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THE 1989 AWARDS

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APRIL 1989 ............................................................... VOL. 12 NO. 4

Stereophile, April 1989
First, an apology. I know that I promised to include the Index to Vol.11 of the magazine in this issue. The fact is that “Recommended Components” took up so much space that I was forced to hold the index over to the May issue. Another feature which failed to get into this issue was Dick Olsher’s thought-provoking interview with high-end retailer/recorderist Peter McGrath. This, too, will appear next month.

High-end loudspeakers feature heavily in May. Senior Contributing Editor Tom Norton has been auditioning a serious contender in the shape of the Snell Type C2, as well as the weird, baffle-less ZSE from Mitek, while I report on the Si revision of Celestion’s SL600 as well as on the latest version of what must be one of the best values in loudspeakers today, Vandersteen’s 2Ci.

Tubes also predominate in the May equipment reports, with reviews of the Lazarus Cascade Deluxe and Conrad-Johnson PV9 preamplifiers accompanying a report from Stereophile’s “Reviewer From Hell;” Dick Olsher, on George Kaye’s Classic Audio CA 260 power amplifier, a competitively priced hybrid that utilizes a McIntosh output transformer. In addition, Bill Sommerwerck auditions four of the latest Dolby surround-sound processors, and harpsichordist Igor Kipnis talks with pianist Earl Wild.

How about the future? Works in progress due to appear within the next two or three issues of Stereophile include reviews of: the Wadia digital processor; cost-no-object CD players from CAL and Phillips; Hafler’s new Iris remote-controlled preamplifier; the Mark Levinson No.20.5 power amplifier and No.25/26 preamplifier; pickup cartridges from Carnegie, Jeff Rowland, Koetsu, Clearaudio, and Krell; integrated amplifiers from Creek, Creek, and Audiolab; loudspeakers from Acoustat, Mirage, Waveform, Pioneer, and TDL; and affordable turntables from VPI, Ariston, and Systemdek. We will also carry interviews with recordist Tam Henderson, cellist Yo-Yo Ma, and conductor Christopher Hogwood, and feature articles on tuning tips and achieving the best interface between the loudspeaker and the room, as well as a full report on the High-End Hi-Fi Show, due to take place later this month—see the ad on pp.78 & 79—and promoted by Stereophile magazine and Nelson & Associates. See you there!

1 See this month’s “Letters” column.

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"tax proposed to fund Public TV, radio," read the newspaper headline. The Working Group for Public Broadcasting, described as a "private study group," was proposing to free public broadcasting "from improper political and commercial influences" by replacing its $228 million in congressional appropriations and $70 million or so in corporate funding with $600 million to be raised from a new sales tax on electronic equipment. The article went on to say that the proposal was being sent to the congressional panels concerned with communications (ie, the commerce committees), where it could become the basis for a new Public Broadcasting Act.

Commerce committees, eh? Was this just another fiendish scheme from those wonderful folks who brought you the Gore-Waxman Copycode bill?

Well, maybe not. I subsequently obtained a copy of the formal proposal, as well as the WGPB's press release of December 13 (portions of which are printed in the Sidebar on subsequent pages). After reading those documents, I was guardedly optimistic. The membership list was impressive, as was the fact that the project was chiefly funded not by the record and movie industries, but by the Gannett Foundation. They seem like reasonable people who might be willing to listen to a reasonable counterproposal. So after mulling over the question of how best to approach them — and how to avoid a polite brushoff from some well-meaning but overzealous underling — I settled on the open letter from Stereophile that appears on the following pages.

There are some good points in the WGPB's proposal, and most of it deserves serious consideration. The level of funding they envision,
The Working Group for Public Broadcasting
Restructuring of Public Broadcasting Proposed by the Working Group

New York: A plan to free public broadcasting from improper government and corporate influences was presented today by the Working Group for Public Broadcasting, an organization of educators, journalists, communications lawyers, producers and others concerned with the quality, integrity and diversity of public broadcasting. (A list of the organizing members is attached.)

The proposal, called "Public Broadcasting: A National Asset to be Preserved, Promoted and Protected," which would restructure the financing and operation of the system, was made public in New York City at a noontime luncheon sponsored by the National Coalition Against Censorship at the Ethical Culture Society, 2 West 64th Street.

John Wicklein, Coordinator of the Working Group, said at the luncheon that "public broadcasting is a national asset that must have much more money if it is to produce the excellent and independent programming we demand of it. But we must fund it in a way that neither government officials nor corporate executives can control the content of its programs." Wicklein, director of the Kiplinger Midcareer Program for Journalists at Ohio State University, says the Working Group has substantial anecdotal and documented evidence from those involved with public broadcasting that pressure is exerted to influence programming and organizational decisions. The restructuring plan would minimize this possibility.

The restructuring plan, providing for independence and stable funding, suggests a new Public Broadcasting Act of 1989, to:
• Establish an Independent Public Broadcast Institution to replace the present Corporation for Public Broadcasting;
• Eliminate direct funding from Congressional appropriations and the board appointed by the President and confirmed by the Senate and replace them with nonpolitical funding, operating structure and governance;
• Provide funding by means of a 2% levy on factory sales of consumer electronic products, most of which come from abroad, and on broadcast, studio and related electronic communication equipment;
• Assure that one half of the estimated $600 million a year raised by the levy, an amount which is more than double that now available from all sources for programming.

Fortunately, the WGBP can easily preclude that possibility by repudiating its proposed 2% tax on electronics and embracing our alternative funding plan instead. We hope they will.

AN OPEN LETTER TO:
Working Group for Public Broadcasting:
c/o Kiplinger Midcareer Program
School of Journalism
The Ohio State University
242 West 18th Avenue
Columbus, Ohio 43210

We recently read your pamphlet, Public Broadcasting: A National Asset to Be Preserved, Promoted and Protected; A Proposal, from cover to cover. We even read the back cover, where you invited us to join the WGBP, and thoughtfully provided a postpaid reply card for that purpose. We wish we could accept your
would be passed through to local public stations for their own productions and one half would be retained by the Institution to commission and produce programs for national schedules;

- Create a national news organization in public television, similar to that which now exists in National Public Radio, to produce more complete coverage than is now provided by the commercial networks;
- Increase diversity by boosting the funding for public affairs and cultural programs from independent producers.

Organizing Members:
Ben H. Bagdikian, Professor of Journalism, University of California, Berkeley
Larry Daressa, Co-Chair, National Coalition of Independent Public Broadcasting Producers, San Francisco
William Fore, Executive Director, Communication Division, National Council of Churches, New York, and first Chairperson, Citizen's Advisory Committee to the Corporation for Public Broadcasting
Henry Geller, Director, Washington, DC Center of Public Policy Research and formerly Assistant Secretary of Commerce leading the National Telecommunications and Information Administration

Mable Haddock, Executive Director, National Black Programming Consortium, Columbus, OH
Leanne Katz, Executive Director, National Coalition Against Censorship, NY
Carolyn Lewis, formerly a reporter for public broadcasting, Ocean View, DE
Everett C. Parker, professor at Fordham University and formerly Director, Office of Communication, United Church of Christ, White Plains, NY
Ned Schnurman, President, Press and the Public Project, NY, and producer of "Inside Story"
Andrew Schwartzman, Director, Media Access Project, Washington, DC
George Stoney, Professor of Undergraduate Film and Television, New York University
John Wicklein, Coordinator of the Working Group, Director, Kiplinger Midcareer Program in Public Affairs Reporting, the Ohio State University, formerly in charge of news and public affairs programs at the Corporation for Public Broadcasting; former Religion Editor, New York Times; former Dean, School of Public Communications, Boston University; 242 West 18th Avenue, Columbus, OH 43210-1107; (614) 292-2607 or -6291

invitation but, for the present, we can't. And we feel compelled to tell you why we can't. We value public TV and radio as much as you. We admire the kinds of programs our non-commercial stations offer in spite of their scandalously inadequate funding, and we'd really like to see, and hear, what they could do with $600 million a year.

And we abhor censorship at least as much as you do. We don't doubt that you have "substantial anecdotal and documented evidence . . . that pressure is exerted to influence programming." We're journalists ourselves, and we have some horror stories of our own. You don't have to give us a bill of particulars on that issue.

And while we're not ready to endorse every detail of your blueprint for an "Independent Public Broadcasting Institution," we certainly don't object to using that part of the Proposal as a starting point or, to use your words, "as a catalyst for discussion of a new Public Broad-casting Act."

But there is one part of the Proposal we find so odious that we oppose even its use as a "catalyst for discussion." We fear that, if enacted by Congress, it could serve as a catalyst for a series of other measures inimical to the interests of consumers. The unacceptable provision is, of course, that 2% tax on electronic equipment.

According to your figures, factory sales of consumer audio and video goods amounted to $29 billion in 1987, while factory sales of professional gear came to $1.45 billion. If your tax had been in effect that year, consumers would have paid 95% of it. And the least affluent consumers would have paid the greatest portion of their incomes, making this a classic example of a regressive sales tax.

Why should consumers be forced to finance public broadcasting when those who benefit financially from their ability to reach con-
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sumers through commercial broadcasting are far better able to bear the cost?

In 1986, advertisers spent over $29.5 billion on radio and TV air time, and those expenditures are increasing. For example, the average cost of a 30-second commercial on the 1989 Superbowl telecast was $675,000, an increase of $25,000 over last year's price. And NBC had no trouble selling every available spot. So a 2% tax on radio and TV advertising would yield about the same amount as your proposed electronics tax, or a little more.

Consumers didn't create public broadcasting's problems. As you pointed out, it is advertisers who have forced commercial broadcasters to avoid controversy, to stint on children's programming, and to be consistently majoritarian in an effort to attract the largest, most affluent audiences possible. And it is many of these same advertisers, in their role as corporate underwriters, who have undermined the independence of public broadcasting.

It isn't so much the amount of money involved here. Two percent is less than half the rate of some states' retail sales taxes. It's more a matter of principle. Why shouldn't those who have created the problem pay for the solution?

And it isn't so much the principle as the precedent your Proposal, if enacted in toto by Congress, would set. Though we're sure you didn't intend it that way, any bill incorporating your funding plan would serve as a stalking horse for the record industry's attack on the American consumer.

That industry has long sought "royalty levies" on consumer audio recorders and blank tape. Record executives claim their firms lose $1.5 billion a year to home taping, even though the industry's profits are at an all-time high. But we don't believe them, and neither do most major consumer and public interest groups. Consumers Union and the Consumer Federation of America, for example, have consistently opposed legislation to tax or otherwise restrict home taping.

Fortunately, members of the House Judiciary Committee share our skepticism. They have consistently refused to tax consumers to further enrich an already wealthy industry. Some of them have even chided the industry for making such extravagant claims.

But the House Commerce Committee has been far more receptive to the industry's claims of losses. You may recall that the Subcommittee on Commerce, Consumer Protection and Competitiveness approved the Gore-Waxman Copycode bill, not once, but twice, during the term of the 100th Congress.

The record companies would like to get their tape tax legislation sent to the Commerce committees instead of to the Judiciary committees, but they can't because the regulation of royalty payments is a copyright issue, and thus falls under the jurisdiction of the Judiciary committees. But public broadcasting, as a communications issue, would fall within the jurisdiction of the Commerce committees.

That's why legislation based on your plan would be so important. It would give the entertainment industry's allies on the Commerce committees a chance to approve a Federal excise tax on consumer electronic devices, including recorders—a questionable means for a laudable end. And with public broadcasting as the beneficiary of this proposed tax, some usually canny legislators, who would never believe the record industry's meretricious arguments about the home taping "problem," might be tempted to support this measure—perhaps just enough for a slim majority in each house of Congress.

And then what?

First, with one consumer electronics tax already levied, the record industry would renew its drive for a special tax on consumer recorders and blank tape. Or perhaps the industry would try to get the original tax extended to blank tape, and the portion collected from tape and recorders diverted to a music-industry royalty fund. In that case, the rate of the tax on all items would be raised, to compensate for the diminished base of items taxed to support public broadcasting.

Then, the movie industry would want the same arrangement for its own benefit, this time taking blank videocassettes and recorders out of the public-broadcasting tax pool, and thus requiring a second increase in the consumer electronics tax.

It would be bad enough if the only consequence of these developments was that the movie and record industries, already fabulously wealthy—and helped, not harmed, by home recording—were to realize enormous unearned profits at the consumer's expense. But there would be another, even more baleful effect of any such unwarranted largesse toward the Hollywood set.
In the three years since the Introduction of the Mark Levinson No. 20 Monaural Reference Amplifier, advances in circuit topologies and components available to the Madrigal design staff have made it possible to produce a new reference. The No. 20.5 Monaural Reference Amplifier is an ultimate statement of our craft and a benchmark for future designs.

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The proceeds from the tape tax rejected by the 99th Congress were to be allocated to records on the basis of their standings in the sales charts, which are based on sales in the dominant record chains, and in the airplay surveys used to distribute radio blanket-license revenues to music publishers. To put it mildly, these lists tend to favor the dominant record labels at the expense of the small independents. Hence this disbursement scheme would not foster, but rather inhibit, competition and diversity in the recording business. And we have no doubt that it would serve as the model for the system of distributing funds from any future audio or video taping taxes.

You don't want to promote that sort of thing, do you?

We would be happy to offer our editorial endorsement of a new Public Broadcasting Act—unless it includes a consumer electronics tax. In that case, we would feel constrained not only to withhold our endorsement, but to actively oppose it—even to the point of reluctantly defending the status quo as the lesser of two evils. We hope it won't come to that.

We urge you to disavow your plan to fund public broadcasting with a tax on electronics, and advocate instead a tax on radio and TV advertising. By doing that, you would advance the interests of consumers and of public broadcasting at the same time. You would also avoid opening an economic Pandora's box.

How can you do otherwise? After all, public broadcasting is too important to be made a pawn in the show business magnates' continuing assault on the American consumer.

Sincerely,
Stereophile

---

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Letters

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

Politics?
Editor:
Frank Zappa equating Republicans with Nazis?
(January 1989, p.199)
Ah, the desperate, slanderously hyperbolic depths to which the fanatical Left has sunk!
Peter Reichelt
Flushing, NY

Ambience?
Editor:
Robert Katz’s explanation of how ambience extraction works (“Extraction vs Generation,” Vol.11 No.11) was all wet. The name of the article should have been a clue to readers that the explanation was wrong. If ambience extraction resulted from the ear’s interpretation of a single rear-channel delay, as Mr. Katz claimed, then the resulting impression of space would be the same regardless of the recording, and would not relate to the ambience of the original recording venue. It would just be another form of ambience synthesis. But rear-channel delay is not an intrinsic part of ambience extraction at all.

Mr. Katz was right in asserting that ambience extraction relies on cross-correlation between the stereo channels, but it works in a different way from that described. A fully correlated stereo pair of signals is identical in amplitude and phase, and produces a mono signal which, through stereo loudspeakers, images at center front. Signals which are less than perfectly correlated will image at increasing angles to left or right of center, depending on the extent of and the nature of the differences between them. We all know that, or should by now.

Recording mikes receive a mixture of direct sounds traveling in straight lines from each instrument to the mikes, and reflected sounds coming from all directions. For each wavefront, each mike gets but one direct sound from a given instrument, and while these fronts may be slightly different in amplitude and arrival time (phase) at the mikes, they nonetheless retain fairly high correlation. Hall reverberation, on the other hand, consists of countless reflections coming from every which way, including from the rear of the hall, and many of these are completely uncorrelated by the time they reach the microphones, arriving as much as 180° out of phase. It is these which make true ambience extraction possible.

Through stereo speakers, out-of-phase signals tend not to produce any image at all, but to float amorphously around the outer limits of the speakers. If we put another pair of speakers at the rear of the listening area, and connect them in reverse polarity, antiphase signals will produce a definite image between the rear speakers, while in-phase signals will be as poorly reproduced by them as the antiphase signals were from the front.

If we arbitrarily define “correlation” as being more in-phase than out-of-phase, it is statistically probable that, at any given moment during a musical performance, half the reverberation wavefronts reaching the microphones will be “in” and half will be “out.” And the “out” portion will appear more strongly from the rear speakers than will the more-correlated direct sounds. The reverberation will seem to come from the rear, while the instruments themselves will tend to stay up front, just as at a live performance. This is the basis of ambience extraction. And unlike ambience synthesis, where the quality of the ambience is a function of the synthesis alone, the sound of extracted ambience will depend upon the acoustics of the original hall and on the way the recording was made. It will vary from recording to recording, just as it should be expected to. This is the attraction of ambience extraction: it actually reproduces more of the spatiality of the original sound than is possible from conventional two-channel stereo.

In practice, the major shortcoming of simple ambience extraction is its poor front-to-back separation. There is enough leakage of direct sounds into the rear channels that they must be kept at a very low level, lest one start to hear violins and trumpets coming from the back where they obviously don’t belong. This is where signal delay and the Haas effect come in.
An inside look at one of the world’s three most forceful output stages. It belongs to the new Threshold $A$ 12e—the other two are also attached to new Threshold amplifiers. These ultra performance “e/series” models extend the Threshold line upward. They range from Threshold’s most powerful dual channel pure class A amplifier to a one-horsepower monoblock class A/AB.

For information, write: Threshold Corporation, 12919 Earhart Avenue, Auburn, California 95603. For information and/or the name of your nearest dealer, call: 1 (800) 888 8055.

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Delving the rear signals by 20 to 30ms allows the ears to “lock on” to the front-coming (un-delayed) signals as the primary directional source. The extracted ambience, lacking the steep wavefronts of the direct sounds, is subjectively unaffected by the delay, allowing the rear ambience to be turned up to the proper level without pulling the instrumental sounds from their frontal locations. That’s what I feel to be the correct explanation of ambience extraction.

J. Gordon Holt
Boulder, CO

As I understood Mr. Katz’s hypothesis (which has also been promulgated in this magazine’s pages by Bill Sommerwerck), it concerned the fact that feeding a time-delayed signal to side speakers would fool the listener into perceiving ambience as coming from the sides, whereas the recorded direct sounds would still appear to come from in front, due to the Haas Effect. As the ambience perceived would still be that captured by the recording, the acoustic should sound different from disc to disc. Would anyone else care to comment? —JA

To laugh or to cry?
Editor:
Thanks to Bill Sommerwerck (Vol.12 No.1), I have now seen the future of home audio, and I don’t know whether to laugh or cry. Like so much else in the world, the problem is basically one of values: there are nerds out there who actually believe this sort of thing is worth doing! In a more menacing context, these people have already designed our weapons systems and our automobile dashboards; now they threaten our music. Hand me my Dynakits, or better still, my season ticket, or better still, my acoustic guitar.

Edward Fagen
Newark, DE

The Good Guys
Editor:
Please accept the people at Superphone for the “Good Guys Award.” Twice they have walked the last mile in trying to solve mysterious problems. If all American industry was like them, we would really kick butts.

Charles J. Gaton
Bayport, NY

Cover to cover enjoyment
Editor:
Just a short note to say how much I enjoy your magazine. It’s honest and straightforward.

I get Stereo Review, because I like their record reviews and some of their articles, but when Stereophile arrives I read it cover to cover. Not many magazines can have that kind of impact.

Keep up the good work. Mark Condon
Liverpool, NY

Reviewers
Editor:
I would appreciate seeing more reviews from Lewis Lipnick, and a speaker cable, interconnect review by the man that I feel is most qualified to do it — Martin Colloms. His approach (the short bypass) and his theory (the best cable sounds like no cable) makes more sense to me than what I have heard from any other reviewer. That approach leaves far less room for personal biases, and tends to make the reviewer stick more to what is accurate and neutral instead of just what sounds good. It also gives the reviewer a readily available point of reference, one that can be used continually to be sure of his results with the various cables, and the cable is judged based on how much it degrades the sound of the short bypass.

My regards also to JGH. He is another reviewer who does not just pay lip service to the words “neutrality” and “accuracy.” And his experience in the field just puts the icing on the cake.

Michael Rutherford
Tallahassee, FL

Mellow out!
Editor:
I am highly annoyed with certain elitist snobs among your readers whose attitude toward rock & roll can only be described as ugly. Some have likened listening to rock through Apogee to hauling lumber with a BMW, and claim only classical music is appropriate for their high-end equipment. This attitude seems to begin with the reasonable idea that audio equipment is best judged by its ability to reproduce acoustical instruments. There then follows a mystical leap to insisting that classical music is the best test for an audio component, and that playing other than classical music on such exquisite equipment is a travesty. I wish to point out that classical music does not have the monopoly on acoustical instruments, and that, in fact, recordings which have no natural acoustic sources are in the extreme minority.
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It should be clear, then, that classical music is not the only "appropriate" source for auditioning high-end audio equipment. There are, for example, a number of rock & roll songs in which real drums, real acoustic guitars, real pianos, and real human voices are used to great effect and thus provide good material for auditioning. It should also be clear that the wonderful effect high-end equipment has on classical music benefits any kind of music. The transparency, imaging, clarity, accuracy, etc. of fine audio components do not vanish when rock & roll or other nonclassical music is played through them.

As you may have guessed by now, I do play rock music through my Apogees, and, in fact, it does sound significantly better this way than when played through the kind of low-end system the classical-music snobs have deemed most suitable and appropriate for my preferred music. That some people prefer classical music to rock & roll neither surprises nor offends me, but I am exceedingly offended by the intolerant, judgmental, "only-classical-music-is-valid" attitude. Calling rock & roll "childish and frivolous" and equating classical music with "maturity" betrays ignorance and bigotry. Don't confuse taste with truth; don't succumb to the Hegelian error of building your value system on your personal preferences. To any such snob I offer some post-modern advice: Rein in your ego and try to keep in mind that you are a piece of the puzzle, not king of the mountain. Or, in the language of rock & roll, "Mellow out!"

Thomas C. Willett
Atlanta, GA

Too big
Editor:
My affiliation with Stereophile dates back to the early '60s—when the publication accepted no advertisements, feeling it would jeopardize its impartiality when reviewing products. I lauded the decision at that time.

Today I received the 276-page January issue. My, how it has grown in size—and price. $35 for a year's subscription to such a monumentalized publication seems reasonable. However, in review—something you do all the time—I find that of the 276 pages, 116 were advertisements. Quite a departure from the '60s.

I'm sure you can rationalize your subscription price in direct proportion to the size of the issue. However, when 116/276 is devoted to financial reimbursement, then your rationale pales.

My second complaint is in the "Record Review" section. You reviewed 27 classical releases. I know I am in the minority of your highbrow readers, but Classical music to me is a lot of disjointed noise. In addition, these old-fart composers have been dead for 200 years. Still, every day of every year countless nondescript orchestras record and record and re-record these old dirges over and over again. Jesus Christ, how can you differentiate between 15 recordings of the same composition? But I guess people still buy them, and with the introduction of CDs these old chestnuts are transcribed onto the new medium in addition to new ones being made daily.

The main source of my chagrin was the fact that you reviewed only one (1) jazz release—and that was by Grover Washington. Surely not the best and foremost jazz release since your last issue. Go figure.

Also, four pages of Where to Buy Stereophile? If I subscribe to it, it is mailed to me. If I find it on the newsstand, I buy it 'cause it's there. Who in the hell refers to locations of purchase other than these two? If I can't find it, how can I refer to the four pages of locations?

So, when my subscription runs out in April, I shall not renew. You've outpriced, out-classicalized, unjazzed, and outadvertised me ad infinitum.

My sincere wishes for your continued success and the hope that when Stereophile approaches the Sears Roebuck catalog in size, some product reviews will approach the size of the index.

E. J. Bernardini
Titusville, FL

Putting aside Mr. Bernardini's comments concerning the balance of classical vs nonclassical music coverage in Stereophile's record review section—I am sure that there are as many opinions as there are readers—one of the main reasons for publishing "Where to Buy Stereophile" is to provide the magazine's readers with a useful directory of dealers that stock high-end components. It is all very well publishing reviews, but it also helps to indicate where people can actually buy the stuff.

Second, I feel a little aggrieved that, in effect, Mr. Bernardini accuses us of charging too much for a subscription considering the number of advertising pages carried by the magazine, hence the advertising revenue received.
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As Editor, my attitude toward advertising is simple: no, it is not true that accepting advertising makes it impossible for reviewers to be impartial; and the revenue provided by the magazine's advertising enables me to publish a larger amount of higher-quality editorial matter—reviews, features, and regular columns—without having to raise the subscription rate. Yes the January 1989 issue of Stereophile did carry many pages of advertising, 116% to be exact including the classified section. But it also carried the largest amount of editorial ever featured by a single issue of the magazine: 159% pages (equal to the combined editorial content of the first two years' worth of the magazine back in the '60s).

It is a fact of publishing that any magazine's finances depend, to some extent, on revenues generated by advertisements. Yes, we could lower the subscription rate, but then we would have to reduce the amount of editorial matter commensurately, and it would be a cold day in Hell before I would think that that particular balance would better serve our readers.

For example, the first issue of Stereophile that I ever saw; Vol.3 No.9, dated Summer 1975, bad a total of 68 pages, just under 52 of which were editorial, including "Recommended Components," some record reviews (including rock), a report on the Polk Model 9 loudspeaker, and a denial from JGH that the magazine was in danger of folding. The subscription rate at that time was $7 for four issues; ie, $1.75 per issue. I have to say that I think paying $1.75 in 1975 dollars for 52 pages of editorial is not nearly as good a deal as paying $2.91 to receive a 1989 issue that contains over three times as many pages of editorial (an issue, incidentally, that cost us approximately 50 cents each to mail). It's the presence of advertising that makes that good deal possible, Mr. Bernardini!

—JA

Dialogue & statistics

Editor:

Although Stereophile remains among my favorite magazines, I am bothered by two developments. The first has to do with the decreasing attention given to dialogue with your readers. One of the strengths of a publication such as yours is the attention given questions raised by readers, questions often prompted by would-be audiophiles seeking to follow your counsels on equipment and set-ups. To compare editions from former years with those of recent vintage will confirm my concern. Your first edition of 1986 (Vol.9 No.1), for example, reveals 22 letters to the editor, with no fewer than 18 responses to the issues raised by readers. That figure in 1987 (Vol.10 No.1) slipped to 7 responses to 16 letters. In the corresponding 1988 edition (Vol.11 No.1) there were 28 letters printed with only 5 responses. And then came the opening edition of 1989 (Vol.12 No.1), in which you printed 25 letters, many of which raised issues of concern to many of your readers, yet you made but one brief response. I have to assume that readers write you not merely to see their concerns in print, but to elicit answers. I wonder, therefore: are you now so involved in planning income-producing shows that you've no time to dialogue with your readers? And if not that, then what accounts for this trackable and distressing development?

My second concern is of perhaps less general concern. On the basis of your overwhelmingly positive reviews of the Infinity RS-1Bs, with subsequent praise naming them to "dream system" status, I purchased one of the later editions, performed some of your suggested mods, and have been extremely pleased with the consequences. Then, as suddenly as they appeared at the top of the heap, they disappeared from mention in your columns. While aware that they have been superseded by the Betas, which have received a somewhat qualified rave review, I am nonetheless puzzled by their total disappearance when non-Infinity speakers are being reviewed and compared with existing speaker systems. I, for one, would be interested in knowing how some of the emerging systems compare with not only the Betas, but also the 1Bs. Any comment?

Gerald Trigg
Colorado Springs, CO

With respect to the apparent absence of dialogue, I do regard the "Letters" section of the magazine as being almost exclusively the preserve of the readers, the magazine's editors and contributors having had their say in the rest of the magazine. I try to arrange things so that, in many cases, an answer to a specific question raised in a letter will actually be found in the next issue, or in the rest of the magazine, or in another reader's letter in the same issue. I tend to answer in print only when
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I feel a misunderstanding is being promulgated, or if we are being questioned about our integrity or about a particular policy, as is the case here.

Regarding the disappearance of the Infinity RS-1B from "Recommended Components" and the lack of references to them in contemporary equipment reports, the magazine's policy is only to use models that are currently available for comparison purposes. In addition, the particular Stereophile writer to use these speakers as a reference was Anthony H. Cordesman, who ceased to write for the magazine almost two years ago. None of the current reviewing team, with the exception of J. Gordon Holt, has had any direct experience with the RS-1B. With respect to its removal from "Recommended Components," the listing concentrates almost exclusively on models that are in production. But, as can be seen in this issue, we do point out in the introduction that deletion of a component from this list does not invalidate a buying decision a reader has made. —JA

Baseless measurements?

Editor:

I would like to add my voice to the ongoing debate between subjective reviewing and the measurement types. Concerning the use of measurements, as opposed to subjective tests, there is an underlying assumption that seems to have gone unstated. It is that, in order to make a measurement, one must have a closed scientific theory that explains the phenomenon being measured; i.e., what, how, and why does it sound that way? If we knew all the interactions between components, theory would then explain the phenomenon whether we hear it or not (we're not all golden-eared). If that theory existed, then we would all be listening to the "perfect" sound system (the electrical one—not the live one). There would also be little or no disagreement between manufacturers as to what sounds right. Stereo Review might finally be right: all systems would sound the same!

I do feel that measurements can be useful when explaining known aberrations, but we certainly don't know all of them. What one really learns as one progresses in science is that there are infinitely more questions that need to be answered. We never know all there is to know about a subject.

To me it seems obvious that the "ideal" does not exist. OK, then, to what do we ascribe the differences that many do, in fact, hear? That depends on who you read (listen to). The measurement types imply that since they cannot measure any differences, then no differences exist—horse hockey! On the other hand, I am not an engineer, have no intention of being one, and don't want to touch a 'scope. I don't understand and don't desire to understand the theory of amps, preamps, etc. All I want is something quite simple—a unit that sounds better than anything else I can afford, and works reliably. Let the manufacturers come up with theories, report them in whatever journals they choose, turn them into products, and let the marketplace decide whether the theory is correct. Once the theory is in place, then measurements can be meaningful. The problem is scientific, not statistical. Statistics can be used to describe a phenomenon, not explain it.

So far, only a limited number of measurements have been scientifically correlated with actual sonic performance. When we understand the entire gestalt, from instrument performance to recording to playback to hearing, then maybe some numbers can tell me how a unit will sound. Until then, they only serve to separate the reviewers.

Concerning the double-blind testing debate, in my brief experience with high-end audio, a great majority of the time I only begin "hearing" a component after a considerable period of time, from several days to several weeks. To keep switching components, while not differentiating A from B, in general means nothing—statistics to the contrary. For a meaningful test, it would be necessary for the listener to stay with component A for, say, three weeks, then switch to component B for the same period of time, all the time being completely unaware of the "brand" of the particular unit (they could be sealed in opaque plastic, with "breathing space," by a well-meaning and-trained assistant). Then, if sonic memory can be trusted, insert unit X and let the games begin. Of course, this is not a practical solution, since each sample takes about two months, but it would resolve some of the controversies.

Mike Klein
Metairie, LA

What has always puzzled me about the "All sounds the same" protagonists—Mr. Self in
the next letter, for example—is that amplifiers (and CD players) are not objectively perfect in that they can be shown in practice to measure very differently. For example, if you plot a three-dimensional graph of distortion vs frequency vs output level for amplifiers driving a real loudspeaker load, it's actually very hard to find two that produce anything like the same result. The real argument, as Mr. Klein implies, concerns the relevance of any particular measurement.

—JA

An objective response
Editor:
I was much gratified to read your lengthy assault on my position in the September 1988 issue of Stereophile ["As We See It," p. 5]; it is always pleasing to be taken seriously. I appreciate, of course, that it is impossible for you to agree with me because to do so would imperil your livelihood. Nonetheless, in the interests of a multidimensional view of the debate, perhaps you might like to consider the points below.

It is not quite accurate to say that I am either trying to enforce or lay waste to anything; I hardly think that my influence in the hi-fi field extends to doing either. What does interest me is a situation in which so many people have taken entrenched positions that are logically completely untenable. It is perhaps to be expected of human nature that they should then hold rigidly to their stance as conceding and abandoning one contradiction only throws the next into higher relief. If my reasonings make a few people reexamine some awkward facts, then I have surely not wasted my time. However, I decline to be enrolled in the Objectivity Police.

I do, however, take mild objection to being labeled as the epitome of narrow-minded orthodoxy. I would remind you that I have had my material published only with some difficulty, and that if I were employed in the hi-fi business I should almost certainly have been summarily dismissed by now. This surely suggests to you that perhaps I am the Radical, and the Subjectivists are now the Orthodox, though I would not count on this state of affairs persisting forever.

On a tender point, you cannot evade the fact that charlatans do exist in the high-end business, as they do in just about all fields of human endeavor. I have known at least two such men,
though the prospect of expensive litigation deters me from naming them.

On p. 9 you level at me the accusation that I rely heavily on so-called "steady-state" sinewave/THD testing in my work, and I must plead guilty. These tests are so useful and informative—and I think Stanley Lipshitz would agree with me!—that I cannot see that I shall ever lose my dependency thereon. To try to design, say, a 23-track mixing console by listening-test would be so baroquely inefficient if that you were not mad when you started, you certainly soon would be.

(As an aside, I really must say that the argument as to whether or not a sinewave is a true sinewave if it has not been oscillating away since the dawn of the universe is pedantry of the most sterile kind. Those who have used quality THD equipment such as Sound Technology or Audio Precision will know that the settling-time on changing amplitude or frequency is a matter of one or two seconds.)

It is completely misleading to keep referring to sinewaves as "steady-state," which to most engineers implies DC. A sinewave has a continuously varying value, a varying rate-of-change, a varying acceleration, a varying rate-of-change of acceleration, and so on ad nauseam. A 20kHz sinewave, in particular, is a severe test of most components and should not be regarded as too easy for an amplifier just because it is simple conceptually. Robert Cordell2 considers that such a test is capable of revealing TIM, DIT, etc., as well as slew-limiting, under most conditions.

I feel that the crucial experiments on which subjectivism founders are the Hafler/Baxandall signal-subtraction tests. The Hafler approach does indeed suffer from insensitivity due to mismatching of bandwidths, and the Baxandall version is much superior, showing that the imperfections of a good amplifier are simply not perceptible. You ask "If you add circuitry to remove the masking linear effects... how can you be sure that this is not obscuring the very errors you seek?" The simple answer is that you use your common sense. This masking could only happen if the compensating RC time-constants generate exactly the same errors as a complex network of semiconductors con-

WHEN ONE IS NOT ENOUGH

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figured in multiple feedback loops. To suggest this is simply not reasonable. Even if, by a million-to-one chance, it could happen, simply changing to another type of amplifier would increase the odds from the enormous to the near-infinite. As a defense of Mystic Amplifier Defects (MAD?), this is simply not tenable. The straightforward logic that we use in everyday life forbids it; I therefore think that intellectual honesty compels you to face this issue squarely as a matter of urgency.

I liked your section on "brown" light, in which I too believe. I think, however, that you should know that the wavelength of what we see as brown light is approximately 600 nanometers. Visual perception is a funny thing.

On p.11 you deploy that most two-edged of logical weapons—the reductio ad absurdum. This turns viciously on its wielder if it transpires that what you thought was absurdum is not so absurdum after all. Why should it be absurd for amplifiers to be perfect? I have a sneaking suspicion that effectively perfect amplifiers have existed ever since the advent of the Quad 303 (I shall certainly never part with mine), because nothing in psychoacoustics—in which, I might mention, I hold an MS—suggests that there is anything about the human ear that transcends science or measurement. You make an amplifier that is good enough, and that, rather disappointingly for amplifier designers, would appear to be that.

I would like to say that your approach has been perhaps fairer than most objectivists are used to; however, on one point I object strongly to being misrepresented. I did not attempt to undermine Stanley Lipshitz's position on absolute phase, for the very good reason that I think he may be right. I think you might have conceded that my last preamplifier design deliberately preserved absolute phase throughout. My article referred to the perception of phase-shifts generated by all-pass filters. Mr. Lipshitz is a man for whose work I have a high regard, and on reading (1) (which, I must confess, I was not aware of when I wrote my two recent articles), I can only conclude that you are further from Lipshitz's position on subjectivism than I am.

To conclude, your attempted rebuttal leaves me gratified rather than confounded. You have posed rhetorical questions to which you should already know the answers; you say on p.6, "where is the evidence that people who hear differences between amplifiers... are suffering from self-delusion?" You won't have to write that again, for here are some references that provide just that evidence.4,5 Mr. Lipshitz gives a dozen or more such references in (1), a paper I urge you to read. You have failed to address any of the specific points I made, and you have (at some length) taken refuge in vague accusations of myopia, pedantry, and narrowness. The function of an amplifier is a narrow one. "The spectrum of human experience" is a fine-sounding phrase, but surely most of it has little relevance to a box constructed to make voltages and currents bigger in an accurate manner? It would perturb me more if I thought that you never, ever, had any doubtful moments in which you thought I might just be right.

Douglas Self
London, England

High end on campus
Editor:
In the reader survey results, Vol.11 No.10, JA stated that only 5% of your readers are college students, and students "obviously have less interest in good sound reproduction than they did in my college days." When I first read this, I planned to write a humorous letter describing recent encounters with fellow students and current attitudes. However, in "As I See It" in the same issue, JGH sums up college students very well. Most college students today want something that sounds good to them (megasound that muddies up the midrange and a screeching high end)—accuracy is not a factor. High end for most students means Technics, Pioneer, Kenwood, etc. However, on a more positive note (no pun intended), I would like to give a little insight into the other 5% of college students.

Together with a friend, I have recently started a music/audio club on our small Midwestern campus. Two primary purposes have been the theme for the club: to expand our own musical horizons and share our favorite music with other members, and to learn about products that perform exceptionally well for the price. Being college students, we cannot afford Levinson, Audio Research, CAL, WATTs, and other similar products. My current system includes

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Adcom, Vandersteen, and Denon. David, the co-founder, has in his current system NAD, KEF, and Sony. We also hope to print music reviews in the school newspaper.

Yes, the number of students interested in hi-fi has apparently gone down, but hi-fi is still alive at college.

R. Steven O’Neal
Fulton, Missouri

What happened to Harvey?
Editor:
While reading through an old issue from Vol. 9 I had a great laugh reading some of the adverts for Harvey Rosenberg’s NYAL products. What has happened to Harvey? If he isn’t too busy with hi-fi, couldn’t *Stereophile* persuade him to do a guest column now and again?

H. Richter
Skowhegan, ME

NoNoise: a professional opinion
Editor:
A friend recently gave me a copy of the December 1988 issue of *Stereophile*, because it contained an article called “The Sonic Solution,” and he knew I had participated in a CD release for which we employed the services of the SF-based Sonic Solutions company. In fact, on one of the days I was working there, one of your writers, Kevin Conklin, interviewed Mary Sauer, vice president of Sonic Solutions, and was given a demonstration of work they had done on some live rock recordings.

From the start, let me admit that I’m not a sound technician or even an audiophile—*Stereophile*—in any sense other than that I have been a musician for 30 years and have an affinity for sound. The CD referred to above is a release of some live recordings made of the Jerry Garcia Acoustic Band, in which I play mandolin and slide guitar and sing one of the vocal harmony parts. When we recorded these shows on 2-track stereo DAT, there was no plan to release the material in any format; that decision was made a year later, and at that point we decided to enlist the services of Sonic Solutions and Robert Doris to edit the tapes for us and get rid of a few distracting stage noises.

My experience with Bob was positive. He has good ears, is totally attentive, and he did whatever he could to meet the requirements set by me (the producer) and John Cutler (Jerry Garcia’s sound engineer). The microsurgery he performed in excising extraneous microphone noises, talking, and other non-musical sounds seems to me to only enhance the clarity and transparency of the recordings, with no loss of liveliness or anything else I can detect, and I listened to the master tapes long and carefully. As a bluegrass and acoustic player, I’m accustomed to and satisfied with very human-sounding music: noisy tracks, less than optimal recording quality, and rough-sounding music that is at the very essence of these forms. Accordingly, anything that hurts that essence or suppresses natural dynamics—as the second writer, Richard Schneider, contends the Sonic Solutions process does—would be completely unacceptable to me.

Kevin Conklin’s report had an evenhandedness about it, critical but not lethal in its attitude toward the process. On the other hand, the piece by Schneider was malicious as well as capricious, subjecting the reader at once to the narcissistic snobbery of his food choices and to his quite unappetizing choice of words, seemingly unedited by the magazine, when he says that “one should not be asked to bite into a turd.” In reflection, the arrogance of that phrase does little more than to suggest considering the source, and it also begs application in reverse, to the article itself.

At the same time, I’m not an expert on the analog, digital, or NoNoise-treated sound of artists such as Casals and Oistrakh. If experts agree that the Sonic Solutions treatment reduced Oistrakh to “a mere generic violinist,” then I would guess the technology has been misused or overused. To some extent, I agree that “The background noise of old recordings is part of their special character,” but I heard several examples of clean-up work at Sonic Solutions that did nothing but present the music beautifully, with no distractions, much the way it’s heard by musicians through sets of monitors or in situations where crowd noise and other sounds do not conflict with the natural sound of a room.

In summation, the music on *Almost Acoustic* (Jerry Garcia Acoustic Band, GDCD 4005) is quite faithful to the way it sounded to me on the stage, minus excessive crowd shrieks, mike stand collisions, band talking, stage noises, and other sounds that musicians tend to tune out anyway. The result, according to countless listenings by many people who were at the concerts, is a clean but inhuman, accurate
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Subwoofing #1

Editor:  
Dick Olsher’s article about subwoofers in Vol. 12 No. 1 was quite enlightening. Low frequencies are, in fact, very difficult to reproduce; is there a way to accomplish it without pawning the rest of your system to pay for it? Dick mentioned one possible way early in the article when he alluded to placing subwoofers in the basement below the listening room to take advantage of the large enclosure therein. Having just such an arrangement, I would be interested in hearing more. Will the subwoofer drivers themselves be attached directly to the floor of the room above? Also, will it be necessary to provide an opening to the listening room itself for air passage, or does the floor serve as the conductor of the LF?

I want to commend you and your staff for publishing the leading-edge publication on hi-fi. Since I began reading Stereophile last year my ears (and my wallet) have not been the same!  

Leonard Skotnicki  
Oakland, CA

Cut two appropriately sized circular holes in the floor next to your main speakers; mount a high-quality drive-unit with optimum free-air resonances in each of those holes; experiment with crossover frequencies and slopes and drive levels; there you have a pair of effective infinite-baffle subwoofers. But read the next letter if you don’t want to cut holes in your floor.  

—JA

Subwoofing #2

Editor:  
The ground covered by Dick Olsher (a continual favorite of mine) in his remarks preliminary to the subwoofer/crossover reviews in January ’89 is worthy of close scrutiny. DO has done a right up-front job, and I feel compelled, as a nut with a definite passion for thunder, to add some of my own remarks by way of unmitigated boasting on my own woofers and a plug for my other guiding-light rag, Speaker Builder. Not to downplay the importance of any link in the information channel, the speaker is where the rubber meets the road. I would encourage any audiophile who ever, however casually, thought he might consider speaker design, construction, or modification to subscribe to Speaker Builder. In the same sense, I would encourage every amateur designer to read the speaker reviews in Stereophile.

Two of DO’s points are of special significance:

1) You don’t have to squint to read between the lines that, where bass frequencies are concerned, quality and quantity are closely related. This relationship arises from those among extension, damping, and acoustical power. Sound quality below 100Hz is obtained by liberal design and conservative operation; ie, quality is derived from quantity. No skimping here! Good low bass means big—big drivers, big efficiencies, big power-handling, big amps, big boxes. The physics dictate it and that’s that. The non-technical audiophile’s dream of encountering a unique downscale bass speaker that will truly satisfy, fostered by ambiguous hi-tech advertising claims, will dissipate in the light of day, as do all dreams.

2) This is the twilight zone of speaker design, and the user is responsible for system integration. This is not so simple a matter as buying more stuff and hanging it on your present system, and I hope DO’s remarks have made this clear. Also, he states the case for the do-it-yourself woofer builder by showing how commercial designs are necessarily compromised to market demands and tolerations. Value is a question of bang-for-buck. Doing it yourself in the bass department may not be cheaper (although it can be), but that’s because you can design-in quality parameters that would make the cost of a commercial design outrageous. DO expressly says so, parenthetically, vis-a-vis panel resonance relating to box materials and construction. As an illustration, I offer my own experience. My bass drivers are 18” professional-grade units from the Cecet-Gauss sound-reinforcement class of drivers (true woofers—not instrument drivers). Important features of these units are dual spiders, a 4¼” voice-coil, and a huge magnet. The resulting specs are low Q, large power handling, long excursion within linearity, and high efficiency for its type. The boxes are 10ft³, each with two 6” vents 17” long. Each box has a 4.5ft² “footprint,” mounted on 3” casters. The box is made of 1½” high-density particleboard, the large back panel including a sandwiched layer of ½” gypboard. The vents
Crafted by a top industrial designer in Italy, the TGS-100 by Boffi Vidikron demonstrates its commitment to excellence by utilizing state of the art technology from the U.S., Europe and Japan.

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are Schedule 80 ABS elbows. Each woofer weighs about 300 pounds and the boxes are dead—dead! Try getting this kind of box construction from any commercial-design manufacturer.

The woofers are each driven from a Hafler 220 in balanced-bridge mono, through Leinson HF-10C cables (internal wiring is 1.5' of Signet MusicWire). The Haflers give 350W RMS. I use it all. The driver is thermally rated for 400 in a test parameter similar to EIA RS426A. Non-linearity and amp clipping occur at about the same (high) drive level. The alignment is SuperQuasi-Butterworth third-order reflex, designed according to Richard Small and D.B. Keele with the aid of a computer. The driver, box, and amp are ideally matched.

The result of this is two bass units which give a total acoustical power of about 6 acoustic watts (!—Ed.) in my listening room, down to 30Hz (near as I can tell with the rude measurement capability at my disposal). This translates into 100dB average SPL at wavelengths that can reach 64' pipe-organ stops in a very convincing manner. The SQB3 alignment is the best compromise between extension and damping, the sound being resilient yet forceful, with smooth passband above the corner frequency and a minimum of overhang—no boom-boxes these!

DO is right—this is different territory, where finesse and brute force are usually in contention due to economic factors (in commercial designs). For any one driver, extension, power, damping characteristic, and box size have specific relationships. It is possible, for that driver, to realize some "improvement" in one or two of these parameters, but always at the expense of the others. I reiterate: to have it all, you must think big. And I believe you must regard building your own as a serious alternative. To do this, you must learn to manipulate the laws of nature, and don't kid yourself into believing you can break them.

Paul W. Graham
Independence, MO

Praise & brickbats

Editor:

First, a heartfelt thank-you! As a relatively new subscriber to Stereophile (December 1987), I must say that I have been impressed. Your reviews are for the most part inclusive, informative, and helpful. Hancock, Michigan is way past way, way up North (over 400 miles from Detroit and Chicago), a circumstance of geography which prevents local audiophiles from any opportunity to audition components. (The closest thing we have to a local hi-fi dealer is Radio Shack—need I say more?) Your magazine
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has helped rekindle my interest in music and sound reproduction, and, more importantly, has taught me more than a little about how to listen and what to listen for when selecting hi-fi gear. In fact, since subscribing to your publication, my wife has expressed the opinion that I am now a “sick man” in regards to music reproduction, as I wax rhapsodic over this cartridge or that amplifier. Well done.

