figure out that anything lost at the very front end can never be retrieved by the loudspeakers, nor that distortions created by the phono front end will be only amplified faithfully thereafter. Ivor was not so modest as to claim only 50% for the turntable: if you have only $995 to spend, you should buy an armless Linn Sondek and save up for all the rest! Recently Linn has moderated their initiation fee somewhat, the Axis with arm costing only $675.

At this distance, temporally and geographically, both positions seem extreme, but letters to Stereophile indicate that Americans are still strongly influenced by the first view, and a mere glance at Hi-Fi Answers—where people frequently apologize for owning other than the hallowed Sondek—bears testimony to the latter.

It is clear there is a teleological problem here, one that will grow more acute when DO gives birth to his long-awaited speaker-cable survey (which I know will recommend cables costing $4000). I mean, what's a poor reader to do? Spend $11,000 on the Versa Dynamics, $2500 on the Ortofon 3000 combination, $11,000 on the No.20, a mere $4600 on the No.26 (you could spend more), $35,000 on the IRS V, plus $7500 on assorted cables? At least you'll get a good basic record player, though no CD or tape. Even proceeding on the unwarrented assumption that you'll have enough spare income each year for one of these items, which do you get first? And if, heaven forfend, you can only spend, say, $4000 in toto, what do you apportion where?

The first thing I think you need to do is divide up your hi-fi into subsystems: phono front end (turntable, tonearm, cartridge, including internal wiring); auxiliary sources, which themselves constitute systems (CD, cassette, reel-to-reel, FM, DAT); amplifiers, speakers, which must be considered as a unit even though in the high end they are normally manufactured by different companies; the hub, or preamplifier; and the cables that connect all of these. You could divide things differently, and there could even be different subsystems, implying different values. The preamp and amp could be considered a pair, much as JA has done in his Levinson review. The cabling could be considered a system itself, with a new subsystem—the electricity from the wall—given individual importance (Enid Lumley and Jimmy Hughes would no doubt favor this approach).

Whatever your choices, the subsystems require internal integrity and consistency, and weighting according to their importance. Is FM only for background, or is it a principal source? If LP and CD are listened to equally, then much care must be given to making your CD analogous in sound to your LP, creating a matched pair of subsystems.

There is a huge amount to be said on this, but I see from my ever-present character count that I won't get to say it all this month. Briefly, then, my choice for primacy: the preamp. Everything goes through it—if it has a character, everything in the system will have that character, so you'd better like it; and it performs key, very difficult functions, though they're often not seen as such. Speakers? You can have a great system with superb electronics but really modest speakers ($500); I've never heard a great system with modest electronics or turntable.

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