Second, a criticism. Please, please, please, consider that there are those of us who cannot audition equipment ad infinitum to make a buying decision, and thus are at the mercy of the reviewer, whom we depend upon to make a valid evaluation using ancillary equipment which is a mate (by design or price-point) for the equipment under test. I refer specifically to JA’s audition of the Van Alstine Super PAS (October 1988) phono section: “Not having an appropriate MM cartridge at hand... I had to resort to using the... transformer [with the Linn Troika] to render the output level compatible with the Super PAS MM input.” Come on, Mr. Atkinson, any first-year electronics student knows that a transformer, no matter how good, is not 100% efficient. It changes things. Again, in December 1988 (“Affordable Preamplifiers”), JA confesses: “... not being familiar enough with the sound of any current MM pickup to be confident about using it as a reference, I decided to stick with the Linn moving-coil.” Doesn’t the reviewer have an obligation to both readers and manufacturers of this gear to either become familiar with the sound of current MM cartridges, or pass off the review to someone who is? It is obvious that products at this price point are likely to be used with MM pickups, as ancillary equipment (turntables) are likely to be of a quality level which would make the use of an MC pickup impractical. Throughout your pages, time and again, your magazine and its writers talk of system matching—getting the right combination of components to get the best from one’s system—and then you go and publish two reviews which, in effect, ignore your own advice! Judging from the generally high quality of your work, I am sure you can do better.

Third, thanks to the Cheapskate for the recommendation of the B&K ST-140 amplifier. It really is as good as you claim.

Fourth, a suggestion. It seems to this reader, in light of the consistently controversial reviews produced by DO, that perhaps he should be granted a special title on your masthead, much as JGH is now Founder and Chief Tester. I must admit, although I often disagree with DO’s conclusions, they are unfailingly useful in their ability to get me thinking about what I am listening for. My suggestion: Reviewer From Hell.

Gregory Campbell
Hancock, MI

Mr. Campbell’s point concerning my use of an MC cartridge with a (good) transformer for my preamp reviews is well-made, though I had hoped my reasons for doing so were clear in the original reviews. Fundamentally, I had not wanted to change two variables at once—always a source for error in subjective reviewing—and therefore decided to stick with an LP-playing front-end with which I was extremely familiar. However, I have now set up an MM-based front-end for reviews of preamps lacking an MC stage.

—JA

Northwest mods

Editor:

About four months ago I sent my Hafler 500 amplifiers (yes, amplifiers; I am one who agrees with JGH that you can’t do it convincingly with only two channels) to Northwest Audio Labs, in Oregon, for updating. The move was not without fear and trepidation. Stereophile gives a lot of press to Mod Squad but nothing to the smaller modifiers like Northwest, so I had nothing to hang my hat on except a 20-minute phone conversation with Jim Ott, who runs the place.

The amps have been back now for about two months. I need not have worried. Mr. Ott did a magnificent job. If the Hafler 500s are not now the equal of Krell or Threshold or any of the other currently fashionable products, they are certainly close enough for me. And they are close enough for everyone who has had the good fortune to listen with me.

The question which now arises is, why hasn’t Stereophile told its readers about people like Jim Ott, whose genius goes quietly about making miraculous changes in “C”-level equipment in exchange for “cheapskate” levels of compensation? I suppose it’s a lot more fun for a reviewer to deal with shiny, new, “state-of-the-art” equipment than it is to evaluate a revamped Hafler. Perhaps the idea that someone can make a silk purse out of the sow’s ear of unexceptionable, mundane equipment is un-
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The only impediment to reviewing modified equipment is a logistical one: that of obtaining two samples of an often out-of-production component and sending one to be modified. We have no political objections to reviewing modifications, however.

—JA

Her poor husband

Editor:
I am writing to you on behalf of my poor husband. I am sure that by now you realize that he did not renew his subscription to Stereophile. There is a reason for this, and it is quite sad. You see, my husband had to be institutionalized. He is presently at the Krell/Apogee Home for the High-End-Dependent.

His problems started about 16 months ago. He went to visit a friend who had just purchased a pair of Infinity Reference Standard speakers (his friend, Richard, received the money from his mother-in-law's estate—she was found dead, strangled to death by a length of Dishwasher interconnects, and stuffed into an old Cerwin Vega subwoofer cabinet). Richard had asked my husband, Peter, over to help him set up the IRSes. Unfortunately, while positioning one of the large bass units, Peter pushed a little too hard. The unit tipped over and fell on Richard, crushing him instantly. At the request of the family, Richard was buried in the IRS bass unit and laid to rest beside his mother-in-law. Such are the ironies of life.

Then, on the day before Thanksgiving of this past year, Peter was invited to his neighbor Jerry's house. Jerry had just purchased speaker cable from some company in the Mideast at $450/foot. It promised to turn his system into an audiophile's dream. Jerry did not answer the bell, but my husband noticed that the door was ajar. He entered the house and rushed to Jerry's sound room. There, to his horror, he found his friend Jerry, impaled on four dozen Tiptoes, in his hand the July '88 issue of Stereophile, opened to the survey on speaker cables. Apparently his expensive cable didn't even receive a D classification.

Matters only got worse. His best friend and high-fi confidante, Gino, informed him that, due to the recent rash of audiophile mishaps, he was trading in his audio system in exchange for the entire line of Nintendo software and programs. As Christmas approached, his psychosis became more apparent. We have a treetop Santa that sits atop a revolving turntable. He installed a Sorbothane mat between the Santa and the turntable, then put a SOTA clamp over Santa's head. He babbled something about better coupling of the ornament to the tree. I also caught him removing the standard AC cord from my microwave and replacing it with a Distech Power Purifier cord. He assured me that the microwaves would have more depth and better dispersion. At this point I thought it would be better if my husband had some type of professional help. At first the doctors at the Krell/Apogee clinic tried to treat Peter with medications. He refused to take the pills with milk or juice. He insisted on taking them only with Gruv-Glide or water neutralized with one of Peter Belt's magic devices. They then decided to try electroshock treatments. Peter said he would agree to the treatments if the doctors promised to use Monster cables on the shock units and also install Tube Traps behind him so that they could absorb any annoying standing waves that his screams might create.

On the 3rd of January, 1989, my husband Peter was relocated to the high-security padded-cell section of the clinic. I plan to occasionally visit him and possibly sneak him a Sony Walkman baked into a cake.

I felt I had a responsibility to other wives of audiophiles out there who worry about their husbands' obsessions with high-end audio and its side effects. Please don't wait 'til it's too late. At the first sign of High-End Audiophilephobia, consult a doctor (or at least Matthew Polk).

Before signing off, my husband asked me for your opinion. He's having the padding changed in his room. Should he use Sonex to live-end/dead-end the room, or should he just use Echo Muffs?

Cell Sorrentino
Valley Stream, NY

PS: I'd like to see more reviews of Julio Iglesias CDs.

Wouldn't we all?

—JA
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Correction
In the February issue my discussion of dynamic power-supply modulation (p.41, lower-right corner) was confused by a typesetting glitch: one sentence was omitted and another was repeated. The point of the paragraph was simply this: preamplifier circuits draw only a small amount of current, so two preamp channels can share one chassis without affecting each other's operation. But in a power amplifier, voltage and current demands vary wildly from moment to moment. These demands cause power-supply voltages to vary, and may also produce non-zero "ground" voltages. Consequently, when two amplifier channels share the same power supply and ground paths, signals in the two channels may intermodulate with each other.

Another recordable CD
Taiyo Yuden, a Japanese manufacturer of capacitors and ICs, has begun production of CD-R, a gold-surfaced recordable CD. Unlike the Tandy THOR system, the CD-R is not erasable for re-recording; it is a WORM (write once, read many) format. But unlike other WORM systems, which were designed only to store computer data, the CD-R is said to be fully compatible with the Philips Red Book standard for audio CDs. It can be used for a variety of one-time recording tasks; for example, NHK radio in Tokyo is said to be pre-recording programs
At CES, the Amrita Audio Reference Standards were making impressive sounds.

The Amrita speakers sounded extremely promising.

The Amrit-MiniMonitors sounded pleasantly balanced on both rock and classical material.

Thomas J. Norton
STEREOPHILE

Neil Levenson
FANFARE

Martin Colloms
STEREOPHILE
on CD-R. In this country, live-concert recordings could be distributed to FM stations on CD-R discs instead of bulky 10½" reels of analog tape.

Because of the record industry's concerns about digital copying, Taiyo Yuden does not plan to sell blank CD-R discs to the general public. The system will be marketed mainly to professional users.

**Bose vs FMX**

On January 25 the Bose Corporation flew audio writers into Boston from across the US and Canada to hear a presentation by Amar Bose, the MIT professor who designed some loudspeakers and founded a multi-million-dollar company. With elegant mathematics and elaborate evidence, Bose proved that FMX, the FM noise-reduction system invented at the now-defunct CBS Technology Center, would be a giant step backward for FM listeners. However, the circumstances surrounding the presentation raised some doubt about the conclusion.

First a bit of background. Compact discs offer a 90dB signal/noise ratio, but FM stations are limited to 70dB at best. Even this number applies only to listeners using a roof antenna no more than 30 miles away, or an indoor antenna within 10 miles. At greater distances you either put up with audible hiss or switch to mono. (The S/N ratio also depends on transmitter power, local terrain, and antenna height.)

If FM broadcasting is to regain the respect it once had as a high-fidelity medium, some method must be found to increase its effective dynamic range. A decade ago some stations experimented with Dolby FM (a combination of Dolby-B and reduced pre-emphasis), but the idea never gained momentum. Tuners with built-in Dolby decoders never reached the market, and critics complained that the encoded broadcasts were not sufficiently compatible with conventional (non-decoding) receivers.

FMX promised a 20dB improvement in usable dynamic range, making FM stereo nearly as quiet as mono, while retaining complete compatibility with the large existing population of conventional receivers. With a 90dB S/N ratio in its prime reception area, a station could broadcast CDs and live-concert recordings to FMX-equipped listeners without dynamic compression. FMX would triple a station's effective stereo coverage area and would provide quieter reception for the large population of FM listeners who can't put up a directional roof antenna—a category that includes most apartment dwellers and everyone trying to enjoy FM stereo in a car.

FMX appeared to be a can't-lose proposition, an invention that promised major benefits for broadcasters and listeners with no penalty for anyone. This promise was affirmed by demonstrations at an engineering conference four years ago, using a small FM transmitter in one room and an FMX-equipped tuner in the next room. A familiar CD of Mahler's Fourth, heard through the tuner, sounded very much like the original; fortissimos had full brilliance and impact, while the softest passages were clear and hiss-free.

But in this world there is no free lunch. Three years ago I persuaded NAD to include FMX circuitry in a tuner, and FMX was demonstrated at the CES in Chicago. To supply a broadcast signal for the demonstration, a prototype FMX generator was installed at WFMT, a Chicago station noted for its devotion to good sound. The noise reduction in the NAD demo was impressive, but WFMT received numerous complaints that the station's sound had become raspy and ugly.

What went wrong? Compatibility was supposed to be a key selling point for FMX. An FMX-encoded broadcast should sound completely normal through a normal (non-FMX) stereo receiver. To achieve this goal, the FMX system alters neither the mono (baseband) FM signal nor its 38kHz stereo subcarrier. Instead, an FMX-encoded broadcast contains a second subcarrier, located at the same 38kHz frequency as the regular stereo subcarrier, but in quadrature (90° out of phase with it).

The FMX subcarrier contains a compressed version of the stereo subcarrier signal. Modern stereo tuners use PLL (phase-locked loop) multiplex decoders that lock onto the stereo subcarrier and ignore the quadrature signal. An FMX-ready tuner contains two PLL decoders that process both the stereo and quadrature subcarriers, plus an expander that restores the compressed signal to full range and suppresses noise as it goes.

FMX works fine as long as reception conditions are ideal. But in the WFMT experiment, the inclusion of the FMX subcarrier made the stereo signal much more sensitive than usual to multipath interference. This was confirmed a few months later by a controlled test in Phoenix; music was broadcast with and without FMX encoding while a car was driven through
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New York Times 3-88
"...the various frequencies emerge in their natural phase relationship—more than in conventional designs. To what extent this accounts for the speakers fine sound may be debatable, yet there is no question that the Ohm Sound Cylinders represent an excellent bargain, with a clarity and richness of sound rarely found in a speaker of this size at this price."

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For Those Who Can't Listen
the city streets. The output of the car receiver was recorded using a PCM-F1, and I have a copy of the digital tape. In locations where reception was good, the sound was fine with or without FMX. But in areas where reception was distorted by multipath interference, the addition of the FMX subcarrier made the distortion worse—not just for FMX-equipped listeners but for everyone listening in stereo.

This is one of two setbacks that delayed the spread of FMX. The other was the decision of a new CBS president to close the CBS Technology Center, disbanding the team that invented FMX. Eventually they found new backers, and a company called Broadcast Technology Partners (BTP) was formed to market FMX. Late in 1987 co-inventor Emil Torick told me that the multipath problem had been solved by inverting the polarity of the quadrature subcarrier, so that multipath-induced distortion in the subcarrier and baseband would subtract (cancel) rather than add.

Since the problematic WFMT demo had been widely publicized within the industry, I suggested that another broadcast demonstration, perhaps a repeat of the Phoenix test, should be conducted to provide concrete evidence that FMX no longer degraded reception. As far as I know, no such broadcast test was ever conducted. Instead, Torick devised an indoor multipath simulation that became part of the demonstration that BTP uses at broadcasting conventions to persuade station owners to adopt FMX.

Two companies are manufacturing FMX encoders for sale to FM stations, while Sanyo in Japan and Sprague in the US have developed FMX decoder ICs for use in FM tuners and car radios. Since the FMX IC simply replaces the PLL MPX decoder chip in a tuner, the manufacturing cost for an FMX-ready tuner is only a few dollars more than for a conventional stereo tuner. The IC contains two additional refinements that have been made a standard part of the FMX system:

1) The maximum improvement in S/N ratio has been reduced from 20dB to 14dB.
2) A "hold" circuit stabilizes the expansion at moments when a sudden burst of multipath interference might cause the expander to mistrack (especially in a car).

Cars are seen as the primary market for FMX, for two reasons: it's harder to get good FM reception in a car than at home, and Americans now spend more money on car stereo than on home hi-fi. Alpine and JVC are the first of 16 manufacturers planning to introduce FMX-ready car receivers this year. They will have signals to receive: over 100 stations have ordered FMX generators, and FMX is already on the air at about 50 stations around the country.

Clearly 1989 is the year when FMX is scheduled to take off in a big way. Will this be a boon or a bane—not just in the car, but for everyone using conventional stereo tuners at home? Will FMX fulfill its original promise of compatibility, or will the addition of the FMX subcarrier to a broadcast degrade the reception of that signal in stereo? That question was the focus of the Bose seminar. The presentation was in two parts: a mathematical study by Amar Bose, and an experimental study conducted by William Short, Ph.D., who is on the research staff at Bose Corp. In a nutshell, their point is that exaggerated sensitivity to multipath interference is not an incidental or curable problem: it is an inevitable byproduct of FMX broadcasting.

Since Amar Bose is best known as the creator of "direct/reflecting" speakers which attempt to mimic the ratio of direct to reflected sounds in a concert hall, it is peculiarly appropriate that he should be the author of an analysis of what happens in FM when direct and reflected (multipath) signals are combined. Apparently broadcast engineering textbooks don't contain an adequate mathematical model of multipath interference, so Bose set out to devise one.

Beginning with a standard exponential expression for the waveform of an FM broadcast signal, Bose added an expression for a single reflection of the signal, went through some elegant mathematical transformations and, with the aid of some reasonable assumptions, arrived at several equations that seem remarkably clear in their implications. In simplified form one equation shows the strength of the "error signal" $E$ (the resulting distortion), as follows:

$$E = (D2 - D1) K(G) dM/dt.$$

In this equation, $D1$ and $D2$ are the path lengths of the direct and reflected signals; $K(G)$ is an expression that depends on $G$, the ratio of reflected to direct signal strength; and $dM/dt$ is the derivative of $M$ (the modulating waveform).

The first two terms in this equation relate to the multipath conditions. If the path difference $(D2 - D1)$ is very small, then the distortion will be slight. As the path difference grows, the distortion increases. But with very large path dif-
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ferences (several miles) the reflected signal will become much weaker, making $K(G)$ small, so again the distortion is slight—unless the direct signal is equally weak, for example behind a hill. There is a range of intermediate distances at which the worst interference occurs.

The most important part of this equation is its last term, $dM/dt$. It shows that the severity of multipath distortion depends on the modulating signal itself. The larger the amplitude of the modulation, the greater the distortion. (This agrees with experience: multipath distortion is not constant, but rises and falls with the level of the music.) And the higher the frequency of the modulating signal, the greater the distortion. The higher the frequency, the more rapidly the waveform alternates back and forth; and since the derivative $dM/dt$ represents the instantaneous slope of the waveform, it increases in direct proportion to frequency.

Thus monophonic FM, in which the highest frequency is $15\text{kHz}$, is not much affected by multipath interference, especially since analysis with a spectrum analyzer shows that the energy in most music is concentrated below $3\text{kHz}$. The addition of stereo (with a subcarrier at $38\text{kHz}$ and sidebands spanning the range from $23$ to $53\text{kHz}$) increases the multipath distortion by at least a factor of three, and typically by a factor of 10 or more. Adding a compressed FMX quadrature signal raises the energy level in the sidebands to $53\text{kHz}$, aggravating the multipath distortion. Finally, if the station includes a $67\text{kHz}$ SCA subcarrier (containing profitable background music or computer data), the multipath distortion is increased again.

As an ex-physicist, I admire the ability of an equation to express complex truths with elegance and clarity. So I was impressed by Bose's powerful proof that the FCC made a fundamentally wrong decision in 1961 when it chose the present multiplex system of FM stereo (using an ultrasonic subcarrier) instead of the competing Crosby system. It is widely recognized that multiplex stereo degrades the S/N ratio of FM by $23\text{dB}$, except in locations where signals are very strong. This equation shows that with the adoption of multiplex stereo, FM also lost its status as a low-distortion medium, except in locations without multipath. The low tuner-distortion figures seen in laboratory test reports are seldom achieved under real-world reception conditions.

Of course, this is not the point Bose wanted to make. And while the FCC decision may have been wrong on technical grounds, it was commercially correct. Without the multiplex system's mono/stereo compatibility, FM broadcasting might have remained a small and specialized medium instead of the popular and profitable business it has become.

Bose gleaned another fact from analysis of the above equation. Multipath-induced distortion covers a broad range of frequencies, regardless of its cause. When subcarriers are added to the signal, the increased distortion affects all listeners, not just those benefiting from the added modulation. A stereo broadcast heard in mono will not be as distortion-free as a mono-only broadcast; and a stereo broadcast with FMX or SCA subcarriers will be distorted more than a stereo-only broadcast.

Other Bose equations focused specifically on the effects of multipath reception on an FMX-encoded broadcast. Bose analyzed a "typical" multipath situation with a path-length difference of $1\text{km}$ and a reflected signal $90\%$ as strong as the direct signal ($G = 0.9$). The following conclusions emerged:

1) Because the FMX subcarrier is compressed, the average energy level near $53\text{kHz}$ is much higher than in conventional stereo, generating substantially more multipath distortion than would a stereo-only broadcast.

2) A significant portion of the multipath distortion is in quadrature to the original signal, meaning that distortion caused by the FMX subcarrier will appear in the conventional stereo signal.

3) Multipath interference causes severe phase shifts in the received signal. One Bose graph showed variations of $40^\circ$ in the phase of the $19\text{kHz}$ stereo pilot signal. Since PLL multiplex decoders synchronize with the phase of the pilot tone, phase shifts produce decoding errors that reduce the stereo separation. With an FMX-encoded broadcast, the decoding errors cause cross talk between the stereo and FMX subcarriers, so that a stereo-only tuner detects the compressed FMX carrier as well as (or instead of) the normal stereo subcarrier. If the interference varies (in a moving car, or where the multipath is caused by a passing airplane), it may produce sudden changes in both volume level and separation.

To illustrate the validity of the mathematical analysis, a multipath simulator was built using $2000'$ of coaxial cable for the "reflected" signal.

Stereophile, April 1989
FM signals, fed through the simulator and decoded with a stereo tuner, showed noise spikes similar to those seen on a computer display produced by the mathematical model.

Finally, to reinforce Bose's conclusion that FMX broadcasting will degrade stereo reception, William Short conducted a broadcast experiment using WMBR, a student-operated station at MIT. A laboratory-grade FMX generator was used to produce an FMX-encoded broadcast, and the signal was received in a car equipped with an Acura/Bose stereo system. Its Alpine tuner was modified by adding a prototype sample of the Sanyo LA3440 FMX decoder IC. The current version of FMX, with its inverted subcarrier and 14dB compression, was used. The car was driven over a ten-mile route including areas of high and moderate signal strength; the receiver output was recorded on digital tape; and the tape was analyzed to show the variations in stereo separation, noise/distortion content, and audio signal level (caused by noise bursts and by stereo/FMX crosstalk).

Various combinations of transmission and reception were tested: stereo broadcast with stereo reception, FMX broadcast with stereo reception, and FMX broadcast with FMX reception. I don't have room here for the 20-odd color graphs and charts that Bose and Short used to present the data, but here are sample results for each of the three transmitter/receiver combinations.

Percentage of locations where amplitude errors exceeded 2dB:
- Stereo/stereo: 1%
- FMX/stereo: 3%
- FMX/FMX: 10%

Percentage of locations where distortion was worse than 3%:
- Stereo/stereo: 4%
- FMX/stereo: 10%
- FMX/FMX: 12%

Percentage of locations where stereo separation decreased to less than 20dB:
- Stereo/stereo: 21%
- FMX/stereo: 42%
- FMX/FMX: 56%

Bose concluded that FMX does degrade reception, not only for listeners with FMX receivers but also for everyone listening in stereo. He hopes that wide publicity for this study will deter broadcasters from adopting FMX.

However, controversies surrounding the presentation itself may cast doubt on its credibility. The seminar was presented at MIT, not at Bose headquarters, and Amar Bose was introduced by another MIT professor, creating the impression that it was a purely academic research project. But when asked, Professor Bose admitted that he was asked to do the study by a car radio manufacturer whom he declined to identify. (Bose Corp. has an established commercial relationship with GM/Delco; but Bose said that Bose Corp. itself has no financial interest in the success or failure of FMX.)

Was the seminar open or closed? On one hand, Bose paid air fares to bring two dozen journalists to Boston from around the US and Canada. Normally such expense-paid press trips are related to product introductions, and press conferences are not open to the general public. Representatives of NAD (which lost money on an FMX-ready tuner three years ago) and CASA (a trade group representing car stereo manufacturers) wanted to attend, as did FMX inventor Emil Torick; they were told that the presentation was for invitees only.

Torick finally got in by going to the president of MIT with a lawyer, and Prof. Bose began his presentation by saying he had been threatened with a personal lawsuit. When we arrived we found that the event was in an MIT lecture hall, and only the first three rows of seats were occupied by writers. The hall was filled with students responding to a campus poster that had advertised the seminar; and since MIT seminars are normally open to the community, several members of the Boston Audio Society attended. If it was a public event, why did Bose try to keep interested parties out?

According to Torick, Bose's general equations are valid, and they correctly represent the multipath distortion caused by the addition of subcarriers (stereo, FMX, or SCA) to the basic FM signal. But the specific equations used to describe FMX performance, with a multipath ratio of 0.9, represent a worst-case analysis rather than a typical situation. A realistic analysis of typical multipath effects, he suggested, would show a relatively mild degradation of signal quality with little difference between stereo and FMX.

According to Torick, the broadcast experiment on WMBR was fatally flawed by the poor condition of WMBR's transmitter. Torick's own recordings of WMBR's signal reveal compressor maladjustment and synchronous amplitude modulation, defects that mimic multipath-
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induced distortion. In the course of installing FMX generators at over 50 FM stations around the country, Torick has discovered that synchronous AM is a frequent problem in those transmitters. It produces asymmetric side-bands, and the resulting distortion is sometimes called source-induced multipath. Transmitter adjustments can eliminate this problem, and such fine-tuning is now known to be a necessary part of an FMX installation; besides avoiding the distortions described by Bose and Short, the tuneup improves the station's sound in stereo.

(The introduction of MTS stereo in television exposed a similar problem, incidental phase modulation, in TV transmitters. IPM produces hum in the decoded MTS signal, and controlling it has been a major headache for older stations trying to convert to stereo.)

Torick criticized other aspects of the Bose/Short study, but his central defense of FMX is simple: over 50 stations have had FMX on the air for several months, without complaints. Only further listening experience will prove whether the problems anticipated by Bose are actually occurring. You may have an FMX station near you, so you can judge for yourself whether the addition of the FMX subcarrier has corrupted the station's reception in stereo. Here is a partial list of stations using FMX:

- WDRC, Hartford CT, 102.9 MHz, 50 kilowatt transmitter, plays popular music.
- WPPT, Middleton CT, 90.5, 19kW, classical.
- WJAZ, Stamford CT, 96.7, 3kW, jazz.
- WPDH, Pound keeps NY, 101.5, 50kW, album rock.
- WQQC, New York NY, 101.9, 5kW, rock.
- WDET, Detroit MI, 101.9, 80kW, jazz/classical.
- KRLV, Las Vegas NV, 106.3, 100kW, soft rock.
- KPNR, Las Vegas NV, 89.5, 50kW, classical.
- KGIL, San Fernando CA, 94.3, 3kW, rock.
- KCRW, Santa Monica CA, 89.9, 7kW, classical.

**UK: Ken Kessler**

While recovering from my recent visit to the Consumer Electronics Show in Las Vegas, I relaxed by doing some Trivial Pursuit-type research for Glass Audio, a new American magazine devoted to tube electronics. My brief for that journal is to produce a list—as complete as possible—of all of the tube equipment manufacturers in the world, broken down by country of origin.

Figuring it would be an easy task (how many could there be?), I started sifting through the CES handbook and a few other directories on my desk, but mainly I pulled names from the top of my head. Without making a single phone call I assembled an instant list of close to 50 makes, and that's not counting the Japanese brands of which I've heard rumors. Doing a swift count of the genuinely active companies, I came up with the semi-surprising result that the UK has the greatest number of tube equipment producers, 18 to the USA's 15. (Keep in mind that this is my preliminary list, and the tables could turn...)

Of those 18 brands, nearly half had emerged in the last 18 months, which attests to either the genuine health of the tube scene or to sheer, unbridled optimism on the part of these new businesses. Some of the older companies, those who know the ropes, have responded to the market with newfound professionalism, while half of the new companies have presented a polished image from the outset. As we approach the close of this decade, here's how the last year has shaped the British tube scene—or should that be valve scene?—for the 1990s.

Of the familiar makes, Beard, Croft, and Radford have done the most to show that tube amp manufacture (in the UK, that is) needn't suggest a cottage-industry mien or a profile so low that brand recognition is virtually nonexistent. Beard, now capitalized with the help of a serious outside investor, recently hired David O'Malley (ex-KEF) to control the sales and marketing of the products. His vast experience in selling real-world hi-fi is exactly what most specialist companies lack, and he was seen recently in Las Vegas organizing overseas distribution. The company now has a broad range of products covering a sensible price span (the long-awaited 100W stereo amplifier is due any day now), the presentation is hard to fault, and such matters as quality control and supply have been given “big company” priority. The company's image has also benefited immeasurably from a slick advertising campaign and professionally produced press releases—something which scribes take for granted when dealing...
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with most major brands. Although Beard is, for the time being, resisting entry into the cost-no-object sector, it's likely that this company will emerge as the UK's premier tube amplifier manufacturer. But I wouldn't expect Beard to resist the high end for too long, because in the past they've produced 200W monoblocks capable of challenging the best offered anywhere. Watch this space.

Croft, while still firmly a part of the lunatic fringe, has finally done what everyone had been begging them to do for years: They've appointed a distributor. This may sound like a ludicrously basic action, but you have to understand Glenn Croft. I don't, so I won't even try to explain him beyond endowing him with "Mad Professor" status; he just seems to be happiest designing and building amps instead of marketing and selling them. The reason why I and others haven't given up on him is simple: Who else makes a ready-to-use tube preamplifier with phono stage and three line inputs for £150 ($270)? Somehow—and I don't think that he has a slave labor force—he's managed to keep in his catalog an absolutely basic but wholly musical all-tube design (hard-wired, no less) to provide the truly impoverished with an entry-level control unit.

The irony about Croft is that, no matter what you think of such odd styling touches as brown faceplates, his products have never smacked of garage-assembly. Everything I've seen from his extensive range—four preamps, a head amp, three stereo power amps and mono and stereo output-transformerless amps—has been nicely made and well-constructed. They've been reliable, they've represented sensational value for money, and they all sound good. The problem was getting hold of them. So, for those of you who have written to me for Croft's address from as far away as New Zealand, Sri Lanka, California, and Kuwait, all queries regarding Croft can be directed to Eminent Audio, 4 Salop Street, Wolverhampton WV3 0AR. The phone number is (011 44 902) 27498 or 26462. And not only does Croft now have a distributor, the company has also appointed three of the UK's finest retailers as major stockists.

The Radford saga, too, has had a happy outcome. One of the UK's "classic" makes, Radford had slipped from the front line in recent years, partly because dear Arthur Radford—a key player in establishing ultra-linear tube technology and transmission-line speaker theory—should have been enjoying his well-earned retirement. In the early 1980s, when the tube revival hit the UK, it was realized that his legendary STA25 amplifier could still hold its own against much newer designs; only the slightest amount of cajoling was needed to get the...
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thing back into production in only slightly modified form. Masterminded by long-serving Radford employee John Widgery, the STA25 Mk.IV reappeared courtesy of Widgery’s Woodside Electronics, who operate with Arthur Radford’s blessings.

It didn’t take long for people to learn that the Radford name had been successfully revived, and this enabled Widgery to introduce new, less-anachronistic models. The STA25 Mk.IV metamorphosed into the Renaissance, which led to higher-powered stereo and monoblock versions, an all-new preamplifier, and a thorough update of the superb Tristar 90 three-way loudspeaker. Except for source components, Woodside can now supply complete Radford-branded systems, thus proving that revered names needn’t die. It may not be enough inspire the revival of Leak, Armstrong, or Connoisseur, but I’m not complaining.

Among the newer brands, a serious high-end challenger has appeared with an esoteric power amplifier, just as Matisse has done with their tube preamplifier (see Vol.11 No.11, p.43). But the monoblock Valfet Audio Power Amplifier is not a contemporary merely because of its high price, some £4000 ($7200)/pair. A high-power, hybrid design, the Valfet writes a few rules, making it quite unlike any esoteric design I’ve sampled in recent years.

The initial impression may go against the Valfet in the way that a similar response affected sales of the Primare amplifiers from Denmark: it’s simply too compact to adhere to preconceptions of what determines a high-end profile. This squat box will yield 300W into 2 ohms—safe for use with non-Scintilla Apogees—but it occupies less than half the space of an equivalent Krell or Rowland solid-state unit. This may seem like a silly observation in light of the down-sizing trend as spearheaded by Goldmund (Mimesis), Krell (Altair), and Cello (Encore), but there are far too many who equate an amplifier’s dimensions with its performance potential.

Under the pressed-steel lid which covers the front, top, and sides you find a densely packed chassis with massive heatsinks occupying most of the rear section of the unit, rows of output transistors, and one lone ECC83 acting as a simple voltage amplifier, driven by a fast, high-impedance FET input. A hefty 630VA toroidal transformer is mounted vertically near the front, its potential for buzzing minimized by a Schaffner mains input filter. The attention to detail is quite staggering, with little damping tweaks visible at most junctures, and the unit was designed to make both servicing and upgrading quite simple. The interior bristles with brandname components, just about everything being overspecified to ensure trouble-free operation.

Designer Antony Johns’s intention with this hybrid is to yank tube technology into the 21st century (though some may quibble about a “tube” status for an amplifier with such a paucity of glass). Even so, it is a product which addresses most contemporary issues, with facilities for speaker bi-wiring as well as impedance selection and choice of class-A or class-B operation via small switches at the back. I’m about to put the Valfet through its paces with a variety of speaker loads, so I’ll reserve comment on its performance. If you’re curious, though, you can contact Valfet at The Design & Graphics Complex, Flowton, Ipswich, Suffolk IP8 4LG, England. Tel: (011 44 473) 33564.

Another tube product which has just appeared comes from one of the many companies which seem to serve regional markets, or—if you’re cynical—alternate universes. Born out of the aftermarket customizing scene is Concordant Audio, who have for many years tweaked aged Quad tube gear to the limits. After the company released their own preamp a few years ago, I lost touch but did hear the name from time to time. Now the company is back with a three-model line-up revealing far greater refinement and much better aesthetics, although the products are still very much of “laboratory equipment” school of design. If anything, the Concordant preamps look like plump (early finish) Mod Squad Line Drives, but only because of the use of stark white lettering on gloss black.

The range consists of the line-level-only Exhilarant, the tube-power-supply Excelsior with phono stage, and the top-of-the-line, two-box, eight-tube Exquisite. All are dual-monaural designs built to a high standard and priced between £750 and £1700, neatly undercutting almost all of the well-regarded tube imports.

Now that Verna has decided to sell their two-box preamp direct to the consumer, thus halving the price to £750, there’s one less of the very few UK-made tube preamplifiers which have to compete directly with the popular Audio Research SP-9, Conrad-Johnson’s new entry-level preamp, and certain Counterpoint models. The pivotal prices are £1500–£1800, and
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the only UK-made tube preamps which come in at that point or above are the aforementioned Matisse, the top Concordant, Tim de Paravicini's flagship models from EAR, and a few lesser-known items. For some strange reason, the native products don't seem to enter into face-offs with similarly priced imports when they do overlap; it's as if there are two types of tube purchaser—one who opts for the homegrown and one who must have foreign exotic. But don't expect this situation to remain for long, because British tube amp builders are growing more and more adventurous, and companies like EAR, Valfer, and Beard would like nothing better than to emerge as threats to American and French dominance of the high-end tube market.

**West Germany: Markus Sauer**

The controversy over the audibility of differences between amplifiers seems to be a British/American specialty. Those of you who do with hi-fi what it is made for—*ie*, listen to it—don't need to be convinced. And the measurements-prove-everything-sounds-alike brigade has just been dealt a (metaphorical) death blow. In his manufacturer’s comment to the December review of the Martin-Logan Sequel, Gayle Sanders alluded to experiments carried out by *Stereoplay*, one of Germany's leading hi-fi magazines. In their review of the Sequel (which, by the way, is highly regarded by Germans) they found an impedance peak at 2kHz, where the load changes abruptly from inductive (the coil in the woofer’s crossover) to capacitative (the electrostatic mid/treble panel). This load is likely to bring out the distortion characteristics in power amplifiers. The inherent mechanical distortion of the Sequel's electrostatic panels being extraordinarily low, they then set out to measure the distortion of two different power amplifiers: one which is good at its price point (a Luxman M-03), and one which is good, period (a Krell KSA-100).

Both should meet Peter Walker’s requirement of being competently designed. Under normal measurement conditions, both show very low THD figures, the Luxman's even being slightly lower. The amps were fed a 1kHz signal, and *Stereoplay* printed graphs of the resultant distortion spectra as picked up by a microphone close to the diaphragm: even-order harmonics dominated on the Krell, the distortion diminishing rapidly and regularly toward higher frequencies; the Luxman showed around 6dB higher distortion overall, its amount actually increasing from the 5th to the 7th harmonic. These measurements indicated a more aggressive, less clean treble for the cheaper amp, a result confirmed by listening tests. And it wasn't an artifact of the amplifiers’ interface with this particular speaker, either, because the audible difference was the same with other speakers, too, even if those other speakers could not be used for similar measurements.

**Conclusion? Amplifiers do sound different**; and, given enough care and the right equipment, the differences can not only be heard, but measured, under real-world conditions. End of discussion, I hope. (It does get boring.)

The main subject of this update, however, is going to be a short portrait of Clearaudio, to whose premises in Erlangen, in the southern part of Germany, I recently paid an enjoyable and educative visit. The company's owner, Peter Suchy, started out in audio around 1968. A nuclear physicist by trade, he was a member of a hi-fi society which at the time had set itself the lofty goal of creating an audio chain surpassing anything commercially available. Suchy concentrated on the transducers—loudspeakers and cartridge. He was appalled by the quality, or rather the lack thereof, of cartridges then available from some very prestigious brands. High sample-to-sample variability, high distortion, low separation, and often 2dB difference in frequency response between channels convinced him that it should be possible to build very much better cartridges.

He then met Dr. Ernst Weinz, the creator of the Paroc stylus shape. Paroc was the first of the line-contact (parabolical) shapes, and this stylus generally gave very noticeable improvements when fitted to almost any cartridge. Weinz ran a flourishing modification business, and many of the actual retippings were performed by Suchy—who learned a lot about how (and how not to) design a cartridge by taking a close look inside everyone else’s.

However refined the execution might have been, he saw three conceptual flaws in normal moving-coil cartridges (the only kind he thinks has a place in a real high-end chain; while he does manufacture a range of affordable moving-magnets, he claims they have built-in limitations, inherent in the concept: for good high-
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frequency performance, the magnets must be lightweight and physically small. This means that the magnetic field cannot really be homogeneous, resulting in distortion, limited resolution, and limited dynamics.). In a normal moving-coil, a quadratic plate sits on the cantilever, onto which the coils are wound. According to Suchy, the physical, and thus electrical, contact between left- and right-channel coils means that interchannel separation is limited to around 35dB, in the best of cases. So the first thing you want to do is to physically separate the coils, something Audio-Technica, for example, had done by mounting the coils onto a yoke connected to the cantilever.

He also saw an imbalance in the design of the generating element. In a traditional MC, the magnets are fore and aft of the coils; for reasons of physical size, the magnetic field will never be really homogeneous (the front magnet would have to continue under the surface of the record you want to play; not a very practical solution!). And since the pivot point of the cantilever is behind the coil arrangement, the coils will not only move in a non-homogeneous field, they also travel on an arc, out of proportion to each other—which means a non-linear transfer rate, and deviations between channels under dynamic conditions. Finally, in a normal MC the cantilever is tied down inside the cartridge with either a nylon string or a beryllium wire. These will resonate at high frequencies.

Suchy wanted to design a cartridge that would allow him to physically separate the coils, having them move both symmetrically and in a homogeneous field, and to dispense with the tie-down string or wire. His ingenious solution was to put the suspension in the middle of the cantilever, and to wind the coils directly onto the cantilever, fore and aft of the suspension and at equal distance from the pivot point. The result is a cartridge that is mechanically, electrically, and magnetically balanced, has the potential for very high separation between channels, and can do without a tie-down.

Intelligent design alone, however, does not a good product make, so he had to set about refining and honing his cartridges, the first requirement being a good measuring set-up. Suchy says that almost all records tell you very little about the true high-frequency performance of a cartridge. Cutter heads tend to have a resonance around 27–30kHz, which naturally gets engraved into the records, masking the resonance of the cartridge under measurement. He uses a vibration table that allows him to measure the frequency response of cartridges up to 1MHz. For his more advanced designs, he claims a −3dB point at 250kHz. The stylus tip resonance does not lead to the usual sharp peak, but is flattened and broadened out at around 80kHz. He does not make use of an RIAA network when measuring, which means you get a look at the “naked” performance.

Having seen graphs of the same cartridge with and without equalization, I must say that Suchy’s method seems more informative, and more helpful to the customer; while small broadband aberrations are harder to detect, one gets a much better picture of a cartridge’s mechanical and electrical integrity. The better models in Clearaudio’s range achieve 45dB separation in the broad midband, better than some well-regarded preamps. Clearaudios also have a substantially higher output than normal low-output MCs, which means you’ll get less hum from a tube preamp. I was impressed by the care taken over construction. The (very powerful) rare-earth magnets, for example, arrive in batches of one thousand (you need four of them per unit, instead of the usual two—remember the distance between the coils). Each is assigned a number and then individually measured, so that they can be very closely matched before being mounted to a generator.

The result is a range of MCs from $475 (the Gamma) to $2085 (the Accurate). At the moment, the Accurate is the only model to benefit from an apparently superior material for the construction of the cartridge body, a lead alloy, but this will slowly be incorporated into the cheaper models (which will gain an “S” suffix in the process). The next step up will be a cartridge whose body is devoid of all parallel surfaces, most of which will be rounded, but this won’t reach the US until next year. The Accurate was developed as a prestige model, a showcase of the manufacturer’s abilities, and was never meant to sell in quantity. To Peter Suchy’s surprise, it actually sells very well—few people who have auditioned it apparently can resist the temptation. It’s also used as a reference model by a number of high-end companies.

While cartridges are Clearaudio’s mainstay, the company has other interests. When Lou Souther, who is well into retirement age, decided
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We have. Two years of research and careful music evaluation have been invested in the development of an active crossover dedicated only to Apogee's full range ribbon loudspeaker systems. We are proud to introduce DAX, our two channel Dedicated Active Crossover. DAX is designed specifically to enhance the Apogee Diva, Duetta Signature and Caliper Signature Series. It provides exceptional tuning flexibility which enables listeners to sculpt a tonal balance to meet their exact listening requirements.

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he could do without the hassle of running a
comp[any], Peter Suchy bought the rights to, and
the tools for, the Souther tonearm. Production
has been moved to Germany, and the product
range simplified. While there had been four
Souther arms, there is now only the Clear-
audio-Souther Tri-Quartz Improved (TQI).
Suchy took the best features of the earlier
models, eliminated the bugs that plagued previ-
ous incarnations (the arm does not make con-
tact with the platter spindle anymore, cable-
ing is more flexible, VTA adjustment is easier, and
the base is more substantial), and generally
tightened up tolerances and quality control, the
TQI ($1150) now being one of the best-made
arms available.

Finally, there is the Harmony preamp ($4175).
It's an extremely small and lightweight design,
slightly bigger than a thumbnail and weighing
around seven grams, yet containing a complete
RIAA equalization and line stage; only the vol-
ume control and the line-level section are
moved out to a small box. Since it is a transcon-
ductance design (a technique likely to become
a lot more widespread over the next few years),
there are no capacitors in the signal path;
equalization is effected instead via resistors.
The whole circuit is packed onto one hybrid chip
and then laser-adjusted to very close toler-
ances—RIAA is less than 0.1dB off over the
whole range, and phase error only 1° at 20kHz.
The intention behind this unique design was
to offer a preamp that sits directly on top of the
cartridge and connects directly to it, minimiz-
ing the number of contacts and the length of
wire the delicate cartridge signal must survive.

While the idea is valid, the execution impres-
sive, and the sound quality competitive with the
cream of the crop, the timing for Harmony's
introduction (the first version appeared in
1986) coincided with the de facto standardiza-
tion of the tonearm/cartridge mechanical inter-
face. Between 5 and 15 grams, their compliance
is adjusted so that the LF resonance of the
tonearm falls into the optimum 8–12Hz range,
the stylus-tip/groove-wall resonance establish-
ing the lower limits of compliance. (Translated,
this means that you cannot make a cartridge so
heavy that it needs an extremely low compli-
ance; the groove walls would be destroyed.)

Introducing the 7-gram Harmony into this
equation will, in the majority of cases, destroy
the delicate, er, harmony of the tonearm/car-
tridge combination. So, the ideal home for the

Harmony used to be the Souther, whose arm
had an effective mass of only around 3 grams.
But with the new lead body the Accurate weighs
10 grams, meaning that Clearaudio's top prod-
ucts are now incompatible with each other—
not a happy situation, especially with the pros-
cpect of more lead bodies in the rest of the range.

There are two solutions to this dilemma: one
is the active moving-coil, a cartridge with built-
in preamp, which exists in prototype form. Of
more universal appeal is the promise of more
varied mountings for the Harmony, onto sta-
tionary parts of the Souther (making it the first
active tonearm) or inside the turntable of your
choice. Indeed, the latter would offer almost
all of the advantages of the current arrange-
ment (particularly the total absence of hum and
RF interference, the latter a serious problem in
many parts of the US, I understand), but avoid
the aforementioned pitfalls. Finally, there is a
tube version of the Harmony in the cards,
which will take the place of the dust cover on
the TQI.

The company has seven employees, around
60% of production goes into export, and Peter
Suchy is serious enough about the US market
to have established Clearaudio USA (PO Box
7028, Westlake Village, CA 91359, run by Bill
Johnson—not W2J, of course!). Suchy's enthu-
iasm for his subject, and pride in his achieve-
ments, are obvious, and he sees analog's future
as a lot less gloomy than most. He believes
popular demand will eventually force record
companies to reintroduce the vinyl format,
should they abolish it. He acknowledges that
digital will some day surpass analog, but not
until the present CD standard is replaced by a
digital format with a sampling frequency of at
least 100kHz (minimum) or 200kHz (prefera-
ibly), at which time he will be ready to move
into this format. But he sees no limit to his vi-
ability as a cartridge manufacturer: he feels his
cartridges are the only ones with a high-fre-
quency performance clean enough not to trip
up the digital archival medium that will then

Stereophile, April 1989
Your ears are acute enough to hear the ultimate reproduction that your system is capable of delivering. But does your system deliver? It won't if you overlook one of its most important components, the interconnects.

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serve to store all the invaluable performances which today exist only on vinyl, and he wants to offer a complete package—cartridge, tone-arm, preamp, and maybe even turntable—that will plug into future digital studios.

As a parting shot for this Update, two items of audio trivia: First, you probably have to thank Germany for the continued unavailability of DAT recorders. Remember the Copy Prohibit scheme, where a flag in the digital data stream was to tell the DAT recorder that it wasn’t supposed to make a copy of a CD? Well, as soon as the first DATs arrived in Germany (late 1987), the magazines printed detailed instructions on how to disable the circuit in question (a simple clip-and-resolder operation in most cases), and one reader even offered a design that monitored the data stream and simply reversed the flag every time it came along, from 1 to 0. As you know, the idea was short-lived.

And if the US doesn’t have something a lot larger than New York’s Tower Records to offer, vinyl heaven is currently located in Köln, West Germany, where the world’s largest selection of new vinyl records is on offer at Saturn, leaving London’s megastores in the dust.

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—Arnis Balgalvis, Stereophile, Vol. II, No. 11

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But enough conversation. If you're interested in hearing more about Pioneer's new TZ Series speakers, call 1-800-421-1404 for a technical white paper and the Elite dealer nearest you.

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LET ME TELL YOU ABOUT LARS.

Lars is a Swede, long resident in the US, who has recently become correspondent for the Stockholm-based magazine Audio/Video. We do a lot of listening together.

I often show up at Lars's lair bearing the latest recording of Prokofiev's Alexander Nevsky. The "Battle on the Ice" takes on added excitement when heard on a system owned by a Swede.

"I'll bet you don't often hear this work performed in Stockholm," I say.

"I never did," says the good-natured Lars, as he pours me a beer.

Lars gets his revenge by writing about me in the Swedish mag. I know he's saying something because I recognize the words "Sam Tellig" and something that looks like "Lyood Snalorpin." I think that's Swedish for "Audio Cheapskate."

First time I met Lars was when he showed up on my doorstep one Saturday afternoon, two years ago, clutching two runs of speaker wire. I invited him in, and Lars told me this improbable tale.

The pump on his well had conked out, and new wires had to be run from the house to the well. Lo and behold, the wires were solid-core. And there was quite a bit left over. This legendary wire became known as "Lars's well wire"—two separately sheathed leads of 18-gauge solid-core wire, which Lars had twisted one around the other at regular intervals.

"You have to try this," said Lars, breathlessly.

"How about right now?"

I can't recall the wire I was using at the time, but it was expensive. Not that I paid for it. Well, I hooked up the "well wire" between my Jadis JA-30 amps and Quad ESL-63s. The sound was terrific—clear, focused, clean. Even better than solid-core Romex.

Hi-gs may have been slightly rolled off—not a bad thing, most of the time. And bass may have been lacking a little—hard to tell with the Jadis amps and the Quads. Fortunately Lars had enough well wire for us both.

But well wire wasn't good enough for Lars. It couldn't be any good. He hadn't paid anything for it. So, once upon a time, he bought some expensive cable, to run between his Jadis JA-30s and his ESB speakers. I call this wire "Three Bears" cable. You know, this is the "baby bear" conductor—it's for the highs. This is the "mamma bear" conductor—for the mids. And this is the "pappa bear" conductor—it's for the lows.

Expensive wire is hard to resist, because so many people tout it. Not only dealers, but also customers. If a friend buys some expensive cable, he's going to keep bugging you about how great it is—to validate his decision.

"I thought well wire was so great, Lars."

"This stuff is better," said Lars. But his face was an open book. I could tell he was not so sure.

"The Three Bears cable has had a chance to break in, so let's compare it with the well wire," I suggested mischievously. Lo and behold. The sound of the well wire was less smeared, more focused—more coherent. Midrange and treble were smoother, even if the frequency extremes were not so extended.

Soon after that, Lars read Do's now-infamous cable survey (in Vol.11 No.7) and became the first kid on his block to own TARA Labs Space and Time Cable—made with "fresh Australian copper." Solid-core was the way to go, and this bad to be better than the throw-away well wire.

"This TARA is really good," said Lars, seriously. "Olsher is right."

Olsher is right. The TARA Space and Time is good. But I am not so sure that well wire isn't equally good. I borrowed some TARA from Lars and compared it with twin runs of Radio Shack 18-gauge solid-core copper wire. No difference that I could hear. But what the hell do I know? It's more fun to praise the Radio Shack...or the well wire.

"What speaker cable are you using now?" Lars asks, when he calls.

"Oh, I've gone back to well wire," I answer with delight.

When I'm not tormenting Lars with his/my well wire, I pick on his ESB 7/06 speakers, which he bought partly owing to a favorable review by one J. Gordon Holt. Every time I visit Lars, the speakers—big, large boxes—are in a different place.

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now,” says Lars. “I’ve moved them forward into the room and closer together. Have a listen.”

Not that it makes much difference.

The ESBs—no longer imported—are not speakers I can love, although Lars says he likes their “tonality.” But what they lack is delicacy and detail. I think they are sort of lifeless. Artificial-sounding—lacking in ambience.

My lack of enthusiasm for the ESBs must be getting to Lars because he is now contemplating the purchase of Vandersteen 4As.


“If I said Thiel, you’d say Vandersteen,” Lars replies.

“Yes, you’re probably right.”

Until recently, Lars was driving the ESBs (which can use power) with the Jadis JA-30s—not enough muscle. For two years, I have been on Lars’s case about this.

But what does Lars do? He doesn’t dump the speakers. He dumps the amps. (Probably a smart move—because the JA-30s are underpowered for most applications, which is why I had earlier sold my JA-30s, too. Something bothered me about the JA-30s, and not just the lack of power. The amps were a little too glassy—tube glare. Also, the sound was too lean for my tastes. The JA-30s tended to make every symphony orchestra sound like an undernourished French orchestra. The amps were terrific on chamber music, though.)

Lars ordered a Krell KSA-80.

Now the fun began.

Before Lars had made up his mind, I was all for the Krell. Now I appeared to vacillate.

“I don’t know. Maybe you should audition a Rowland again before you make up your mind.”

This time, Lars saw through it all. “Last week, you were praising the Krell to the skies. Now you’re rhapsodizing about the Rowland. What is this?”

“I hear good things about Levinson.”

Lars would be without an amp for two weeks. He had sold the JA-30s but had not yet taken delivery of the Krell.

“I have a spare B&K ST-140 in the closet. Would you like to borrow it?”

Lars accepted. At the time, I had no mischief in mind—I just wanted my friend to have music.

Two days later Lars was on the phone. “That’s a good little amp for $498. It’s good that people can get such good sound for so little money.”

Then nothing for several days, while Lars lets the B&K cook.

“Holy shit!” It’s Lars on the phone. “This amplifier has been cooking for a week now and the sound is phenomenal. The tonality is right on. The amplifier has body that the JA-30s never had. And the dimensionality is astonishing—the soundstage stretches so wide and deep. I’m going to have to write this up for Stockholm.”

The next night: “Better than ever. You have to drive over to hear it.”

I drove over and, sure enough, the ESB speakers had never sounded better, to my ears. Everything Lars said was right, and I felt a little foolish for having kept the B&K in the closet, while other amps had driven my Martin-Logan Sequels. Maybe the secret was leaving the B&K on all the time—“cooking,” as Lars said.

“You’ve got that Krell on order. You paid for it. What are you going to do now that you like the B&K better?”

I was glee ful. This was exquisite, all the more so because Lars’s discomfiture was completely unplanned.

“Well, the Krell should be even better.”

Lars did not sound too sure, so I went in for the kill.

“How could it sound better than this? You’re right, Lars, this little B&K amp is phenomenal. I think I’ve been guilty of understating its excellence. It kills the Krell. Licks the Levinson. Rolls over the Rowlands. Overthrows Threshold...”

I taper off. Could I really trick Lars into believing that a B&K ST-140 is a better amp than a Krell KSA-80?

A week later, the Krell arrived. Cold out of the box, and not broken in, the KSA-80 sounded promising—very dynamic, excellent bass control. But the thoroughly broken-in B&K sounded sweeter, less fatiguing. The B&K had more “bloom”—space around the instruments. And the B&K’s soundstage depth was...
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The Krell KSA-80 power amplifier is terrific—extending wide beyond the speakers. Straight out of the box, the Krell sounded somewhat rough. Lars looked like a little boy who’s dropped his ice cream cone.

The next day, Lars reports that the B&K still sounds “better” than the Krell. “Not as dynamic, of course. Nowhere near the bass control. But overall, better—the dimensionality of the B&K is unbelievable. I must let the Krell cook and hear what happens.”

Cook it does. Class-A. Drawing full power all the time. This is January—albeit a very warm January—in Connecticut. But Lars has to open a window a crack, at times, to ventilate his new Krell.

“What are you going to do in summertime?”

“I’ll just let it cook. I’ll sit in my underwear and listen if I have to,” said the indomitable Lars.

Then a lightbulb went off inside his head. His eyes lit up.

“The garage is right under the listening room. I’ll put the Krell in the garage and run interconnects up through the floor. That’ll solve it!”

“Wendy will love having a heated garage.” (Wendy’s his wife.)

I retrieved the B&K and left Lars to cook with his Krell.

Days of silence followed, and then Lars called raving, this time about the Krell. “It’s burning in. It’s beginning to sound smooth, sweet, fantastic. The bloom around the instruments is starting to develop—the dimensionality. The soundstage is unbelievably wide and deep. The bass control is unbelievable.” His favorite adjective.

I went over to Lars’s well-heated listening room and verified that everything he said was true. The now well-warmed Krell was a terrific amplifier in every respect. Smooth, sweet, dynamic—unflappable.

The B&K ST-140 was not a Krell killer, after all. And no amount of insidious suggestion could convince Lars that it was. The game was up. I admitted to Lars that the Krell was indeed a wise purchase.

“Now you’ll have to think about your speakers,” I said.

“You never stop, do you?”

It’s still winter as I write this column, and Lars is leaving the Krell on all the time—at a cost of about $25 additional on his monthly electric bill. Presumably, though, he is saving at least part of that on heating oil.

Come summer, it may not be necessary for Lars to let the Krell cook. By then the Krell will have thoroughly broken in, and only a short warm-up period may be needed to get the amp up to optimum sound. Mind you, I’m not picking on the Krell. Many other, if not most other, solid-state amps take a while to burn in and sound their best. And as far as running hot, look at tube amps! It remains to be seen whether Lars will be listening in his underwear.

This episode has taught me a lot about the B&K.

In some ways, I respect this amp more than ever. And I am certain Lars does. The B&K is smooth, sweet, and dimensional—like a classic tube amp. In other respects, however, the $498 B&K ST-140 cannot compete with the big boys.

What the ST-140 lacks is the ability to take charge of a speaker with real authority—especially in the bass. The Martin-Logan Sequels (the now discontinued version) are a case in point.1 The bass wasn’t tight enough with the B&K, and so the bass did not integrate well with the electrostatic panel. Changing over to an Electrocompaniet AW100 just about solved this.

I’m afraid the B&K ST-140 doesn’t quite make it, for me, with my new Thiel CS1.2s, either. (The ThIELs are a steal for the money.)

The bass on the ThIELs is mushy with the B&K—loose, the antithesis of tight. Changing over to the AW100 results in a dramatic change—the bass tightens up and the rest of the frequency range sounds clearer, cleaner, crisper, too. The Electro is an excellent solid-state amp.

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1 In case you’re wondering, I like the Sequels very much, although I haven’t heard the extensively reworked new bi-ampable version, with scaled bass driver rather than ported.
In Britain – home of many audio aristocrats – one name is legendary. So seminal, in fact, that several dictionaries list “Tannoy” as the synonym for “sound system.”

62 years after its founding, Tannoy remains the loudspeaker of choice for audio professionals. More recording studios choose Tannoy for their monitors than all other brands combined. It is no coincidence that 98 of the 100 top-selling albums since 1983 were mastered on Tannoyse. In 1988 the industry recognized Tannoy’s accomplishments by making it the first loudspeaker to receive the prestigious TEC award, created “to honour the audio industry’s greatest achievements.”

Honed in the exacting domain of professional sound reproduction, Tannoy’s Series 90 monitors bring the legend home with classic refinement. From two-way bookshelf speakers to Tannoy’s famous “single point source” monitors, the pedigree is pure blue-blood, and the sound is pure magic.

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Olsher's positive review in last month's issue is right on.

Of course, B&K makes other amplifiers, which may be better suited for the Thiel's 4 ohm impedance. And the Electro costs more than four times as much as an ST-140. A Krell costs more than seven times as much. The B&K ST-140 has nothing to be ashamed of—it just won't kick ass. But if you have the money, there are better amps. And I've just found two of them.

Incidentally, Lars and I convinced Rudi Kothe, of Definitive Hi-Fi, Mamaroneck, NY, to put the ST-140 on the Wilson WAMM—but not on the bass drivers.

Rudi groaned.

"What are you afraid of, Rudi?"
"Yeah, go on," chorused three other assembled 'philes.

Guess what. The $16,000/pair KRS-200 [KRS-100 is $12,000/pair] Krell Reference Monoblocks sound better. Much better. Things more or less fell apart when the $498 B&K was asked to drive the $80,000 WAMM, which costs 160 times the money. The sound was dark, lifeless, lacking in coherence.

But not terrible. The amp still sounded sweet and somewhat dimensional (though nowhere near as much as the Krell Reference amps).

The other 'philes were amazed. "For $498, the B&K ST-140 is astonishing."

Yes, it is.

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...the latest industry incarnation of an 'ultimate' listening system."
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"It wasn't the size, the contents or even the price that turned heads, but the knockout sound." — Larry Johnson, Ovation Magazine.

Recently, at a carefully selected location in Milford, Pennsylvania, some of the most discerning ears in the business were invited to hear something they'd never heard before. The Altec Lansing Bias™ 550. The first speakers in the world with real amplified sound.

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April sees *Stereophile's* fourth foray into the world of hi-fi show promotion. "The High End Hi-Fi Show," jointly promoted by this magazine and Nelson & Associates, takes place at the San Francisco Bay Area's Dunfey San Mateo Hotel, from Friday April 21 through Sunday April 23.

"Come Up to High End" is the motto of the show; certainly the potential for high-end sound will be there, with over 60 brands of hi-fi components being demonstrated on all three floors of the hotel's north wing. Manufacturers and distributors such as Acoustat, Apogee, Audio Products International, Audioquest, B & K, B&W, Carver, Celestion, Classé, Conrad-Johnson, Discrete Technology, Don J Cochran, Hafler, Kef, Kimber Kable, Linn, Magnepan, Martin-Logan, May Audio, Mission, Monitor Audio, NAD, Naim, Nelson-Reed, Nikko, Sota, Sony, Sumiko, Threshold, TDL, Vandersteen, VTL, and Wilson Audio, as well as Bay Area high-end dealers including Access to Music, The Audible Difference, Audio Excellence, C & M's Stereo Unlimited, db Audio, Elite Electronics, Epik Audio/Video, John Garland Audio of Lake Tahoe, Performance Audio, The Sound Approach, Sound Goods, Sound Technology, Stereo Plus, The Tweak Shop, and Western Audio, will do their best to create reproduced sound to a standard rarely heard.

You want to know about highlights? Let me tell you about highlights:

- **Nakamichi** was the first company to introduce a consumer DAT recorder in the US in the shape of their $10,000 1000 system. This immaculate two-box machine — the transport is housed separately from the state-of-the-art A/D and D/A electronics — will have pride of place in the *Audible Difference* room.
- **The Audible Difference** will also demonstrate the awesome — there is no other word — *Infinity* IRS Series V, driven by *Mark Levinson* amplification, with source components including the *Spectral* SDR 1000 CD player and *Versa Dynamics* 1.0 and 2.0 turntables.
- Recently rated by *The Audio Critic's* Peter Aczel as a reference standard loudspeaker system, *Martin-Logan*’s statement in speaker design, the four-tower, $40,000 Statement, will take pride of place in the *Audio Excellence* room.
- We originally had hopes that *Wilson Audio* would be demonstrating the WAMM, but, alas, the logistics could not be worked out. The Marin-based company will, however, launch the very latest version of their diminutive WATT loudspeaker, which they will demonstrate in conjunction with the Wilson POW-WH0W powered subwoofer. When J. Gordon Holt and John Atkinson heard the original WATT/WHOW combination a year ago, they were bowled over by the verisimilitude of the sound, and they are two men who are not easily satisfied. David Wilson himself will be on hand on Friday and Saturday to answer questions about his recordings and loudspeakers.
- **VTL** will use their highly regarded tube amps to drive *Infinity* IRS Betas. VTL’s David Manley plans to give a series of formal music recitals from master tapes each day, starting at 10am and then every two hours on the nose.
- **The Jeff Rowland Design Group** is launching two new products at the show, the 60 Wpc Model 1 power amplifier and Consonance preamp, both featuring Rowland’s Differential Mode topology and priced at $2950. The Consonance heralds what will probably be a developing trend in the high end by being “remote-control ready.”
- **B&W**’s system focuses on their Matrix 801 and 802 monitor speakers. Also in their room can be heard a “Dream System,” the grand prize in a competition being run by *Digital Audio’s CD Review* magazine, consisting of 801s driven by Rowland Research amplification with a Stax Quattro II CD player providing the musical urge.
- Look for the fire-engine-red Volvo in the parking lot. *Hafler* will demonstrate a four-way in-car system, using six channels of amplification, illustrating that automotive sound quality needn’t always take the back seat to
decibels.
• A number of audiophile record companies will exhibit their wares—and offer them for
  sale! Chesky will have their new 128x-over-sampled, minimally miked jazz releases—
Johnny Frigo's Live from Studio A is possibly the most realistic-sounding jazz recording I
have ever heard—as well as their series of re-mastered classic classical recordings. Reference
Recordings will show their new Marni Nixon Sings Classic Kern album—along with their
new test laserdisc. Sheffield Lab will use the
show to launch their first new pop album in
over five years—Clair Marlo's Let It Go features
musicians from Toto and LittleFeat. Harmonia
Mundi USA, which remains true to analog tape
for its releases, is rapidly building a reputation
for natural-sounding classical recordings—
pick up a copy of their Händel recording of
Arias for Senesino at the show if you haven't
already got it. Water Lily Acoustics will show
an entire catalog recorded with purist micro-
phone techniques. Wilson Audio will have their
LPs and CDs for sale. And retailer Serra Stereo
will sell CDs, LPs, and cassettes at the show
from American Gramaphone, Bainbridge,
Delos, DMP, GRP, Mobile Fidelity, Private
Music, Telarc, and Windham Hill.
And there's more?

The real thing—live music
To spurn the exhibitors on to get the best from
their systems, the Hi-Fi Show will feature a
series of live music concerts. As Stereophile
publisher Larry Archibald puts it, "Just as the
intermezzo, or sorbet, cleanses one's palate
between dinner courses, the live musical groups
will sensitize one's ear to good music . . . " We
couldn't agree more. The concerts take place
in the Golden Gate West Room at 8:30pm on
Friday and Saturday, and at 6pm on Saturday.
Admission will be by (free) ticket, available
from the Stereophile room.

Friday night sees a rare opportunity to hear
a young violinist destined for greatness. Arturo
Delmoni, who made quite a stir in both musical
and audiophile circles with his album of vi-
olin favorites, Songs My Mother Taught Me, on
North Star Records (reviewed in Vol.11 No.8),
will present a solo concert at the show.

Saturday night sees San Francisco's Philhar-
monia Baroque orchestra, recently featured on
an excellent-sounding Water Music recording
from Harmonia Mundi, in a concert of 17th and
18th century music—including works by
Corelli, Muffat, Vivaldi, and Händel.

And on Sunday night, a free jazz concert will
feature a quintet led by guitarist Bruce Foreman
and alto saxophonist Richie Cole, who cele-
brate their reunion at the show.

In addition to these after-hours concerts,
visitors will have ample opportunity to refresh
their ears during the day. Taking place through-
out the show hours will be a series of live music
recitals in the Crystal Springs Room (just off the
hotel lobby). If you want to hear some virtuosic
guitar hacking, Jorge Strunz and Ardesthir Farah
will meld Latin rhythms with Middle Eastern
themes, while the Santa Barbara Inner Light
Gospel Choir, led by Bishop 'Mama Pat' Pow-
der, will illustrate the power and beauty of the
human voice. Both groups are Water Lily rec-
cording artists.

The Hi-Fi Fringe
A full program of fringe events is planned to
take place throughout the show in the Haw-
thorne Room. Entry to any of the sessions is
free, but as seating is limited, admission will be
by ticket, available on a first-come, first-served
basis from the Stereophile room.

At the time this issue of Stereophile went to
press, the exact program of events had still to
be finalized, but we hope to include: question-
and-answer sessions with a panel selected from
Stereophile's team of reviewers and editors;
blind listening tests on amplifiers and cables;
and demonstrations of how natural recording
techniques best capture the sound of live music.

Essential Info
Where is the Show? The Dunfey San Mateo
Hotel, 1770 S. Amphlett Blvd., San Mateo,
California (just off US 101 and the San Mateo
Bridge).
When is the Show? April 1989: Friday the
21st, 1pm–9pm; Saturday the 22nd, 11am–
8pm; Sunday the 23rd, 11am–6pm.
What does it cost to get in? Admission at the
door will be $15, the one ticket covering all
three days and all the seminars and musical
events, or $12.50 in advance from Stereophile,
PO Box 5529, Santa Fe, NM 87501—see the ad
on the next two pages for details. And every vis-
itor will get a free copy of the 80-page Show
Guide, which gives brief details of all the ex-
hibitors.

See you there!
Here’s the current list of exhibitors and manufacturers displaying and demonstrating at the Bay Area High End Hi-Fi show.

A&S Speakers
Access to Music
Acoustat
Acoustic Energy
Alphason
Apogee
Aragon
Arcfi
Audible Difference
Audio Excellence
Audio Products International
Audioquest
Audio Research
Audio Technica
Avalon Acoustics
AV Pro Group
B&K
B&W
Bang and Olufsen
BEL
Boffi / Vidikron
California Audio Labs
Cardas
Carver
Castle
Celestion
Century Stereo
Chesky Records
Classé Audio
Conrad-Johnson
DB Audio
dbx
Denon
Discrete Technology
Don J. Cochran Inc.

Dorian Recordings
Dynavector
Elite Electronics
Energy
Erect
Epic
EuPhonic Technology
Focal
Forté
Harley
Harmonia Mundí
Image
Infinity IRS
Jeff Rowland Design Group
John Garland Audio
KEF
Kimber Kable
Krell
Lantana
Last Factory
Lexicon
Linn
LiveWire
Luxman
Magnepan
Mark Levinson
Marnie Acoustics
Martin-Logan
May Audio Marketing
MB Quart
Merlin
Mirage
Mission
MIT
Mobile Fidelity
Mod Squad
Mondial
Monitor
Moore Frankland
MS Brasfield
Muse Electronics
Museatex
Music by Design
NAP
Naim
Nelson-Reed
Nikko
Nitty Gritty
Onkyo
Performance Audio
Perreaux
Phantom Acoustics
Pioneer Elite
Proton
PS Audio

PSB Speakers
QED
Quad
Reference Recordings
Rotel
Rowland Research
Rush Sound
Shadow
Sheffield Record Labs
Signet
Sonographe
Sony ES
SOTA
Sound Approach
Sound Connections
Sound Goods
Sound Technology
Spectral
Stereo
Stereo Plus
Stereo Unlimited
Straight Wire
Sumiko
Swan’s Speakers
Synthesis
Tannoy
Target
TDL
Thera
Thiel
Threshold
Triad Design
Tweak Shop
Ultimate Sound
Vacuum Tube Logic
Van den Hul
Vandersteen
versa Dynamics
VPI Industries
Wadia
WBT
Well Tempered Arm
Western Audio
Whole Cove Audio
Wilson Audio Specialties
Yamaha
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SUNDAY, APRIL 23 11 am to 6 pm

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City, State, Zip ___________________________ ___________________________

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Card No. ___________________________ Exp. date ___________________________

Signature ___________________________
Bryston's Model 10B Electronic Crossover combines ideal signal-handling with an enormously flexible control function. Simple, direct front-panel switches allow any crossover curve to be set instantly, and the signal purity is always maintained.

The Model 10B features independently selectable crossover points for high-pass and low-pass, in case the speaker installation requires slightly overlapped, (or slightly staggered), response curves for the drivers. You can also independently select crossover slope, from 6, 12, or 18dB/Oct., where one driver requires faster cutoff than another in the same system.

The Bryston 10B Crossover uses NO integrated circuits in the signal path. All internal buffer and amplification stages are Bryston's exceedingly linear and superbly quiet discrete op-amp circuitry. This means the signal is always maintained as "Audiophile Quality", with stability and freedom from noise and distortion unapproached in normal equipment.

From the point of view of adaptability, flexibility and signal integrity, the Bryston 10B Electronic Crossover system is the ideal choice for the widest range of multi-way speaker installations.
Recommended Components: The 1989 Awards
The ratings given components included in this listing are predicated entirely on performance—ie, accuracy of reproduction—and are biased to an extent by our feeling that things added to reproduced sound (flutter, distortion, various forms of coloration) are of more concern to the musically oriented listener than things subtracted from the sound, such as deep bass or extreme treble. On the other hand, components markedly deficient in one or more respects are down-rated to the extent that their deficiencies interfere with the full realization of the program material.

We try to include in "Recommended Components" every product which we have found to be truly excellent or which we feel represents good value for money. Many different tastes are represented. The listing is compiled after extensive discussion among Stereophile's reviewing staff, editors, and publisher, and takes into account continued experience of a product after the formal review has been published. In particular, we take account of unreliability and defects that show up after extended auditioning. The fact that a product received a favorable review can't therefore be regarded as a guarantee that it will appear in this listing.

We indicate products that have been on this list in one incarnation or another since the last "Recommended Components" to appear in 1985, in Vol.8 No.8, with a special symbol: ★. Longevity in a hi-fi component is a rare enough commodity that we felt it worth indicating (although, as in the case of separate MC head amplifiers, it can apparently indicate that the attention of design engineers has moved elsewhere).

We are not sympathetic toward letters complaining that the Symphonic Bombast A-123 Mk.IV, which we recommended heartily two years ago, no longer makes it into "Recommended Components" at all. Where deletions are made, we endeavor to give reasons (there always are reasons). But remember, deletion of a component from this list does not invalidate a buying decision you have made.

(We regret that we cannot supply photocopies of individual reviews.)

Some of the listed items are discontinued models (‡), retained in this list because their durability and performance distinguish them as "classics," and because they sometimes may be obtained for substantially less than their original cost. (Upgrade modifications are available for many.) In general, however, discontinuation of a model precludes its appearance here. In addition, though professional components—recorders, amplifiers, monitor speaker systems—can be obtained secondhand and can sometimes offer performance which would otherwise guarantee inclusion, Stereophile's "Recommended Components" listing is exclusively concerned with products offered through the usual hi-fi retail outlets.

How recommendations are determined . . .
Read carefully our descriptions here, the original reviews, and (heaven forbid) reviews in other magazines to try to put together a shortlist of components to choose from. Carefully evaluate your room, your tastes, your source material and front end(s), your speakers, and then yourself: with luck, you may come up with a selection to audition at your favorite dealer(s). "Recommended Components" will not tell you just what to buy, any more than "Consumer's Union" would presume to tell you whom to marry!

Class A:
Best attainable sound, without any practical considerations: "the state of the art."

Class B:
The next best thing to the very best sound reproduction; cost is a factor, but most Class B components are still quite expensive.

Class C:
Somewhat lower-fi sound but far more musically natural than average home-component high fidelity; products in this class are of high quality but still affordable.

Class D:
Satisfying musical sound but significantly lower fidelity than the best available. Many of these products have obvious defects, but are inexpensive and much better than most products in the price category. Bear in mind that appearance in Class D still means that we recommend this product. Below this level, system colorations start to become so great that guidance becomes almost impossible and any recommendation is out of the question.

Class K:
"Keep your eye on this product." Class K is for components which we have not tested (or have not finished testing), but which we have reason to believe may be excellent performers. We are not actually recommending these components, only suggesting you take a listen.

Turntables
Editor's Note: An audiophile worth his or her salt should consider at least one of our Class D recommendations or, preferably, one of the five Class C turntables and their variants as the essential basis of a musically satisfying top system. An in-depth audition as part of a preferred turntable/arm/cartridge combination before purchase is mandatory. If an inexpensive turntable has not made its way into Class D or is not listed in Class K, assume that it is not recommended under any circumstances. Underachievers are more common in the world of turntables than in any other area of hi-fi.

A
Versa Dynamics 2.0: $12,500
Ingenious vacuum hold-down, air-bearing, suspended-subchassis turntable with integral air-bearing tonearm. LGH felt the complete player to give the "best sound from analog disc" that he has heard, particularly in its presentation of silent backgrounds and tight low-bass response. Only drawback is the need to house the air-pump module—for once not a reworked aquarium pump—in a separate room. A noise-reduction housing for the pump is now included in the purchase price. (Vol. 10 No. 8, Vol. 11 Nos. 1 & 4)

Goldmund Reference: $29,650 (inc. arm)
JA's experience with this outrageously priced, limited-production turntable/arm combination in two systems (see Vol. 12 No. 2 p. 14), coupled with MC's more extensive auditioning, leads us to believe that it offers true cost-no-object turntable performance, rivaled only by the Versa Dynamics 2.0. Turntable only: $24,900. (NR)

B
SOTA Star Sapphire Series III: $1600
A synergistic match with the SME Series V tonearm, the Series III, complete with the acrylic Supermat, is significantly better than earlier versions, due to its use of an aluminum armboard, new motor drive pulley, new suspension springs, and ribbed platter construction. Compared with the standard SOTA Sapphire, the vacuum holddown significantly improves bass range and detail, as well as resolution across the audio range.
PICTURE A
PERFECT PREAMPLIFIER

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The Mod Squad, Inc., 542 North Hwy. 101, Leucadia, CA 92024
The SOTA “Electronic Flywheel” line conditioner ($300, Vol.9 No.2) improves performance very slightly further. If you find the cost-no-object “superdecks” tantalizingly out of reach, JGH recommends that you set your sights on the SOTA Star Sapphire. “The best turntable performance you can buy for anywhere near its cost,” quoit JGH. (Vol.10 No.5, Vol.11 No.1)

C

Elite Rock & Excalibur: $18000

Unique trough/paddle arrangement optimally damps cartridge cantilever at the headshell. Result is quite the quietest background for LP reproduction DO has heard, coupled with remarkable resolution of low-level detail. Bass is perhaps over-damped, but with excellent pitch definition. (Vol.11 No.8)

Linn Sondek LP12: $1165

The standard against which newer turntable designs have been measured for 15 years now, the Linn is felt by some to be more colored than the other Class C 'tables (particularly in the upper bass). Certainly it is harder to set up and more likely to go out of adjustment, though with the latest springs and glued sub-chassis, it is much better now in this respect than it used to be (low-bass extension suffers when the LP12 is not set up correctly). Latest version has a new laminated armboard which, with Zener mods to the Valhalla board, results in a considerably more neutral sound. Despite flirtations with other decks, JA remains true to the basic design he has used now for 11 years. (Vol.7 No.2)

RATA Torlyte-modified Linn Sondek: $600

Russ Andrews' drastic Linn modification alleviates the lack of transparency in the upper bass typical of older models, rendering the turntable more compatible with such tonearms as the SME V. The Linn guarantee will be voided, however. Recommended only to those who have a Linn that they will not mind irreversibly modifying. (Vol.10 No.3)

SOTA Sapphire Series III: $1195

The standard SOTA lacks vacuum disc clamping but is easy to set up and use, attractive, ingenious in design, and sonically excellent. With the new Supermat it comes close to its much more expensive brother, the Star Sapphire, in sonic neutrality, midrange naturalness, and high-end sweetness. Vacuum clamping is available as a $695 upgrade. (Vol.10 No.5)

VPI HW-19 III: $1140

The Mk.II version of the VPI 'table, cosmically more elegant than the original, achieved a standard of sonic neutrality that put it close to the latest SOTA Star Sapphire, and at a much lower price. The HW-19 readily accommodates a wide range of tonearms—the airbearing designs in particular—and is very stable. The $300 Power Line Conditioner (See Vol.12 No.2) is a worthwhile accessory. The Mk.III version is different in detail; preliminary reports are that it retains the strengths of the Mk.II, justifying its continued inclusion in this listing. (Vol.9 Nos.4 & 5)

Well-Tempered Turntable: $1695 (Inc. arm)

An integrated belt-drive turntable/tonearm combination featuring an acrylic platter and a unique four-point wobble-free bearing. Lacks a suspension, but designed with attention to detail, particularly concerning the maximizing of speed stability and the rejection of motor noise. Most obvious sonic characteristic is stability, both in speed and harmonic structure, coupled with cleaned-up sound quality: “The quiet between the notes is suddenly more silent,” said AB in his review. In addition, dynamics seem to be enhanced, though the sound is more lightweight than that of, say, the VPI. Only significant drawback, as far as mix'n'matchers are concerned, is its dedication to the Well-Tempered Arm. No other can easily be fitted—we've had reports that the Wheaton works well—but it's available w/o arm for $975. (Vol.11 No.3)

D

Acoustic Research Connoisseur ES-1: $550

Although a recent increase in price means that it is no longer the bargain it once was, this is still a turntable we can heartily recommend. Compared with the original AR, this has much better cosmetics, comes with its own arm (for $725) or can be fitted with yours—the Cheapskate just loves the AR with the Rega RB300. Intrinsic character is a bit fat in the upper bass, but is musical nevertheless. Availability is limited, but The Audio Advisor has supplies. The AA's metal armboard should be regarded as mandatory (Vol.11 No.4), the Cheapskate then feeling the sound with a felt mat to be Class C and rivaling the Linn LP12. Merrill's modifications of the Connoisseur are also said to be worth investigating. (Vol.8 No.7, Vol.11 No.4)

Linn Axis: $795 (Inc. Basik tonearm)

Versatile, "turnkey operation," two-speed belt-drive deck with electronic speed control and ingenious suspension. “Smaller” sound than the Sondek, perhaps limited by the good, but not outstanding, performance of the Linn tonearm. The latter has recently been improved, however. (Vol.10 No.1)

Rega Planar 3: $599

Synergistic mix of no-nonsense deck with superb arm. Lack of environmental isolation may be problematic; some recent reports of variable wow & flutter, limited cartridge compatibility; but a safe recommendation, nevertheless. (Can be obtained in a dedicated version for playing 78s.) (Vol.7 No.1, Vol.8 No.6)

Sonographe SG3: $595

Better-sounding than the basic AR, the Sonographe may be hard to find but is worth seeking out. Good value in the armless version. (Vol.9 No.7)

K

Alphason Sonata, Ariston Q-Deck, Basis Debut, Roksan Xerxes, Dunlop Systemdek, Heybrook HB2, Michell Gyrodek, Revolver Mk.II, SOTA Cosmos, Versa Dynamics Model I.0, VPI TNT and Jr.

Deletions

Oracle Delphi not auditioned in too long a time.

Tonearms

A

Air tangent: $3200

Setting a new price level in this listing, this beautifully made Swedish parallel-tracking tonearm was felt by AB to achieve new standards of transparency, smoothness, and retrieval of detail with every cartridge with which it was used, coupled with the ability to present a "billowing" soundstage and a well-defined bass. Better in the highs than the SME, it is a little lean in the
Linn Sets the Standards

According to a recent, independent, nationwide poll of hi-fi dealers, if you want to buy from a Home Audio/Electronics company that stands behind their products, your top two choices would have to be Linn and McIntosh. In every category that dealt with product repair, resolution of problems and quality of support staff, McIntosh and Linn ranked first and second. In the poll's overall results, which also take into account dealer support and diversity of product line among other things, Linn finished in third place. This was just three tenths of a point out of first place and far ahead of any other small, specialist manufacturer.

The Best Just Got Better
Linn Announces a Five Year Limited Warranty

Linn has always enjoyed the reputation of building products that last. They have also supported those products with an unusual level of after-the-sale support (prompt repair service, update kits to bring older products up to current standards, etc.)

Now Linn goes one step further. Effective March 1st of this year, Linn has extended their normal two year limited warranty on turntables, arms, electronics, and loudspeakers to a full five years!

And, in an unprecedented move, Linn is also supplementing their normal 90 day warranty on moving-magnet and moving-coil cartridges with a two year, no-fault replacement program.

If a Linn cartridge fails within the first three months, due to a manufacturing defect, it will be covered in full under Linn's normal limited warranty. But, if the failure occurs after the 90 day warranty period, or is due to a cause other than a manufacturing defect (you broke it!), you will receive a pro-rated credit against the purchase price of a brand new cartridge or stylus. That credit will be calculated on a straight-line basis beginning with a value equal to two-thirds of the retail price of the cartridge or stylus on day one, and ending with a one-third credit at the end of the cartridge’s nominal two year life.

Or, put more simply, a replacement for a broken Linn K5 cartridge that retailed for $150 could cost you as little as $50 if you accidentally ran over it in the parking lot on your way out of the hi-fi shop (or as much as $100 if it died near the end of its expected two year life). Of course, if only the $90 stylus needed replacing, the cost would be still lower, ranging from $30 to $60 depending on age.

For information on Linn warranty and replacement programs, and a demonstration of the performance advantages that a Linn component can bring to your system, visit an authorized Linn dealer.

For additional information on Linn Hi-Fi and the name of the dealer nearest you contact:

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

Stereophile, April 1989
bass compared with the English arm. It does, however, allow for easy adjustment of VTA and features interchangeable arm-tube assemblies to allow easy cartridge changes. (Vol.12 No.2)

**Linn Ekos: $1995**
(See JA's review in this issue.)

**SME Series V: $2250**
Extraordinarily neutral pivoted tonearm, with the lowest resonant signature of any. Easy to set up, VTA and overhang are adjustable during play, but no azimuth adjustment. The best bass performance on the market, says SWW, but JGH feels that the whole bass range is somewhat exaggerated. Certainly JA feels the latter to be the case when used with the Linn LP12. Some compatibility problems with cartridges having low height, but otherwise the new reference. Very pricey, but ergonomically and aesthetically a work of art. A finish worthy of Tiffany's, according to AHC. Probably the best arm available today. A less versatile version, the IV, appears to offer many of the V's sonic virtues at a lower cost ($1500). (Vol.9 No.6)

**Wheaton Triplanar II: $1795**
Limited-availability, unusual-looking pivoted tonearm with logically thought-out VTA and azimuth adjustments. While not as neutral as the SME V, and not having as much bass—the balance is on the lightish side—the latest version of the Wheaton excels in its ability to enable the cartridge to retrieve spatial information and present a detailed, solid soundstage. Base of the latest version has slightly different cosmetics, but designer Herb Papier doesn't feel that this affects the sound quality. (Vol.11 No.1)

**B**

**Eminent Technology Two: $950**
The ET Two corrects its predecessor's cueing difficulties and comes up with a host of ingenius extras, including VTA adjustable during play. More important, it has "an extraordinarily live and open soundstage." according to Anthony H. Cordesman, and gets the best results from a wide range of cartridges. Idiosyncratic nature of low frequencies precludes a Class A rating. Very fussy to set up and use and needs a very stable subchassis turntable—VPI, SOTA—to give of its best. Surpassed overall by the SME V, which has as neutral a midrange and significantly better bass definition and extension. At less than half that fixed-pivot arm's price, however, the ET Two is an excellent value. (Vol.8 No.7)

**Linn Ittok LVIII: $965**
Slight resonant colorations in the upper midrange compared with the best arms, which can add both hardness and a false sense of "excitement." Bass and lower midrange still among the best, however, and superior to the similarly priced competition in these areas. (Vol.8 No.7)

**Well-Tempered Arm: $720**
One of the most neutral arms available, according to JGH, this odd-looking arm is hard to fault on any count. Superb highs, stereo soundstaging, and midrange, and excellent compatibility with MC cartridges that put a lot of energy back into the arm. Some deficiency/softness in the low bass and, according to some listeners, an undynamic sound, but virtually no other problems. Good value for money. Removing the armrest (see Vol.11 No.6) further improves the sound, as does replacing the standard counterweight with a more massy one nearer the pivot. (Vol.8 Nos.4 & 7, Vol.9 Nos.3 & 5)

**C**

**Rega RB300: $299**
The Rega offers very good detail, depth, midrange neutrality, ambience, and precision of imaging, almost creeping into Class B. Works well with the Rega table, but also recommended by Audio Cheapskate as an ideal substitute for the arms that come with the AR and Sonoraphie tables. Lacks any form of height adjustment, however: VTA can only be adjusted by adding spacers under the base. Even-cheaper RB250 dispenses with the spring downforce adjustment and the sintered tungsten counterweight, but sacrifices little in sound quality. (Vol." No.7, Vol.10 No.1)

**K**

Graham Engineering Unipivot

**Deletions**
Alphason Xenon and HR-100S, Sumiko Premier FT-3 and Premier MMT Revised, and Souther Triquartz

Improved on the grounds that we have not listened to them in too long a time to be sure of their current ranking. The latter, in particular, has been extensively revised; see "Industry Update" in this issue.

**Cartridges**

**A**

**Koetsu Rosewood/Rosewood Signature: $1200/$1750**
If the Ortofons and van den Huls appeal to the brain, then the Koetsu appeals to the heart. Romantic sound despite neutral tonal balance: "a cartridge for music freaks rather than detail lovers." The Red's soundstage is superbly delineated; the Signature is the champion in this area. Availability may now be restricted. (Vol.8 No.7, Vol.10 No.5)

**Linn Trolka: $1750**
Lightish balance, but musical integrity not compromised by superb retrieval of information. As good as the Koetsu Red at presentation of the soundstage. Unique three-point fixing maximizes mechanical integrity but means that it can only be easily used in the Ittok and Ekos tonearms. (Vol.10 No.6)

**Monster Alpha Genesis 1000: $800**
As sweet in the top five octaves as the Koetsu Red Signature but more detailed, in the same league as the Virtuoso DTi. The best cartridge Monster Cable has produced. (Vol.10 No.5)

**Ortofon MC-3000: $1000**
The "second most neutral cartridge" JGH knows of. This ceramic-bodied, higher-output child of the MC-2000 has a slightly warm balance, with silky highs producing a sumptuous sound from massed violins. Lateral imaging excellent but presentation of depth not as good, paradoxically, as the more forward MC-2000. Matching T-3000 transformer not in the same sonic class as, for example, the Vendetta Research phono preamplifier (which renders the transformer unnecessary). (Vol.11 Nos.1, 10, & 11)

**Ortofon MC-2000: $750**
The MC-2000 can make most good discs sound very...
I'M SORRY
I DIDN'T CATCH
YOUR NAIM
much like their CD counterparts. Superb trackability, very good soundstaging and imaging, excellent bass, extremely smooth highs, but such a low output (0.05mV!) that hum and noise will be a significant problem in many systems. Must be used with Ortofon's T-2000 step-up transformer. (Vol. 8 Nos. 2, 4, & 7)

**Talisman Virtuoso DTI: $1200 ★**
The first high-output 'coil to make Class A. Warmer balance than the Talisman, with first-rate imaging and excellent harmonic contrast. The champ when it comes to retrieval of HF detail, but a top end that is free from the problems that plague most MCs. According to SWW, it has the "uncanny ability to reproduce the natural weight and authority of live music." vdh stylus requires careful setup; output a little on the low side for some MM inputs. Somewhat forward balance, but up with the best in terms of transparency. The music emerges from a near-silent background akin to CD. (Vol. 9 No. 4, Vol. 10 No. 5)

**van den Hul MC One: $1075 ★**
Not particularly cable-fussy, but does require attention to arm damping. Works very well in the WTA and SME. Carries the vdh MC-10's resolution of soundstaging, tonal neutrality, and naturalness of midrange timbre a stage farther to compete with the best. Bass a little slow; perhaps, when compared with best performers in this region. (Vol. 9 No. 8, Vol. 10 No. 5, Vol. 12 No. 2)

**B**

**Adcom SXC/van den Hul: $500 ★**
"Sounds like a good dub of the master tape," said HAC, but lacks too much detail when compared with the best Class B cartridges. (Vol. 10 No. 5)

**Audioquest 404-I cartridge: $550 ★**
A slightly forward treble and a minor lack of image depth didn’t prevent TJN from enthusiastically recommending this MC, the sound being naturally detailed without any HF exaggeration. Current production samples have "Functionally Perfect copper" coil windings, said to improve the sound of the low-output version slightly but that of the "H" high-output version to a significant extent. (Vol. 12 No. 3)

**Signet/Audio-Technica AT-OC9: $700 ★**
"The best ever from Audio-Technica" said TJN of this MC, until recently only available as a "gray" import. Neutral through the midrange, the OC9 is less sweet and three-dimensional than the Class A vdh MC One, but not by much. Highly recommended (and an excellent tracker). A point worth noting is that it has very high output for a low-output 'coil, minimizing phono-stage noise. (Vol. 12 No. 2)

**Krell KC-100: $700 ★**
A wide, deep, and focused soundstage are coupled with liveliness and clarity. If a little bright, the KC-100 "excels in soundstaging and separation of individual details within the soundstage," said TJN. Borderline Class A. (Vol. 12 No. 2)

**Linn Karma: $1225 ★**
Forward balance, with good, but not excellent, imaging. The whole is better than the sum of the parts, the result being consistently musical, particularly on rock and jazz material. (Vol. 10 No. 5)

**Monster Cable Alpha Genesis 500: $500 ★**
Tight deep bass, clean high frequencies, but overall a lightweight tonal balance, felt TJN. This inexpensive cousin to the Class A Genesis 1000, however, provided stunning image depth. (Vol. 12 No. 2)

**Ortofon MC-30 Super: $450 ★**
Much less expensive derivative of the MC-2000 features almost Class A performance in some areas, particularly regarding bass performance and tracking, but less good soundstaging. Slightly less neutral tonal balance than the '2000, being a little bright and forward, will render it incompatible with systems optimized for CD playback. (Vol. 10 Nos. 1 & 5)

**Talisman Virtuoso Boron: $850 ★**
(See D0’s review in this issue.)

**van den Hul MC-10: $775 ★**
The first vdh to provide midrange and bass extension to match the typically excellent vdh high-frequency extension and detail. Tonal balance more like CD than the Kotsus. Superb decoding of recorded detail, but requires careful set-up. (Vol. 9 No. 6, Vol. 10 No. 5)

**C**

**A&R P777Mg: $150 ★**
Polite, sweet sound and a neutral tonal balance, but this English MM from Audio Influx is a little undernourished, dynamically. Will work wonders in an otherwise briskly balanced system. (Vol. 10 No. 4)

**Adcom XC/Microridge II: $360 ★**
Very smooth and neutral, much like master tape, with excellent trackability. Highs perhaps a little sweeter than more expensive vdh version. Excellent value for money. (Vol. 7 No. 8, Vol. 10 No. 5)

**Audio-Technica AT-F5: $325 ★**
Somewhat laid-back, not at all forward or peaky, said the Cheapskate of this gray-import MC, available from Music Hall and Lyle Cartridges. Add the fact that it plays tunes without being too overdone in the bass, and you can see why ST prefers it to the Shure V15 VMR. (Vol. 11 No. 7)

**Denon DL-160: $115 ★**
KK felt the highs to be a little too soft, but deep, deep bass and wide, wide soundstaging gave this budget high-output MC a BIG sound. The Cheapskate was less impressed with the bass, but felt that its smooth, relaxed presentation of detail was most seductive. A winner in systems tending to be too upfront. (Vol. 9 No. 8, Vol. 10 No. 1)

**Linn K9: $275 ★**
Remarkably neutral, clean-sounding MM fitted with a good diamond, features good transient response and bass dynamics, though slight tendency to edginess and upfront balance will favor systems optimized for non-classical rather than classical music reproduction. (Vol. 10 No. 1)

**MAS Econocoll: $199 ★**
Considered an extraordinary buy when AHC reviewed it in 1984, this budget-priced MC now has stronger opposition. Nevertheless, it is fast, very smooth, and has very good trackability, good soundstaging and imaging, coupled with a slightly laid-back quality. (Vol. 7 No. 8)

**Nagaoka MP11 Boron: $150 ★**
Clear, precise midrange and treble are allied with rather veiled bass, but the mixture will work well in inexpen-

Stereophile, April 1989
Power line disturbances, by way of voltage transients or noise can damage today's sensitive electronic equipment. These disturbances have been shown to drastically impair the quality of audio reproduction in all applications, regardless of equipment price.

The SYNERGISTIC POWER LINE CONDITIONER was designed to effectively protect electronic equipment by suppressing voltage transients, RFI, and noise - whether pulsed, continuous, and/or intermittent.

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sive systems where the need for unfatiguing highs outweighs the lack of low-frequency clarity. (Vol.10 No.2)
Less expensive MP11 Gold ($100) almost as good. (Vol.10 No.4)

**Ortofon MC-20 Super: $300**
Wide but shallow soundstage and somewhat exaggerated high end will mean careful attention to system matching. Like the X5-MC, the MC-20 Super will do well in systems having a depressed top octave. (Vol.10 No.5)

**Ortofon X5-MC: $300**
This high-output MC features low frequencies that are extended and tight, and the Gyger stylus retrieves more detail from the groove than the similar X3-MC. Somewhat forward-sounding, however. (Vol.11 No.7)

**Shure V15 Type: V MR: $297**
Very neutral midrange and bass, slightly soft high end, high compliance. Excellent value at often-discounted price. You sacrifice a bit of detail both compared with good MCs and the more expensive ($400) Shure Ultra 500. A "budget reference," according to both HAC and the Cheapskate. Recommended for its unsurpassed tracking ability, excellent reliability, and listenability. Frequently available at significant discount. (Vol.7 Nos.5 & 8, Vol.10 No.5)

**Goldring Epic II (US version): $80**
At last a challenger—albeit a more expensive one—for the budget crown of the cheap Grados. Good trackability and more extended HF response than the Epic sold in the UK (but less good soundstaging), make it suitable for use in relatively expensive LP players until the budget can be stretched for a Class B or C cartridge. (Vol.10 No.1)

**Grado ZTE+1: $25**
The best buy in a really cheap cartridge, this $25 MM has excellent trackability and sounds rather like a good MC. When your friends need to change the cartridge on their old Dual or Garrard, this is the one to recommend. Will hum if used with older AR decks; lack of suspension damping can lead to woofer pumping, even flutter, with high- or even medium-mass arms. Dealers aren’t in love with it; at $25, how much profit can there be? (Vol.11 No.8; actual review was of an earlier version, the GTE+1)

**Nagaoka MP10: $60**
Rivals the cheap Grado as a bargain-hunter’s dream. Lacks attack and detail, but sounds well-integrated across the frequency band. (Vol.10 No.4)

**Ortofon MC-10 Super: $150**
"Uncolored, detailed, and composed," said KK of this conventional-output MC, with a performance evenly balanced across the board. Sins of omission rather than commission lead to a recommendation, despite being a little expensive for Class D. (Vol.10 No.2)

**Shure VST II cartridge: $100**
Sounding best when used with its integral damping brush, this inexpensive MM lacks transparency and detail, but tracks superbly and offers a neutral tonal balance. (Vol.12 No.3)

**Deletions**
HighPhonic MC-R5, due to doubts over availability; Monster Alpha 2 outclassed by Monster Genesis 500; Signet MK-440ML due to recent auditioning; Shure M105E not as good as comparably priced Shure VST III; Clearaudio Veritas changed substantially, meritng a re-audition.

**CD Players & Digital Processors**

**Editor’s Note:** The class ratings are a little different for CD players; whereas the phrase "state of the art" can be interpreted literally for other categories, here it means the best CD sound available as of the time we write this. We urge caution to anyone about to purchase an expensive "state-of-the-art" CD player.

**A**

**Accuphase DP-80L/DC-81L: $13,000**
This beautifully constructed two-box CD player is the most expensive on the market but does offer a sound quality commensurate with that price. A similar tonal balance to the Sony R1 combination, but rivals the Theta at retrieval of information and detail, and the Tempest II at soundstaging. It may be unbelievably expensive, but this Accuphase does excel at the ability to present the musical values within a recording. Output is phase-inverting. (Vol.12 No.3)

**California Audio Labs Tempest II: $2995**
Less good at retrieving detail than the other Class A contenders, and possessed of a slightly soft low end, the tubed Tempest is the champ both at presenting a wide, deep soundstage and at vocal reproduction, where it features a lush, liquid (if rather forward) midrange. (Vol.11 No.10, Vol.12 No.3)

**Sony CDP-R1/DAS-R1: $8000**
As beautifully made as the Accuphase, this expensive player features a unique twin-optical data link between its two chassis. JGH felt the low frequencies to be exaggerated in level, but otherwise had no criticisms of its sound, finding the soundstaging and ability to retrieve detail to be "stunning" and the overall sound "silky." (Vol.11 No.12, Vol.12 No.2)

**Theta DS Pre/D A preamplifier: $4000**
Providing extensive digital-domain functions, including a tape monitor facility, this massive processor features user-replaceable ROM chips containing the coefficients for the digital filter. The analog section includes one additional set of line-level inputs. LL felt the sound to be the best he had ever heard from CD, with a vividly three-dimensional soundstage and a superb transparency. Less expensive DS Pro ($3200) dispenses with the preamplifier functions. (Vol.12 No.3)

**B**

**Audio Concepts/MSB: $949**
TJN was impressed with this modified Magnavox CDB-650, now based on a more recent Magnavox machine and apparently called the "Silver," finding it to have marginally better HF resolution than the CAL Aria and a gutsy, lively bass quality; while not quite up to that player's integration of performance across the band. The cost of the modification alone is $400. (Vol.11 No.3)

**California Audio Labs Aria Revised: $1595**
The first version of this hybrid player failed to impress,

Stereophile. April 1989
Quattro II... Numbers that count.

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

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

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

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

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

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

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but a major circuit revision in Summer '87 results in a player that, according to LL, "doesn't get in the way of the music." More open sound than that of the Sonographe and excellent at decoding the spatial and musical characteristics of a recording, though the midrange is not up to the standard set by the Accuphase and Tempest II. (Vol.11 Nos.1, 3, & 10)

**Euphonic Technology ET650PX Mk.II: $1295**

This Magnavox modification features an easy-on-the-ear quality that renders CD playback more like analog, but does lack a degree of warmth, thought AB. (Vol.11 No.11)

**Kinergitcs KCD-30: $1495**

Less deep bass than the Sony '705 but otherwise better in every way, being transparent overall with a notably clear midrange. Better focused than even the CAL Aria, but a "residual artificiality" in the treble keeps this otherwise state-of-the-art Magnavox modification from Class A. (Vol.11 No.9)

**Marantz CD-94: $1800**

Some disagreement over the sound of this immaculately constructed, beautifully finished, Japanese Philips player, as Sam Tellig feels it to be almost as good as the two-box Tempest II at capturing the atmosphere of a recording, and better, in that it sounds less ripe in the upper bass, than the Accuphase. "Palpable presence," coupled with impressive soundstaging and a tubelike smoothness of response, he concluded. TJN disagrees with the Cheapskate, finding the sound to be too smooth, leading to blandness. JA listened to it and tended more to the Cheapskate's way of thinking, though he doesn't think it quite scales Class A heights. (Vol.11 Nos.9 & 10, Vol.12 No.2)

**Marantz CDA-94 D/A converter: $1300**

This stand-alone digital processor has a sound quality very similar to, if slightly more refined than, the '94 player. One of the five best CD sounds MC had heard as of the Fall of 1988. (Vol.11 Nos.10 & 11)

**Meridian 207 Pro: $1990**

Incorporates full-function preamplifier, including remote-control of volume. More neutral in the midrange than the Aria, with excellent soundstaging, the 207 is slightly less analytical overall. Optional phone board costs $250; IR remote control $150. (Vol.11 No.11)

**The Mod Squad Prism: $1495**

Although review sample was a heavily modified Magnavox '650, current production is based on a more recent Magnavox equivalent. Midband excellent, if not quite as palatable as the CAL models, with a lack of grain compared with the Audio Concepts model based on the same chassis. A little less transparent overall, however, felt TJN. Low frequencies lack ultimate extension. A winner, however, when it comes to dynamics and the presentation of soundstage, thinks JA. Now has "Isodrive" built-in damping system. (Vol.11 Nos.5 & 11, Vol.12 No.3)

**Onkyo Grand Integra DX-G10 CD player: $2500**

A provisional inclusion for this massively constructed Japanese player due to initial uncertainties over alignment of its true 18-bit DACs—the left channel was almost Class A; the right low Class B. The Cheapskate felt the overall sound to be on the bland side, but with excellent dynamics and a firm, tight bass, nevertheless. (Vol.12 No.3)

**Tandberg TCP·3015A: $1995**

Fundamentally a Philips 16-bit, 4x-oversampling machine, this modest-looking player has had rigorous attention paid to the design of its analog circuitry. Much better value at its new lower price, the 3015A offers sound which, while not quite as detailed as the best Japanese players, is sweet: "smooth and relaxed," said JGH. Bass quality is excellent, imaging solid and stable. (Vol.11 No.2)

**Yamaha CDX-110U CD player: $1199**

Balance a little on the lean side, but the Cheapskate thrilled to the spaciousness of the sound offered by this "shifting-bit" player, coupled with "an exquisitely smooth, sweet, and delicate high end." Yamaha could learn from, say, Onkyo when it comes to laying out the front-panel buttons in a logical manner, however. (Vol.12 No.3)

**C**

**Adcom GCD-575 CD player: $600**

High Class C, almost Class B sound from this modestly priced player due to its superb resolution of detail. Dynamics a little restricted, however, and balance may be too lean for some tastes. (Vol.12 No.3)

**Arcam Delta Black Box: $649**

Outboard digital processor using selected Philips 4x-oversampling, 16-bit chip set, with custom LSI to look after the digital signal handling. Tonal quality a little forward in the midrange and upper bass rather soft, but very musical sound nevertheless. (Vol.12 No.2)

**Denon DAP-5500: $1500**

This product is hard to categorize: ostensibly a preamplifier, it lacks any phono section but incorporates serial digital inputs and an excellent DAC section (when correctly aligned). Sound of the high-level sections (which are based on good-quality op-amp ICs) is excellent when used in balanced mode. In conventional, single-ended usage, the $500 introduces a subtle sense of strain. Couple this preamp with an inexpensive CD player having a digital output, however, and you get good CD sound and a control preamplifier. (Vol.11 No.1)

**Precision Audio DVIC-471X**

The sample reviewed was based on the now discontinued Magnavox CDB471 chassis, and current production ($800 including remote) uses the more recent Magnavox CDB582 chassis, which features improved versions of the same chip set. This modification is included in this listing as being representative of what Precision Audio's $450 board achieves for machines that use the 16-bit Philips chip set. An excellent presentation of detail is coupled with a wide, deep soundstage. (Vol.11 No.11, Vol.12 No.2)

**Rotel RCD 820BX2: $749**

Less smooth, a cooler balance than, for example, the Denon '1500 but more musical, was LL's finding, feeling that this UK-designed, 4x-oversampling Japanese player had excellent clarity and focus. Not as deep a soundstage as the Sonographe, and occasionally sounds a little "sparse and brittle," but edges slightly ahead of the American player in terms of detail. (Vol.11 No.8)

**Sonographe SD1 Beta: $795**

'Sing the now-venerable 14-bit Philips chip set and a little dark-sounding and lacking resolution when
compared with the best Class B machines, the Sonographe is nevertheless one of the more musical-sounding players around. Throws a deep soundstage when compared with unmodified 16-bit Magnavox players. (Vol.11 No.11, Vol.12 No.3)

D

Magnavox CDB582 CD player: $229

Rather rough-sounding, with limited resolution of detail, but good value when discounted. (Vol.12 No.3)

Sony D-15: $360

A smooth treble, free from any edginess, and a sweet sound that, according to the Cheapskate, "I might have expected from a tubed player." Yet this 2x-oversampling player is Sony's latest Discman portable. Internal battery runs for two hours; a spare with charger lists for $39.95; add-on $39.95 lead-acid cell runs for six. "Good enough to be the only CD player you need," concludes Mr. Tellig. (Vol.11 No.9)

K

CAL Tempest SE, Pioneer, and Sony 18-bit-DAC players

Deletions

Recent auditioning downgraded Denon DCD-3300 to Class C, where it becomes too expensive for a recommendation; Denon DCD-1500 and Magnavox CDB-4T* discontinued. Kinergetics KCD-20A replaced by 'B version with 16-bit DACs.

Preamplifiers

A

Audio Research SP11 Mk.II: $4995

IGH found that the Mk.I version of this tube/FET hybrid was both musical and quite accurate. Inputs and controls for every possible need—except bass and treble—and sound improves even further if most of the switching and controls are bypassed via provisions on the preamp. Requires significant warmup for the best sound, to the point of leaving it on all the time Auditioning of the Mk.II reveals that it is even better. (Vol.9 Nos.4 & 7)

Krell KRS2: $4500

Less forward than the SP11, offers an exceptional amount of music, even with very-low-output MCs, due to very quiet phono stage. Line stage the most neutral AHC has heard, though JA feels the sound to be more upfront than the MLS No.26. Overall, sets a new standard for transparency. Unused input jacks should be fitted with grounding plugs to minimize crosstalk between adjacent inputs. (Vol.10 No.4, Vol.11 No.3)

Mark Levinson No.26: $4995

Of a similar standard to the Krell KRS2, the No.26 has a more laid-back presentation of the music, coupled with superb definition of detail and soundstage delineation. One of the two finest solid-state preamps JA has heard. Has both balanced and unbalanced outputs, a choice of internal balanced line-level input or high- or low-gain phono input, and front-panel switchable signal polarity. Digibuffs can obtain a basic version without phono stage. Should they change their mind, an outboard phono unit with the same circuitry, the No.25, is available. (Vol.11 No.5)

The Mod Squad Deluxe Line Drive AGT: $1095

Its passive nature places demands on the components upstream of it to be able to drive a fairly demanding load, but if that is the case, the Line Drive Deluxe offers the most transparent, least colored way of achieving Class A sound from CD and other line-level sources. Must be used with short interconnects, however. (The improvement offered by the Deluxe over the conventional Line Drive is not subtle.) Sets a new standard for Class A sound at an unreasonably low cost. (Vol.12 No.1)

Theta DS Pre D/A preamplifier: $4000

Fundamentally allowing its owner to get Class A sound from CD (provided his or her player has digital output), the DS Pre also has an additional analog input, an excellent line stage, and volume and balance controls, to allow it to be used as a stand-alone preamplifier. (Vol.12 No.3)

Vendetta Research SCP-2A phono-preamp: $2250

An MC-to-line-level RIAA equalizer and preamplifier from John Curf that redefines the definition of "quiet." IGH felt that this well-made unit imposed less of a signature on the signal than any other preamp he has heard. An ideal partner for a passive-preamp-based system, though its lowish output means that the power amplifier or speakers used must be quite sensitive. (Vol.11 No.6)

B

David Berning TF-12: $2950

"Incredible liquidity" and "an impressively wide, spacious soundstage," said JGH, but ultimately he found the TF-12's phono stage to be too mellow, feeling that it erred from neutrality in the opposite direction from the Klyne SK-5A by about the same amount. JA feels, however, that this tube preamp's unique combination of musicality and remote control of volume and balance deserve a guarded recommendation, particularly in systems verging on too bright a presentation. (Vol.11 No.7)

Dolan PM-1: $2395

Solid-state Canadian preamp with a warm sound reminiscent of a C-J tube design. Mellow, musical balance, but bass a little soft. (Vol.11 No.4)

Electrocompaniet EC-1: $2095

A clean and detailed sound, especially at low frequencies, with realistic dynamics. Balance a little on the warm side. "Excellent value for money" and "An outstanding recommendation," proclaimed SWW, if not quite reaching the standard set by the more-expensive Klyne. EC-1A ($1795) is identical to the EC-1, apart from lacking the MC-2 MC board. (Vol.10 No.9)

Klyne SK-5A: $3250

Incredibly clean, quick, detailed, smooth, open, and solid, with superb imaging and soundstaging. One of the most neutral preamplifiers, but a lack of sympathy for systems having a forward balance precludes a Class A rating. Particularly suitable for moving-coils (includes a variable-gain head amp and HF rolloff switching). (Vol.10 No.6)

Meitner PA61: $2395

Fully remote-control solid-state preamplifier that scores in low-frequency extension and soundstage presentation. Absolute polarity switchable from the listening seat. Somewhat bright balance—"zest and sparkle," noted AB in his review—but a relative lack of detail and dynamics precludes a Class A rating. Best used with
the Meitner "Translink" line-level isolating transformers. Price includes wired remote; $2495 with IR remote. (Vol.11 No.6)

The Mod Squad Phono Drive: $1295

Beautifully engineered, stand-alone MC/MM phono stage with line-level output. Includes low-output-impedance line stage with volume and balance controls. Excellent delineation of detail; superb sound-staging; only a rather high noise level with moderate-output MCs precludes a Class A recommendation. Also now sold in conjunction with the Mod Squad’s Line Drive Deluxe as the Duet. (Vol.12 No.1)

Motif MC-7: $3500 ★

The Motif is an all-FET preamp designed by Conrad-Johnson, and sounds it. In fact, it has the same virtues as the all-tube Premier Three, but is better at them: the high-frequency sweetness is there, but highs have more extension; the imaging is as three-dimensional, but more specific. Highly recommended; the only thing missing is the warm glow of the tubes. (Vol.9 Nos.1 & 7)

Threshold FET 10: $3350

Two-box solid-state preamplifier—phono ($1350) and line stages ($2200) available separately—with separate power supplies. Not quite as rich-sounding as the SP11, according to JGH, and not quite as much image depth, but accurate, transparent, and capable of intensely musical sound. Borderline Class A sound. Owners should investigate the possibility of adding a John-Curl–designed Vendetta Research power supply, which raises the level of attainment to a true Class A level, feels JGH. (Vol.10 No.6, Vol.11 No.1)

Audio by Van Alstine Super-PAS Three: $595

Owners of vintage Dynaco PAS2, -3, and -3X tube preamplifiers can send them to Frank Van Alstine to be modified for $350 or can rebuild them themselves with an AVA kit of parts for $200; otherwise AVA offers Super-PAS preamps constructed on new Dynaco chassis for $595. Featuring rather a lean tonal balance with less well-defined low frequencies than should otherwise be the case, the Super-PAS has excellent sound-staging and is still the least expensive way for an audiophile who prefers to use MM cartridges to acquire Class C preamp sound. Limited LF headroom on phono input mandates careful matching of cartridge and tonearm. (Vol.11 Nos.10 & 12)

dbx CX1: $1500

Unique, immaculately constructed, full-functioned preamplifier with integral Dolby Pro Logic surround-sound decoder and video signal switching. About as uncolored as JGH has experienced. If not quite achieving the sonic standard necessary for Class B recommendation, it is certainly the best preamp choice for a high-end system that includes video. (Vol.11 No.9)

Denon DAP-5500: $1500

A line-level-only preamplifier with excellent D/A stage. See "CD players." (Vol.11 Nos.1 & 11)

The Mod Squad Line Drive: $595

The ideal Class-C "preamplifier" for a CD-based system, given that its passive nature will mean that cables must be kept relatively short. Latest version has AGT (Advanced Grounding Topology) feature. (Vol.10 No.3)

PS Audio 4.6: $739

Excellent phono stage (switchable between MM and MC), if both a little bright and lacking air when compared with the Class B contenders. Line-section is sweet rather than punchy and dynamic, but can be switched out. TJN suggests that the overall performance is of almost Class B standard when the 4.6 is coupled with the M500 power supply (which raises the price to $1104). (Vol.11 Nos.9 & 12)

Superphon CD Maxx line preamp: $399

Inexpensive, line-level-only active preamplifier with unique styling and extremely neutral sound. (Vol.11 No.9)

D

Adcom GFP-555: $500

Originally rated in Class C, more recent auditioning of this excellent budget preamp suggests that Class D is fairer, the sound being a little too veiled. Unique for an "audiophile" product in that it features tone controls (though these are of the conventional sort). A best buy. (Vol.9 No.7)

NAD 1300: $398

Full-function preamp with versatile tone controls. Superbly quiet, delicate-sounding MC input; excellent dynamics; slightly forward tonal balance better suited to rock or jazz than to classical music; rather lightweight bass; extended highs. (Vol.11 No.12)

Parasound P/FET-900: $395

Neutral line section with good dynamics; MM-only phono stage has slightly astringent treble. (Vol.11 No.12)

QED PCC passive preamplifier: $250

Unusually styled but well-made passive control center, lacking transparency and dynamics when compared with active preamps. (Vol.11 No.12)

K

Audio Research SP15 and SP14, MFA Magus, Forté Model 2, Conrad-Johnson PV-8, PV-9, and PV-10, Counterpoint SA-9/SA-11, Mark Levinson No.25

Deletions

Counterpoint SA-3.1 discontinued; Quad 34 now too expensive for Class D; Dynaco PAS2, -3, and -3X, as AVA rebuilding of user's own PAS preamps improve on the basic sound and AVA also offers new Super-PAS preamps from stock; Jeff Rowland Design Group Coherence 1, as re-auditioning suggests a Class B rating where it is a little too expensive ($3950) for a recommendation.

Moving-Coil Step-up Devices

A

Vendetta Research SCP-2A phono-preamp: $2250

Ultra-quiet dual-mono preamplifier includes RIAA equalizer to give line-level output. See "Preamplifiers." (Vol.11 No.6)

B

Audio Research MCP-33: $1395 ★

Much the same open, three-dimensional sound as the SP10 preamp (with which it's not intended for use), the MCP-33 will benefit many preamps. Front-panel switchable cartridge loading (a big plus). Not for use with real low-output cartridges such as the Ortofon MC-2000. Available by special order only. (Vol.8 No.5)
Kiseki: "Hear the sound of one hand clapping."

Introducing new Kiseki. Handcrafted cartridges lovingly produced by a small number of masters in the old tradition. No expense has been spared in the design and execution of these joyful expressions of the art of cartridge making.

Imagine cartridge bodies hewn from solid blocks of polished stone, rare hardwoods and exotic alloys. Sapphires, diamonds and rubies form jewelled cantilevers artfully shaped by lasers. Styli are first precision-ground, then, in a unique process using human hair, buffed to perfection.

The magic of Kiseki lies in the ability to resolve the zen riddle that is music: Delicate. majestic... intimate. powerful... refined. explosive!... controlled, emotional... natural. Kiseki replaces recorded confusion with clarity and in so doing, recreates real music.

- **Blue Gold.** Magnesium alloy body, aluminum with boron overlay cantilever. Kiseki Jewel stylus. A taste of handbuilt greatness. Light, delicate, and smooth with a large soundstage $600.
- **Aqat Ruby.** Solid agate body. 4.5 mm ruby cantilever. Kiseki Jewel stylus. $1250. Strikingly beautiful, both visually and sonically. Sweet, lyrical, and refined. Never shrill or abrasive.
- **Black Heart.** Black Heartwood body, boron cantilever, hand selected Kiseki Jewel. Hand tuned after run in. Relaxed, composed, and supremely musical. $4,000.
- **Lapis Lazuli.** Carved Lapis Lazuli body, solid diamond cantilever. Hand-tuned after run in. Allow several months for special order. Price Upon request.

Kiseki is pronounced kiss-say'-key

P.O. BOX 5046
BERKELEY, CA 94705
415-843-4500
Audio Research MCP-2: $1395
A transistor step-up that provides almost the open sound quality of the Klyne SK-2A (see below), for the same price as the tube MCP-333 ($1395), with greater ease of use and slightly less flexibility. Rolls-Royce construction. Available by special order only. (Vol.8 No.5)

Conrad-Johnson Premier Six: $985
Possessing colorations and transparency similar to those of the Premier Three, the Six can be ideal for use with transistor preamps, but requires careful matching. Quite expensive. (Vol.8 No.5)

Counterpoint SA-2: $1095
Superb preservation of detail, low distortion, lovely midrange. The noise is noticeably higher than that of the Klyne (see below), but the problem with fat bass on early units has been corrected. Comes with an interesting tube-bias adjustment for tailoring the sound to your tastes; the SA-2 can be made to sound rich and euphonic or somewhat lean—as long as you don’t go crazy wondering what’s right. (Vol.6 Nos.2 & 3)

Electrocompaniet MC-2: $450
Deleted from “Recommended Components” in 1986 due to lack of availability in the USA, this solid-state head amp is now distributed by Music & Sound Imports. In the original review, AHC felt it to be better than the Klyne in terms of openness and dynamics, though less universally applicable. Must be used with cartridges having less than 50 ohms source impedance, so essential to audition with your chosen cartridge before purchase. (Vol.8 No.5)

Klyne SK-2a: $750
A close rival to the Counterpoint SA-2, the basic difference here being solid-state vs tubes. Superb bass, very deep and tight, excellent high-frequency extension, excellent imaging. It still lacks the three-dimensionality of tubes, but only slightly. Adjustable high-frequency rolloff and cartridge loading are boons for those with several MC cartridges. A bargain at $750. (Vol.7 No.3, Vol.8 No.5)

The Mod Squad Phono Drive: $1295
Matches both MM and MC cartridges with versatile loading options. Line-level output. See “Preamplifiers.” (Vol.12 No.1)

Music Reference RM-4C: $750
Not as good as the best tube step-ups, but similar in character and less expensive. The RM-4 is flexible and a good deal. (Vol.8 No.5)

Power Amplifiers

Editor’s Note: Class A amplifiers differ sufficiently in character that each will shine in an appropriate system.

Mark Levinson No.20.5: $11,500/pair
Class-A 100W monoblock with fully regulated power supply for output stages. Successor to the legendary ML-2, the slightly different No.20 was the finest power amplifier JA has used, particularly regarding soundstaging and the authority of low frequencies. The No.20 had a somewhat soft treble balance compared with the No.23 and ARC M-300, but got the best from loudspeakers with which it was used. Preliminary auditioning of the No.20.5 indicates that the performance of its predecessor has been improved upon, particularly with respect to the soft treble balance, though the amplifier’s basic “forgiving” nature remains. (Vol.11 No.5, No.20)

Mark Levinson No.23: $4975
Notably less laid-back than the No.20 (or Krells), careful system matching is more necessary with this 200Wpc powerhouse of an amplifier. The result, however, is a sound that is harmonically correct, focused, and possessing great dynamic contrast, though with a bass that, though extended, is not quite as tight as the Krells (or No.20.5), according to Lewis Lipnick (and JA). ‘Amazingly lifelike soundstage dimensionality’ (?) concluded LL. (Vol.11 No.9)

Vacuum Tube Logic 300W de Luxe Monoblock: $4900/pair
“HF magic,” said JGH in his review, commenting on this high-powered tube amp’s ease in the treble, an attribute that is not obtained by dulling the HF content of the music. This is coupled with well-defined low frequencies and a neutral midrange that mates well both with JGH’s Sound Lab electrostatics and with Infinity IRS Betas. (Vol.11 No.10)

Boulder 500: $3295
Mistakenly dropped from the last “Recommended Components” due to a misunderstanding over its availability, this powerful solid-state amplifier, based on Deane Jensen’s 990 discrete op-amp module, extends the traditional strengths of solid-state amplifiers throughout the frequency spectrum. Transparent sound and tonally very neutral, though with possibly a trace of hardness in the mids, possibly redressed by recent, unauditioned circuit refinements. (Vol.9 No.5)

Classé DR-3B: $3195
Now in a “B” revision, low 25Wpc and class-A operation remind one of the classic Mark Levinson ML-2. Mellower and richer than the Krells, and lacking their dynamics, the Classé DR-3 produces a sweet, detailed sound, with surprising output capability for the modest power rating. Particularly well suited to Apogee Scintillas. (Vol.8 No.8)

Classé DR-9: $3495
First class-AB design from this Canadian manufacturer, the DR-9 gives up little to the DR-3 and scores highly in its ability to deliver high power into low-impedance loads. “Its strong suits are definition, detail, depth, and dynamics,” said AB, to which must be added transparency and an extended spectral response. Less robust in the lows and leaner than the Krell KSA-200, the DR-9 excels at the reproduction of a convincingly real soundstage. Now features balanced and regular operation. (Vol.11 No.10)

Electrocompaniet AW100: $2195
Offering the antithesis of “transistor” sound, the solid-state AW100 pleased both tube-lover DO and the anarchistic ST with its lack of midrange grain, its excellent bass control and dynamics, and its sweet high frequencies, though some may find its sound slightly “dark.” A best buy. (Vol.12 No.3)

Jeff Rowland Design Group Model 5: $4600
Stereo amplifier with warmish balance that LL feels to be “capable of credibly recreating the power and
weight of a full symphony orchestra." Sample reviewed had user-variable input impedance; latest version has fully balanced inputs. Twice-the-price Differential Mode Model 7 ($9800), reviewed in Vol.11 No.7, offers the same "you-are-there" verisimilitude, coupled with superb delineation of low-level detail and 350W-into-8-ohms power. Some doubt about ultimate transparency keeps these excellent components from Class A. (Vol.10 No.8)

Meitner MTR-101: $3400/pair
Beautifully styled all-FET monoblock with "Floating Charge Current" power supply. Excellent dynamic contrasts, well-controlled, tight low frequencies, if, ultimately, not quite the overall authority of a Class A design. Would appear to give of its best in an all-Meitner system. It is reported that current production is better than the vintage reviewed. (Vol.11 No.6)

Motif MS100: $3250
Solid-state power amplifier from C-J with neutral, if slightly laid-back, midband and, according to TJJN, "gorgeous" highs. Works best with high-quality moving-coil loudspeakers. (Vol.10 No.9)

Nestorovic NA-1: $5500/pair
Formerly called the Alpha-1, this tube monoblock, when driven in balanced mode (by, for example, the Klune SK-5A, Levinson No.26, or Rowland Coherence One or two), comes close to combining the best of solid-state performance with the best of tubes, being euphonic-sounding but with a tight, well-controlled bass. Latest version has uprated power and lower noise. (Vol.9 No.8)

PS Audio 200cx: $1950
"A best buy," thought TJJN. Exceptional LF performance, treble clarity, and stereo focus are coupled with a cool character compared, say, with the Aragon 4004. (Vol.11 No.12)

Quicksilver: $1495/pair

The Audio Anarchist found the mono Quicksilvers to be ideal with the Quad ESL-63s. Others have found them to work beautifully in a lot of low-power situations. Wonderfully tube-like, superb, standards-setting midrange; can drive low impedances due to an excellent output transformer. A bargain, even at $1495/pair. New version using KT88s not yet formally reviewed, but early reports are that the new tube eliminates a residue of grain in the upper mids, giving more of a "see-through" quality. Extraordinary long-term reliability for a tube design, points out Mr. Tellig. (Vol.7 No.3, Vol.8 Nos.2 & 4)

Vacuum Tube Logic Dual 75: $1950
Low-power stereo tube design with somewhat forward balance offers Class A performance in several areas, notably soundstage definition and high-frequency quality. Low end excellent for a tube design. An anemic lower midrange according to JGH, however, precludes a Class A ranking. (Vol.11 No.1)

Vacuum Tube Logic 100W Compact Monoblock: $2650/pair
A rather forward midrange is allied with excellent bass control for a tube design and clean highs. Dynamics a little more limited than the 100W rating would imply. Conservative operating conditions for its four EL34s should endow this VTL monoblock with long tube life. (Vol.11 No.11)

C

Aragon 4004: $1595
Attractively styled class-AB solid-state amp, designed by Krell’s Dan D'Agostino, and capable of high current delivery into awkward, speaker loads. Fuller sound than the Adcom ‘555, being less dry in the top octaves, and even better soundstaging than the Onkyo M-508. A little expensive for Class C, but very high power rating—200Wpc. (Vol.10 No.9)

B&K ST-140: $498

The 100Wpc ‘140 costs little enough to make it into Class D, but the sonics, after extensive auditioning, convince the Cheapskate that it belongs in high Class C. It features a very easy and enjoyable high end, deep but not extraordinarily powerful low bass, a tube-like tonality with a smooth, sweet midrange—"Not too much MOSFET mist"—and good performance elsewhere. We can’t figure out how B&K does so well for so little. More powerful ST-202 ($648, reviewed in Vol.10 No.8) is very similar. (Vol.7 No.4, Vol.10 No.7, Vol.11 No.10, mono version)

Bedini 150/150 Mk.II: $1000
An early sample of this solid-state amp failed to impress, but the Mk.II revision proved to be an exceptional performer with dynamic loudspeakers, matching the low-frequency performance of the no-longer-recommended Eagle 2A with a considerably greater degree of transparency and neutrality. Tonality is somewhat "dark-sounding," according to DO. (Vol.11 No.2)

Conrad-Johnson MV-50: $1685
Expensive for Class C—unavoidable with a tube amplifier. Classic tube sound, with an under-controlled bass, but also a quite superb midrange and lower treble, which happen to be the most critical regions for music reproduction. Very liquid. The antithesis of grainy sound. (Vol.9 No.2, Vol.10 No.8)

Counterpoint SA-12: $1095
Hybrid (tube driver stage, MOSFET output) design which the Cheapskate felt to be "the best all-round amp" he’d heard in its price class. Tube-like character, with a more forward balance than the MV-50 but a "smooth, delicate midrange." (Vol.10 No.8)

dbx BX1: $2800
At its initial price of $3700, JGH thought this powerhouse of an amplifier—400Wpc into 8 ohms (two-channel mode), 100W into 8 ohms (four-channel mode)—rather expensive for the sound quality offered. At its new price, however, it is definitely a contender. Low frequencies are well-defined, if a little lean, while midrange detail is subtly rounded-off, but overall "One hell of a nice power amplifier," summed up JGH. Placement in Class C justified through unusual availability of four channels. (Vol.11 No.9)

Discrete Technology LS2A: $1250
More musically natural than the earlier version of PS Audio 200, and a warmer balance than the Adcom GPA, the solid-state Distech is less powerful than either. A touch of highest-end sound with a taste of tube quality for $1250. Latest "X" version has upgraded components and can be identified by new faceplate. (Vol.10 No.2)

Hafler XL-280: $650
Though JGH doesn’t agree with the claimed neutrality of this solid-state model, finding it a little dry and not quite as sweet as he would like, he still felt that it had Stereophile, April 1989
"as nice a high end as any solid-state power amplifier in its power class." Excellent performance for a modest price ($575 in kit form). (Vol.10 No.1, Vol.11 No.7)

**NAD 2600A: $798**
Lively, upfront sound, possessing excellent impact and solidity, with "beefy," low frequencies. High frequencies a little dry, but good value for money considering the high 150Wpc power and excellent dynamic headroom available. (Vol.10 No.2, Vol.11 No.8)

**Onkyo M-508: $1200**
Unusually good soundstaging, with sweet top end reminiscent of tube designs. Bass perhaps lacking the last amount of visceral wailup, but excellent value for money. (Vol.10 No.4)

**D (Separates)**

**Adcom GFA-535: $300**
"Extraordinarily clean, detailed, and musical . . . Far more detailed than I would ever imagine a $300 amplifier could be," said theCheapskate of the $355's sound when this budget amplifier drove his ESL-63s. While not a powerhouse, it works well with speakers which usually demand a more expensive amplifier. Only negative point is the nonstandard output connectors. (Vol.10 No.8)

**Carver M1.0t: $630**
The result of Bob Carver's notorious challenge to Stereophile that he could make an amplifier sound the same as a selected tube amplifier, the M1.0t's sound is definitely tubey, although in our opinion, the production version doesn't sound like the target amplifier (now revealed to be the Conrad-Johnson Premier 5). Dynamic range is excellent, soundstaging is somewhat two-dimensional, low frequencies are extended but a little ill-defined in the upper bass, and the treble is "tinkly." A lot of watts for the money. (See also The Audio Critic #10 for a rather different conclusion drawn from Stereophile's auditioning, one that adheres rather too closely to Bob Carver's needs.) (Vol.10 No.5)

**Parasound HCA-800 II: $365**
Mk.II version of this budget amplifier, said to address sonic problems found in the original review, has upgraded parts, including polypropylene capacitors. More than respectable performance in view of this amplifier's cost, felt TJN, offering a viable alternative to the similarly priced Adcom GFA-535, though TJN felt it to sound a little closed-in when compared with Class C models. Built-in level controls mean that it can be used direct with a CD player. (Vol.11 No.2, Vol.12 No.2)

**D (Integrated Amplifiers)**

**Audiotab 8000A: $695**
Probably the finest-sounding British integrated amplifier, as well as one of the most versatile. Perhaps a little expensive in the US. A review of the latest version is due shortly. (Vol.9 No.1)

**K**
Audio Research Classic 150, Krell KSA-80 & KSA-200, Spectral DMA-50, Threshold SA-1. (The jury is still out on the latter, a Class A contender, despite JGH's positive "Follow-Up" reviews in Vol.11 Nos.7 & 11, due to continuing doubts concerning the latest version's tonal balance. A report on the re-auditioning will appear soon.)

**Deletions**
Audio Research M300 due to tube problems with a Santa Fe sample, and suspected sonic incompatibility with superb speakers such as IRS Beta. (Review amplifiers not returned by manufacturer after return for correction of tube problem.) Wingate 2000A due to manufacturer going factory direct; Adcom GFA-555 and BEL 1001 due to lack of auditioning of recent samples; Luxman Brid LV105 and Quad 306 now too expensive for Class D. Rotel RA-820BX2 replaced by 'BX3, yet to be auditioned.

**Speaker Systems**

**A**

**Apogee Diva: $8250/pair**
That classic, idiosyncratic Apogee balance — full bass and depressed treble— doesn't detract from AB's feeling that this three-way, full-range ribbon has the finest ability to communicate the essence of a musical event that he's ever heard. Seamless transitions between the drivers, vivid, stable imaging that envelops the listener, and an ease in handling wide-range, dynamic peaks lead to a Class A recommendation. West Coast price: $8400/pair. (Vol.11 No.8)

**Infinity IRS Beta: $12,000/pair**
Full-range, five-way, electrodynamic area-drive system with separate stereo, moving-coil subwoofer towers and servo/crossover electronics. Capable of being fine-tuned almost ad infinitum. At its best with tube (ARC and VTL) electronics, the Beta is the best speaker. JGH has auditioned in terms of transparency, harmonic accuracy, and the ability to convey the dynamic scale of a recording. (In this last respect, the Beta is the best speaker system JA has auditioned.) Extreme versatility offered by low-bass controls helps in getting flat, extended (to below 20Hz), in-room LF response. Imaging precision on the primary review samples was less good than expected, due to a slightly out-of-spec crossover and drive-units on one side. Infinity promises that good QC will be a major concern of theirs from now on; to judge by the most recent samples to be auditioned in Santa Fe, this does appear to be the case, though a thorough reaud of the "Followup" in Vol.12 No.1 is a prerequisite for in-store audition prior to purchase. (Vol.11 No.9, Vol.12 No.1)

**Sound Lab A-3: $6350/pair**
JGH's preferred reference loudspeaker, this big curved-panel, full-range electrostatic produces exceptional imaging and a stunningly natural midrange. Warm-balanced, the treble is sweet and musical. Sensitivity and dynamic range are on the low side. Latest version has a revised HT power supply, resulting in slightly higher sensitivity and an improved dynamic range. The previous Class B ranking for this speaker was due to JA feeling that it persistently lacked mid-treble transparency, being rather aggressive and grainy in this region. Recent auditioning with the VTL 300 amplifiers revealed that this had much more to do with the solid-state amplifiers with which JA had heard it in JGH's system, leading to a consensus that the A-3 does deserve a Class A recommendation after all. (Vol.9 No.6, Vol.11 Nos.6 & 11)

**B**

**Editor's Note:** We make no apologies for the wide
TURNING SHOTGUNS...
INTO WATER PISTOLS.

SOME STRAIGHT SHOOTING...

THE SPACE & TIME “PANDORA” INTERCONNECT.
For serious minded audiophiles who are not
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speaker cable, which is now upgradable with the
new “TFA Return.”
variety of loudspeakers listed in this group. Polling Stereophile's reviewers resulted in a total lack of consensus, implying that all the following speakers will, in the right room with the right ancillaries, give true high-end sound. Following the protests of many readers and, more importantly, pressure from JGH that small speakers should automatically be excluded from Class B because of their lack of LF extension, I have split the Class into two sections—full-range and minimonitors. To be included in Class B, a small speaker has to be at least as good in every other area as the full-range competition. (Note that all the full-range recommendations are floor-standing models.)

B—Full-range

Apogee Scintilla: $4395/pair ☆

Very fussy in set-up and revealing of the quality of the electronics used to drive it, the Scintilla can provide very revealing and coherent sound when everything is just right. Low bass is generous but integrated and cohesive; midrange has extraordinarily natural timber, and detailed soundstaging. You'd better have an amp capable of lots of current as the load impedance dips below 1 ohm. (The previous 4-ohm option has been discontinued.) West Coast Price: $4545/pair. (Vol.8 No.3)

B&W 801 Matrix Series 2: $5000/pair

A complete redesign of the classical recording industry's standard monitor loudspeaker—aluminum-dome tweeter, extension to 191 Hz with the help of a line-level equalizer, and B&W's patented "Matrix" enclosure, where the cabinet is effectively transformed into a solid body—has resulted in a moving-coil speaker capable of competing with the best planars. As LL put it, "a true musician's reference transducer." Strengths include excellent low-frequency definition, a highly detailed midrange, and unrestrained dynamics. Bass alignment filter now included in purchase price. (Vol.10 No.9)

Magneplanar Tympani IVa: $3750/pair

Offering excellent performance for their price, the IVa's have exceptional high-frequency performance and a delicate midrange with excellent harmonic accuracy. Though not as fussy as the Scintillas, room considerations and placement are more important than with most speakers for proper imaging. Bass is good, but requires an amp with high current capability. Most serious weakness is a lack of impact, particularly in the lower midrange. (Vol.8 No.6)

Magneplanar MGIIIa: $2195/pair

Hard to set up, requiring more than the usual love and care, but uncolored sound. Fundamentally easy to drive, but does need plenty of volts. Works beautifully with ARC amplifiers. Tonally very neutral (apart from a tendency to brightness in smaller rooms, which can be alleviated by inserting a 1- or 2-ohm resistor in ribbon tweeter feed), and a degree of "Maggie slam" in the upper bass. Coherent, transparent, musically satisfying, excellent value for money. JA and MC recommend this speaker highly; JGH could not, based on its failing his "goosebump" test, albeit when compared with more expensive speakers. (Vol.7 No.4, Vol.9 No.4, Vol.10 No.1)

Martin-Logan Sequel: $2250

The version favorably reviewed by LL was somewhat different from the current version in that it had a reflex-loaded woofer rather than a sealed-box, but the recommendation stands in that this change should improve the speaker's performance in an area where it was weak, that of upper bass definition. "Harmonic integrity and accuracy" are the aspects where this speaker excels, according to LL, though its dynamics are ultimately limited when compared with, for example, the B&W 801. (Vol.1 No.12)

Mordaunt-Short System 442: $2500/pair

Unusual dynamic loudspeaker from the UK features an integral stand, "Floating" enclosure, and a second, reaction-canceling woofer to achieve low levels of midrange coloration. Tonal balance is a little forward, and HF from the titanium-dome tweeter is a little wispy (though free from grit or sizzle). Best used bi- or even tri-wired. (Vol.11 No.3)

Ohm Walsh 5 Revised: $5000/pair

Unusual in being the only omnidirectional loudspeaker to be recommended, the Ohm Walsh 5, with its unique inverted-cone, almost—full-range drive, has clarity and transparency to rival the best minimonitors, according to DO. Bass, with near-wall placement, is deep and full, coloration levels are low, and the soundstaging, though very sensitive to room positioning, is excellent. (Vol.10 No.4, Vol.11 No.8)

Quad ESL-63 US Monitor: $3990/pair ☆

Very musical sound, with natural, precise imaging, excellent soundstaging, tight but not-very-deep bass, very good resolution, very low midrange coloration, and limited maximum—volume capability. (In Santa Fe, with its '700' altitude, this was a strict 97dB on peaks.) Later models are less dynamic than early productions. Can really come alive with the right amplifier, and benefits from modifications, most especially suitable stands (we have found Arctics to work well). Afficionados should investigate the Celestion dual-mono subwoofers, which, being dipoles, stand the best chance of integrating in-room with the dipole Quads. The current version, the "US Monitor," has a stiffer steel frame, a revised protective grille, and a reduced plate gap for higher sensitivity. (Vol.6 Nos.4 & 5, Vol.7 Nos.2 & 7, Vol.8 No.3, Vol.10 No.1, Vol.12 No.2)

Synthesis Reference System: $7350/system

Close to achieving a Class A recommendation, this four-enclosure dynamic system was felt by JGH to have a slight lack of energy in the midrange which robbed orchestral crescendos of their full power. Nevertheless, extraordinarily precise yet spacious imaging and the deepest, smoothest bass he has heard in his listening room led JGH to label the SRS "superb," almost rivalling his beloved Sound Lab A-3s in overall performance. (Vol.11 No.8)

Thiel CS3.5: $2450/pair

One of the finest US-designed box speakers, the 3.5 is the result of a long collaboration between designer Jim Thiel and the drive-unit manufacturers. Combines superb transparency and imaging with excellent low-bass extension—an active equalizer is used—though it relies on music having a normal spectral balance if the woofer is not to run out of excursion capability. (Organ recordings with sustained high-level pedal passages are to be avoided, for example.) A balance opposite to that of the Apogee Ducra, with a slight tendency to a tilted-up HF, makes careful system matching crucial. Its Dynaudio tweeter is perhaps overclassed when
CUSTOMER SATISFACTION —

1988 Stereophile magazine reader survey —

- 91% of Magneplanar ® owners said they would buy Magneplanars if they had it to do over again.
- 8% said "maybe" and less than 1% said "no."
- More Stereophile readers owned Magneplanars than any other speaker brand.

DEALER SATISFACTION —

1989 Inside Track survey conducted with dealers, Magnepan was rated:

- #1 in Distribution Policies
- #2 in Prompt Resolution of Problems
- #2 in Quality of Sales Reps

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it comes to clarity by the SEAS unit that Thiel uses in the new CSL.2, but the real Achilles Heel of the design appears to be the equalizer, which compromises HF neutrality somewhat and is often outclassed by the electronics with which the 5.5 is used. (Vol.10 No.1, Vol.12 No.1)

B—Minimonitors

**Acoustic Energy AE1: $1500/pair (stands necessary)**
Tiny reflex box with metal-dome tweeter and unique metal-cone woofer. Redefines the art of miniature speaker design, according to JA, due to its high dynamic range capability, electrostatic-quality treble, and see-through midrange. (Vol.11 No.9)

**Celestion SL600Si: $1999/pair (stands necessary)**
Though lacking the bottom octave-and-a-half of bass extension, and possessing slightly depressed mid- and extreme treble ranges that make system optimization difficult, the SL600Si combines lower-midrange transparency and holographic imaging (areas where it sees off most of the moving-coil competition) with a musical balance unique for a box speaker. Worth using with high-end (solid-state or Audio Research/VTL) electronics. Latest Si version has revised crossover layout to allow biwiring and is more transparent in the treble. (Vol.10 No.2, original version)

**Celestion SL700: $2999/pair (stands included)**
Very expensive for a small speaker, price includes excellent stands. Improves over the SL600 in the areas where that speaker excels and sets new standards for a box loudspeaker, both regarding transparency combined with neutrality and upper-bass clarity. In contrast with the SL600, overall balance is rather on the bright side—a little like a moving-coil CLS—which makes demands on careful system matching. Though deficient in low bass in absolute terms, rate of roll-off in room is slow enough that it almost qualifies for inclusion in the “full-range” Class B category. Almost. (Vol.11 No.9)

**Wilson WATT: $5700/pair (stands necessary)**
When poohed, Stereophile's reviewers—with the exception of Ken Kessler—felt that they could not recommend the original WATT, feeling that its lean tonal balance, lack of bass, and somewhat cruel impedance—it drops well below 1 ohm at 2kHz—compromised its performance overall. However, the fact remains that while Martin Colloms agreed with these criticisms in his review, he also found it to be one of the most transparent loudspeakers available, with a superb ability to delineate the layers within a stereo image. "A view of Heaven but a glimpse of Hell." When JGH and JA auditioned the WATTs with the prototype WHOV subwoofer, however, the speaker's problems seemed less urgent, and, on piano and violin at least, the sound was absolutely lifelike in David Wilson's listening room, implying true Class A performance. Whether this combination can be recommended in that category, however, will have to wait upon auditioning in Santa Fe. The latest, Series II, version of the WATT is said to have a more charitable impedance characteristic and to be more neutral in balance, but has yet to be auditioned. The original WATT was conditionally recommended on the grounds that whether to reject or accept its tonal character was a personal decision dependent to a much greater degree than usual on ancillary equipment. The matching Gibraltar stands must be regarded as mandatory. (Vol.11 Nos.2 & 6)

C

**British Fidelity MC2: $595/pair (stands necessary)**
Small, almost budget-priced speaker couples a version of the excellent Monitor-Audio—designed tweeter found in the Acoustic Energy AE1 and Monitor Audio R952/MD with a good, if not outstanding, woofer. Biwiring is an option. Tonally correct, detailed high frequencies are coupled with good rendition of soundstage depth and a warm, rather close balance, resulting in an opposite-balanced design that nevertheless rivals the Spica TC-50 in the ability to separate the music from artifacts of the recording. Distribution in the US was uncertain at the time of going to press. (Vol.11 No.7)

**Epos ES-14: $1195/pair (stands necessary)**
A speaker that has long been a Cheapskate favorite, the ES-14 seems to be typical of British small-speaker designs in that it features a metal-dome tweeter in a well-braced cabinet with a minimal crossover and the option for bi-wiring. The result is a superbly coherent sound that, according to TJN, kept drawing him into the music. Ported bass is both a little lightweight and somewhat soft, but the upper bass and midrange are very low in coloration, with excellent transparency. Matching stands are available for $200. (Vol.11 No.6)

**Image Concept 200: $1000/pair**
"The deepest bass per dollar," thought JA of this elegant, floor-standing, two-way design from Canada. An otherwise excellent soft-dome tweeter is a little sizzly in the upper treble, with a slight tendency for the sound to harden at very high levels. Sensitivity on the low side, which, coupled with the low impedance, will mean more careful amplifier matching than usual. Excellent image definition, however, and overall, an impressively neutral balance. Good things are coming out of Canada these days, perhaps due to the excellent facilities offered to designers by the Canadian National Research Council. (Vol.11 No.8)

**Kindel Purist LT: $895/pair**
Top octave a little soft and an apparent lack of weight in the lower midrange of this floor-standing loudspeaker are offset by low levels of coloration and respectable LF extension. Excellent performance at the price. (Vol.11 No.2)

**Magnepan MG2.5/R: $1695/pair**
A two-way featuring borderline Class B performance in the right rooms with the right ancillaries, though its dipole radiation pattern, tendency to midrange "bloat," and less-than-seamless blend between the Magneplanar panel and the ribbon tweeter make system matching more problematic than with the similar three-way MG11a. A taste of true high-end sound, however, at an affordable price. (Vol.11 No.6)

**Monitor Audio R952/MD: $1549/pair**
High Class C performance with the right ancillaries from a floor-standing English loudspeaker equipped with twin woofers and a fine aluminum-dome tweeter. (Early samples of the latter seemed to be fragile.) Coloration levels are mild, apart from a somewhat lively box, though the balance is a little forward in the presence region, which is particularly unkind to CD. This is offset by highish sensitivity and an astonishing trans-
The TDL Reference Standard Transmission Line Speakers head a regeneration of loudspeakers developed by John Wright; innovator of the transmission-line speaker.

The quality of the bass is open, extended and uncoloured in a way known to be unique to the transmission-line; but with their much greater power handling can reproduce the full dynamic range of recent digital recordings with a sense of ease, rare in other speakers.

This represents a radical improvement in the state-of-art; the entire concept being one of performance at a price, rather than to a price....
parency in the midrange and treble, presumably due to the minimalist crossover. Sealed-box bass is lightweight, but articulate with reasonably good extension. (Vol.11 Nos.1 & 2, No.5)

**PSB Stratus: $1500/pair**
A fruit of the excellent facilities provided to the Canadian loudspeaker industry by the NRC facility in Ottawa, the first sample we received of the Stratus was found by JGH to have a veiled sound, lacking impact, despite being “eminently listenable.” The second sample, however, which conformed to the manufacturer’s spec, was impressively neutral, with excellent dynamic performance. (Vol.11 No.5)

**Rauna Baldor: $1500/pair**

Unusually styled two-way floor-standing design with cast concrete enclosure (which can be painted to match room decor) and a rear-mounted port. Though said to be a transmission line, bass loading is more akin to reflex and a little loose. High treble is dull, but apart from those minor defects, this speaker has a superbly neutral midband and clean mid-treble. (Vol.11 No.6)

**Rogers LS3/5a: $650/pair (stands necessary)**
A major revision of the crossover in 1988 was meant not so much to “improve” this venerable design but to bring production back on target. Still somewhat compromised concerning overall dynamics and HF smoothness and clarity when compared with Class B miniatures such as the Acoustic Energy AEL, Celestion SL600Sl and SL700, and having a distinctly tubby mid bass, the 1989 version of the LS3/5a still has one of the least colored midbands around, throws a deep, beautifully defined soundstage, and has a slightly sweeter top end, with less nasality apparent than it used to have. The LS3/5a is also being manufactured by Spendor, Harbeth, and Goodmans, and differences between any current LS3/5a’s should be cosmetic only. (Vol.3 Nos.12, Vol.4 No.1, Vol.6 No.4, Vol.12 Nos.2 & 3)

**Snell Type Q: $780/pair (stands necessary)**
Small speaker which successfully takes on the British on their own ground. An open, airy quality, excellent delineation of soundstage depth and width, low levels of midrange coloration, though treble is perhaps a little unforgiving compared with, for example, the Epos ES-14. Matching stands cost $120/pair. (Vol.11 No.6)

**Spica Angelus: $1050/pair**

Only the second full-range model to come from this Santa Fe manufacturer in five years, this idiosyncratically styled, floor-standing speaker has much in common with the TC-50, including a superbly defined, if lightweight, bass register and the ability to throw an astonishingly accurate soundfield. Treble transparency is a little lacking when compared with most Class B speakers, but still one of the best $1000 loudspeakers JA has heard. (Vol.11 No.2)

**Spica TC-50: $550/pair (stands necessary) ★**
The coherence and imaging of the mid- to upper midrange rival the Quads and would be considered excellent in a speaker of any price; at $550 they’re a steal. The high frequencies roll off above 1kHz and the low end is designed to be very controlled down to the lower limit of about 55Hz. This makes it perfect for matching to a subwoofer—Spica subwoofers are best used in pairs, though dynamics are still limited—but it sounds a little lean as a stand-alone. Easily damaged by amplifier overload. Latest version features a cross-brace between front and rear panels. (Vol.7 Nos.2 & 3, Vol.9 Nos.5 & 7, Vol.11 No.1)

**SR Bolero: $1549/pair (stands necessary)**
(See JA’s review in this issue.)

**Synthesis LM-210: $1195/pair**
Excellent dynamics and very transparent sound from this floor-standing model, coupled with a good standard of neutrality. (Vol.10 No.8)

**Thiel CS1.2: $1090/pair**
Borderline Class B, lacking only ultimate dynamic range. This modest-sized floor-standing speaker offers an outstandingly detailed sound, with superbly precise soundstaging, a neutral midband, and a less critical treble balance than the older CS2. Low frequencies are full, but only become too ripe when used with, say, a tube amplifier. ST reports that the Electrocompaniet AW100 sounds terrific with the 1.2s. A best buy at the price. (Vol.12 No.1)

**Thiel CS2: $1650/pair ★**
The CS2 is more amplifier- and front-end-fussy than the other two. Thiel speakers—anything too extended or peaky preceding the speakers will make the sound too relentless. It will be harder to get the CS2 to perform at its best than, say, the CS1.2, but in the right system the 2 will offer remarkable coherence, excellent imaging, a natural midrange, and extended highs. (Vol.8 No.6, Vol.12 No.1)

**Vandersteen 2Ci: $1125/pair (stands necessary)**
After nine years of continual refinement, an excellent full-range box speaker, according to AHC. Balance a little rolled off in the highs but “a joy” in the midrange and bass. Borderline Class B. A review is under way of the latest Ci version. (Vol.9 No.6)

**YMP5 Tower II/R: $1575/pair**
Smallest of Brian Cherry’s multi-way, floor-standing designs, the Tower II is available in a number of versions starting at $678/pair (kit). The version reviewed had all the options, including a ribbon tweeter, hence the R nomenclature. Excellent imaging, despite wide baffle and considerable drive-unit spacing, due in part to Cherry’s misnamed “QSO Holosonics” crossover concept. Superb bass extension and dynamic range, if a little loose; a genuine “small” speaker, but with a natural, nonaggressive midrange, concluded TJN. (Vol.11 Nos.5 & 10)

**D**

**Angstrom Reflexion: $1080/pair (stands included)**
Competent rather than great-sounding, and expensive for Class D, the Reflexion offers detailed mids and superbly defined soundstaging, offset by a touch of harshness and sibilance emphasis in the highs and a bass that is too rich, even with the best solid-state amplification. (Vol.10 No.3, Vol.12 No.2)

**Camber 3.5A: $669/pair (stands necessary)**
A well-engineered example of the classic two-way reflex enclosure from north of the border. Treble rolls off a little early, bass extension is fair, if lacking clarity; imaging specificity is good, and high sensitivity and “easy” impedance ensure a good match with inexpensive electronics. (Vol.11 No.8)

**Magneplanar SMGα: $495/pair**
Musical sound, with relatively well-extended low fre-
quences, considering the size of the panel. Not that transparent, and high frequencies recessed, but a musi-
cal bargain nonetheless. (Vol.10 No.7)

Monitor Audio R300/MD: $649/pair
(stands necessary)
(See J's review in this issue.)

Paradigm 5se: $339/pair (stands necessary)
A rather soft midbass, a slightly colored midband when compared with the better Class D loudspeakers, and a typical soft-dome tweeter treble, but excellent performance at the price. A well-balanced design. Needs to be used on good stands. (Vol.11 No.1)

Quadrant Q-250: $695/pair (stands included)
Not outstanding in any one area, but overall quite musical. Lower midrange a little uneven despite claims made for unusual box shape minimizing resonances. Price includes matching wooden stands. (Vol.10 No.8)

Rauna Freja: $695/pair (stands necessary)
This concrete-enclosure two-way features rather a forward midband, but throws a wide, deep soundstage with low levels of resonant coloration. Verge on Class C sound quality with the right ancillaries. (Vol.12 No.1)

Rauna Tyr II: $625/pair (stands necessary)
A small, concrete-enclosure loudspeaker with very smooth, neutral, musical balance and excellent imaging and soundstaging. A good musical buy. (Vol.9 No.2)

Spectrum 208B: $449/pair (stands necessary)
Easy to drive and possessing excellent bass extension and a clean treble, the 208B is let down by relatively high levels of midrange coloration. (Vol.12 No.1)

Wharfedale Diamond III: $300/pair
(stands necessary)
This tiny speaker has no bass but it just scrapes a Class D recommendation on the grounds that its tonal balance is fundamentally musical and will get the best from inexpensive amplification. (Vol.12 No.2)

K
Vandersteen Models 1 & 4A, Snell C-2, Precise Monitor 10, PSB Cirrus 260, Avalon Acoustics

Deletions
Celestion System 6000 as a full-range Class B recommendation due to “transistory” quality of line-level crossover unit; KEF RI07 due to a lack of treble transparency when compared with the best 1989 contenders; Nelson-Reed 8-04/B has new tweeter mandating re-audition; Synthesis LM300 discontinued.

Subwoofers & Crossovers

Editor’s Note: You will see from Dick Olsher’s mini-survey in Vol.12 No.1 that true subwoofers, capable of reproducing the bottom two bass octaves at realistically high sound levels, are rare and expensive beasts. In addition, the problems of integrating one or two subwoofers with high-quality satellites are major if the integrity of the upper-bass/lower-midrange region is not to be compromised. There are no Class D subwoofers listed: we strongly recommend those trying to sub-woof on the cheap to instead look at the possibility of acquiring more expensive full-range loudspeakers.

A
Threshold PCX electronic crossover: $1600

Available in two versions, offering either selectable crossover frequencies from 75Hz to 160Hz or 750Hz to 16,020Hz, the PCX offers fixed 18dB/octave slopes and matches the Threshold FET-10 in appearance. Sonically the most transparent crossover DO has yet auditioned. (Vol.12 No.1)

B

Celestion System 6000: $2699/pair
(inc. crossover)
The 20Hz bass extension with excellent transient performance and dynamic range—due to its using four 12" drive-units—while dipole radiation pattern makes system optimization a less thankless task. Though expensive, not even including the need for a separate stereo power amplifier, the System 6000 is well worth auditioning with both the Quad ESL-63 and the Martin-Logan CLS to endow those systems with bass extension and low-frequency power handling (though DO feels that the system's fundamentally excellent performance is compromised by the quality of the line-level controller/equalizer). (Vol.10 No.2)

Nelson-Reed 1204/P subwoofer: $1200 each
Four 12" drive-units in an IB enclosure, with two used in stereo, gave flat extension to 20Hz with high dynamic range in Gordon's room, though with a less smooth characteristic, despite careful positioning, than the Synthesis Reference System's against-the-wall towers. "P" revision can run in 2-ohm mode. The high-pass satellite feeds of Nelson-Reed's all-active AC-1204 electronic crossover ($570) are veiled; the same company's PC-1204 passive high-pass unit ($50) should be regarded as essential. (Vol.11 No.4)

C

Audio Concepts Saturn subwoofer: $640 (kit)
Using two 12" woofers in a compound configuration, the Saturn achieves moderate extension and in kit form offers good value for money. The drive-units have sufficient dynamic range to make it worth experimenting with equalizing the Saturn's response to be flat to 20Hz. Kit w/o cabinets: $280. (Vol.12 No.1)

Audio Control Richter Scale Series III equalizer: $349
Versatile six-band, half-octave low-frequency equalizer and analyzer incorporating 24dB/octave crossover factory preset to 90Hz. Slightly "muffled" in sound quality when compared with the Threshold, the Richter Scale nevertheless offers the woofer fan the best chance of achieving a successful integration between the sub-woofer(s) and the satellites. (Vol.12 No.1)

Cogan-Hall ContraBass 12 subwoofer: $895
Unusually styled, the cylindrical ContraBass uses a single 12" driver firing downward in a reflex cabinet. A passive, line-level equalizer network attempts to extend the response to 20Hz, but DO felt that the octave between 20Hz and 40Hz was still too rolled-off for it to be termed a subwoofer. Nevertheless, the Contra-Bass's speed will facilitate matching with high-quality satellites. (Vol.12 No.1)

Kinergetics BSC SW-100 subwoofer system: $790/pair
Kinergetics BSC SW-200 subwoofer interface and stereo bass amplifier: $399
Using a pair of 10" drivers per side, the Kinergetics system achieves true 20Hz extension but at the expense of a limited dynamic range. In the right circumstances, however, particularly with Spica TC-50s, it can work very well. (Vol.12 No.1)

**Stereophile, Vol.10 No.4**

**Budget Samson subwoofer: $750 each**
Massive, large enclosure uses a reflex-loaded 15" JBL driver to give high power handling and extension to 20Hz (-3dB) when used with the Samson Delilah crossover, which incorporates suitable EQ. Effective and cost-effective means of adding extension to a typical minimonitor-based system, but high-quality bass tuning means that system/room optimization can be a somewhat protracted affair. JA noted, to his surprise, that when set up correctly, a stereo pair of Samsons added considerable image depth and stability to the sound of his SL600s. He has also heard them working well with Martin-Logan CLSes. (Vol.11 No.4)

**Stereophile, Vol.11 No.9**

**Super-Narrow subwoofer: $550**
Featuring independently switchable high- and low-pass crossover frequencies, Bessel-type filters, low-pass slope selectable between 12 and 18dB/octave, low-pass level control, a bypass switch, and both mono and stereo inversion and non-inverting subwoofer amp outputs, the Delilah is the most versatile means of integrating one or two subwoofers into a system. JA has found High-pass output is not quite as transparent as a straight-wire bypass, but is nevertheless relatively neutral. (Vol.11 No.4)

**K**
Entec, Janis, and Velodyne subwoofers

**FM Tuners & Antennas**

**A**

**Denon TU-800: $500**
Excellent sound—"smooth and tubelike"—coupled with good RF performance, particularly selectivity, and very low distortion in super-narrow mode, put this modestly priced tuner into Class A. (Vol.11 No.5)

**Luxman T-117: $600**
"One of the best-sounding tuners ever!" said DAS in his review of this extremely sensitive tuner, pointing out its very low distortion. (Vol.11 No.2)

**Magnum FT-101: $679**
An analog tuner, the FT-101 is superb from an RF standpoint, particularly in quieting and sensitivity. Selectivity is bettered only by the Onkyo, Denon TU-800, and Citation 23, but the '101 consistently sounds superior on most stations. Examination of three different samples confirmed good quality control as of February 1988. (Vol.8 No.4, Vol.10 No.3)

**Magnum 205 FM Booster: $229**
Not a tuner, but an excellent RF amplifier to optimize selectivity and reception in areas of poor signal strength. (Vol.10 No.6)

**Onkyo T-9090 II: $750**
This Mk. II version of an old favorite is an excellent-sounding tuner in its Wide mode, offering very low noise and superb stereo separation, though switching to Narrow or Super-Narrow noticeably degrades audio quality. Bass response is quick and dynamic. RF performance is excellent, though not as good as the Luxman T-117 in fringe reception areas. (Vol.11 No.5)

**B**

**Accuphase T-107: $1800**
Good looks. Only flaw is a mechanical mono-stereo relay that makes popping noise. Less selective than Class A tuners but a champ at capture ratio. Very effective noise reduction does not significantly reduce stereo separation. Class A sound except for bass dynamics—lacks the punch to really impress on rock or pop, felt DAS. $1800 price tag makes it very expensive for Class B. (Vol.8 No.7)

**BP FM-9700 active antenna: $40**
Excellent indoor antenna offers 6dB improvement over conventional T-shaped dipole antenna. (Vol.11 No.10)

**dbx TX1: $500**
Initially expensive, a late-1988 price reduction made this well-made tuner a much better buy. Audio quality just fails to reach the standard necessary for Class A, but excellent RF performance, especially regarding image and SCA rejection, and choice of "Wide" and "Narrow" IF bandwidths, led DAS to a qualified recommendation. (Vol.11 No.9)

**Hafler DH-330: $425 ($375 kit)**
In its current guise, one of the finest-sounding tuners DAS has reviewed, with good sensitivity and stereo separation and low distortion. (Vol.10 No.9)

**Harman/Kardon Citation 23: $699**
Excellent selectivity—"it can separate closely spaced stations where others fail"—but sensitivity rather on the low side. Excellent AM section, topnotch sound. (Vol.10 No.8)

**Onix BW1: $850**
Minimalist design with separate power supply, but a sound "transparent to the music source," with good soundstaging. Will give excellent sound, as good as that of the Luxman T-117, with classical stations broadcasting a clean, uncompressed signal, but not as good at snapping signals from the ether. Among the best-sounding tuners, but now a little expensive for Class B. (Vol.10 No.8)

**Onkyo T-4087: $420**
Most selective of all tuners in group B. Does most things well, but not quite up to the more expensive T-9090 II. Low noise reception on cable FM. (Vol.9 No.3)

**Quad FM4: $695**
Good quality construction. Very sensitive with flawless audio if properly aligned. Lacks high channel selectivity and mono-stereo switch. (Vol.8 No.4)

**C**

**NEC T-710: $299**
Clean sound with good dynamics, if not quite possessing the selectivity of the now-discontinued Nikko NT-950 or the stereo weak-signal quieting of the Proton 440. (Vol.11 No.10)

**Proton 440: $269**
The best of the Schotz noise-reduction tuners. Superior fringe performance when high channel selectivity is not needed. Audio good, but not as clean as Class B tuners. One of DAS's favorites. (Vol.8 No.1)

**D**

**Bogen TP-100A: $232**
Very clean sound; good stereo. Small size, good looks
make it a good choice where space is at a premium. Usable only for medium-strength signals. Sensitive AM. (Vol.9 No.3)

K
Akai T-93, Arcam Delta 80, JVC FX1100BK, Klismo Erzaxon, Nikko Gamma 600

Deletions
ADS T2, Luxman T/02, Nikko NT-950 discontinued. Arcam Alpha replaced by Alpha 2, yet to be auditioned.

**Signal Processors**

Editor's Note: I feel that to continue to recommend dynamic-range expanders, compressors, aural exciters, equalizers, ambience extractors, etc., is not in the true spirit of high fidelity, where the reproduction should be true to what the engineer and producer intended. The only processors I would recommend are those which can prove useful in rendering acceptable the playback of historical material. JGH, however, disagrees forcefully, feeling that equalizers, in particular, should be given high-end respectability for the correction of program deficiencies in the almost ubiquitous absence of tilt controls.

A

**Accuphase G-18 graphic equalizer: $5450**
Very expensive 33-band equalizer has less deleterious effects on the signal than any other such device JGH has tried. Constant-Q bandpass/cut filter design leads to minimum overlap between adjacent bands. Best used for system EQ rather than for program. (Vol.11 No.4)

**Packburn 323A noise-reduction device: $2650**
Quite expensive, and frankly intended for professional (archival) use, the Packburn is the best such device made. It can remove the maximum of surface noise—ticks, pops, and hiss—from shellac or vinyl discs with a minimum of signal degradation. (Vol.5 No.8)

K

**Cello Audio Palette**

Deletions
dbx 14/10 Analyzer/Equalizer discontinued

**Surround-Sound Decoders (Dolby MP, Ambisonic UHJ, SQ)**

A

**Shure HTS-5300: $1250**
(See review in the next issue.)

**Shure HTS-5200: $1000**
Full logic-directed Dolby MP decoder—including Center/ Front output—with IR remote control and low-pass output for subwoofer. BS feels the Shure to be the most neutral-sounding decoder with excellent spatial decoding, though Front-to-Back movement of images is a little smeary; JGH feels that the Front stage narrows somewhat when the Center-Front channel is used. (Vol.11 No.3)

B

**Lexicon CP-1 processor: $1295**
Uniquely, Dolby Pro-Logic decoding is performed in the digital domain, making what is basically an ambience synthesizer also an excellent buy for home video surround-sound use. Doesn't quite reach Class A for Dolby sound—see review in the next issue. (Vol.12 Nos.1 & 4)

C

**Fosgate Tate 101A**
Best SQ decoder yet produced; discontinued, but worth looking for if you need SQ decoding; has position for Dolby MP, but there is some Front/Rear spill at higher frequencies; hard-wired remote control; rough top end and some veiling.

NEC PLD-910: $999
(See review in the next issue.)

D

**Sansui DS-77: $400**
Basic non-logic surround-sound processor—Rear channels don't have delay or Dolby-B noise reduction—with built-in amplifier for Rear-channel loudspeakers. Excellent stereo synthesizer circuit. Surround decoding "only a little worse" than the logic-directed models, says BS, though basic sound quality only average. (Vol.11 No.3)

**Yamaha DSR-100: $999**
(See review in the next issue.)

Deletions
Minnin AD-10 Ambisonic decoder on the grounds that it colors the sound overmuch by 1989 standards; Fosgate DSM-3602 discontinued.

**Surround-Sound Synthesizers**

A

**Lexicon CP-1 digital audio environment processor: $1295**
The best-sounding hall simulator BS has heard, with extremely versatile choice of reverberation parameters. In addition, features a good Dolby surround decoder. (Vol.12 Nos.1 & 4)

B

**Sony SDP-505ES**
Excellent-sounding and versatile 16-bit digital delay line running at 44.1 kHz for rear-channel ambience synthesis. Integral 14 Wpc amplifier for rear channels. Front channels do not pass through active circuitry; so veiling of main-system sound is minimal. Superseded by similar $850 SDP-777ES, which adds full remote control and Dolby Pro logic decoding. (Vol.11 No.3)

K

**Yamaha DSP-3000**

Deletions
Yamaha DSP-1 discontinued

**Home Recording Equipment**

Editor's Note: With the exception of the Fostex listed below, microphones have been dropped from the list as no one on the staff has had extensive enough experience with the latest types to make accurate judgments. Professional models to look out for on the secondhand
The Original Musical Experience remains bound in our soul. Surrender your pre-conceptions about music reproduction. Experience the performance.

JEFF ROWLAND
DESIGN GROUP

Jeff Rowland Design Group, Inc.
Post Office Box 7231
Colorado Springs, Colorado 80933
719-473-1181
Fax: 719-633-4158
Telex: 6502930130 VIAWU

Model 7 Differential Mode™
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market, however, are cardioids from Sony (C37P & C500), Milab, and Calrec, figure-eights from AKG, B&O, and Coles, omnis from Schoeps and B&K, and PZM mikes from Crown. The Shure C81 cardioid is also reported as having quite a flat response. Ignore all "ama- teur" microphones; as a rule of thumb, you should spend as much, or more, on a good pair of mikes as you do on your recorder.

A

dbx 700 processor

"A more solid sense of the fundamental," said BS in his review, when compared with the Nakamichi DMP-100, with a smooth brass tone. At its price of $4600 ($4995 with mike preamps) the 700 was expensive, but undoubtedly the best recording system this magazine has yet reviewed. Its failure was undoubtedly due to its lack of compatibility with CD mastering systems. (Vol.10 No.5)

Sony DTC-1000ES R-DAT recorder

Still unavailable in the US, due to uncertainty in Japan over the attitude of the RIAA, though a healthy R-DAT gray market is flourishing and some professional models are now officially imported, including some expensive professional portable models. Offers all the sonic performance and more of Sony's PCM-F1 IVCR combination in a small, user-friendly package, with all the convenience of CD. In contrast to Martin Collom's very positive review, reports in *The Boston Audio Society Speaker* (Vol.16 No.1) found that many of these early machines suffer from increased levels of distortion at low levels. The reason for this discrepancy is unknown. (Vol.10 No.5)

B

Fostex M22RP/S M-S microphote: $1095

Integrated ribbon M-S stereo microphone. While not quite as open at the top as the best capacitor mikes, and possessing a lightweight bass, the M22RP/S captures the original soundfield extremely accurately. (Vol.11 No.3)

Tandberg TD20A SE Open-Reel Tape Recorder

☆

The best buy in an open-reel deck, this now-discontinued model offered professional-caliber performance at a relatively modest ($1695) price. Better sound than many professional decks, but ergonomics less good than the still-current Revox B77 III. (Vol.7 No.7)

C

JVC TD-V711 cassette deck: $620

A full review is planned but AG reports that this three-head deck marries an excellent transport to fundamentally excellent sound quality, particularly when Dolby noise reduction is switched out of circuit. (Vol.11 No.11, Pure Gold)

NAD 6300 cassette deck: $898

Remote-control three-head deck offers effective play-trim control for restoring the HF on tapes made with machines having off-set azimuth. Sound smooth, with slight loss of detail set against a freedom from hard- ness. (Vol.10 No.6)

Nakamichi ZX-7/ZX-9 cassette decks

☆

Excellent controls and adjustments, very extended high frequencies, sophisticated tape transport. Neither of these Nakamichis is current, but you are probably unlikely to have anything go wrong with a Nak. (Vol.7 No.1)

Revox B-215-S cassette deck: $2800

Automatic bias adjustment, superb transport. According to JGH, "a superb cassette recorder, for the person who wants and is willing to pay for the best quality cassettes have to offer." AHC emphatically disagrees. The latest Nakamichis, with their automatic play- azimuth adjust, probably get a slight bit more off prerecorded tapes. Latest version cosmetically different from that reviewed. (Vol.8 No.7)

Sony TC-K700ES Mk.II cassette deck: $800

Minimlist, three-head, twin-capstan cassette deck, built—surprisingly — for sound quality. Outstanding soundstaging (for cassette), good dynamics (with high bias tape), and an airy top end led AG to suspect that this was a deck that had more to do with common-sense engineering than with features. Mk.II differs from version auditioned in having "super-bias" tape-biasing system. (Vol.11 No.1, Pure Gold)

Tandberg TCD 3014 cassette deck: $2500

☆

Superb midrange headroom, good transport, accessible and useful controls. A little better than their previous $2200 model, the 3004 (also a good-sounding deck). Not the most extended high end, but overall the best sound from a cassette deck. (NR, but see Vol.7 No.1)

D

Sony WM-D6C Pro Walkman cassette system: $400

A pocketable stereo recording system of surprising quality and versatility. AG feels that to spend more on a cassette deck would be a waste of money. (Vol.7 No.6, Vol.10 No.6)

TEAC V-970X cassette deck: $800

Excellent dual-capstan, three-head deck with Dolby HX headroom extension and comprehensive noise reduction (dbx, Dolby-B and -C). Somewhat grainy highs keep it from Class C. More expensive R-919X (850) features bidirectional record and playback but has less good speed stability, noted GG. (Vol.11 No.6)

Any cheap Dolby-C cassette deck

Buy the cheapest with the longest manufacturer's warranty; don't expect to get high-end sound quality from it; use it to make tapes for your car or Walkman until it breaks; throw it away; buy another one, advises The Cheapskate in Vol.10 No.9.

Deletions

Nakamichi DMP-100 and Sony PCM-F1 digital audio processors as R-DAT recorders offer improved digital performance with much friendlier ergonomics.

Accessories

Adcom ACE-515 AC Enhancer: $180

Effective AC power-line conditioner with RF filter, spike suppression, five accessory outlets (300W capability), and two heavy-duty outlets (1500W). Does not seem to limit current demands of power amplifiers. (Vol.11 No.4)

Arcirli Quad ESL-63 stands: $195/pair

Latest and greatest method of getting the Quads to perform as God and Peter Walker intended. Clamps the
"NITTY GRITTY is cleaning the ‘fog’ out of the records of San Francisco"

The "astonishing" Hybrid

See the review in STEREOPHILE'S March 1989 issue
ESL-63 in a rigid embrace, also raising it an optimum 16" off the ground. (Vol.10 No.1)

ASC Tube Traps
Relatively inexpensive (HAI) but remarkably effective room-acoustics treatments. These soak up low-to-high bass standing-wave resonances like sponges. (Vol.9 No.3)

Audio Control Industrial SA-3050A Analyzer: $965
Portable (battery-powered) and inexpensive, one-third-octave analyzer with pink-noise source and calibrated microphone. Parallel port can be used with any Centronics-compatible printer to print out real-time response. (Vol.11 No.6, Vol.12 No.3)

Audioquest Sorbothane Feet
The best means of isolating components from vibration. A set of four big feet costs $40, four CD feet $25. (NR)

CD Saver
Eliminates scratches from CDs and LaserVision discs, rendering the unplayable playable. (The Cheapskate points out that Armorall does a similar job and is much cheaper.) (Vol.10 No.8, Vol.11 No.8)

Cramolin Contact Cleaner
The right stuff for cleaning up dirty and/or oxidized plugs and contacts. (Vol.10 No.6)

DB Systems DBP-10 Protractor: $25
Fiddly but accurate guide for setting cartridge tangency. JA's and JGH's preferred alignment protractor. (NR)

Distech Powerbridge I & II AC cords: $120-$200
LL reports that these AC cords produce an audible difference with amps and preamps, but whether this difference represents an improvement or not is very much component-dependent. (Vol.11 No.4)

Inouye Synergistic Power Line Conditioner: $525
Expensive AC line conditioner cleans up the sound from CD players, reported JA, but had variable effects with preamps and amplifiers. (Vol.12 No.3)

Meitner Translinks: $325/pair
Signal transformers with a 1:1 ratio, these isolate the preamp ground from that of the power amplifier. In the context of the Meitner preamp/power amp combination, these seem to improve low-level dynamic performance. Must be driven by a source impedance of 100 ohms or less. (Vol.11 No.6)

Mobile Fidelity Geo-Tape: $15
A valuable test and shopping aid for cassette decks. (Vol.8 No.5)

Monster Cable/Euphonic Technology/Sims/Audioquest CD rings: $1.50 each
Soft rings that adhere to the circumference of a CD. Presumably by increasing gyroscopic stability, as well as providing a modicum of disc damping, these make life easier for the player servo circuits. The subjective effect is to reduce CD stridency, improve resolution of detail, and render the sound more "analog," according to the Cheapskate. $15 for 12, $50 for 50. (Vol.11 Nos.4 & 9)

RATA Torlyte Turntable Support: $350
Elegant, if low in height, low-mass stand that enhances the performance of suspended-subchassis turntables. Recommended to owners of Linnis, SOTAs, and Oracles. New version recently launched. (NR)

RPG Diffusers
The first effective method of adding diffusive surfaces to a listening room, these remarkably effective panels join Sonex foam and Tube Traps in helping to tame the so-far untamable — room acoustics. (Vol.11 No.4)

Signet Contact Cleaner Kit: $25
Contains abrasive plastic tools for effective inner cleaning of phono plugs and sockets in combination with Cramolin. (Vol.10 No.6)

SOTA & Goldmund record clamps
Though these clamps have a somewhat different sound, they are the best record-clamping devices on the market. They can both improve top- and bottom-end extension and reduce resonances on any table, including those employing vacuum clamping systems. Well worth their cost in a high-resolution system. The SOTA Reflex clamp ($135) gives a somewhat richer, warmer sound and is more effective against upper-midrange and lower-treble resonances. The Goldmund shapes up a flabby lower midrange and controls the more serious lower-treble/upper-midrange problems. Both work well with the SOTA Supermat.

Sound Organisation Turntable Stand: $150
The mandatory ancillary to the Linn turntable, though, as with the more expensive RATA stand, its low height may prove bothersome in a listening room that has to be shared with cats and children. (NR)

StyLast Stylus Treatment
StyLast won't make a difference every time you put it on, but it will help provide smoother high-end sound, and is claimed to extend stylus and cantilever life. (NR)

Sumiko FluxBuster: $250
Moving-coil cartridge demagnetizer: it really works; you need one. (Vol.9 No.4, Vol.10 No.5, Vol.12 No.4)

Sumiko Tweed Contact Cleaner: $18
This contact enhancer for use on plugs and terminals actually does improve the cleanliness and resolution of the sound of an already excellent system. Keeps freshly made contacts fresh. (Vol.10 No.6)

Tiptoes
The Mod Squad's greatest invention. The least expensive way of improving the bass and midrange definition of virtually any loudspeaker.

Watkins Echo-Muffs: $199/pair
Effective means of reducing amplitude above 2001Hz of early reflections of loudspeaker from nearby surfaces, thus improving imaging. Whether or not the aesthetics will be domestically acceptable will be up to personal taste. (Factory-direct only.) (Vol.10 No.4)

WBT RCA plugs
The best, although steel locking collet gives rise to neurosis. (NR)

Good Speaker Stands
There are too many possibilities, but, briefly, a good stand will have the following characteristics: good rigidity; spikes on which to rest the speaker, or some secure clamping mechanism; the availability of spikes at the base for use on wooden floors; if the stand is steel, provision to keep speaker cables away from the stand, to avoid magnetic interaction; and the correct height, when combined with your particular speakers (correct
TUBES, BELTS & STATS

Everything changes, but everything stays the same. The basic simplicity, elegance and performance of vacuum tube electronics, belt drive turntables and electrostatic loudspeakers have, for most people, been what the High End was all about. Unfortunately, the potential of these design approaches has often been mitigated by practical limitations and insufficient materials technology.

The three companies represented here have re-defined the traditional values of tubes, belts and stats, eliminating the frivolous, yet retaining the inherent magic. We wish they were public so we could buy stock.

Well Tempered Turntable and Arm. In the early 70's, the revolutionary idea that turntables made a sonic difference was recognized. From that time on, belt drives have been the only way to go. With the Well-Tempered Turntable, the constant need for "tweaking", high levels of coloration and noticeable wow and flutter have been replaced with a truly universal tonearm and bearing/motor/plinth with chameleon-like neutrality.

Audio Research SP-15 Preamplifier and Classic 150 Monoblock Power Amplifier. The world's first amplification method needs no introduction, except to note that older designs often exhibited poor transformer design, high levels of noise and constant user maintenance. The SP-15 has half the number of tubes in the legendary SP-11MKII for additional signal path simplification. Along with exceptionally stable and long tube life, The Classic 150 uses Bill Johnson's output transformer patent. This design couples well to a wide variety of loudspeakers and has frequency response from fractions of a cycle to near-microwave. The first of their classic new triode amp series.

Martin Logan CLS II Electrostatic Speakers. Martin Logan is the first company to effectively deal with the problems of beamy highs, arcing, eccentric amplifier loads and cream puff bass response. They've done it without sacrificing the magic of the classic designs of the 50's and 60's. If you compare CLS II's with other current electrostatic designs, you'll find Martin Logan's free of crossovers, delay lines and layers of grille work. The new CLS will give you higher efficiency, freedom from saturation, solid bass response to 35 Hz and frighteningly lifelike sound.
Headphones

A

Stax SR-Lambda Signature: $2000
A diaphragm one-third thinner (1 μm) than the Lambda Pro, and a drive amplifier (SRM-T1) with a tube output stage distinguish what BS termed “the best headphones around” in his review. As good as the Pros are, the Signet better them in terms of air and space around instruments, having a more forward midrange and less, if you can believe it, of a “mechanical” quality. (Vol.11 No.8)

Stax Lambda Pro 3: $1200
The latest version of the flagship Stax headphones, supplied with a dedicated class-A solid-state amplifier, the SRM-1 Mk II, features a totally transparent sound with, according to BS, “oodles of detail.” Unlike most ‘phones, the listener gets a true idea of the surrounding ambience on a recording. Balance is laid-back and bass is a bit fat, not quite blending with the rest of the range, but distortion levels are astonishingly low; and the Pros have a remarkable dynamic-range capability. As delivered, the Lambda suffers from upper-midrange suckout, which becomes less bothersome after some hours’ use. Very comfortable. (Vol.10 No.9)

B

Signet TK44: $300
Transient response and "snap" are not up to the standard set by the Lambda Pro, neither is the sound as open, but there’s plenty of detail, and coloration levels are close to zero,” according to BS. Very comfortable. (Vol.10 No.9)

Stax SR-5 NB: $350
More colored in the midband and above than the Stax SR-34 or Signet models, and balanced a little on the bright side, the "5 scores when it comes to reproduction of low frequencies and overall transparency. (Vol.10 No.9)

Stax SR-34: $160
Very similar performance (and construction) to the Signet TK44, though less comfortable and lacking the latter’s overload monitoring, at a significantly lower price. The bargain in electrostatic headphones. (Vol.10 No.9)

C

Beyer Dynamic DT990: $209
One of the two best dynamic headphones on the market. (The other is the Sennheiser HD 540.) A less detailed sound than the electrostatic models precludes a Class B rating. (Vol.10 No.9)

Sennheiser HD 540 Reference: $199
One of the two best dynamic headphones on the market. Slightly less neutral than the Beyer DT990, being more laid-back with a "wissy" high end. (Vol.10 No.9)

D

Beyer Dynamic DT320 Mk.II: $75
(See JA’s review in this issue.)

Sony MDR-282 Turbo†
Best of the in-the-ear cans, with LC-OFc wiring, excellent bass response, and a relatively uncolored treble, despite a somewhat overbright balance. Latest E484 version ($40) said to be slightly better (NR, but see headphone review in this issue.)

Sony MDR-CD6: $120
A little expensive for the sound quality offered—too much midbass, sound somewhat unsubtle—but recommended on the grounds that BS feels these to be the ideal cans for location recording, due to their high sensitivity and good isolation. (Vol.10 No.9)

Deletions
Sennheiser HD-420SL discontinued

Record-Care Products

A

LAST record-preservation treatment
This actually works. It significantly improves the sound of even new records and is claimed to make them last longer, though we haven’t used it long enough to verify the claim. (Vol.5 No.3)

Nitty Gritty Mini Pro 2 record cleaner: $700
This semiautomatic wet cleaner cleans both disc sides at once. Slightly less rugged than the VPI, but both do an excellent job and the Nitty Gritty Pro II is faster. Significantly better design than earlier Nitty Gritty. You may be surprised that the main sonic effect of cleaning LPs is not primarily a reduction in surface noise but a cleaning up of midrange sound. (Vol.8 No.1)

Nitty Gritty 2.5F1 record cleaner: $500
Instead of a vacuuming tonearm as on the professional Keith Monks machine, the NG cleaner uses a vacuum slot. Cleaning is efficient and as good as Nitty Gritty’s Pros, at a significantly lower price, though it takes twice as long, cleaning each side of an LP in turn. (Vol.7 No.5, Vol.8 No.1)

Nitty Gritty Hybrid 2 Record/CD cleaning machine: $610
Basically a Nitty Gritty 2.5F1 with an adaptor that allows CDs to be buffed clean in a non-tangential manner. (Vol.12 No.3)

Rozoll Gruv-Glide
Record destaticizing agent that also leads to better sound. Apparently doesn’t leave a film or grudge up the stylus. (Vol.9 No.8)

VPI HW-17 record cleaner: $700
Clearly an industrial-quality machine of reassuring quality, the VPI does one side at a time, semiautomatically, and is slower than the Nitty Gritty. "A highly functional and convenient luxury." Latest version has a heavier-duty vacuum system. (Vol.8 No.1)

B

VPI HW-16.5 record cleaner: $425
Manually operated version of HW-17 (above), nois-
ier motor; less money. Adjusts automatically to thickness of record. (Vol. 5 Nos. 7 & 9, review was of earlier but substantially identical HW-16.)

D

Decca, Hunt-EDA, Goldring, or Stativbrush record brush ☆
Properly used (held with the bristles at a low angle against the approaching grooves and slowly slid off the record), these are the most effective dry record-cleaning tools available. (JGH strongly disagrees, feeling that they leave the dust on the record.) No substitute for an occasional wet wash. (Vol. 10 No. 8)

DiscWasher record brush ☆
If you don’t have a cleaning machine, the DW system will do an adequate job on relatively clean records, but won’t get out the deep grunge. If you begin to accumulate lots of gunk on your stylus after cleaning your record with an older DW brush, the bristles are worn out, send it back for resurfacing or buy a new one. A high-torque turntable is required. (NR)

K
We have yet to try the latest version of the classic Keith Monk’s record-cleaning machine.

Loudspeaker Cables
Editor’s Note: This “Recommended Components” listing is derived, in the main, from Dick Olsher’s survey of high-quality cables in Vol. 11 No. 7. In our opinion, to a far greater degree than with any other component, the sound of cables depends on the system in which they are used. These recommendations are to be used as a starting point, and it is essential to audition very expensive cable in your own system before contemplating purchase. “Drinking by the label” is always a bad thing to do in hi-fi, but it is both forgivable and unwise when it comes to speaker-cable purchases. In addition, in JA’s opinion, the virtues offered by the most expensive cable may well only be audible in the context of a topflight, very expensive system. What is the “best” in absolute terms is not, therefore, necessarily the best for your system.

A

Audioquest Clear Hyperlitz: $50/foot
The original Clear was an excellent all-around performer. Some system sensitivity, felt DO. Latest version features a similar construction to the Lapis interconnect. (Vol. 11 No. 7)

Audioquest Green Hyperlitz: $25/foot
Very clean and quiet. Some system sensitivity. (Vol. 11 No. 7)

Kimber Kable 4AG: $100/foot
A very expensive hyper-pure silver cable that can offer a glimpse of heaven. Significant system sensitivity, so be sure to check for system compatibility before you buy. (Vol. 11 No. 7)

Cardas HexLink: $411 first terminated meter, $66.33 each additional pair/foot
Excellent clarity and focus. Only mild system sensitivity. (Vol. 11 No. 7)

TARA Labs Space & Time cable: $6.95/foot
Featuring twisted solid-core construction, this expensive cable was the champ at helping create a well-defined soundstage. (Vol. 11 No. 7)

B

Distech Platinum Plus: $42.75/foot
Just slight concessions to the best cables money can buy. Excellent focus and transparency. (Vol. 11 No. 7)

Kimber Kable 8TC (doubled): $15.60/foot
A double run of BTC ($7.80/ft) greatly improves the sound. Excellent bass. (Vol. 11 No. 7)

Kimber Kable 4TC: $4.40/foot
The best bet in Kimber’s regular series. (Vol. 11 No. 7)

van den Hul CS-122: $3.50/foot
Good focus and sibilant control, but slightly veiled and grainy. (Vol. 11 No. 7)

Hitachi Linear-Crystal 18AWG: $0.75/foot
Check this out from Precision Audio. Very good focus and harmonic integrity at a budget price. (Vol. 11 No. 7)

C

Audioquest Brown: $1.95/foot
Surprisingly listenable. Does nothing seriously wrong. (Vol. 11 No. 7)

DNM solid-core: $3/foot
“A nice sense of focus and harmonic cohesiveness,” noted DO. A little expensive for Class D, thought DO, but veiling of the soundstage and a grainy treble keep this semial solid-core cable from Class C. (Vol. 11 No. 7)

Kimber Kable 4PR: $1/foot
Least expensive cable from Kimber was found to have good bass, but a “zippy” treble and poor soundstage, according to DO. With inexpensive amplifiers, however, its good RF rejection compared with zircon or spaced-pair types will often result in a better sound. (Vol. 11 No. 7)

Radio Shack 18-gauge solid-core hookup wire: $0.08/ft.
Ridiculously cheap way of connecting speakers, yet reports from some people with ears we trust suggest that this cable is OK sonically. You have to choose for yourself whether to space or twist a pair for best sound (or even whether to double up the runs for less series impedance). (NR)

Roxem 12-2 (Homewire version): $0.08/foot
Cheap solid-core, with lousy treble, but better midrange and bass. More expensive 10-2 was found by DO to be more veiled and grainy. (Vol. 11 No. 7)

Deletion
Siltech 4-80 as new FT-12 version yet to be auditioned

Component Interconnects
Editor’s Note: See the comments at the head of the loudspeaker cable recommendations. The same caution applies to interconnects.

A

Audioquest Lapis Hyperlitz: $395/meter pair
This rather bulky cable offers an exceptionally clear presentation of musical detail, thinks JA. Locking connectors a bit cumbersome. (NR)

Siltech 4-24: $360/first meter w/RCAs, $280/additional meter or unterminated
Astounding transparency and imaging even better than the already outstanding Monster M1000. Recent au-

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ditioning suggests true Class A sound. Distributed by SOTA. (Vol.10 No.2)

van den Hul MC Silver: $1300/meter pair
A silly price, but this elaborately wound coaxial cable is apparently flat up into the microwave region, which suggests precision construction. "The best there is," according to DO (and also MC) as of Spring '87. The least signature of any interconnect, with the most improvement noticeable on soundstaging and imaging. (Vol.10 No.2, see also vdH interview in Vol.9 No.8)

B

Aural Symphonics As-One: $85
90% of the performance of the other Class B cables for a significantly lower price will make this Teflon-insulated cable a best buy. (Vol.10 No.2)

Monster Cable M1000: $175/meter pair
Pristine bass, smooth mids, spacious highs, and a tube-like dimensionality render this the best interconnect ever produced by Monster (though DO has raised doubts about the sound changing with time). Now in a revised version, still sounds as DO described, in JAs opinion. (Vol.10 No.2)

Siltech 2-20: $295/first meter w/RCAs, $215/additional meter or unterminated
Lower-cost Siltech preserves the 4-24's remarkable midrange but sacrifices overall cohesion and some definition at frequency extremes. (Vol.10 No.2)

van den Hul D-102 Mk.11: $100/meter pair ☆
Not as good as the majority of the other Class B cables, broadly comparable with the Aural Symphonics, with a better treble but slightly worse focus. (Vol.10 No.2)

C

Discrete Technology ☆
Available in two versions, differing in quality of high-frequency reproduction and midrange balance. Almost uncolored; highly detailed; smooth, excellent resolution. A "fast" cable, sometimes at the expense of musical coherence. (Vol.9 No.1)

DNM interconnect: $3/foot un terminated; $75/0.5m, $85/m, $100/2m terminated
No RF shielding but Alvin Gold is totally convinced by this small-gauge solid-core cable imported by Music Hall. Even if you are not convinced that single-conductor cable is the answer to everything, this flat, spaced-twin interconnect represents undoubtedly good value for money. (Vol.10 No.4)

Straight Wire LS1: $88/meter pair, $14/additional 0.5m pair ☆
A clear best buy in Class A a couple of years back, such has been the pace of development that this undramatic-sounding cable drops to Class C, lacking the degree of focus and transparency of the Class A and B cables. Excellent detail and open, airy highs, however. (Vol.9 No.1, Vol.10 No.2)

D

Hitachi LC-OFC
Open, clean, transparent, but high frequencies can get frazzled and low-level detail obscured when compared with the best. Always listenable, felt DO. (Vol.10 No.2)

K

Kimber KCAG, Tiare solid-core silver
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"Tonearm?" muttered John Crabbe, my erstwhile editor at Hi-Fi News & Record Review, as he bent over my shoulder some 12 years ago to see what I was writing about. "A tonearm belongs on an acoustic gramophone—you should use the term 'pickup arm,' which doesn't suggest that the arm has a sound of its own."

John is correct in so many things hi-fidelical that I didn’t then have the courage to point out that, yes, in theory modern arms add nothing to the sound of the cartridges that they carry. In practice, however, not all the mechanical energy imparted the stylus by the wiggling groove being dragged past it is transformed into an electrical signal. Plenty is left over to excite all manner of resonances in every physical part of the disc playback system—cantilever, cartridge body, arm, and turntable. In a metaphor coined in the ’60s by the English pickup cartridge expert Jean Walton, the situation is akin to a Model T being driven at speed over a rough, off-road course. If something can rattle, it will. Is it not reasonable, therefore, to insist that the anachronistic usage is actually a more correct description of the role of the arm in determining ultimate sound quality?

Yes.

Unless the arm is so good that it doesn’t make any contribution.

But how many of those are there? Not many. It would be safe to say none, but a few get close to that paradigm: the legendary Swiss Breuer was the first tonearm I heard that was more like a pickup arm, while Sumiko’s no-longer-introduction “The Arm” built further on that performance; certainly the Airtangent tonearm reviewed a couple of months back by Arnie Balgalvis deserves a high ranking in this category; as does the Eminent Technology ET2 in the midrange; the Rega RB300 is a surprisingly low-priced contender; Bill Firebaugh’s Well-Tempered Arm is J. Gordon Holt’s preferred choice; but what in my mind gets the nearest to achieving the sonic equivalent of being a black cat in an unlit room is the SME V (and its lower-cost cousin, the IV).

So why, then, given my recognition of the merits of the eight arms above, have I stuck with the Linn Ittok LVII arm for most of the last eight years’ worth of listening?

Putting to one side the question of cost, it’s down to two things: bass quality, and the fact that a record-playing system is just that: a system. First, although I’m told the Airtangent gets remarkably close, I have never heard a tonearm without a fixed pivot and gimbal vertical bearings give the tightness of bass that I find essential to musical enjoyment. Bass transients
should shock the listener, but both on parallel-tracking arms and on arms that use a knife-edge bearing, they kind of sneak up on the listener instead, defusing the impact. I know, I know, as John Crabbe used to say (and probably still does), “There’s no such thing as a bass transient!” — and he’s right. As pointed out in this month’s “Letters” section, the harmonic content that goes to form the leading edge of, say, the sound of a bass drum struck hard, is much higher in frequency: in the upper midrange and above. But what else would you call the sound of a drum? “Bass transient” describes precisely the fact that the sound carries a good deal of low-frequency energy, all of which arrives at the same time. Ever since I first used the original Mission 774 tonearm (designed by John Bicht, now of Versa Dynamics fame), I have been sensitive to any smearing of that bass-transient information, ruling out for me such an otherwise excellent arm as the Eminent.

Though its negative effect on sound quality was an order of magnitude lower than the SME 3009 III I had been using up to that point, that Mission was not the easiest arm to set up or match with pickup cartridges, which brings me to the point of treating the record-playing front end as a system. Simply to buy a Class A rated cartridge, tonearm, and turntable from Stereophile’s “Recommended Components” listing is no guarantee that the result will be Class A sound. The performance of each of the three major components depends to such a large extent on the other two that all need to be carefully selected to work together as a system.

It is this system aspect of record-player use that has kept me with the Linn Sondek all these years. I have heard and used turntables that appear to be better in one or more areas (though I rarely hear one with as good speed stability). The SOTA Star Sapphire, for example, offers a tighter upper bass with better overall extension; but I couldn’t get it to work as well at producing music on a consistent basis. So, given that I choose to use a Linn, what tonearms will work in combination with it?

The SME doesn’t work optimally on the Linn, giving a lazy, fat-bassed sound, though the beauty of its midrange still shines through. Christopher Brenig has found the WTA to sound stunningly natural on the Linn, but it has insufficient low-frequency extension, in my opinion. (The rear of the armtube also sticks out far enough that the turntable lid can no longer be used, something that would irritate me to the point that I couldn’t live with it.) The Breuner is unobtainable. The Sumiko is discontinued, and in any case was too massive for the LP12’s suspension. Using the Rega on the Linn is for masochists and set-up fetishists only. As implied above, the ET2’s bass is too ill-defined for my tastes. And at $3200, the Airtangent is financially out of reach, though Martin Colloms tells me that it does interface well with the Sondek.

That leaves none of the most neutral tonearms. So how about the Ittok? Mechanically, it mates perfectly with the turntable, as is to be expected. Setting it up is a breeze — its begetters foresaw all the problems arm installers meet and designed the solutions in. Its effective mass is pretty much optimal, giving a good interface with any medium-compliance, average-mass cartridge, the LF resonance being placed in the appropriate part of the infrasonic spectrum. Its bass is clean, tight, and extended. In fact, its only sonic weakness, in my opinion, is a rather forward quality to the upper midrange compared with the above tonearms.

Talking

The $1995 Ekos (so christened after the French name for Scotland, Ecosse — ha!) is considerably more expensive than the Ittok LVII ($965); superficially, it resembles the black version of the Ittok that was available for a while by special order. The arm-base even uses the same three-bolt mounting arrangement, but the arm is otherwise almost totally different. Whereas the Ittok is manufactured in Japan to Linn’s specification, with only final quality control taking place in Linn Products’ Glasgow headquarters, the Ekos is manufactured and assembled in Scotland, the only Japan-sourced item being the lift/lower device. The most obvious external difference is the absence of the separate arm clip on the tonearm board, which some UK audiophiles had long proclaimed to be a source of coloration. The same audiophiles had also pointed the finger at the lift/lower device; this remains, but is now damped in both directions, and its support gantry is extended along the arm axis to provide a solid clip arrangement similar to that used by the SME V.

The arm-tube remains the same thin-wall, wide-bore aluminum design, but is about 8mm
longer than that of the Ittok. The geometry remains the same, the aluminum-alloy headshell being shorter, but this is now machined from solid for maximum strength rather than being cast. Machining would seem appropriate, Linn having a large collection of some of the most modern computer-controlled industrial tools in the UK; machining also gives the designer a wider choice of alloys to choose from. In addition, whereas the Ittok headshell was fixed to the arm-tube with screws, the Ekos uses a modern adhesive, the same as used to glue the Sondek's subchassis together. This is said to give a stronger, more consistent joint. The arm-tube is also glued to the rear body that carries the counterweight. The undersurface of the headshell has a line enscribed on its rear to allow for easy set-up of pickups with square rear faces.

The gimbal bearings are also something special compared with the Ittok. These are manufactured to a tolerance of 5µm (approximately 0.2 thou). Then, because, as one of Linn's senior engineers, Martin Dalgleish, puts it, "It's easier to measure than it is to make," the bearings are measured and matched to a tolerance of just 1µm. Not surprisingly, I could feel no play in any direction.

The tracking downforce and bias force are still set with springs, but these are said to be to a tighter tolerance than the Ittok. The final difference concerns the tonearm leads. Yes, these are still the same coaxial type, fitted with good-quality phono plugs, but the 5-pin arm plug is now metal and can be fixed tighter. It is also shallower, allowing a little more clearance between the dressed cable and the turntable baseplate.

Listening
Audiophile Systems' Steve Daniels visited Santa Fe to install the Ekos on a Linn turntable for me; he also changed the springs for the latest type, which are wound in the opposite direction. (Linn Products, of course, saves all the old ones for use in the Southern hemisphere.) For those who panic unnecessarily over the mystique of setting up Linn— I think these people, like me, have owned LP12s from those far-off days in the '70s when they did seem to go off song when you looked at them— it was reassuring to witness Steve's common-sense approach, particularly concerning the iterative spring adjustments. I still think it best that you allow your dealer to set up your Linn—the continual series of improvements such as the glued subchassis has rendered the turntable set-up stable, though you still need a degree of empathy to set it up optimally—but with someone like Steve training dealers, it should now be rare for a Linn owner not to get the best performance possible from his or her deck.

The Sondek sat upon the $150 Sound Organisation stand, an accessory that I have come to regard as a necessary purchase for any Linn owner. The cartridge used was the now well-traveled sample of the Troika that I reviewed in Vol.10 No.6—though it must have been dragged past many hundreds of miles of groove by now, it has yet to show signs of senility. (I keep the stylus clean with Linn's abrasive green stuff— always brushing along the cantilever axis away from the pivot point, of course.) The Ekos headshell has the necessary three holes to mount the Troika. Amplification was the Vendetta Research SCP2 phono preamplifier feeding a Mod Squad Line Drive Deluxe AGT passive control unit. Power amplification was provided by a pair of VTL 100W Compact Monoblocks, their high sensitivity essential in view of the Vendetta's relatively low output. Interconnect between Vendetta and Line Drive was 9" lengths of MIT MH-330, with 1m lengths of Audioquest Lapis control unit and VTLs. Loudspeakers were many—all the models I have reviewed in the last couple of issues of the magazine, in fact—but for serious listening, I used Celestion SL700s, Vandersteen 2CIs, both bi-wired with Monster MI, and Thiel CS1.2s.

I admit from the outset that I find reviewing good tonearms harder than almost any other kind of hi-fi component. In the main, you actually have to listen out for things that are not there: resonant colorations, any tendency to lose control in the bass, any indications that the cartridge is less secure in the groove. A long listening period is necessary, therefore, to reach an ultimate value judgment. However, right from the very first moment the Troika stylus hit the groove, I knew that the Ekos was perhaps the most musical tonearm I have used on the Sondek.

First, what groove noise there was seemed quieter than with the Ittok. You might remember from my review of the Nitty Gritty Hybrid record-cleaning machine in March that I noted that a noticeable effect of vacuum cleaning was
to reduce the granularity of the background noise. The difference between the two arms was similar, the Ekos's cleaner background allowing instruments to stand forward from the silence just that little bit more three-dimensionally. With a naturally miked recording of a single instrument—the new recording of violinist Arturo Delmoni made by Kavi Alexander for loudspeaker manufacturer Apogee Acoustics, for example—the effect was to lift the entire system that essential bit closer to the live experience. Yes, you are still gazing into the concert-hall acoustic through a rectangular window, but someone just replaced the glass with optically flat quartz. The differences between instrumental tonal identities seemed therefore more extreme—and more real.

Second, the system seemed to be able to play louder. The effect of resonant colorations is insidious in that they tend to determine your chosen listening level. You turn the music up until it starts to sound unnatural, even unpleasant, at which point you back off the gain. The difference between the Ekos and the Ittok seems fundamentally to lie in this area. You can listen at a louder, more lifelike level without feeling anything like the same sense of strain, something particularly important with the many recordings that have been desecrated by a heavy hand on the mixing console.

Of all the recordings in my collection, my favorites are those made live. And of all those live recordings, one of my musical favorites is a younger, 1972 Aretha Franklin singing gospel in LA's New Temple Missionary Baptist Church (Amazing Grace, Atlantic SD 2-906). Fundamentally, the engineers have adopted a documentary approach to recording the sound. The choir is set well back in the ambient bloom, but well-focused nevertheless, and the drums, bass, organ, and piano have that ease to their sound that suggests suitably distant miking, yet done with enough intelligence that the acoustic power of the instruments communicates. But why, oh why, did they feel the need to mike Aretha, the woman with V-8, four-valve-per-cylinder, fuel-injected vocal chords, so closely? And why, then, with her voice given no room to breathe, did they mix it so loud that at anything other than high playback volumes, everyone else seems to be peeking over her admittedly ample shoulders? But then—the real crime—they used a mike for her voice that has one of the most forward, colored mid-ranges I have ever heard, so that when you do play the recording at a level where you can hear past Aretha into the rest of the church, the sound becomes a textbook example of how bad mikes can really sound! "Produced by Jerry Wexler, Arif Mardin, and Aretha Franklin" it says on the sleeve. I can only assume that Aretha was so overawed by the track record of two of Atlantic's main men that she didn't like to complain about the disservice paid her talent in the engineering.

This recording is therefore a great acid test—the gross levels of midrange energy excite just about every resonance in the audio chain. If I can stand to play it loud, therefore, without being driven from the room by the quality of Aretha's voice, I know that something good is happening. It was just this recording that proved to me the excellence of the SME V, for example. Her voice was still too loud, and was still colored. But those facts could now be duly noted and ignored. I had exactly the same experience with the Ekos with Amazing Grace. Yes, Aretha was loud. And yes, you hear that her mike was a piece of cardiody garbage. But, oh, the music! Wherever this arm does have its first resonance (and I hope that Martin Colloms will be writing a technical follow-up to this review in the near future), it certainly sounds to be above the critical midrange where it will be excited by such an overcooked vocal recording as this one. Plus on the Linn, the Ekos bass was considerably tighter, better defined in time, than with the SME when mounted on the Linn.

Third, the Troika seemed to track better in the Ekos than in the Ittok. The Ittok is already pretty good at allowing stylus to stay in contact with the groove walls, but there was just that bit better sense of security at climaxes involving boys' voices, for example. The Ekos gives the cartridge a more stable platform against which its generator can referenced. Finally, lower frequencies were even tighter in quality than with the Ittok—and you know how I feel about that aspect of reproduction.

Writing
It has been one of the ironies of audio that two of the best British LP-playing components, the
always musical Linn Sondek LP12 and the always neutral SME V, don’t work well together. The SME is clearly less colored in the low treble than the Linn Ittok, lacking the Scottish arm’s upper-midrange “zing,” but in combination with the LP12 it endows low frequencies with a heavy, “slow” character to the bass which impedes the music’s flow. With the Ekos, Linn Products has shown that they can produce an arm to rival the SME in overall lack of coloration, but which will work in harmony with the LP12 to produce a sound of stunning neutrality. In a Sondek-based system, the Ekos will allow a cartridge to give of its musical best, and I can confidently recommend it to all LP12/Ittok owners who have been worrying that modern arm technology has been passing them by. Linn’s new Ekos is a true Class A pickup arm!

Postscript

With what seems like singularly bad timing, I suffered my first-ever reliability problem with a Linn Sondek just as I sat down to write this report. While strictly not relevant to my review conclusions, editorial policy insists that I communicate what happened. I finished my evening’s listening, took off the record, pressed the button to stop the platter rotating, and went to bed. The next morning, I got up, made coffee, put on a record, pressed the button—nothing. No little red light. Rien. A record sitting resolutely still. On went more than a few CDs while I sat disconsolately tapping at the keys of the Toshiba. Finally, I plucked up the nerve to set the LP12 up on the jig and disinter the Valhalla board, replacing it with the older one from my own Linn. Success. Now I could have music again, but it seemed odd, as there were no signs of overcooked resistors on the inoperative board, the fuse was intact, and the DC voltages seemed to be in the right place. The problem was nothing that a Linn dealer could not have solved in a matter of minutes, but it puzzled me nonetheless. A Linn breaking down is like watching Dwight Gooden walking seven men in a game: it just doesn’t happen.

ALTEC LANSING BIAS 550
ACTIVE LOUDSPEAKER SYSTEM

Larry Archibald

Five-way pentamplified moving-coil loudspeaker. Two 10” woven carbon-fiber (WCF) woofers; one each 8” midbass WCF woofer, 6” WCF midrange cone, 2” diamond-deposited polyamide dome, 1” diamond-deposited polyamide dome. Crossover frequencies: 80Hz, 450Hz, 1.5kHz, 4.5kHz. Amplifier powers: 250, 125, 125, 125, 75Wpc. Remote control (within +6dB limits) of volume, balance, mute (complete), on/off, subwoofer bass, midrange, high/midrange, high-level controls. Maximum output: 120dB at 2m, 40Hz–20kHz. Sensitivity: 100mV in for 90dB SPL out. Frequency response: 20Hz–22kHz, ±2dB. Input impedance: 22k ohms. Dimensions: 71” H by 19” W by 24” D. Weight: 437 lbs each. Price: $12,000/pair. Number of dealers: 15. Manufacturer: Altec Lansing Consumer Products, Route 6 & 209, Milford, PA 18337. Tel: (717) 296-4434.

Akeem Olajuwon? Ralph Sampson? Yes, it must be the Twin Towers. No, wait—it’s the World Trade Centers!

Such were my thoughts upon first viewing the Altec Bias 550s erect in my living room. So great was the illusion that the dual drivers were crowded with two of my toy dinosaurs (that’s pronounced “dina-sour” in these parts), suggesting, I hoped, the humanity, humor, and yearning of King Kong’s ascent of the Empire State Building—either Fay Wray’s or Jessica Lange’s version. (Jessica used to live in Santa Fe until just a little while ago—sigh.)

Whoa boy, down to earth—just write the review. I must say that these, the second Altecs to be reviewed by Stereophile since Altec rose Phoenix-like from the ashes (on the dollars of Sparkomatic, a well-known and most successful car audio firm), have themselves succeeded in bringing me down from the euphoric heights of my return to reviewing that began with the Thiel CS1.2 (Vol.12 No.1). Perhaps too far down . . . but I precede myself.

Methodology

Uh . . . I wish I had one. I tell you, it’s daunting
to read the thoroughness with which JA dismembers speaker after speaker in the $1000- and-under range. There's the familiar Linn table and arm, the VTL 100W monoblocks or Krell KSA-50, the Monster Cable M-1000. And such a musical range! Really, I'm in awe of the investigative process (and a bit surprised that green-behind-the-ears manufacturers keep sending us product for such predictably regular disparagement), not to mention JA's willingness to keep wading into the less-than-state-of-the-art fray.

Not so me. I feel that I'm still just groping, drawing upon my now-11-year association with J. Gordon Holt, the constant exposure to competing designs here in Santa Fe and out in the world, and of course my ongoing discovery of the wonders of live music.

Pretty much, I just hook 'em up and tell you what they sound like. Of course, I make sure that my source equipment is as neutral as I can make it (CAL Tempest II CD player, Adcom GCD-575 as solid-state backup, Well-Tempered Turntable with Audioquest 404i for LP), and that my preamplifier is as transparent as I can find — a Levinson No. 26 I'm fortunate to be able to hold onto for a little while longer. Interconnects were Monster 1000s in 5m length.

**The Physical Plant**

No lesser title will suffice. Just take a look at those specs: 437 lbs; 71" high; 5 amplifiers per channel totaling 700W RMS; remote control; 120dB maximum output.

There is no doubt that Altec put everything they could into this product. In my opinion, however, they should have stopped right there before going into production, and taken another year to realize how to make such an all-out product really well, with all the convenience that this amount of money and technology can provide. But again I precede myself...

These speakers are huge. Until you actually have a 6' (by 1½' by 2', to boot) speaker in your room, you don't know what the word means. The cabinets of my pair came in a disappointingly bland walnut veneer, and all are supplied with top-to-bottom grilles which are, aside from a flare apparently designed to optimize diffraction (but which itself presents a sharp discontinuity with the baffle), quite ordinary.

The cabinet size and shape are, to my mind, Altec's first mistake. I will admit — and this is an important admission, as will become evident throughout this review — that the 550s were not designed for the typical *Stereophile* audio enthusiast. Who, then, is likely to spend $12,000 for a speaker? Surely it will be someone with money to throw around to create an impression, whether sonic or visual. Such a speaker, even if weighing 437 lbs, should somehow convey a feeling of elegant light-footedness, or at least modest grace. This the Altecs do not achieve. Aside from the benighted design of the recent Acoustat Spectral 33s (and their forebears, the Acoustat Monitors), these are the ugli-
Contrast them with the IRS Beta system reviewed by JGH in Vol.11 Nos.10 and 12. I had the Betas in my home for a while; they were sensuous. You felt like rubbing cat-like against their elegant finish. Though large and fairly heavy—in four pieces, no less—they inspired admiration and appreciation. Rather than a bland walnut—walnut can be one of the most luxurious of woods—they come standard in Santos Pau Farrao, as befits such an expensive acquisition.

The 550s don't even come with casters, surely essential accessories—even an ex-furniture mover like me would easily be overwhelmed by their mass. Early on in the review process I wondered whether the sonic performance might be bettered by spikes or some such tweak, but concluded that 437 lbs coming down on four points would surely put a lot of pressure on the minimal contact surface that touches the carpet or floor. I'm all too sure the floor penetration would have been significant.

As you can see from the specs listed above, the 550s are an active speaker system, consisting of no less than five amplifiers each, controlling a total of six drivers: two subwoofers mounted top and bottom in rubber-isolated separate cabinets (contained within the main enclosure), and one each of bass, midrange, upper midrange, and tweeter drivers. It is not unusual for large, expensive speakers that play loud at low frequencies to provide significant frequency-balancing provisions—witness all the alteration you can make to the sound of the IRS Betas—but the Altec 550s set a new standard in this respect. Each of the amplifiers is remote-control—alterable with respect to the other amplifiers by a total of 12 dB (nominally ±6 dB from "flat"). This provides great facility for in-room equalization, but unfortunately it is available in nothing finer than 2 dB steps. When changing all the frequencies below 80 Hz, or from 80-450 Hz, for instance, 2 dB makes a helluva big difference to the sound—much too big and all-encompassing to adjust for anything but gross room problems, or truly awful records.

Unfortunately, the Altecs as first hooked up displayed abysmal tonal balance, exhibiting an immensely out-of-balance low-frequency heaviness. Thus, I became used to the remote control right off as I strove to even things out. (After running some frequency-response curves, and reporting the results to Altec, it became clear that my pair had been badly misadjusted at the factory before shipment; this report will therefore review two separate pairs, although the second was simply the first pair correctly adjusted.) Here was one of the areas where I feel Altec should have waited a year to study how to do things right.

First, 2 dB steps are too gross. Second, it is worse than unnecessary to have this kind of flexibility remote-controllable (presumably to equalize the system for each recording): it is positively a burden to try to make everything sound okay on a record-by-record basis. Far more useful would have been in-room, potentiometer-controlled overall setup to be performed by a dealer or factory technician—much as Dave Wilson does with his WAMMs—combined with a remote-controlled Quad-like tilt control, and perhaps a bass boost or cut. *That* would be easy to use, and not burdensome.

The remote control also misses a bet in the way it handles volume and balance. Balance is only controllable through raising or lowering the volume of one channel at a time, which in turn requires a total of three button pushes (each button's label is only dimly visible—invisible in reduced room lighting such as is typical for a relaxed late-night listening session). It is also possible when raising and lowering overall volume to throw off the system volume balance if the remote is not aimed precisely between the speakers (more than 10° off may affect only one channel). Another user-unfriendly touch is that you have to turn the speakers off with the remote if you want to be able to turn them on again with the remote. Yet many situations arise where it's easier to turn them off as you leave the room (using a logically situated switch on the back of the speakers), then turn them on when you sit down to play some music again. In frustration I ended up leaving them on continuously, which, I rationalized, would at least yield the best sound from their amplifiers (though in truth I could claim no observation of sound improvement from this move).

If those weren't enough strikes against Altec's remote, the receiving circuitry has some kind of logic which causes a delay in execution of the given command. For those used to the instant results from TV remotes, the immediate interpretation is that the remote isn't aimed correctly, which leads to frantic remote waving.

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Once you realize it's simply a delay, there's a similarly frustrating period where it seems the logic is out to trick you! If you hold down the relevant button until a change is registered, it keeps going beyond where you want (and with 2 dB steps, this is not trivial); then, when you attempt to correct, it goes all the way back to where you started, or farther. The redoubleable JGH, here for our "Recommended Components" writers' conference in February, was given the job of making the speaker sound good while we were sitting around talking. After ten minutes of cursing and swearing he gave up and set everything flat — at which setting, by the way, the speaker was unlistenable. This is a man who believes in equalizers!

I've probably pummeled the remote too much. It's just frustrating, because I love remote controls, and would love this one if it gave me easy control over things I could usefully change (mute, volume, balance, tilt, polarity inversion, on/off). It doesn't.

Given the captive nature of the electronics, I had no way of evaluating their quality independent of the speaker system. Suffice it to say that I never detected clipping, even at very high volume levels, and that their current specs (68 amps/channel peak, total) would appear to be more than adequate.

The cone drivers all employ woven carbon fiber, for which no particular claims are made by Altec (at least in the "Preliminary Information" they provided to me), other than remarkably low distortion and the ability to play loud (e.g., subwoofer distortion of 0.8% from 30–500Hz at 90dB, which is remarkable). The dome tweeters are polyamide (a plastic), on which is deposited a thin layer of diamond. A similar procedure is carried out by Audax on some of their tweeters, with aluminum deposited instead, but Audax's chief speaker designer confided to me that it was basically a marketing move since the aluminum-coated dome behaved pretty much the same as the non-coated dome — except that it was heavier, of course. Whether this is true in the case of the Altec's tweeter I do not know; none of their explanatory literature contained testimony as to the efficacy of diamond-coating.

It would appear that most attention has been focused on the cabinet. This actually consists of three cabinets housed within the 71"- tall overall enclosure. At the top and bottom of the loudspeaker are identical subwoofer cabinets containing 10" long-throw woofers. These cabinets are made of 1" particle board and isolated from the outer cabinet using "mechanical sponge rubber," to "virtually eliminate cabinet resonance." This, of course, it cannot do, since "virtually" all cabinets resonate. The overall level of transmitted sound was remarkably low, though I was interested to note that, in hands-on vibration sensing during a swept sinewave, the outer enclosure vibrated somewhat more than the front of the subwoofer cabinet itself. Apparently the sponge rubber works better at damping the interior cabinet than at preventing sound transfer to the outer enclosure. Still, it was an impressively vibration-free cabinet, especially considering how well it does when you play this speaker really loud (105dB and up).

The third cabinet in each speaker is very much like a conventional 4-way box loudspeaker, except that the midrange driver is moved from its "normal" position between bass and upper-midrange drivers to a position at the top of the array. The drivers are all rebated, the front of the baffle presenting a smooth, diffraction-free surface (until the edge, which is sharp). Unfortunately, as pointed out above, the interior frame of the grille presents a sharp discontinuity (virtually a right angle) with the baffle front. The slight flare added to this frame member looks like a diffractive afterthought. Compare this to the $1100 Thiel CS1.2 I reviewed in January (as well as many other high-end speakers), where significant design and manufacturing attention is paid to a specific grille shape and thickness.

This center enclosure is mounted in the middle of the outer enclosure on a "specially designed" shaft which allows approximately ±15° of rotation. This is claimed by Altec to offer control over "imaging" (their quotes, not mine); it also significantly alters the diffractive behavior of the enclosure, at least if the grilles are off, as the edge of the internal cabinet intersects the edge of the outer cabinet at quite a different angle depending on the angle of rotation. Though the point is not keenly relevant, the center cabinet, in its rotated-inward position, makes the already cumbersome-looking speaker appear a bit more odd.

### Sound Quality — Spectral Balance

Here I must, as noted above, review two loud-
speakers, though unfortunately the differences between them were not as great as I had hoped. The speakers, as delivered, displayed the gross-est bass-heaviness I have ever heard outside of a CES. Were it not for the built-in availability of frequency alteration, a review would have been written on the spot, but with only a half-hour of listening since more could not be borne. As it was, I struggled for several days to make the speakers sound right, immediately bottoming out the bass and subwoofer controls (–6dB on each). This did not cure the bass-heaviness, leading JA to suggest that it wasn't a frequency-response problem but just a case of a too-high Q LF alignment resulting in too much driver hangover. It turned out that my mistake was too much reticence with the remote. For some reason, I was reluctant to both drop the lows and boost the midrange and highs. (For one thing, the picture of spectral imbalance given by the LEDs on the front control panel of each speaker was too disconcerting.) Once I'd gotten the midrange a full 12dB above the bass and subwoofers, it became possible to listen.

Even with this readjustment, I found no way to feel at ease with the 550s. To some extent this was due to an as-yet uncategorized anxiety: "fear of bass." Whether the cause was in the recording, the record player, or the CD player itself, anything with a tendency toward heaviness, or even convincing weightiness, became unpleasant. But that wasn't the only problem. In my equalizing frenzies I had found it necessary to drop the "mid-hi" and "hi" levels to –3 and –6dB (with respect to the midrange—they were still way above the bass and subwoofer levels), respectively. Still, no solution was entirely satisfactory. If the record sounded harsh, dropping these ranges could make the record sound dull, but not right. Only vocal presence and clarity came out well.

To say that this was a disappointing result from a $12,000 speaker system—particularly one whose advertisements quoted our own JGH as saying "Awesome low end, extraor-dinarily smooth middles and highs, and remarkably good depth"—would be an understatement. I was appalled; prepared to write it up as such, but appalled. To make sure there wasn't something grossly wrong with my mood, source material, or general conditions, though, I went to an extreme: I measured the speaker: Gasp. It turned out that, on pink noise, my by-ear adjustment approach had yielded very nearly the flattest measured in-room sound possible. With the subwoofer and bass amplifiers 12dB below the midrange, pink noise showed about a 3dB lift below 80Hz, and a mild dip between 80 and 300Hz. With the system set flat, there was no way to get the entire frequency spectrum registering all at once on the magazine's Audio Control Industrial spectrum analyzer.

Right around this time I called Tommy Freed-mam, the 550's designer, to see if he could provide some background on the whys and wherefores that led Altec to make this product. As we chatted, he asked my opinion of the speaker, and I told him—along with the measurements. He immediately announced that there must be some mistake, and offered to stop in Santa Fe on his way to the 1989 WCES to see if the speakers were behaving correctly.

Normally we accommodate manufacturers who spontaneously wish to submit additional samples during the review process, but we don't encourage such "tweak to the reviewer's preference" behavior. In this case, though, there was room for exception. First, the speakers were so far out of any reasonable spec that some mistake in production was likely, though how it got out the door without even a rudimentary frequency-response check is beyond me. If Boston Acoustics can check every single pair of A40s, why can't Altec check a pair of $12,000 babies before shipping them all the way across the country? Second, and a surprise to me since it isn't mentioned in the literature, any Bias 550 purchaser who experiences "listening room anomalies" is entitled to on-site factory technician adjustment of the speakers until he's happy! Not only that, if the 550s break any time during their 5-year warranty period, Altec will fly out a technician to fix them in your home. I'd like to see every $12,000 speaker offer that kind of service.

Mr. Freedman found that the review pair was a very early production-run sample, one of the first ten pairs produced. Whether due to their earliness, or to Mr. Freedman's absence from the factory when they were made, the person in charge of setting amplifier input sensitiv-itiies had completely boched the job. Not only were the subwoofer and bass amps off, so were all the others.

There is a way for a home user to make the input sensitivity adjustment, by removing the
remote-control circuitry box at the front of the loudspeaker and dildling some potentiometers, but the speaker assemblers frustrated my efforts at doing this by covering the screws holding this box with a very hard glue. As the screws were accessible only from inside the cabinet after removing the bass driver, and I was unwilling to exercise my auto mechanic's "get a bigger hammer" instinct on this $12,000 product, it was necessary for Mr. Freadman to make the trip.

One additional benefit was that now we would be sure that the speakers were absolutely factory-correct. An afternoon's work was all it took, and pink-noise measurements demonstrated an impressively flat response with only −2dB of rolloff to both subwoofer and tweeter amps.

The Second Pair

It didn't take too much listening to reveal that the Bias 550s couldn't be left at their flattest pink-noise settings. The same general problems existed, as noted above for the optimally adjusted "first" pair, but to a lesser degree. The difference was that now I had much more range to my adjustments, though I was a bit reluctant to use them, knowing how un-flat any measurements would come out. Still, I was determined to actually spend time listening to this product, and it was impossible without significant alteration from "flat."

After much experimentation, the least objectionable settings gave a −8dB difference between subwoofer and midrange, −2dB for bass, −2dB for mid-hi, and +4dB for hi. These latter two varied depending on the recording: departures from well-recorded classical material required greater treble cut, though at the expense of a certain vocal deadness. I tried to use more subwoofer, but again encountered Fear of Bass. (If I needed −8dB in the corrected version, you can imagine what the as-delivered pair sounded like flat with their inherent +12dB boost. 20dB of extra bass below 80Hz is something else!)

What do we get with the speaker thus optimized? On the positive side, I can say that voices, particularly male voices, had astonishing clarity and in-the-room presence, especially at high volume levels. You're not quite aware when listening to other speakers just how anemically a robust male voice is usually presented. At the same time, the male voice does not tread greatly into this speaker's danger area, the below-80Hz range, so there was little excess chestiness.

Female voice, whether classical or popular, was presented with almost as much power, but less grace. The volume levels necessary to get voice to "pop out" and be in the room with you also seemed to exacerbate a problem in the upper midrange which lent a mildly ragged quality to female voice.

That's about it on the positive side of the ledger, particularly if you consider the price and the space you give up to this product. Full orchestra was invariably heavy, bordering on muddiness. Chamber orchestras sounded better, but lacked life. With popular music in general you were made too aware of the hot mikes or equalization used in making the record. These recording faults are not the fault of the speaker, but speakers vary considerably in the degree to which they make these problems unbearable. A speaker very clean in the treble frequencies will let you know the mikes or recordings are bad, but let you hear the music. The Altec 550s made me simply want to put on a different record.

Some favorite evaluation discs, like Sheffield's Drum Record, proved almost unlistenable. In this case, it was not only the heavy bass—the drums on this record are meant to sound heavy—but the incorrect reproduction of drum timbre. The weight was in the wrong place; drums didn't sound like drums.

Most damning, the Altecs managed to kill the life in most of the music I played. Whether it was bass heaviness or upper midrange harshness, my most spontaneous response was simply to leave the system off, except as I had to be thorough in this review. No speaker can do worse.

Dynamics

Tommy Freadman revealed that, at the time of our conversation, 60 pairs of Bias 550s had been sold, a figure surprising even to him. Given the content of this review, you can surmise that my reaction borders on outright disbelief. Still, even were it 10 pairs, there must be something that draws people to these speakers. According to Freadman, that something is the ability to play loud. I mean loud. He asserts that many of their owners regularly play the 550s at peaks as loud as 120dB.

I have to agree, that's loud; it's also louder.
than any speaker I've ever reviewed, almost louder than any speaker I've ever heard. (John Meyer makes PA systems demonstrated at a CES at 130dB; the critical reception from the underground press was deafeningly negative, but I liked them, except for 20Hz at that volume level, which made me ill.)

I must also agree that the Altecs play loud well; they actually sound better at quite high volume levels, something rare in a home product. In fact, they almost have to be played loud; soft, they in no way come alive. In itself, I would regard this as a defect, partially because I don't enjoy listening at these volume levels, partially because it indicates a kind of low-level masking which is overcome by the higher volume.

Nevertheless, high, clean volume is impressive, and typical audiophile speakers just don't do it. The IRS Betas, for instance, will play quite loud; in the listening I did at JGH's, I would say we occasionally hit 105dB peaks, with little strain. Still, I don't believe the Betas will do much better than 108dB peaks. That's really not in the same ballpark as 115dB, much less 120.

The Altecs play loud better than any home speaker I've ever heard (not counting the John Meyers, which I couldn't evaluate critically and which are only rarely used in homes). The only one which comes close is perhaps the Klipschorn. No offense intended, but the K-horn, which costs a third as much (without amplifiers—but you only need about 25W), is a much more colored product, and much less forgiving in the lower treble.

Nor does this capability ever come cheap. Good PA systems, the only other place you get this kind of volume, cost much more, and are themselves inherently more colored.

If you need 120dB, can stand a bit of bass heaviness (perhaps your pair will be better than mine), and have the space, I can recommend the Bias 550s.

Soundstaging and Image Coherence
I'm afraid Altec gave away the story ending by enclosing "imaging" in quotes throughout their product literature. I thought, "What is this—they think imaging is in our imaginations?"

Not surprisingly, the Altecs image less well than products like the Thiel or Celestions, for whom imaging is a raison d'être rather than a subject for quotation marks. On all the records I have, the image stayed resolutely confined to the space between the Altecs; the speakers were the boundary of the image. Within this somewhat shrunken soundstage, images were firmly anchored but not overly specific. Never was I deceived into thinking that somehow these speakers had disappeared (a phenomenon to some degree augmented by their large physical presence), that I was at the performance.

At the same time, their performance was far from abysmal. The extraordinary anomalies that regularly occur in studio popular recordings were laid bare with ease—but this is not an achievement that gives me pleasure. With all recordings, there was a clear presentation of where the instrument or voice was supposed to be coming from; it just didn't forward the realism of the experience.

Most disappointing was the inability to render hall space, an ability I have come to expect from speakers that reach to the depths of recorded sound. This may have been affected by my need to roll off the bottom end, but, unrolled-off, the low frequencies were too much of a mush to reveal details of hall space.

Conclusion
The Bias 550 is clearly Altec's flagship product; this function was clarified at the recent CES, where they introduced an entire line at least superficially patterned after the 550. As stated at the beginning, they put everything they had into it. Unfortunately, I have to conclude that this product development methodology is mistaken.

Although it's not generally talked about, the opportunity to make dreadful mistakes in speaker design goes up in direct proportion to price (once you've gotten above a $400–500 minimum). For this reason, companies like Thiel, Vandersteen, Spica, and Celestion have started small and worked up, refining their abilities to "scale the heights" as they go. Altec instead tried to go for it all at once.

No one who's read this far will be surprised to learn that I don't find the Altecs worth their asking price of $12,000. Perhaps more important, I couldn't recommend buying them at $500. One thing—playing loud—they do very well. This is not, however, important to me once past 105dB peaks, particularly if the product is relatively unrevealing at lower levels. I suspect it isn't of overriding importance to you.
either. In some other respects the Altecs are poor enough to warrant rejection at even low price levels; in many other respects they are simply unremarkable. Although I welcome the innovation inherent in their inclusion of remote control, I feel they worked it out poorly: the result was frustrating rather than liberating.

The Bias 550s' biggest problem is a failure to draw the listener into the music, a lack of intimacy. In addition, they have a tremendous sensitivity to the mere presence of low frequencies, as well as complete intolerance of anything wrong in the source material in that region. My response was to listen as little as possible, the worst effect any component can have.

As I said at the beginning, the Bias 550s must have been designed entirely with someone else in mind. But who? Not the wealthy person, rich enough to buy them and with a big enough living room to house them, but whose audio enthusiasm is muted. Much preferable would be a B&O or McIntosh, about whom I might have similarly severe sonic criticisms, but whose appearance is so much more appealing. Certainly not the devoted reader of Stereophile, who has been known to spend this much on just a pair of amplifiers, but who wants to see into the music, to be carried off by sheer realism.

They must have been designed for wealthy people with big rooms who need high SPLs and are not put off by these speakers' looks. A limited market, I would have thought. For myself, I will be glad to no longer confront their immensity. My toy "dina-sours" will have to find new perches.

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**TALISMAN VIRTUOSO BORON PHONO CARTRIDGE**

Dick Oisher

Type: high-output moving-coil. Nominal output voltage: 1.8mV. Internal impedance: 105 ohms. Recommended load impedance: 47k ohms. Frequency response: 15Hz–32kHz, ±2dB. Channel separation at 1kHz: 35dB minimum. Channel Balance: 0.5dB. Compliance: 15cu. Recommended Vertical Tracking Force: 2.0 ±0.25 grams. Stylus type: diamond with a van den Hul Type 1 line contact footprint. Weight: 7.5 grams. Price: $850. Samples tested: SNs 88225 & 88385. Manufacturer: Sumiko, PO Box 5046, Berkeley, CA 94705. Tel: (415) 843-4500.

I was more than a little apprehensive at the thought of having to review a high-output MC; my initial exposure to MCs several years ago left a bad taste in my mouth. Memories of an excruciatingly bright and hot top end, which I had managed to suppress all of these years, came flooding out. The prospect of being imprisoned by the sonic equivalent of a screaming infant in a bare-tiled bathroom literally sent shivers up my spine.

So it was that, after wiping the cold sweat from my brow and settling back for a first listen, my jaw dropped to the floor and stayed there for a while. What? No brightness!! None whatsoever. But, as usual, I'm getting ahead of myself... 

Talisman's Virtuoso series is now comprised of the $850 Boron and the $1200 DTi, which are identical except for the choice of cantilever material. The ideal cantilever should be infinitely rigid and extremely lightweight, in order to faithfully convey even the faintest high-frequency motion of the stylus to the generator without contributing extraneous information via tube resonances and bending modes. As the model designation implies, the Boron
employs a boron tube cantilever. Because of boron's low density and outstanding stiffness, second only to that of diamond, it makes an excellent cantilever material. More exotic technology is used for the DTI—a diamond coating deposited over a titanium tube. The interior of the tube is also treated with an antiresonance damping compound. The result, a cantilever much lighter than a solid diamond rod, is almost as stiff, and is extremely "quiet."

The plasma etching process for applying diamond coatings was thought to be impossible before Soviet researchers demonstrated the proper technique. Earlier attempts merely produced graphite instead of the desired diamond coatings. The Japanese have invested heavily in researching this technology, and are now the world's leading experts in its commercial applications. The potential commercial payoff is tremendous, and the technique is being applied to everything from drill bits to camera lenses (even to tweeters). Three problems remain to be overcome before the process becomes practical for mass production, however. The obvious one is cost; more serious are the problems of depositing a uniform coating over complex shapes and preventing the coating from peeling off prematurely.

The Virtuoso's body is precision-machined from a block of aluminum/magnesium alloy, and is designed to be extremely rigid and essentially free from internal resonances. The alloy body, together with a wide mounting surface, provides an excellent acoustic interface with the alloy headshells of the best tonearms. The generating mechanism of the Virtuoso line is identical in principle to that of the Talisman Alchemist series in its use of the "Intensified Field Focus" design. However, a new magnet material, a neodymium-iron-boron composite, is used instead of samarium-cobalt to achieve a more powerful magnetic field. This increased magnetic field strength allows Sumiko to further reduce the Virtuoso's effective moving mass, presumably through a reduction in the number of coil turns. Sumiko claims that their high-output MCs retain all of the performance advantages of a low-output MC while generating a large enough output voltage to obviate the need for a step-up device or an MC preamp stage. This is indeed an exciting prospect, like having your cake and eating it too. After all, a good step-up device is difficult to find, and a preamp MC stage adds a premium to the cost.

All Virtuoso cartridges are quality-tested in the US using an eight-step electrical, optical, and mechanical inspection process. An individual frequency-response chart is produced for each cartridge during this testing phase. This chart is normally initialed by the designer himself, David W. Fletcher, to indicate that he has personally inspected and listened to the cartridge. This is a refreshing attitude for the high end; we've seen entirely too many review samples that were faulty right out of the box. As a consumer, I'm comforted to know that the product is not only well-designed, but also well-built, and that it meets specifications.

The cartridge was a snap to mount in the SME V, my current reference arm. Because the mounting holes in the cartridge body are threaded for the supplied bolts, no nut is necessary; even a complete klutz could readily perform the installation. After setting the VTF at 2.0 grams, I adjusted the VTA per Sumiko's instructions by ensuring that the arm was parallel to the surface of the record. The rest of my front end consisted of the SOTA Star Sapphire vacuum tube and the Threshold FET-10 preamp, operated in the low-gain mode with an input impedance of 47k ohms.

The first sample of the Boron (SN 88225) stayed in my system for several months and saw a variety of amplifiers and speaker systems. However, I was able to arrive at an accurate sonic assessment fairly quickly, even before undertaking any formal listening tests. You see, the Virtuoso had replaced the Monster Cable Genesis 1000, which had elevated the sound of my phono system to a new standard of performance. This made it very easy to pick out the differences due to the Boron.

My first sonic impression was of a very competent and neutral cartridge. I was especially struck by its smooth, detailed, and quick reproduction of the upper octaves. Control of treble transients was exemplary, and I felt that this aspect of its performance even exceeded the fine standard already set by the Genesis 1000. The dreaded brightness and sizzle I've heard from other high-output MCs was totally absent. The top end of the Boron was consistently natural, never shortchanging the integrity of harmonic overtones. Nor was its retrieval of delicate HF detail achieved via the exaggeration of treble transients, which were consistently free of that "etched" quality symptomatic of ringing or overshoot. Take, for example, Therese Juel's
vocal on the Opus 3 Test Record 1. Granted, Therese's sibilants are miked slightly hard and too prominently, but they should not sound hot and spitty, as was intimated to me some time ago by Michael Mussachia, the Opus 3 importer at the time. Sorry, Michael, with the Virtuoso these spitty sibilants are revealed to be merely the byproducts of inferior transcription.

The upper soprano registers were generally reproduced with a silky smoothness. A quick listen to your favorite soprano should make a believer out of you. Neither did the Boron, with its extreme HF extension, have any problems in revealing the high-end limitations of the old Quad ESLs (eg, closed-in treble) or the recessed treble character of the Celestion SL600s. I was acutely aware that the speakers were, in fact, the limiting factors in the reproduction of the upper octaves. There was no difficulty in picking up the slight artificiality of the Celestion metal dome. Call it a metallic coloration if you wish, but it's a sonic signature of every metal dome I've heard. Many cartridges mask this by generating HF hash of their own. Not the Virtuoso.

The midrange was very detailed, but in a natural, not analytic, fashion. With the right electronics, I was never fatigued by the onslaught of detail; the accuracy of the underlying musical textures was not compromised. Textures were neither too hard nor too liquid. This is not a romantic-sounding cartridge, but one that instead emphasizes accuracy. The mids were never lush, or aglow with excess sweetness. Thus, deficiencies in the back end of the system have no place to hide. A solid-state preamp or amplifier with a tendency toward hardness or leanness in the mids will probably push the Boron over the edge toward a clinical overall sound presentation. Tubed electronics would appear to be a safer bet with the Boron.

Although the presentation of the Boron was not forward, I was not completely happy with its reproduction of depth perspective. The soundstage appeared to be compressed, front-to-back distances foreshortened. The net effect of this was to bunch instruments together along the depth dimension of the soundstage. The width of the soundstage was not affected, and generally the Boron was quite capable of generating a wide image, limited in this respect only by the source material itself. More serious were the losses in spatial resolution. The mids were not as solidly and incisively portrayed as with the Genesis 1000. The palpability and focus of instrumental outlines were somewhat reduced. Together with a slight loss of midband transparency, these factors made it difficult for me to accept the Boron's idea of a spatial illusion. Neither could I reliably detect the back of the hall and resolve hall reverber as well as I could with the Genesis 1000. In the case of Laudate! (Propius PROP-7800) it should be possible to resolve the various rows in the chorus, the spatial outlines of the individual voices, and the wash of voices of the back wall. The Boron was adequate, but not great in these respects. I certainly wished for better focus and imaging inciseneness or 3-D palpability.

Finally, I can report that the bass reproduction of the Boron was extended, and would have to be rated as very good on an absolute scale, though lacking the weight and impact of the Genesis 1000. For example, the body of the double bass was slightly anemic in comparison. Generally speaking, bass lines lacked the ultimate in rock-bottom solidity.

At no time did I experience any serious problems with the Boron. But after a couple of weeks of service, I noticed a slight deterioration in the Virtuoso's performance. Some of the treble delicacy evaporated, and the original levels of midrange focus and transparency were also slightly diminished. Enter the Sumiko Fluxbuster.

The Model FB-1 Demagnetizer is claimed by Sumiko to restore peak performance when the magnetically permeable components of a transducer become magnetized. Sumiko claims that magnetization in a moving-coil armature can be heard as a loss of dynamics, degradation of image, "mushiness," or a combination of those symptoms. Because magnetization of pole pieces can also cause similar problems in fixed-coil cartridges, the Fluxbuster is touted as potentially benefiting any magnetic cartridge. The notion of a demagnetizer sounded reasonable, and John Hunter at Sumiko was very high on it. According to John, Sumiko shared a suite with SOTA at the most recent Stereophile Show in Santa Monica, and found that after about eight hours' use the front end greatly benefited from fluxbusting. "The difference was not subtle," he said; so I tried it. Now I, too, believe! I noted immediate improvement in several areas. First, the full original measure of HF delicacy and smoothness was restored. Second, midrange transparency was slightly increased. And finally, the mids were tighter.
and more precisely focused than before. The Fluxbuster is easy to use and is priced ca $250. I do not plan ever to be without one.

My first sample of the Boron turned out to be over a year old and the survivor of two trade shows. Sumiko then provided me with a current production sample (SN 88385). The frequency response of both samples was essentially identical: ruler-flat, except for a 1dB rise around 20kHz. The new and old also sounded alike. Yes, the new sample was, if anything, slightly cleaner and smoother through the upper octaves, and slightly more immediate in the midband than the old, but I attribute these differences to normal wear and tear. However, even at its absolute best, the Boron exhibited the sort of slight imperfections noted above: compression of depth perspective, loss in image palpability despite fairly precise focus and localization, reduction in bass weight and impact, and soundstage transparency a tad below that of a Class A cartridge.

**Comparison with the Virtuoso DTi**

I knew you'd be interested in such a comparison; I certainly was. So I insisted on carrying out this comparison before the completion of the review. Sumiko graciously complied with my request for a sample of the DTi (SN 99174). There is little measurable difference between the B and the DTi, except for an extra dB of energy between 15 and 20kHz. However, I don't think that this alone accounts for the significantly greater sense of excitement generated by the DTi through the upper mids and presence regions, say from 2 to 5kHz. It's not a question of being brighter (which the DTi really is not), and the steady-state frequency response bears this out. The DTi was able to grab my attention and rivet it on the music to a degree the Boron just could not achieve. This greater sense of involvement I believe to be a function of enhanced performance in several areas. The soundstage is more transparent, and spatial detail is sketched out with exquisite dimensionality. The soundstage can be cavernous through the DTi—no more depth compression. Hall ambience is clearly resolved, as are individual outlines in massed voices or dense orchestral passages. The bass octaves are also noticeably tighter and quicker. And, believe it or not, the treble is even more relaxed and effortless, with no trace of fuzz or hash. Also startling is the reduced noise floor; surface noise is much less prominent. The DTi has an eerie background silence and effortlessness that I found captivating. With the only construction difference between the two being the cantilever, the world-class results obtained by the DTi clearly support the soundness of the technical approach taken by David Fletcher.

Overall, the DTi is a much better-sounding cartridge than the Boron; the Boron perhaps captures 70% of the DTi's performance level, and on that basis is clearly a good value. My problem—and I know Sumiko won't like this—is that I can't comfortably do without that missing 30%. So I would unhesitatingly save up for the DTi. It is stunningly accurate while being intensely musical; a true reference tool and a thing of joy.

**Summary**

From an objective standpoint, the Virtuoso Boron gets very good marks and clearly deserves a Class B recommendation—especially for those of you without the provisions for a low-output moving-coil cartridge. Subjectively, however, the Boron didn't quite light my fire, failing to generate sufficient musical excitement and involvement. Thus, it may be described as a cartridge for the brain and not the heart.

If you can accommodate a low-output MC, then I would clearly recommend the Genesis 1000 instead. It is comparably priced, and although not as suave-sounding as the DTi nor as well-behaved in the treble, it is nonetheless much more satisfying musically than the Virtuoso Boron.

What the Boron has to offer foremost are neutrality, inner-detail retrieval, and smooth and well-controlled treble. Because it is so uncolored, almost bland, and cerebral in its presentation, it is in no danger of becoming a cult favorite—it isn't euphonic enough. It is, however, extremely listenable, and at 2 grams VTF it tracked everything I could throw at it. But its losses in midband transparency and imaging did bother me. What I'm trying to say is that, while I did not fall in love with its sound quality, neither was I disappointed with its inherent value for the dollar.

PS: Don't forget to give the Sumiko Fluxbuster a try; I suspect you'll find it indispensable for keeping your cartridge tuned.
Yet More Loudspeakers

John Atkinson reviews models from Delaware Acoustics, Monitor Audio, Ohm, and SR

Delaware Acoustics DELAC S10: two-way, sealed-box, floor-standing loudspeaker with passive, line-level LF equalization. Drive-units: 0.75" plastic-dome tweeter, two 4.5" doped paper-cone woofers. Crossover frequency: 4.5kHz. Frequency range: 50Hz–20kHz. Sensitivity: 85dB/W/m. Nominal impedance: 4 ohms (minimum 3.5 ohms). Amplifier requirements: 15–100W. Dimensions: 40" H by 5" W by 35" D (loudspeakers); 10" square (bases); 2.5" H by 5.2" W by 6.5" D (equalizer). Shipping weight: 50 lbs/pair. Price: $629/pair (including equalizer) plus shipping ($30 Eastern USA, $40 Western USA, UPS). Standard finishes: teak and walnut veneer; black gloss and white gloss laminates. Approximate number of dealers: 1 (factory direct, 30-day free-return period). Manufacturer: Delaware Acoustics, P.O. Box 54, Newark, DE 19711.


This review of mainly inexpensive loudspeaker systems follows those of the nine speakers published in the January and February 1989 issues of Stereophile and should be read in conjunction with them to get a flavor of what's around. This final set of four models under review, one each from Switzerland and England and two from the US, includes three—the Ohm, Monitor Audio, and SR—that debuted at the 1988 SCES in Chicago. Three are stand-mounted and one is a floor-standing design; two are sealed-box and two are reflex designs; and one has a line-level bass equalizer. In addition, Audio Advancements provided a pair of the matching Bolero Forte woofers to accompany the Swiss SR Boleros. I had originally intended to include a pair of the Amrit MiniMonitor speakers from Iowa manufacturer Amrita Audio in this set of reviews but, as explained in the introduction to the reviews in January (p.151), only one of the review pair worked. At the time

1 A complete list of loudspeakers costing under $2000/pair that have been reviewed in Stereophile and were in production on January 1, 1989, appeared on p.163 of Vol.12 No.1 (January 1989). See also "Recommended Components" in this issue for our current recommendations in all price categories.

Stereophile, April 1989
of writing, Amrita has still not managed to supply a replacement, thus postponing any report on this interesting compound-woofer design.

The review procedure followed, with minor changes, that established for my previous loudspeaker reviews: Each pair was used with a pair of VTL 100W Compact monoblocks, connected with Monster M1 speaker cable, while the preamplifier was a combination of the Mod Squad Line Drive Deluxe AGT and Vendetta Research SCP2 phono preamp. Source components consisted of a Marantz CD-94 CD player used to drive a Sony DAS-R1 D/A converter, a 1975-vintage Revox A77 to play my own 15ips master tapes, and a Linn Sondek/Ekos/Troika setup sitting on a Sound Organisation table to play LPs. Interconnect was Audioquest LiveWire Lapis. With the exception of the floorstanding DELAC S10s, the speakers sat either on a pair of 24" wooden Chicago Speaker Stands, with a sheet of Sims Vibration Dynamics Navcom placed between the top-plate of each stand and the loudspeaker, or on a pair of Arcici "Rigid Riser" stands, which have a height adjustable with two grub screws between 20" and 36". The loudspeakers were carefully positioned for optimum performance, and both stands and floorstanding speakers were coupled to the tile floor beneath the rug with spikes. In addition to a rigorous listening test, with no other speakers in the room, each pair of speakers was used for a period of everyday use.

I estimated the voltage sensitivity (using 1/3-octave pink noise centered on 1kHz) and measured the change of impedance with frequency, while the nearfield low-frequency response of each speaker was assessed with a sinewave sweep to get an idea of the true bass extension relative to the level at 100Hz. The frequency response of each speaker in the listening area was measured using pink noise and an Audio Control Industrial SA-3050A 1/3-octave spectrum analyzer. Nine sets of six averaged measurements were taken independently for left and right loudspeakers at a distance of just over 2m in a window 72" wide and varying from 27" to 45" high. The response shown in each review is the average of these measurements, weighted slightly toward the sound heard at the listening position. This spatial averaging is intended to minimize the effect of low-frequency room standing-wave problems on the measurement, and gives a response curve that has proved to correlate reasonably well with what is perceived; it also gives an idea of the off-axis behavior of the speaker under test.

**DELAC S10: $629/pair**

One of the joys of reviewing loudspeakers is that there are always intriguing aspects of any particular design. The problems involved in
producing a speaker that has an even tonal balance, well-controlled directivity, good bass extension, and a smooth integration of the outputs from often widely disparate drive-units have what appears to be an infinite number of solutions. The result is often a speaker so different from the norm that it just cries out to be auditioned.

Such was the case with the Delaware Acoustics DELAC S10. Only sold factory-direct, this would therefore have been low on Stereophile's priority list for review if it weren't for two things: first, the fact that the S10 was designed by one Ralph Gonzalez, a name that should be familiar to readers of Speaker Builder magazine for having written a very useful speaker design and analysis program; second, as implied in the first paragraph, the S10 is one of the weirdest speakers I have ever laid ears on.

A floor-standing model 3½' tall, each enclosure is just 5" wide and a minuscule 3" deep. In fact, as can be seen from the diagram of the S10's cross-section (fig.1), the enclosure is only just large enough to accommodate the drive-units, these sourced from the Norwegian SEAS company. A 0.75" ferrofluid-cooled, plastic-dome tweeter crosses over below 450Hz to two 4.5" bass/midrange units, these appearing to be doped paper-cone units featuring cast magnesium chassis. The use of large 15oz magnets in this enclosure size results in a fundamentally overdamped alignment, which should give both good time-domain performance and a lightweight balance. The S10 therefore needs to be used with a passive line-level equalizer, the E10, which fits either in a preamplifier tape loop or between pre- and power amplifiers, to extend the bass to a useful degree. (Mr. Gonzalez claims the response to extend smoothly to below 40Hz under normal listening conditions.)

As the E10 is wholly passive, the boost in the bass is actually achieved by cutting the level of the midrange and treble, resulting in a considerable insertion loss, up to 10dB, which may be unacceptable if your system has limited overall gain (as would be the case if you use a passive control center and low-sensitivity power amplifiers, for example). As well as in/out sockets, the E10 has a tape loop with switchable source/tape monitoring to replace the one it occupies on the preamp. It also has the degree of bass EQ adjustable with a front-panel switch, the "50Hz" position giving a greater degree of effective LF boost, thus greater insertion loss, than the "80Hz" position. Being passive, the actual degree of tonal modification provided by the E10 will depend to an extent on the source and load impedances of the components with which it is used. Delaware Acoustics therefore provides two versions: "L" has an input impedance of 4k ohms, and is for use with preamps having output impedances of less than 1200 ohms and power amplifiers with input impedances of more than 12k ohms; "H" has an input impedance of 40k ohms, and is for use with preamplifiers with output impedances of less than 12k ohms and power amplifiers with input impedances of 100k ohms or more.

Construction of the S10 and E10 appears to be to a very high standard, both drive-units on the front of the real-wood veneered enclosure being rebated. The cabinet is filled with polyester fiber and its top is sloped back to bring the acoustic centers of the drivers into approximate time alignment. This, in conjunction with the computer-optimized, first-order crossover slopes employed, should give a per-
formance that reproduces wave shapes without significant distortion; i.e., harmonics should arrive at the listening position in the correct time relationship with the fundamental. The two bass/midrange units are driven with the same polarity. Mr. Gonzalez says that this should give a figure-eight directivity pattern, but without the rear lobe being in inverse phase, as is the case with typical panel speakers.

I mused over this statement for a while, concluding that, yes, the response would be a figure-eight, but only when the wavelength of the sound becomes less than the enclosure width, which will be at the top of the midrange unit’s passband, above 2kHz or so. Below that frequency, there will be increasingly more output to the sides due to diffraction—the lower the frequency, the more the drive-units radiate in an omnidirectional manner. It might be thought that when the distance between the two cones is an odd number of half-wavelengths, the outputs from the front and rear drivers will cancel: a cabinet depth of 3.5” would result in a first cancellation frequency of 1935Hz. As the drivers are becoming directional at this frequency, I would not have thought it to be a major problem. In any case, what would be the next cancellation frequency, 5780Hz, is both above the woofer’s passband and in a region where its output will be very directional.

An advantage derived from the use of two woofers in this manner, however, will be the fact that the cabinet will be stressed by opposite and equal reaction forces in the bass and midrange, thus removing any smear of the sound due to cabinet wall motion. The bottom of the enclosure is filled with sand, and a 10” by 10” wooden base provides stability. This may be fitted with carpet-piercing spikes or with square-head screws (both supplied).

The crossover, which uses a single air-cored inductor in the woofer feed and three parallel polypropylene capacitors in series with the tweeter, is mounted on a glass-fiber circuit board, with thick and wide traces, attached to the cabinet rear. High- and low-pass legs are electrically separate and two sets of binding posts on the outside allow single- or bi-wiring, and bi-ampling. The crossover circuitry is completed with an RC Zobel network for each leg. The E10 contains a single pcb attached to the in/out socketry and also features high-quality components, including polypropylene caps.

The well-written instruction book, which covers all aspects of installation and use, shows how to reduce the tweeter level by 3.5dB if the sound is found to be too lively, as well as covering bi-wiring and bi-amplification using the internal crossover. Unusually, it also goes into complete detail on how to bypass the S10’s crossover and replace it with a line-level electronic crossover for maximum performance when bi-amped (though the two-year warranty will then be null and void).

About the only aspect of the S10 I found unappealing were the foam grilles over the front-mounted drivers. Though about as acoustically transparent as grilles can be, aesthetically they look like an afterthought. I left them off for the auditioning.

The sound: The DELAC handbook recommends placing the S10s 18” or more from the rear wall, angled so that their axes cross behind the listener. This, therefore, was how I carried out the auditioning, and it turns out that listening slightly to the side of the main axis does give the smoothest response. I use pink noise to reveal general balance idiosyncrasies: the S10 didn’t fare as well as I had expected with this test signal. With my ears on a level with the cabinet top, a strong rise in the mid-treble could be heard. This reduced in level as the listening axis dropped, though on the natural axis given by the speaker’s height, level with the baffle angle, the sound had a distinct “double-humped” character, coupled with a strong “aww” coloration. The best integration between the drive-units, with the fullest low treble, could be heard below the woofer axis, but this represents an unrealistically low listening position.

Turning to spoken male voice, this was refreshingly free from any kind of chestiness, though the upper mids were characterized by some “cupped-hands” coloration. But the precision of the vocal image stunned me. With a monaural vocal recording, the image of the voice approached the paradigm, a dimensionless point midway between the two speakers. Recorded depth was also well decoded, the S10s throwing a wide, deep soundstage. On naturally miked orchestral recordings, woodwind choirs could be heard to be set back behind the violins but in front of the horn and brass sections. And when Mike Skeet announced that he was standing outside his infamous garage
door on the *HFN/RR* Test CD,² he was outside, behind the rear wall of my listening room. The sound of the S10s was consistently spacious, even close-miked recordings taking on an attractive bloom. Listening to my recording of Anna-Maria Stanczyk playing Chopin on the *HFN/RR* CD, however, I started to feel that this aspect of the speaker’s imaging performance was, if anything, a little exaggerated. The piano image was set farther back in the soundstage than I had heard before, the recording more reverberant than I remembered from the time of committing it to tape. I suspect that the delayed reflections from the rear-firing woofer/midrange unit are contributing to this always enjoyable effect, but, strictly, it departs from ultimate accuracy.

Tonally, the bass was lightweight, even with the equalizer set to “50,” though it was very well defined at moderate levels. At SPLs over 88dB or so, orchestral recordings became rather congested. Dynamics, too, were good only up to a point, though below that point, there was a refreshing immediacy to the sound. Dull these speakers aren’t. (Dull is here meant in musical terms, not the opposite of bright—the S10’s highs are smooth and extended.) There did seem to be a slight lack of energy in the presence region, but the transition between the drivers appeared to be well-managed.

But I kept returning to the degree of coloration in the midrange, audible as a woodiness to piano sound, a cupped-hands edge to voice, and a rendering of violin tone more like that of a viola. I admit that I am less bothered by minor tonal imbalances than, say, J. Gordon Holt (In whose ears we trust), but the S10 was too flawed in this respect for me to want to continue listening. *Stereophile*’s measuring techniques are not yet sophisticated enough to suggest a direct reason for the S10 to sound imbalanced in this manner—it does have slightly too much midrange energy on-axis, but not any more than the less-colored-sounding but similarly measuring Rauna Freja which I reviewed in January. However, I do have a vague memory of some other speakers featuring a similarly narrow enclosure that also suffered from this kind of midrange problem. I don’t know if there is any research to reinforce this idea, but I have a gut feeling that once a speaker’s baffle gets narrower than the width of the human head—after all, it is the radiation pattern from a head-sized baffle that we are most familiar with—a degree of suckout in the midrange becomes necessary to prevent the otherwise overly wide dispersion making the room sound too midrange-oriented. Maybe Mr. Gonzalez would like to comment on this idea in his Manufacturer’s Comment.

**Measurement:** The higher-than-usual source and load impedances presented by the Mod Squad Line Drive and VTL 100W power amplifier (more than 2000 ohms including source, and 130k ohms, respectively) mandated my using the “H” version of the E10. I assessed its effect on the signal by measuring the voltage at the VTL’s output terminals while the amps were connected to the speakers. (It will therefore include the interaction between the power amp’s 1 ohm output impedance and the impedance curve of the speaker. I thought this valid as it actually will relate to what I heard.) The “50Hz” setting gave a level approximately 3.5dB lower than the “80Hz”: fig.2 shows the response for both (“50” upper, “80” lower, with the latter reduced by 3.5dB to make the difference between them more clear). Set to “50Hz,” the maximum effective boost in my system was 6dB at 20Hz compared with the level at 1kHz, though a dip of nearly 2dB also appeared in the lower mids. At first I suspected that this was due to the interaction between the speakers and the VTLs, but as it was also apparent, if less severe, on the response curve taken with the “L” version of the E10 connected between signal generator and millivoltmeter, I assume it is intentional. The rise of 1.5dB in the treble compared with the midrange however, is, I am sure, an artifact of the power amplifier’s

² This test disc, which I produced while Editor of *HFN/RR* and which includes full documentation on how each of the music tracks was recorded, is distributed in the US by Music and Sound Imports, 30 Snowflake Road, Huntingdon Valley, PA 19006. Tel: (800) 331-4315. Price: $22 plus $1.50 postage and handling.

![Fig. 2 DELAC E10 bass EQ](image-url)

*Stereophile, April 1989*
highish output impedance. Set to "80Hz," the E10 applies a modest 3dB of boost in the bass with respect to the level at 1kHz.

Moving on to the manner in which the S10's impedance changes with frequency (fig.3), the fundamental box resonance can be seen to be well-damped, lying at a high 105Hz. The specification suggests a minimum of 3.5 ohms, but I measured a little higher than that, the load dropping to just below 5 ohms in the lower midrange. Current-miserly receivers, or tube amplifiers without a 4 ohm tap, should be avoided, nevertheless. The voltage sensitivity for the 1kHz 1/2-octave band appeared to be around 87dB/W/m, though the low impedance means this will be around 2–3dB too high (the 2.83V is equivalent to more than 1W). I would suggest that modestly powered amplifiers delivering less than 50W into 8 ohms would be best avoided with the DELACs.

The spatially averaged in-room response of the S10s, taken with the passive equalizer set for maximum bass extension, is shown in fig.4. Low frequencies can be seen to be lightweight, something confirmed by the nearfield measurements, which indicated a -6dB point at 62Hz referred to the level at 200Hz ("50Hz") and at 80Hz ("80Hz"). Without the E10 in circuit, the response was -6dB at 100Hz, suggesting that the S10s would be best used with a subwoofer if any significant levels of bass are required. The gently rolled-off nature of the low frequencies is typical of an overdamped alignment. It might be thought that more bass boost/midrange cut would be the answer to the lack of bass weight, but I suspect that this would render the insertion loss of the passive E10 equalizer too great for practical purposes.

There appears to be a slight lack of energy in the crossover region, which, in conjunction with the overdamped bass, gives a midrange prominence to the response. To some extent, this is due to the wide lateral dispersion in the mids engendered by the use of such a narrow enclosure. A quasi-anechoic measurement taken outside revealed rather less energy between 500Hz and 800Hz, but the curve still had the same basic shape. Certainly it correlates strongly with the mid-forward tonal balance noted in the listening tests.

The best integration of the sounds from the drive-units was on the axis between the tweeter and front woofer. Above that, and a severe notch developed in the region between 2500Hz and 6300Hz. A listener would have to be standing, however, to be on this axis.

As expected, the small cabinet was quite rigid, being effectively dead over much of the midband, though some mild resonant behavior was noted at 180Hz and 240Hz.

One final aspect of the S10 remains unconfirmed. In their promotional literature, Delaware Acoustics show an excellent 1kHz squarewave, said to have been produced by the S10 (though the measuring axis is not mentioned), which implies excellent time-domain behavior for the speaker. Try as I could, I could not find a mike position where it was possible to duplicate this squarewave performance. It might be that I just didn't search hard enough, however.

**Conclusion:** I have to say that overall I had expected more from the DELAC S10, considering the authority with which its designer writes about loudspeakers, its excellent build quality, and the superbly comprehensive handbook. Yes, it does have a superbly spacious presentation, with beautifully precise soundstaging, both concerning depth and lateral imaging, but I just couldn't come to terms with the speaker's tonal balance and the lightweight nature of the bass. I think that the task Mr. Gonzalez set himself, to produce a full-range speaker using small,
fast midrange/woofers in such a small enclosure, was too extreme to be ultimately successful in every area. While I can’t recommend the S10, therefore, it does show sufficient design promise that I suspect that a more conventional design from Mr. Gonzalez would prove to be a significant contender.

**Monitor Audio R300/MD: $669/pair**
English company Monitor Audio is one of the pioneers in spreading the use of metal-dome tweeters in relatively low-cost loudspeaker systems. The tweeters they have designed in conjunction with SEAS and British manufacturer Elac may have now found their ways into a number of designs from competing manufacturers, but there is no doubt that Monitor leads the way. The new R300/MD features a new 3/4" version of the SEAS 1" aluminum-dome unit Monitor introduced with their R652/MD (reviewed in Vol.10 No.5), in conjunction with an 8" doped paper-cone woofer. In the past, I have been accused of an irrational prejudice for metal domes over soft domes, and there appears to be some confusion among audiophiles over what benefits are conferred by the use of a good metal-dome tweeter. (I have to say “good” as there are some bad ones, particularly those in which a metal layer has been vapor-deposited on a plastic substrate.)

With any drive-unit, it is ideally required that the diaphragm operate as a whole in its pass-band, not going into break-up where some parts of the surface go forward while others go backward. There are two philosophies in tweeter design that attempt to achieve this ideal. The first, and most common, is to recognize that break-up is inevitable, allow it to happen, but fashion the diaphragm from some lossy, well-damped material so that any resonant peak will be damped into inaudibility. Such “soft-dome” tweeters vary considerably in the success with which they achieve this goal. Often, they have some kind of resonant behavior in the presence region where the ear is most sensitive, resulting in a noticeable fizz or sizzle to the sound. It might be thought that the material’s inherent damping of this resonance would render it inaudible. Unfortunately, however, unless extreme damping may reduce the height of the resonant peak, but therefore also tends to increase the area under the curve, making any reduction in audibility less than might be expected. (It can happen that adding damping to a very-high-Q resonance will make it more audible because it makes the resonance more likely to be excited by typical music program.) In addition, soft tweeters quite often have some kind of resonant peak in the 12–16kHz region, which adds, in the worst case, almost a “whistle” to the music. Invariably, in my experience, the soft-dome tweeters that suffer least from these problems are at least as expensive as a metal-dome unit.

The second philosophy is to form the diaphragm out of some very light, very stiff material. A metal of some kind is the obvious choice, but fiberglass, woven Kevlar, and resin-impregnated cloth are also popular. Here, the idea is to push the inevitable resonance way above the audio band, so that even if it is excited, it will not be audible. The dome will then act as a piston throughout the top of the audio band. The disadvantage of such an approach is that it is hard to make the moving parts of the driver light enough. If too massy, not only will be the main resonant frequency be moved down into the audio band, but the sensitivity will also be too low to be practical. Making the dome smaller than usual will lower the mass, but the power-handling may well suffer and the smaller radiating area makes the tweeter less...
able to handle frequencies in the low treble, necessitating a higher crossover frequency.

In my opinion, a good metal-dome unit will always be more transparent in the treble than a comparable soft-dome driver, adding significantly less presence-band "sizzle" to the sound. However, less good metal-dome units seem to have a "tinkly" signature which, 1 imagine, is due to the excessive amplitude of the driver's ultrasonic resonance leading to non-linearity and the dumping of intermodulation products back down in the audible region. Faced with a good soft-dome tweeter, such as the Dynaudio used in the Thiel CS3.5, I have no problem with its sound. But give me a speaker with, say, the infamous and ubiquitous 1" fabric-dome unit from Son-Audax, and I tend to leave the room, driven out by "soft-dome sizzle." Prejudiced? No, more a case of "Heaven preserve me from nasty, cheap tweeters!" 3

As usual with Monitor Audio models, the R300 enclosure, including the front baffle, is veneered in real wood—the review samples were finished in walnut—with all interior surfaces except the rear panel also veneered. This is said to increase cabinet rigidity; there are also vertical braces running the entire height of the side walls. The internal surfaces are covered with a layer of polyurethane foam to damp internal air-space resonant modes. The enclosure is relatively large for the price, though the fact that it is fairly deep gives the R300s quite a small visual profile.

Of the drive-units, only the tweeter, which uses a very short horn flare to load the dome, is reated into the baffle. The woofer chassis, however, is profiled to minimize its acoustic discontinuity. As with other current MA speakers, the crossover, which is attached to the rear of the terminal panel, is minimal. It consists of a ferrite-cored coil in series with the woofer and a second-order high-pass network, basically a series capacitor and a parallel air-cored inductor, for the tweeter. A series resistor is also used to match the tweeter sensitivity to that of the woofer. Electrical connection is via five-way binding posts.

3 It always astonishes me to see expensive speakers featuring tweeters that cost no more than a few dollars. One idiosyncratic design that sold for $3000 a few years back featured an array of tweeters apparently identical to an OEM unit common among budget speakers. No matter how ingenious the design, it strikes me as self-evident that the sound of such a speaker will be limited in the treble to that possible from its cheap tweeter; ie, a sound hardly worth $3000, no matter how good it is elsewhere in the audio band.

**The sound:** With the R300/MDs initially set up on the 17" Hercules stands, it became quickly obvious that the listening height was too low, a notch in the low treble being audible. The metal Arcici "Rigid Riser" metal stands, set to their 20" height, were therefore pressed into service and proved to be a good match with the R300s, placing the tweeter at ear level. The grilles are profiled in the tweeter region to minimize diffraction/reflection problems, so although the speakers do look finished *au naturel*, I listened to the speakers with the grilles on.

On pink noise, the R300 had an overall smooth, even character to its balance, but with slight prominences in the midrange and mid-treble lending a "two-humped," slightly hollow-sounding nature. This was limited in degree, however. Moving on to music program—do *you* know anyone who listens to noise for enjoyment? —and starting at the lowest frequencies, the bass was light in weight considering my expectations from the cabinet size, though the upper bass was more generous. Nevertheless, this is *not* a speaker for organ enthusiasts. Double-basses had rather a gruff character, with less distinct pitch centers than, for example, Monitor Audio's own R952/MD. Cellos also took an added warmth in their lower region, as did male voice, while the left-hand register of the piano had a little too much overhang, notes acquiring a "hoom" quality. (Try murmuring the word "hoom" while you play a bass piano note and you'll get the idea.)

Moving up into the midrange, things were considerably improved, with an open, transparent nature evident. Perhaps a little forward in balance, the R300 still allowed the different tonal identities of violin (in its lower register) and viola to be well-differentiated. Female voice, too, was reproduced with a natural balance between chest and throat tones, though a touch of nasality was occasionally noticeable.

The highs were also clean, percussion instruments being reproduced with the full range of differences apparent, suggesting an overall low level of resonant nasties. There was some liveliness at the top of the woofer's range noticeable on piano sound, however, though this was mild in comparison with many other speakers in the '300's price range. The final octave of treble could be heard to be a little rolled-off on naturally miked orchestral recordings, though this did usefully tame the brightest rock record-
ings, Dire Straits' *Brothers in Arms*, for example. (But if I have to hear “Walk of Life” even one more time, there will be violence chez Atkinson! It’ll be Silver Frisbee time.)

It was in the region of imaging that the R300/MD excelled, considering that it’s basically an inexpensive speaker. Though the stage was a little narrow in the lower midrange and below, above that region the speakers threw a quite well-defined, wide soundstage, with individual instrumental and vocal images set back pretty much the right degree of depth, depending on the amount of recorded reverberation associated with each. The Steinway on my Chopin recording on the *HFN/RR* Test CD, for example, was reproduced with its soundboard extending from just left of center to the right-hand speaker position, set back behind the plane of the speakers—just as it should be reproduced. There was less depth apparent in the treble, however, the hi-hat cymbal on the *HFN/RR* CD’s naturally miked drum recording being somewhat pushed forward at the listener. While not quite as holographic, therefore, as the similarly priced LS3/5a, DELAC S10, or Spica TC-50, the R300/MD still performs very creditably in this region, and will be much more proletarian in its demands for high-quality amplification.

**Measurement:** Looking at fig. 5, the way in which the R300’s impedance changes with frequency, the speaker appears to be a kind load, never dropping below 8 ohms. In conjunction with its reasonably high sensitivity—I measured 89.5dB/W/m for the 1kHz ½-octave—the R300 should mate well with inexpensive, low-powered amplification.

Measured in the nearfield, the microphone almost touching the dustcap, the bass extension was only moderate, at -6dB at 62Hz, though as can be seen from the in-room response, fig.6, the rate of roll-off is quite moderate. Though braced, the cabinet is not as inert as I would have thought desirable, exhibiting several strong rear- and side-panel resonant modes between 260Hz and 295Hz. There was also a very strong side-panel resonance apparent at 363Hz which, in conjunction with the fact that too much energy in the 125–200Hz and 630Hz regions can be seen in fig.6, might correlate with the subjective feeling of slight confusion and coloration in the lower midrange. The tweeter seems well-behaved, though its level might be 1dB or so too low in absolute terms. The slight rise in its response in-room might be thought to be due to the tweeter’s dispersion pattern being quite wide; however, it is most prominent off-axis or just below, suggesting that there really is a little too much energy between 8kHz and 16kHz compared with the octaves either side of that region.

**Conclusion:** “Competent rather than outstanding,” read my listening notes for the R300/MD. But wait a Mo4—we’re talking about a $669 pair of speakers here, not some cost-no-object fantasy object! An easy high Class D recommendation, the Monitor Audio R300/MD strikes an excellent balance between tonal neutrality, the ability to play loudly and cleanly, and the power to resolve a deep, detailed soundstage. Faults are minor, mainly involving the gruff, rather indistinct nature of the upper bass, and the veiled quality to the lower midrange. Its high sensitivity, easy impedance load, and general lack of high-frequency nasties should enable its users to get the best from inexpensive electronics. With the R300/MD offering this kind of performance for well under a kilobuck, as well as being a very attractive piece of

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4 Monitor Audio head honcho Mo (qbal) should definitely wait a mo'.
furniture in its own real-wood-veneered right, I am sure that designers for competing affordable-speaker manufacturers will be asked to put in some overtime at their CAD workstations real soon now.

Ohm CAM 16: $300/pair
I like Brooklyn. I even got married under the shadow of the Brooklyn Bridge! (Almost the exact spot where Cher’s grandfather let his dogs howl at the moon in Moonstruck. And if you’re ever in the Park Slope area, check out McFeeley’s for brunch.) I could be forgiven, therefore, for having a soft spot for any Brooklyn manufacturer, including Ohm. Except that the only Ohm model I have heard was the omnidirectional Ohm Walsh 5 (favorably reviewed by Dick Olsher in Stereophile Vol.10 No.4 and Vol.11 No.8), and the omni principle is something that I have never found to work, or at least to give me what I feel necessary in reproduced sound. The Ohm Model 16, however, is one of three more conventional Coherent Audio Monitor (CAM) speakers intended to offer good sound at an affordable price.

In its basics, it is no different from hundreds of other cheap speakers in that it uses a 6.5” polypropylene-cone woofer in a reasonably small reflex enclosure. It is unique in the treble, however, as it features a plug-in tweeter module, this similar to a black goose egg lying on its side, on the cabinet top. The tweeter itself is a small ferrofluid-cooled plastic dome/cone, with a plastic phase plate in front of its center, and the entire egg can be swiveled around a complete 360° circle. (The positions facing the rear are less useful, of course, but a ±75° scale on the unit’s rear enables the egg to be aimed at the listener on an eggactly repeatable basis — chuckle, chuckle.) Both electrical connection and mechanical mounting are via a gold-plated ¼” phone jack. The shape of the egg is said to provide an even, wide directivity for the tweeter, resulting, with its ability to be rotated laterally, in the ability to create good stereo images over a wider-than-normal listening area. (Off-center listeners are more on-axis with respect to the farther egg and more off-axis the nearer, allowing the precedence effect to be offset to some extent by the increased amplitude of the farther unit.)

The reasonably sized, black woodgrain-vinyl–wrapped cabinet is braced front-to-back and has its main panels mass-loaded with particle-board offcuts. Its front edges are beveled to optimize diffraction, something also aided by the frameless grilles which push-fit into a rectangular slot in the front baffle. The polypropylene-cone woofer appears to have a second magnet glued to the rear of the first, has a plain felt dust cap and a frame damped with Tufflex material, and is mounted at the top of the baffle, with a 2”-diameter, 9”-deep circular port beneath it. The enclosure is loosely filled with what appears to be cotton wadding.

No details on the crossover were provided, but a visual inspection of the components, glued to a board mounted on one of the cabinet sides, suggested first-order slopes. Quality is basic, with a single air-cored coil in the woofer feed and non-polarized electrolytics in the tweeter filter. Nearfield measurements indicate an approximate crossover frequency between 1600Hz and 2kHz. Internal wiring uses various gauges of multistrand cable and speaker cable connection is via—ugh—spring-loaded terminals.

The sound: The Ohms were set up on the 24” Chicago speaker stands, well away from the side-walls and about 30” from the rear wall. Set the speakers on much lower stands and the tweeter starts to sound disconnected; listen-
ing on the axis just below the tweeter seemed
to give the best integration between the two
drive-unit outputs. Initially, I faced the bass
cabinets straight ahead with the tweeter egg
facing the listening position. This worried me
a little in that when the egg is angled to any sig-
nificant extent, the top of the woofer enclosure
presents an immediate obstacle in its acoustic
environment. I therefore angled the entire
speaker so that the egg angle did not have to
be so severe, but after a number of comparisons
I could not hear any significant improvement,
even when it came to imaging precision (though
the CAM 16 is not outstanding in this respect).
It would appear that my worries were egg-
zaggerated.

One of my first tests for any speaker is to play
a selection of recorded male speaking voices.
The Ohm 16 came off quite well here, the main
identifiable characteristics being a degree of
chestiness in the upper bass, a slight cone
“quack” in the midrange—can’t be a goose egg
after all!—and some sibilance in emphasis. Over-
all, the tonal balance was relatively neutral for
what, after all, is quite a low-priced design.

Piano recordings, too, feature in my prelimi-
nary listening tests for speakers, and here, again,
the Ohm did quite well. The left hand was
weak and rather indistinct, with a “woodiness”
in the lower mids, while the treble clef region
acquired a nasal character. There was also some
accentuation of tape hiss in the high treble,
with some resonant problems apparent around
the notes B natural above middle C (494Hz) and
C natural just over an octave higher (1046.5Hz),
these notes jumping forward out of the image
whenever the music touched upon them. The
sound was quite “alive,” however, and was
more smooth through the transition region be-
 tween the drivers than with the Spectrum
208Bs reviewed in January. As a result, musi-
cal values communicated eggstremely (OK,
quite) well. My own Chopin recordings, how-
ever, recorded with a single-point technique,
revealed the CAM 16s to present too shallow an
image, with rather smeared lateral localization,
something confirmed by listening to mono
recordings. What should have been a precisely
positioned, narrow central image became later-
ally bloated.

Listening to a variety of naturally recorded
orchestral recordings, I started to notice a tonal
signature, instruments sounding somewhat
“shut-in.” Trumpet, for example, acquired
rather a hooded, flugelhorn tonality. Bass in-
struments were too muddy, reproducing with
rather a “fuzz,” while strings also shrieked a lit-
tle in the treble region. Again, image depth
seemed restricted, but a wealth of ambient
information could be made out. It just didn’t
seem to int-egg-rate sufficiently well. (OK, egg-
nough, already.)

Dynamics were excellent, almost over-easy,
the ’16s playing loud with only a slight sense
of strain. Drums had good weight, though snare
was a little “quackky” and cowbell lost some of
its metallic character. Cymbals acquired rather
a hollow quality, the upper treble fizz sounding
a little detached.

To sum up, the Ohm CAM 16 does have an
identifiable tonal signature, having a rather soft
bass, a touch of nasality in the midband with
some unevenness, a slightly shut-in lower tre-
ble, and some peakiness in the highs. Imaging
specificity is only moderate and image depth
is poor. However, these faults must be consid-
ered minor in view of the low price; overall, the
’16 is a well-balanced design and none of its
problems particularly get in the way of the music.

Measurement: Fig. 7 shows the way in which
the CAM 16’s impedance changes with fre-
quency. The double hump in the bass is typical
of a reflex design, the fundamental box reso-
nance appearing to lie at 85Hz. This is reason-
ably well-damped, with the port tuned a shade
over an octave lower at 41Hz, this the bottom
note of the double- and Fender basses. With
minima of 6 ohms or so in the lower midrange
and mid-treble, the speaker should be a rela-
tively easy load to drive. A slight bit of non-
sense can be seen at 255Hz, this frequency the
same as that of a very strong cabinet vibrational
mode. Sensitivity was pretty much to spec at
88dB/W/m: this speaker will go quite loud
with modest amplifier powers.

Fig. 7 Ohm 16 impedance
The spatially averaged 1⁄4-octave response is shown in fig. 8. The bass is lighter in weight than expected from the listening tests, even though when measured in the nearfield midway between the woofer and the port, the -6dB point lay at a very low 31Hz. A touch of boost at the port frequency is evident in the in-room curve, however. Apart from a rather forward midband, the rest of the response is pretty flat, the treble only being marred by too much energy in the 12.5kHz band, associated with a strong peak in the driver’s response at this frequency. Unusually, a significant amount of 3rd-harmonic distortion could be heard (an octave-and-a-fifth higher in pitch) on 90dB bass tones between 50Hz and 100Hz. At 100Hz, for example, the third harmonic at 300Hz was only 27dB below the fundamental—a quite audible 4.5%, which might correlate with the feeling of softness in the bass. There were also various buzzes and rattles audible in the whole octave between 80Hz and 160Hz, while the cabinet was generally live in the 120–300Hz region. A very strong, fairly high-Q mode was apparent at 255Hz, this tying in with the glitch in the impedance plot at this frequency. There was also strong output from the port at 610Hz.

**Conclusion:** I must say that, even though I was pleasantly surprised by the sound of the Ohm CAM 16s, $300/pair is really too low a price for any reader of *Stereophile* to realistically consider purchasing a pair of speakers. The compromises necessary to produce a model in this price range are just too great, in my opinion, even when the designer is obviously talented, as is the case here. For just two or three hundred bucks more, you can buy something offering a true taste of high-end sound—the Magneplanar SMGa, Rogers LS3/5a, Monitor Audio R300/MD, or Spica TC-50, for example. But if you need to be able to recom- mend a good-value loudspeaker to a non-audiophile friend, a speaker with a basically neutral tonal balance that will work well with inexpensive receivers and amplifiers, that will go quite loud, and has reasonable bass extension, you needn’t look much farther than this Ohm.

**SR Bolero: $1580/pair ($2500 with matching woofers)**

I must own up right from the outset that I know nothing about the Swiss SR Trade company. I do know, however, that Audio Advancements’ Hart Huschens was getting an intensely musical sound from their little Bolero speakers, driven by the German Klimo Kent tube amplifiers, at the 1988 Summer CES. I immediately asked for a pair for review; in addition, Mr. Huschens sent along a pair of the matching Bolero Forte subwoofers.

SR’s Bolero is a well-made two-way monomonitor using drive-units from the French Focal company: a version of their high-power inverted-dome tweeter, this using a 24oz magnet, a resin-impregnated glass-fiber diaphragm with a foam surround, and a 5.25” doped-paper-cone woofer. The last features dual voice-coils, driven independently. One will be operative in the midrange, while the second is gradually rolled in as the frequency decreases.
Both will therefore be operating in the bass, doubling the drive current and thus the unit’s sensitivity, lowering the bass cut-off point. The woofer is reflex-loaded with a 6.25” by 0.5” slot at the base of the front baffle, this some 4.75” deep, equivalent to a conventional circular port some 2” in diameter. As far as I am aware, there is no intrinsic advantage to the slot shape over a circular port (except for an aesthetic one, of course). Both drivers are rebated into the baffle and the front vertical edges of the speaker are beveled to provide a minimum of acoustic obstacles for the emitted sound. The crossover uses polyester capacitors, is mounted on a printed circuit board on the rear panel above the gold-plated binding posts, and appears to feature a second-order slope for the tweeter and first-order slopes for the woofer, different-sized series air-cored and ferrite-cored inductors being used for each of the two woofer voice-coils. The enclosure is loosely filled with a roll of bonded acrylic fiber.

The review samples were finished in an attractive walnut veneer. The grille consists of brown material stretched over a wooden frame, but as this is quite thick and has no profiling to minimize adverse diffraction effects, I auditioned the speakers without it.

The Bolero Forte subwoofer is a slim tower, veneered in walnut and styled to match the Bolero. It stands just over 2’ tall on its four screw-in spiked feet. These can be adjusted to alter the spacing between the downward-firing woofer and the floor, though the gap must never be less than 20mm (0.8”). The woofer has a 6.5” doped-paper cone, its large half-roll surround suggesting good excursion capability, and appears to have conventional sealed-box loading. Electrical input and output is via gold-plated binding posts identical to those used in the Bolero: two sets at the speaker’s base offer parallel inputs to the high- and low-pass legs of the crossover to facilitate bi-wiring and bi-amplification, while a third set at the top is for connection to the Bolero. No details on the crossover were supplied, but measuring the response in the nearfield of the woofer (see later) suggests an approximate crossover frequency of 150Hz with probably first-order slopes. This combination of frequency and slope suggests that the woofer would best be used in close proximity to the satellites: in fact, it would seem obvious to place one upon the other; Audio Advancements supplies four small “puck” feet, made from what appears to be Sorothane, to separate the two. (I also tried small stainless-steel cones and a sheet of Sims Vibration Dynamics Navcom—the last proved to give the cleanest midband.)

**The sound:** The Boleros were first set up on the Arcici “Rigid Riser” stands, set to 26” to position the speakers at the same height as when they stand on the Forte subwoofers, and placed 3’ from the rear wall and 5’ from the sidewalls. The Boleros seem rather sensitive to listening height. The smoothest response is on the tweeter axis, though a cancellation notch can be heard to travel down in frequency as the listening height increases, giving a rather hollow midrange when the listener can see the cabinet top. In addition, a somewhat shrieky quality to the upper mids is alleviated by listening 15° or so off the horizontal axis. The Boleros were therefore set up only slightly angled in toward the listening seat, though the exact degree of tonal modification has to be balanced against a degree of soundstage blur.

First impressions were very favorable. An open quality to the Bolero’s sound is matched by good dynamics and a relatively neutral presentation of tone colors. The only significant coloration present seemed to be an “eee” quality to strings, also apparent as a slightly throaty edge to female voice. Is this what Martin Collins refers to as “cone cry?” I wonder? The transition from woofer to tweeter seemed well-managed, though there was a degree of sibilance emphasis noticeable at the top of the tweeter’s passband. This also could be heard to “whiten” tape hiss, while soprano voices had a slight HF “fuzz” added. Bass extension was moderate, though upper-bass definition was particularly good for a reflex design. Double-bass was a little nasal, but the leading edges of its sound had excellent definition.

Soundstage localization was precise laterally, but using both my own recordings and some pure-Blumlein master-tape copies loaned by Water Lily Acoustics’ Kavi Alexander, there was rather less depth apparent in the treble than with the more expensive Celestion SL700s or the similarly priced Acoustic Energy AEIs. With spaced-omni recordings, such as those produced by Peter McGrath, the recorded ambience extended to beyond the speaker positions. There was one anomaly: normally when
a dual-monostereo signal is fed to the two speakers out of phase, the image widens to fill the entire stage width as well as the sound losing any sense of bass power. Playing the Boleros out of phase gave the expected cancellation of low frequencies, but the image smearing was not as severe as usual. This is perhaps an indicator that the speaker is not as time-coherent as might be thought desirable.

To audition the subwoofers, the Boleros were placed upon them in the same positions as they had been on the Arcici stands. I first tried single wiring, but bi-wiring gave a considerable improvement in lower-midrange clarity. All subsequent listening was carried out bi-wired with Monster M1 cable. Initially using the stainless-steel cones, I ended up using a 1/4” sheet of non-reactive Navcom material between the Bolero and the Forte. This gave the lowest levels of midrange spuriae and the cleanest piano tone.

I must admit from the outset that I share Dick Olsher’s reservations about the use of subwoofers. The problems of integrating even one subwoofer into an existing high-performance system are complex, and it takes considerable skill and expertise if the added bass extension is not to be achieved at the expense of lower-midrange clarity. The safest course is to let the manufacturer of the satellite speaker do all the work for you, as is the case here.

The name “Forte” is well-deserved, as the SR woofers allow the Bolero to play considerably louder without a sense of strain. The VTLs reached clipping on orchestral climaxes before the speaker showed obvious signs of being driven too hard. And on music with limited dynamics and no low-bass information, some of Kavi Alexander’s choral recordings for example, the Fortes added significantly to the sense of “space.” Perversely, this was not the case with the HFNR drum track, where the tom-toms moved forward overmuch with the Fortes, giving the illusion that the drummer had to have had very long arms. Kick drum, however, did acquire a suitable degree of weight.

Overall, the added extension and dynamics of the Fortes improved the tonal balance of the Boleros, rendering the “ee” coloration less noticeable. Cellos and violas, in particular, as well as the piano, now had more accurate tonalities. Male spoken voice, however, boomed, and double basses and organ pipes became more indistinct even as they acquired a more natural weight to their sound. On orchestral and choral recordings, this was noticeable but didn’t offset the musicality of the sound. Rock recordings, however, and closely miked double bass on jazz recordings, just became too rich in the upper bass, giving the music too “slow” a feel. No amount of experimenting with position and the height of the screw-in feet could alleviate this problem. The Forte would probably need a good solid-state power amplifier to give of its best, therefore.

**Measurement:** The Bolero’s modulus of impedance with frequency is shown in fig.9. Typical of a 4 ohm design, it stays below 8 ohms most of the time, the only exceptions being in the region of the tweeter resonance and the twin reflex humps in the bass. The fundamental box resonance lies at a high 81Hz, as is to be expected from such a small enclosure, while the port is tuned to 58Hz, giving a bass response that extends, measured in the nearfield, to 48Hz (−6dB). The sealed-box woofer is tuned to 45Hz, as can be seen in fig.10. Its impedance drops to a cruel 3.1 ohms in the upper bass, suggesting that low-powered tube amplifiers should be avoided with this combination, unless they have a very good output transformer.

Fig.11 shows the response of the Forte woofer measured in the nearfield and the complementary high-pass feed to the satellite (loaded with an 8 ohm resistor). The extension is modest for

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**Fig. 9 SR Bolero impedance**

**Fig. 10 SR Forte impedance**

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a subwoofer, the -6dB frequency being 32Hz, while the Forte still has significant output in the lower midrange above its crossover point to the Bolero. The woofer cabinet vibrates strongly at 180Hz but otherwise seems quite inert, while the Bolero itself has strong cabinet output between 365 and 385Hz (the latter strongly audible as a "hoot" centered on the G above middle C when the ear is pressed close to the side wall), and at 185Hz and 96Hz.

The spatially averaged, ½-octave, in-room responses of both the Boleros on their own and for the Bolero/Forte combination are shown in fig.12. Room effects in the bass aside, the response is in general respectably flat, though the bottom two octaves of the tweeter are depressed by between 2dB and 3dB compared with the woofer. The tweeter, however, features a strong on-axis peak in its top octave, something I have noted with other versions of this drive-unit. The woofer does extend the lows, by half an octave or so, but more importantly, it boosts the entire bass region by 2–3dB. The balance between sensitivity and bass extension for a constant enclosure volume is a critical one for a speaker engineer to manage, but I suspect that the Forte's designer has favored the former rather than the latter. Changing the alignment to reduce the Forte's sensitivity by 3dB would usefully extend the response by a few Hz and give slightly better integration with the Bolero satellite, I feel. Hey, a compound "Isobarik" system, using a second woofer behind the first (provided they are 8 ohm rather than 4 ohm units), would do just that. Perhaps a Forte Mk.II would be in order.

**Conclusion:** Beautifully made and finished, the SR Bolero is a true high-quality mini-monitor, capable of giving very musical results when carefully set up with the right ancillaries. Being an import, it is a little expensive for the sound quality on offer, but this will be inevitable given the weak state of the post-Reagan dollar against most European currencies. Nevertheless, the Bolero is a good Class C performer and can be recommended.

The Forte offers a mixture of improvements and degradations to the sound of the Bolero. On the plus side, it renders the speaker's tonal balance more neutral in the midrange, improves the system's dynamics, and adds to the sense of space on recordings which don't have high levels of low-frequency energy. It also is relatively affordable for a stereo pair of woofers, is a good-looking piece of furniture in its own right, and the combination of Forte and Bolero offers an aesthetically acceptable solution to the problem of how to get almost full-range sound in a small room without giving up too much space to a pair of monstrous armoire-like cabinets. On the downside, I feel that its working range of dynamics is quite limited if it is not to interfere with the Bolero's presentation of musical information in the upper bass and lower midrange, and that a lack of real extension means that it should really be considered a woofer rather than a subwoofer. The Boleros deserve more than the Fortes are able to give, in my opinion.

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**JVC FX-1100 BK FM / AM TUNER**

**Don Scott**

FM stereo/AM tuner with digitally synthesized tuning. Usable sensitivity: 1.8µV/10.3dB mono,
Two years ago it was hard as nailing Jello to the wall to find a digital tuner that equaled such past analog greats as the McIntosh MR-78, Kenwood 600-T, or Sansui TX-1. However, in recent months, several manufacturers have come up with digital offerings that may render obsolete all former efforts at quality FM reception.

The JVC FX-1100BK is the most advanced digital tuner of this new surge of technical force majeure, and first caught my attention in prototype form at the 1987 Summer CES. I liked what I saw/heard and consequently requested one for review. After two months of listening and comparison with at least 20 other tuners, I am convinced JVC has produced one of the best FM products available.

The FX-1100BK’s sharp appearance matches its excellent performance. Most controls are shifted to the right to match cosmetics with a typical CD player minus the drawer. From left to right on the lower portion are controls for power on/off, programming (up to 8 events for recording with an external timer), scan stop level (8 levels on FM, 6 on AM), record level (440Hz at 50% modulation), A/B antenna inputs, local/distant, wide/narrow bandwidth, combined stereo/mute off, display mode (turns on/off 1dBf segmented, accurate signal meter), character display for programming up to 6 characters with each preset (ie, JAZZ-GARBAG-CLASCL-NEWS or call letters), up-down (changes tune frequency in 100kHz steps), 40 random-memory presets, and FM-AM selection. Preset scan is accomplished by pressing Memory and Preset up or down. Auto-memory programming is available and includes all modes of operation except A/B antenna selection, which will require manual “B” entry if this is the best choice. Manual override of all entries is possible, and local/distant is best selected manually because the computer switches at 90dBf and a lesser 70dBf switching point yields lower distortion of stronger stations.

Sound complicated? It is, but the tuner design allows use of only basic functions; other computer functions can be gradually learned or ignored. The instruction manual is easily understood.

All modes of operation are displayed in amber or red. There are remote-control provisions when used with JVC’s AX-90VBK integrated amp, which comes with a remote for controlling an AV system. The FX-1100BK is the top-of-the-line tuner; however, JVC’s top-of-the-line matching 140Wpe integrated speaker warmer has no remote-control interface. Strange?

Special Circuitry
“Opticalink” is JVC’s system for isolating analog and digital circuitry with photocouplers to achieve 94dB S/N in mono and 88dB in stereo. I can’t dispute the manufacturer’s claim because the noise floor is below that of any test generator I can find. JVC has outdone the quietest analog tuners by using light as a transfer medium. Low noise is also aided by quality three-chassis construction: power supply, digital circuits, analog RF and Audio. Overall feel and construction are first-rate.

Specifications and RF performance
Adjacent-channel selectivity is 20dB, placing this tuner in a category far above average, but it is not quite the thin signal slicer that the
Onkyo T-9090 II, Denon TU-800, H/K Citation 23, or TU920 are. Therefore, it may need a directional antenna for picking up weaker adjacent stations next to stronger foes. Otherwise, all specifications are superb except for two 1 will dispute: stereo separation is claimed as 60dB. It is actually 5 – 8dB short of this figure, but is still among the best available. A more serious discrepancy is image rejection, stated at 90dB. Even a true figure of 80dB would keep stations from appearing at bogus frequency settings. However, a strong signal (75-80dB) at 96.5MHz appeared at 96.9MHz. And an equally strong station at 106.9MHz appeared at several places on each side, making reception of weaker stations at the high end of the dial fuzzy, or a combination of the desired and undesired. Also, a hodgepodge of signals was present at 105.1MHz when a strong signal at 104.9MHz was fed into the tuner. This occurred with several antennas, and was not heard on any other tuner on hand. It all seems unusual for a tuner with a five-gang front-end, which would normally reject reamplification and remixing of IF signals. It is possible that strong out-of-band TV signals or radiation from a cable system may contribute a mixing factor, causing stations to appear where they don’t belong (A ± B ± C = Spuria).

Please note the term “image rejection” is used because ceramic IF filters can resonate at spurious frequencies, causing images. Improper dial appearances caused outside the IF strip, whether caused within the receiver front end or externally, are called spurious or RF intermodulation. IF images are a type of spurious intermodulation. A second sample needs to be evaluated to see if the problem is inherent only in the otherwise untainted sample provided.

FM Sound Quality
In the Wide-band and Local modes, the FX-1100BK had little to fault with signals 65-70dBf or stronger. There is a noticeable, but not obnoxious, increase in distortion in Distant and Local modes. On the flip side, weak stereo reception is outstanding. The low-noise approach, combined with a PLL pilot canceler, excellent SCA rejection, and a most effective auto noise reduction system (Quieting Slope Control) allows quite acceptable S/N (40–45dB) reception of signals as low as 5µV/19.2dBf, while maintaining good stereo effect. In most cases with highly modulated stations that help mask noise, there is little need to switch to marginally quieter mono. The QSC is a combination high-blend and limiting AGC. It does its job without the pumping of dynamic noise-reduction systems.

The signal from this tuner is more dependent on the RF section than on the audio section, which for all practical purposes is transparent. As in the Prego commercials, “It’s in there”: good, tight bass, extended treble, accurate mid-range, and perfect center-image of mono program material. However, from my indications, you can conclude there are a few tuners that handle medium-strength signals with slightly more finesse, but by a slim margin: Luxman T-117, Bogen TP-100, and Onix BWD-1. However, when A/B-ing this tuner against most others, it made them sound cramped and dirty—most of them are.

AM Section
The low-noise circuitry pays dividends on AM as well. S/N is above 50dB, as good as 1 can remember hearing or measuring. Distortion is very low and sensitivity is nearly twice that of typical AM sections (175µV/m is 300µV/m). As usual, high-frequency response above 3.5kHz looks like a Roadrunner show. Suffice to say, the tuner is quite listenable in the AM mode, particularly with a little treble boost, but it is not of FM quality.

The detached, square-loop antenna comes with a permanent screw mount which makes it impossible to rotate for best reception. A home-brew swivel mount with a suction cup solved the problem.

Conclusion
JVC has shown its technical prowess with Super VHS and has one of the most advanced broadcast video/editing systems. Other noteworthy home products are its QL-A75 turntable and C2027 20” TV (which, in my opinion, has one of the best pictures available). Therefore, it is not out of line for JVC to come up with a first-rate tuner—something I have not seen in advanced home products from this company since its excellent A-X9 amplifier in 1979. Perhaps with its interest in digital recording, JVC is on a technical roll and we will see more good audio products from them. Meanwhile, I highly recommend the FX-1100BK, with one reservation: it may be a case of try before buy because of the possible spurious problem mentioned in the text.

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Other Notes
I thought it might be of reader interest to know through what equipment I generally audition tuners. There are two audio chains: straight into a very low-distortion, home-brew class-A amplifier to judge overall added distortion. Then I add a Coustic HEQ 7009 A graphic equalizer because no two stations have the same response curve. The second audio chain consists of an Adcom GFP-555 preamp (the tone-control hinge points are well away from affecting the midrange, and the low filter cleans up many stations), followed by a Barcus-Berry 2002R processor (its phase- and midrange-governed high-frequency correction circuits help undo the horrors of FM audio processing). The amplifier used most often is a Yamaha CA-410 II integrated (it has superfast transient response and triple-zero distortion). An alternate amp system is a pair of Marantz Model 5s using 6550 bottles and triode strapping. The speaker system used most often is the Amrita three-way 8" monitors; this system's crossover network does not leave big holes in the critical midrange, the bass response is well-controlled and deep, the highs are smooth and extended, and it can play loudly without excuses for being a small system.

Other good combinations of equipment I have used for good FM listening are the Luxman CO-2 preamp driving the Boulder 500 amplifier, and the Superphon preamp driving the new Luxman M-117 amplifier. Also the Rogers LS5/9s have good definition for FM vocal listening, and sound very sweet when mated with the Lazarus H-1 amplifier, also driven by the almost extinct Superphon Revelation Basic Dual-Mono preamp.

HARMAN / KARDON TU920 AM/FM TUNER

Don Scott


1988 was a banner year for tuner technology. Harman/Kardon joined the flagwaving with two high-performance entries: the Citation 23 reviewed in Vol.10 No.3 ($600), and the TU920 ($375). Both tuners use H/K's exclusive Active Tracking circuit to gain selectivity without adding undue distortion. My cheapskate nature led to an investigation of the dollar/performance value of the lower-priced tuner vs the more expensive Citation series. The results: more bucks buys better.

The TU920 is available in black or gold. From left to right, the front panel has AC on/off, memory controls for 16 random AM/FM presets, band select, centered white 3-4 digit frequency display, greenish-yellow five-level signal meter, Tuned and Stereo indicators. On the right are locking mono/stereo, manual/auto seek (muting is between stations in manual, normal in seek), Active Tracking on-off, and a large knob that rotates one-tenth rotation either direction for up-down tuning in 100kHz increments. No short-route tuning from 88.1 to 107.9MHz or noise reduction are provided.

The rear panel contains an unswitched 100W outlet, F-type antenna connector, spade AM...
antenna terminals, and RCA audio jacks. Overall feel, construction, and parts quality are medium grade. The instruction manual is adequate for a straightforward-operating tuner.

**Active Tracking**
The usual approach for obtaining high selectivity is multiple ceramic filters in the IF strip which induce time-delay (phase-shift) in the signal path with resulting distortion. The H/K approach is to increase selectivity in the RF front end by restricting the oscillator acceptance window to approximately ±80kHz wide; consequently, little or no splatter from adjacent signals results. In theory and practice, the circuit works well. Adjacent-channel selectivity is 30dB in the TU920 compared with 40–50dB in the Citation 23. Variable center tuning of the Active Tracking circuit appears only on the Citation 23, and the In or Narrow mode cannot be locked in from station to station. I found the simple mechanical on/off of the Active Tracking on the TU920 easier to use because 90% of the stations listened to benefited from the filtering action of Narrow and sounded cleaner.

A problem encountered when using Active Tracking in the review sample Citation 23 was a decrease in usable sensitivity. The manufacturer has since solved this problem, and the tuner now represents stiff competition for the high-selectivity camp: Denon TU-800, Onkyo T-9090II, Revox B260, and Tandberg 3001-A. Likewise, the Active Tracking in the TU920 works well, yielding 1.9µV/10.78dB usable sensitivity—not the hottest tuner made, but not the worst, and its RF performance encroaches on the above group at lower cost.

**FM Audio Quality**
The TU920's ability to separate closely spaced stations is not matched by its audio quality. The tuner has insufficient SCA, 38kHz, and 19kHz rejection to avoid high-frequency IM and birdies. The lack of filtering circuitry veils the entire audio range with a murky quality. This lotionized sound is not bad; it's simply not a match for the Class A audio of the Citation 23, Luxman T-117, JVC FX-1100, or the Hitachi HPT-120AV. On the flip side, if a tuner cannot receive a station, there is little logic in saying it has good or bad audio. It is akin to saying this is a great turntable, but it only plays every third record on Tuesdays. Therefore, because the TU920 logged 90 of the +100 stations available in my test area without excessive interference, I cannot condemn it to the audio gallows. Although fidelity was not topnotch, stereo separation was 45dB—75% as good as I have measured—and presented good subjective soundstaging.

**AM Section**
AM sensitivity is 250µV/m, slightly better than the typical 300µV/m. Selectivity and high-frequency response are also a cut above those found in the usual AM sections of tuners. A 10–15" piece of insulated wire hooked to the external AM antenna terminal perks reception, especially on the higher end of the dial. However, the AM is ballgame and news audio quality and will give little musical enjoyment. In contrast, the Citation 23 has near FM quality on AM.

**Conclusion**
It is obvious that H/K did not intend the TU920 to be as good as its big brother. It can only be recommended for situations requiring good selectivity, but where area stations do not warrant a tuner with more audio finesse. If a tuner is needed with both high selectivity and superb audio, the Denon TU-800 ($500, Vol.11 No.5) and the Citation 23 are better choices.

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**TWO BEYER HEADPHONES**

John Atkinson

Beyer DT 320 Mk.II: Dynamic, circumaural stereo headphones. Frequency range: 20Hz–20kHz. Nominal impedance: 40 ohms. Sensitivity: 94dB for 1mW at 1kHz. THD: less than 0.5%. Maximum power handling: 100mW (2V into 40 ohms) equivalent to 114dB spl. Headband pressure: 2 Newtons. Weight without cable: 100gm. Price: $75.

Beyer DT 325: Dynamic, supraaural stereo headphones. Frequency range: 30Hz–20kHz. Nominal impedance: 40 ohms. Sensitivity: 98dB for 1mW at 1kHz. THD: less than 0.5%. Maximum power
Beyer DT320 Mk.II headphones

handling: 100mW (2V into 40 ohms) equivalent to 118dB spl. Headband pressure: 2 Newtons.

Both: Approximate number of dealers: 150. Manufacturer: Eugen Beyer Elektrotechnische Fabrik GmbH & Co., Heilbronn, West Germany. Distributor: Beyerdynamic, 5-05 Burns Avenue, Hicksville, NY 11801. Tel: (516) 935-8018.

Bill Sommerwerck carried out a reasonably comprehensive survey of headphones in the December '87 issue of Stereophile (Vol.10 No.9), covering some 15 models, both electrostatic and electrodynamic. His emphasis, however, was on relatively expensive headphones, and as I am somewhat of a cheapskate concerning 'cans,' I thought it worth looking at two new affordable models from the German Beyer company. Although I have tried many other models after having been infuriated by the Koss PRO4AA in the early '70s, I have been using Sennheiser supraaural2 headphones for over a decade's worth of location monitoring as well as for listening for pleasure, first the classic HD414 and then two versions of the HD420. I would be the first to admit that these tend to be a little dull in tonal balance and lack midrange transparency when compared with such thoroughbreds as the Stax electrostatics. However, the $99 HD420SL (unfortunately recently discontinued) is comfortable over long listening periods and doesn't make my ears sweat—something that drives me up the wall with most circumaural models.

My headphone listening is nearly all done in the Stereophile office—the editing of copy does require some sonic insulation from the outside world, and Publisher LA frowns upon antisocial sound-making. I use either a Sony D75 Discman or a Meridian Pro CD player feeding a home-constructed, dedicated, direct-coupled headphone amplifier based on a John Linsley-Hood design that appeared in Electronics & Wireless World magazine some years ago. Purists may frown on its topology—it uses audio-quality OP-37 op-amps driving complementary bipolar output stages biased into true class-A operation—but it offers a fundamentally excellent standard of transparency in the midrange, coupled with liquid highs and a taut, well-controlled low end, due in part to its low output impedance (less than 5 ohms).

1 Having savved up hard to buy a pair of these "high-end" headphones in 1972, when they cost as much in the UK as a Thorens TD150 turntable. I was disappointed to find them relatively fragile when it came to power handling, uncomfortable to wear for long periods of time, and extremely colored in the lower mids, presumably due to their completely closed construction. They did have great bass, which I suppose is why they have remained in production in one form or another right up to the present. Since that experience, however, I have been a devout fan of open-back designs.

2 This uncomfortable word applies to headphones that press the drive-unit pads against the ear. The alternative is "circumaural," where some kind of cushion surrounds the ear's pinnae, providing a seal against the sides of the skull and holding the drive-units away from the ears.

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and a hefty, well-regulated power supply. The combination of this amp and a pair of Sennheiser 4205LS doesn't begin to compare with the Stax Lambda Pros that Richard Lehnert uses to isolate himself from the Stereophile office, of course, but it does offer a sufficiently musically enjoyable sound from CD that I don't often feel the need for much more.

Which is not to say that I am not receptive to other models. The Beyer DT 990 was highly recommended in Vol.10 No.9 by BS, who felt it to be his "reference" dynamic headphone, and I also have enjoyed musical experiences with this $209 model. However, as I implied earlier, the cheapskate side of my nature had precluded me from buying a pair of '990s and the appearance of two new, less-expensive models from Beyer naturally led me to want to try them.

The $75 DT 320 Mk.II is a revised version of an open-back circumaural design that appeared a couple of years back. As far as I can ascertain, the major change, apart from a $10 increase in price, is a reduction of characteristic impedance, from the 600 ohms common to "professional" models to a relatively low 40 ohms more in tune with the output voltage levels possible from Walk- and Discman. Circular, black earpieces are fitted with padded vinyl cushions (removable for cleaning) that surround, or in my case almost surround, the pinnae. The drive-unit is a single moving-coil dome-unit, and a long (2.6m) Y-lead is fitted with 3.5mm stereo minijack with a ¼" push-on adaptor. The $65 DT 325 has an identical headband, but the open-back earpieces are fitted with a nonremovable plastic-foam earpad (available in red, yellow, or green) which is held against the ears. Intended to be used with portable stereos, the 325 has a shorter, 45" Y-lead, again fitted with a 3.5mm/¼" adaptable stereo jack. The 325's earpieces, at 3.5" diameter, are a little large to fit into a briefcase or small travel bag, however.

Regarding comfort, the 320s were light, with only a moderate pressure on the sides of the head, leading to a considerable degree of comfort. During long-term listening, however, my ears did get quite sweaty. Despite their supraaural nature, the 325s were actually more comfortable in the long term, and the foam plastic didn't feel scratchy (though it was not as easy on the ear as the Sennheiser's velour). As I indicated earlier, closed-back 'phones are a no-no for me on sonic grounds, but they do offer quite a degree of isolation from outside sounds. This is an area where both these Beyers failed completely, the DT 325 offering maybe a dB of broadband noise reduction, the 320 slightly more in the treble. This is unimportant to me, however.

**Sound quality**

The auditioning was performed with three sources: a Sony Walkman cassette player; direct from the headphone socket of a Sony D7S Discman; and driven by the Meridian Pro CD player/dedicated class-A amplifier combination mentioned earlier, both components plugged into an Inouye Synergistic Power Line Conditioner. Though this latter will give different results from those obtained by readers using headphones either with the op-amp-driven outputs typical of CD players or with the resistor-divider outputs found on some integrated amplifiers and power amplifiers, my experience has been that it gets the best from any particular pair of headphones. It thus gives the units under test the best chance of sounding good. A wide range of recordings was used for the auditioning, including a number of my own binaural recordings, both of music and of sound effects. With these, a good pair of 'phones should produce a considerable degree of "out-of-the-head" experience (though, like many listeners, I have difficulty with even the best models in projecting a frontal image out from the center of my forehead).

Listening first to the 320s, their sound was brighter than that of the Sennheisers, slightly exaggerating the nature of tape hiss though adding a degree of "brilliance" to piano tone. String instruments took on a greater degree of stringency than is desirable in absolute terms. They also sounded considerably more detailed in the midrange, though this, of course, may correlate with the treble balance. Tonnally, the midrange was reasonably neutral, but with a slight sense of honkiness noticeable on spoken voice when compared with the more-expensive Sennheisers. The sound was commendably clean, however, and both less veiled and more forward in the mids than the Sennheisers.

Low frequencies were reasonably full, and more extended than those of the 4205LS, though not plumbing the subterranean depths typical of the Stax Lambda Pros. One of my binaural recordings is of a 1980 air show; and
on the Lambdas you virtually shake when a
Swedish Saab Viggen fighter, using full reheat,
demonstrates its short-takeoff ability with the
wind rather than into it. On the Beyers, it is
loud but without the same sense of low-
frequency verisimilitude. The 320s did give an
excellent sense of out-of-the-head imaging,
however, the listener getting quite a good sense
of occasion on the air-show tape, being quite
effectively surrounded by talking spectators,
crying children, barking dogs, a squawking PA
system, and moving cars. And when planes
cross overhead, they do sound high, their cen-
tral image being above, rather than in, the
head. The 600 ohm Sennheisers need quite a
lot of voltage drive to go loud, thus sound use-
lessly quiet with the limited voltage swings
available from Walkpersons. I tried them once
on an airplane—-forget it! The DT 320 IIs, how-
ever, gave very loud volumes with both the
Sony portable cassette and CD players.

The DT 325 has a thinner, more bass-shy bal-
ance than the 320 IIs, and also sounds less sen-
sitive, despite its 4dB-higher specification.
More importantly, it fell down by comparison
in the reproduction of the feeling of space
around instruments, particularly on binaural
recordings. High frequencies were a little "tin-
kly" compared with the other 'phones, with
a feeling of some kind of resonant behavior
apparent. The midrange was reasonably clean
and quite musically satisfying, if not up to the
standard of the 320s, but over the long term
the lack of bass led to a lack of patience with the
sound of the DT 325. There also seemed to be
highish levels of distortion apparent at low fre-
cuencies, even at only moderately loud
volumes. Ultimately, I felt that for just an extra
$10, the Mk.11 Beyer DT 320 offers a lot more
of what I look for in an inexpensive set of head-
phones. And the difference in bulk, for listen-
ing on the move, is inconsequential, in my opin-
ion. Compared with the minimalist in-the-
ear Sony MDR-282s which usually accompany
me on my travels, the '320s offered a less for-
ward upper-midrange balance with better,
more consistent low-frequency weight.

Measurements
Measuring the frequency response of head-
phones is an endeavor fraught with difficulty.
Not only is there a diversity of opinion con-
cerning how it should be done, there is a diver-
sity of opinion about what response best cor-
responds to "flat," given the frequency-response-
modifying natures of the pinnae and inner ear
canal, which are unique for each person. In an
excellent 1980 paper, 3 Audio Contributing Edi-
tor Jon Sank indicated that a headphone with a
flat response above 700Hz will be perceived,
to differing degrees by different listeners,
as having too much HF but lacking in presence. 4
Sank therefore used a tiny probe microphone
to measure the response in the actual ear canals
of his listening panel to determine the optimum
headphone response. Fig.1, extracted from his
paper, shows the response of a set of 'phones
taken in his own ear canal (solid line) compared
with the envelope of the response taken in the
ears of five other listeners (shaded area), while
fig.2 shows the envelope of desired responses
Sank found for headphones to sound flat. (As
implied by fig.1, this varies over wide limits due

3 "Improved Real-Ear Tests for Stereophones," Jon R. Sank,
JAES, April 1980. See also "On the Standardization of the Fre-
quency Response of High Quality Studio Headphones," Gün-
ther Theile, JAES, December 1986.
4 It is fair to point out that, as expressed in a footnote to a
review of the original Stax SR-Lambda Pro in Vol.7 No.5, J. Gor-
don Holt disagrees with these findings, feeling that the brain,
being used to compensating for the response-modifying nature
of the inner/outer ear, will hear flat headphones as either flat
or a little tilted—up in the highs, and response-compensated
headphones as colored. What is true, however, is both that the
same headphones will sound a little different to all listeners,
and that sound fired straight into the ears sounds too bright
when compared with the same sound fired at the front of the
head, thus at right-angles to the ear canal. This can easily be
demonstrated for yourself: play pink noise through one loud-
speaker and sit close to and facing it; you then turn to bring
your ear directly in front of the speaker, you will hear the pink
noise take on a brighter, more-HF-prominent, character.

Fig.1 Envelope of response in ear canals of
listeners (after Sank)

Fig.2 Envelope of desired headphone
response (after Sank)
to the differences in individual ear structures.)

There are standard "artificial ears" available to measure the absolute frequency response of a pair of headphones (Audio Engineering, McGraw-Hill, 1989, gives physical details of the IEC standard ear on p.787, though there is no ANSI ear). As I regard measurements in a review as primarily providing support for the listening comments, however, I felt it sufficient to use a set-up that would produce relative, rather than absolute, data.

What I did, therefore, was to measure the response of both Beyer headphones (at an average 50mV input level) with the 1/2" capsule of the calibrated microphone for the Audio Control Industrial SA-3050A 1/8-octave analyzer set flush in a flat baffle. Each earphone was then forced against the baffle by the pressure of its headband. For reference and comparison purposes, I then measured the Sennheiser HD420SL, Stax Lambda Pro, and Sony MDR-282 "in-the-ear" electret headphones in exactly the same manner—the latter manually held against the plate. (There will still be a small error present with the two circumaural models, the Stax and Beyer DT 320, in that the air space will be larger than that in real-life use, due to the absence of pinnae on the flat plate, and with the supraaural models as the air space will be too small, due to the same reason.) Figs 3, 4, 5, 6, and 7 show the averaged L/R responses of the Sony MDR-282, DT 320 II, DT 325, Sennheiser HD420SL, and Stax Lambda Pro, respectively.

Looking first at fig.3, the response of the in-the-ear Sony 'phones, this has a generally smooth nature, with a mid-treble boost in the approximate region where Sank indicated one was required for a pair of headphones to sound flat. This is both too wide and, at about 10dB, too extreme, however, and lacks the required dip at 8kHz. One would expect these cans to sound rather forward, even bright. Fig.4 shows that the DT 320 II has about the same amount of measured bass extension as the Sonys (in usage, the amount of bass from these Sonys varies considerably with the degree to which they are inserted in the entrance to the ear canal), but with a little more lower-midrange energy. The presence-region rise is narrower, with a more extended HF correlating with the treble balance noted in the listening tests. In fact, they measured very similarly to the earlier DT 550s that I experienced briefly in 1982.5

Conclusion

There is no doubt in my mind that for serious
headphone listening, the well-heeled reader
should consider the Stax SR-Lambda Pro or the
Pro Signature, reviewed by Bill Sommerwerck
in Vol.11 No.8. Those who spend a consid-
erable amount of time listening to music via
headphones but who have a more restricted
budget should look to the Stax SR-34 ($160),
Signet TK44 ($300), Beyer DT 990 ($209), or
Sennheiser HD540 Reference ($199). But if you
only occasionally need a pair of cans for infor-
mal listening or for location recording, then
you should indeed look at (and listen to)
models in the $60--$100 region.

I had mixed feelings about these two Bseys,
however. The DT 320 II offers an exceptionally
transparent sound, with reasonably extended
low frequencies. Some will find its sound to be
consistently too bright, however. The more
expensive Sennheisers that have been my refer-
ence in this approximate price region may be
dull, but over the long term, their balance
proves to be less fatiguing as far as I am con-
cerned. The 320 IIs can nevertheless be recom-
Iended, as their balance will be found partic-
ularly enjoyable by those who find Sennheisers
typically too dull, and their low impedance/
high sensitivity means that they will be more
universally applicable than the 600 ohm
models. The DT 325, I am afraid, did not do
enough for me to be recommended, its bass-
light balance and its liveliness in the lower tre-
ble proving irritating over the long term.

However...as indicated in the measure-
ments section, choice of headphones is far
more of an individual matter than with any
other hi-fi component, due to the unique
nature of each listener's inner/outer-ear topo-
logy. To a far greater degree than usual, listen
for yourself before making a decision on what
to buy.

STAX ED-1 DIFFUSE-FIELD EQUALIZER

Bill Sommerwerck

"Diffuse-field" equalizer for Stax Lambda-Pro and Lambda-Signature headphones; unity-gain;
power and EQ on/off switches; AC-powered; Dimensions: 3" by 6" by 12". Weight: 5 lbs. Price:
$800. Approximate number of dealers: 20. Manufacturer: Stax Kogyo Inc., 940 E. Dominguez
St., Carson, CA 90746. Tel: (213) 538-5878.

The alert reader must be puzzled by the desig-
nation of the product under review. "Diffuse—
field equalizer? I thought the Stax and Beyer headphones you have recommended in *Stereophile* already had a diffuse-field response! Why is an equalizer needed?"

It turns out that the headphones claiming to have a “diffuse field” response, Stax included, don’t. They have a “free-field” response, which is not the same thing. To untangle this confusion, we have to review the design of the first American electrostatic headphones, the Koss ESP-6.

Over two decades back, Koss took a giant leap in headphone design—the first electrostatic headphones. (It seems they were not aware of Stax, who had beaten them by about two years; very few Japanese audio components were imported at that time.) It was well known that headphones which measured “flat” on an acoustic coupler did not sound flat; the coupler could not take into account the colorations caused by the pinna (that’s the outer part of the ear that falls off Jeff Goldblum—oh, never mind) and the ear canal. Since these new headphones were to be of “reference” quality, Koss wanted to be certain they were perceptibly flat.

The solution was surprisingly simple. A patient, non-coughing, non-burping listener sat in front of a speaker with a tiny probe microphone jammed into his ear canal. A swept tone was used to measure the speaker’s response in the listener’s ear canal. The listener then stepped aside, and the speaker’s response was measured with the same probe microphone dangling in free space. The difference between these two responses must represent “flat” response at the ear drum. Okay?

The third and final step was to measure the response of the headphones under test with the same mike, in the same listener’s ear. If the headphones didn’t match the reference “flat” curve arrived at earlier, their design was adjusted until they did. Simple, right?

Simple, yes, but not quite right. The problem of equalizing headphones is actually more complex than this, and is explained in an article by Günther Theile in the December 1986 issue of the *Journal of the AES*. I’ve read this article twice, and still don’t feel that I really understand it. Although the ultimate responsibility for this must fall at Dr. Theile’s door, I will take the blame (for the time being) if the following is not correct. (Dr. Theile bears a striking resemblance to another “Doctor” — Tom Baker—who was an expert at explaining abstruse concepts such as “relative dimensional stabilization,” so Dr. Theile really has no excuse.)

It was discovered a few years back that the ear-brain system exhibits an unexpected ability—timbral stability with respect to position. That is, no matter where an instrument or voice is located around you, its tonal character does not vary, despite slight variations in spectral response at your ears produced by the head and pinnae. It is further postulated that this timbre-stabilization mechanism does not work unless the signal is broadband, and arriving from many directions around the listener.

This is what causes the problem with headphones. The “free-field” measurement represents sound arriving from only one direction—a single speaker. Clearly, the resulting frequency response at the eardrum is not quite the same as it would be if the test signal were distributed diffusely around the listener, because the head and pinna don’t alter a diffuse field the same way they alter a single source. Ergo, when we listen to broadband music on a “free-field” headphone, the timbre-stabilization mecha-
nism is activated, but the headphones are feeding the ear a signal that is correct for free-field, not diffuse-field. Therefore, they will not sound flat.

The solution to this problem is an outboard equalizer ahead of the headphone driving amp. The article suggests that the necessary corrections are rather complex and not readily achieved by altering the acoustic and mechanical properties of a production headphone. This is borne out by the complex equalizer circuitry, which has 6 coils per channel, and mucho capacitors. (A good bit of your $800 seems to go into the labor needed to adjust the ED-1.)

The ED-1 ("ED" stands for "equalization, diffuse", not "enforcement droid") is, like the original Lambda-Pro headphones, a custom design, in this case for the IRT (roughly the German equivalent of the BBC). The box is the same size as the Lambda-Pro SRM-1 amplifier, and fits nicely on top. Fully solid-state, the ED-1 stabilizes and unmutes two seconds after turn-on. The switch that enables and disables the EQ does not electrically bypass the unit; the assumption appears to be that once you have heard the results of the EQ, you'll never want to shut it off. About which, more later.

So, just what effect does the ED-1 have? The most obvious is the way it cleans up the bass and midbass. Although the Signature is better than the Pro, both 'phones share a heavy low end and a fat midbass. The ED-1 neatly corrects the problem—which is especially surprising when you examine the response curves for these 'phones: both are dead-flat in this region.

The other effect of the ED-1 is a softer top octave. With the cables supplied by Stax, the top end seems too dull. With Discrete Technology Silver Plus (or similar hi-res cables) the balance seems "just right." Michael Detmer of Stax says that listeners vary widely in their reaction to this change at the top end: many like it, others find it too much of a loss to tolerate. On simply miked recordings (such as my own), I found the balance more natural, especially when using the "good" cables.

The overall effect of the ED-1's equalization, though, is far greater than would be suggested by these two changes. The improvement in subjective neutrality—with any type of recording—is quite noticeable, and becomes more apparent the longer you listen with the ED-1. The entire audible spectrum sounds more coherent and seamless. It's as if a slightly lumpy-bumpy response has been "squashed flat"—and that's a good thing. Once you get used to the ED-1 (see sidebar) you just don't want to take it out of the circuit.

In several hours of listening, I noticed no loss of sound quality, such as veiling, grain, or loss of detail. Any bad effects of the ED-1 seem to be outweighed by the benefits of its equalization. I sought to offer you some friendly warnings about Stax's Space-Sound CD, a collection of dummy-head recordings. With its wide range of selections—jazz, classical, dramatic—it is
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an excellent demo disc that clearly shows the improvements wrought by the ED-1. The edition is limited to 2000 copies, so I suggest you contact your Stax dealer pronto if you want one.

However, do not listen to band 9. This dummy-head recording of Wagner’s Rienzi overture is just plain awful. Frequency balance is extremely rough and totally unnatural. The handclaps, especially, sound as if they were recorded with two widely spaced mikes, then mixed to mono, to produce an extremely phasey, “comb-filtered” sound.

Now, guess what happens when the ED-1 is switched in. Uh-huh. All those terrible colorations magically disappear. God only knows why there’s such a gross change, and He isn’t telling. This is virtual proof that the human ear is far more than a simple Fourier analyzer (which the “all equipment sounds alike” brigade would have us believe). There is some really sophisticated processing going on in there, which we’re only just beginning to understand.

Make up your mind about the ED-1 before listening to band 9. The change wrought on this recording is so gross that you might just forget that you will never hear such a degree of improvement from other recordings. Let the ED-1 stand on its own merits (which are many) with the bulk of recordings.

The ED-1 is not cheap. The price is especially startling when you note that it matches the original price of the Lambda-Pro system. Part of the problem is the ED-1’s limited production; it cannot take advantage of the economies of scale.

Fortunately, the ED-1’s active circuitry is on a plug-in card. Perhaps the acceptance of the ED-1 (Michael Detmer says sales are surprisingly strong) will encourage Stax to add a socket to future versions of their driver amps. The card could sell for less than half the price of a stand-alone equalizer.

The special-order ED-1 is not normally stocked by Stax dealers. However, there is an unconditional money-back guarantee if you don’t like it, so you can’t lose. Besides, if you buy enough ED-Is, Uncle Willie might be able to talk Uncle Mike into giving him one. You wouldn’t want Uncle Willie to have less than a state-of-the-art system, would you?

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Stereophile, April 1989
I'll admit that I have been a conrad-johnson devotee since 1978, when I purchased their first product: the PV1 preamplifier.

Although small faults have accompanied the various incarnations of PV and Premier series products over the years, messrs. c and j have never strayed from serving the music.

Although the components Bill Conrad and Lew Johnson design are among the few to properly reproduce the lower-midrange and midrange—a continuum ranging from approximately 160 Hz to 2560 Hz—the characteristic most often associated with their products has been a weakness: a “caramel” coloration (an observation that has since caused High-Enders to be considered loony-tuners), a truly euphonic, and occasionally obfuscating, occlusion of the musical truth.

Then along comes the PV8. Theoretically, it replaces the PV5, and another new model, the PV9, replaces the Premier Three. The fact is, however, that the PV8 replaces the Premier Three, and the PV9 is in a class by itself.

In some measure, the PV8 even bests the redoubtable Audio Research SP-11 MkII, although this remark will take some explaining.

The PV8 is certainly a more relaxed, yet dynamic product than either of its predecessors, and no doubt we can confidently surmise that the Premier Seven, c7's $7850, no-holds-barred preamp, will be especially spectacular.

While on the surface it doesn't seem fair to compare a preamplifier costing $1685 to one costing $4995, especially one many reviewers regard as the best ever made, I nevertheless feel the PV8 deserves the comparison. It doesn't win, but in many especially important ways, it doesn't lose, either. And so if $3000 and music are important to you, shake hands with ... IN THISSSS CORRERRR, THE LIGHT HEAVYWEIGHT CHAMPEEEEEEN OF THE WORLD OF PREAMPS...THE CONRAD-JOHNSON PV8!

In comparison with the SP-11 MkII, at first listening, the PV8 suffered from a lack of “transparency,” there was (or seemed to be) some of the tube-and noise intermodulation—grain, if you will—consonant with designs using tubes in both their line and phono stages. The PV8 also exhibited a sonic signature weighted ever-so-slightly (but still noticeably) toward the lower midrange and upper bass.

The revised SP-11 is as clear as a bell, spectacular in its spatial transparency, sounding very much like a transistor preamp but without the traditional shortcomings of the breed.

However, I believe this transparency is at the expense of the musical impulse, for the PV8 also recreates the fundamentals of instruments, but by emphasizing the bottom portion of the frequency range rather than the top.

Whether this is done harmonically or temporally (the latter akin to a double-strike on a dot-matrix printer), the brass sound richer and less spartan through the PV8 than with the SP-11; wind instruments take on a tactile presence (especially flutes and English horns), and cellos speak heartily from their f-holes. (A-clarinets speak heartily from their a-holes.)

This emphasis on the lower midrange, however constructed, seems to confuse the PV8 during full orchestral pieces, whereas the SP-11 handles complex orchestral passages brilliantly. In Vaughn Williams' Job: A Masque for Dancing (EMI ASD 2673), the differences are particularly apparent in the opening orchestral remarks because the SP-11 has such an apparent resolution of detail and lack of grain that one senses the presence of a real orchestra in a real hall.

But the more I listened—and a comparison of the SP-11 with the PV9 on Tom Miller's Stax F-81s was particularly il-
illuminating—the more it began to sound to me as though the Audio Research actually expected bleached out vocals, where one would expect them to exist naturally. On some recordings, voices lost their timbre and sonic definition. So, while certain instruments—and massed strings come to mind—might sound more “transparent” on the SP-11, what I heard on a system with admittedly higher resolution than mine could conceivably be a bit of hi-fi technocracy: a red herring, if you will.

I’ve never been able to agree with other reviewers who assert that one can distinguish one string from another, and that doing so attests to sonic transparency (read: superiority). In discussing this point of view with the editor, he said, “But Bill, you’ve never conducted an orchestra nor sat up there with the microphones.” And he’s correct, I haven’t; but I have played in orchestras, thank you, and I’ve listened from seats immediately above the orchestra; have sat in the first row as well as the last; sat in boxes, the first tier, the second tier, and in the balcony, thank you.

So, in essence, I believe that the SP-11 subtracts detail, in the truest sense of the word, rather than revealing it; emphasizing those parts of the frequency spectrum that suggest detail and transparency at the expense of the lower-midrange—it has been easy for me to shelve the SP-11.

In listening to the PV8, I don’t hear the sins of the Cj past. There’s nothing overt nor euphonic about the PV8—remember the PV2A?—it just delivers more musical information (rather than less) up-and-down the frequency escalator, than any of its predecessors without at the same time announcing that it’s doing so.

The music breathes a natural, musical breath. If the proverbial musical wool is being pulled over my eyes, so be it. I can’t see that that is happening, and as the result is so magical anyway, I wonder: does anyone really care?

To be fair, the PV8 is not nirvana (although the PV9 is close), and were it possible, I’d wish that it had more of the bottom end detail of the SP-11. Although much tighter than before, it still lacks some true bass line tactile clarity (even with the Motif MS-100 power amp) and I sense some tube intermodulation products—it’s not transistor quiet.

But the music is glorious. Strings sound like strings, and that, folks, is hard to do. Harmonic balances sound so natural and correct that I have gone through dozens of records, and the glory of each performance bursts forth from each of them.

And gone is that “caramel” coloration. This preamp, save the bass nitpick, packs the dynamic expressiveness of its transistor colleagues but not at the expense of the music. This is a responsive preamp; crescendi, the musical movement, note-to-note integration, all seem to flow naturally, yet the dynamic range is extremely wide and the response is very fast. In listening to the final movement of Beethoven’s Symphony No. 4 punching my fist in the air with each tympanic exclamation point.

All the instruments sound “right,” woodwinds, particularly oboes, sound “woody.” Now, I’m not going to tell you I can distinguish a Selmer clarinet from a Buffet, but I can clearly tell the difference between Harold Wright and Karl Leister. The European oboe, as distinguished from its American counterpart, is clearly differentiated harmonically. Tympani, bells, glockenspiels, viola di gambi—all display their full timbre, but not at the expense of definition.

None of this, so far as I can hear, is done that well on the SP-11, but not because it doesn’t get the high frequencies dead-on, but because it’s not getting the tonal right.

Admittedly, this is a short review. The fact is that it needn’t be any longer. In future comparisons with the PV9, and possibly the Premier Seven, we may hear more shortcomings, but for $1685, don’t count on my being persuaded that this isn’t the preamplifier for you.

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Janos Starker began cello studies at six, and at ten launched a performing career that has spanned over half a century. During the past 30 years he has recorded more than 150 different works on 21 labels, appeared as soloist with virtually all the world’s major orchestras, written copiously about the art and craft of music-making, and edited numerous cello works from the standard and not-so-standard repertoire.

Then there’s his teaching, which is as central to his artistic life as performing. He joined the faculty of the University of Indiana in 1958 where, as Distinguished Professor of Music, he has become a father figure to more than two generations of cellists who come from around the world to study with him.

Whatever else fate had in store for Starker, teaching was probably inevitable. He says he accepted his first pupil—a six-year-old—only two years after his own initial lessons, and recalls instructing the younger child to “sit down—hold it this way, and play it like this. Since then,” he adds, “I have discovered that the job is a little more complicated.”

Patrician is a word that comes to mind when contemplating Starker’s playing, and certainly everything he approaches is imbued with an uncommon nobility. But there is also the searing intensity and poetic elegance—the probing intellect and flawless technique. Indeed, such perfectly integrated and revelatory artistry could well serve as a model for many of those with more recognizable names.

Starker was born in Budapest in 1924 and emigrated to the United States in 1948 after spending two years in France, where his first recording of Kodály’s Sonata for Solo Cello won a Grand Prix du Disque. At the invitation of fellow Hungarian Antal Dorati he became principal cellist of the Dallas Symphony and, a year later, assumed the same post at the Metropolitan Opera under Fritz Reiner. When Reiner accepted the directorship of the Chicago Symphony Orchestra, Starker became his principal cellist there and performed on all the legendary CSO recordings made during the “Reiner Years” from 1953 to ’58.

Among Starker’s recent solo recordings is his fourth traversal of the six Solo Suites of Bach on the Sefel label. The album sold out immediately and, unfortunately, has yet to be re-released.

I spoke with the cellist last September, shortly after his return from Brazil where he was adjudicated at the Parisot/Starker International Cello Competition. While in Brazil, Starker made his first recording of Villa Lobos’s Fantasia for Cello and Orchestra, due for CD-only release on Delos.

I began by asking about his views on interpretation, particularly as it concerns expressive latitude and fidelity to the score.

JS: In my view, interpretation is an evolutionary process which is affected by such factors as the proficiency and efficiency with which instrumentalists play—a level, incidentally, that is much higher now than ever before in history. Also, the conditions and the temperament of mankind have changed, and we have to adjust to it.

Obviously, it’s a very tricky subject because the basis is the written score, the text, and one
adheres to it as much as possible. But in many instances, 18th- and 19th-century composers have written for instruments without proper knowledge of the instrument’s potential and capabilities. Therefore, it’s up to the interpreter, or re-creative artist as I like to call him, to make those adjustments which will enhance the work without destroying its basic message.

**GE:** Could you be more explicit?

**JS:** We older, more experienced professionals do it on the basis of understanding a composer’s total output. Adherence to the text, then, is not adherence to a particular piece or a line in it. Rather, it is adherence to the way we understand the spirit of Beethoven or Mozart or Brahms or whomever. This means that one plays a Beethoven sonata not by studying that particular sonata but by studying all of Beethoven—his string quartets, his symphonies, Fidelio, and all the others. Only then can one approximate the true spirit of the composer.

**GE:** In that regard, should every young performer with a solo career in mind spend some time playing in an orchestra, as you did?

**JS:** I’m a strong believer in learning and experiencing every aspect of music-making. Only then can you become what I call a professional. For half a century my definition of a musician has been someone who, with a great deal of talent, can produce marvelous and outstanding performances on any given night. Therefore, all young musicians ought to experience every musical area and combination.

I don’t say that a young violinist or cellist today should do what I did by playing more than 1000 symphony concerts, more than 1000 opera performances, and hundreds of chamber music concerts. I chose that kind of life because only then did I feel capable of legitimately stating that I’m convinced of what I’m doing and why.

**GE:** To further elongate on a composer’s intent for a moment, how do you feel about the ever-
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Growing use of original instruments?
JS: Like modern instruments, they have their legitimate place. But the point is that one has nothing to do with the other. My approach to playing the Bach suites, for example, has nothing to do with the approach of playing them on the gamba. I play on steel strings, I use a straight bow rather than a curved one, and I tune to A-442 or 444 and not the lower, baroque pitch. I'm trying to represent history in terms of continuity of principles; this whole idea of being religious about the text... Well, God forbid that everybody would be religious because then it would all be the same.

GE: Still, don't the old instruments bear a more direct relationship to the sound that, say, Bach was hearing when he wrote the suites?
JS: Thank goodness we have no proof of what sounds he heard. I'm inclined to think that if Bach would hear some of his works performed by today's artists he would be rather cheerful.

And it should be said that the human element is what appeals to the public at large—the individual performer's viewpoint and interpretation. In some cases it can become an exaggerated element, not just in sound but in facial expression. Although this can be appealing, if it comes at the expense of such qualities as simplicity, purity, and balance, I object. Here, I'm talking somewhat personally. If I do not make grimaces it doesn't mean that I'm not feeling the music but that I'm trying to eliminate sentimentality and not mix it up with emotion.

GE: Given your long and impressive list of recordings and live performances, what do you consider the major differences between the two endeavors?
JS: Making a recording alters the entire approach to music-making. In the earlier days the highest degree of cleanliness and exactness was required of the performer because when you hear a recording you don't want to hear the same mistakes over and over again. Now, of course, the producer and engineer can remove blemishes but—and this is often misunderstood—no editing can make a first-class performance out of a second-class one. But the major difference is that in a live performance the audience and performer are together in a room with the focus on the performer, and the audience participates. In a recording that's not the case, which is like the difference between film and live theater. So there are different rules and regulations between making a recording and playing a live performance.

GE: Specifically?
JS: Timing and dynamics. For instance, in a concert hall, if you have a rest and you keep moving the bow, it fills the space. But on a recording the listener doesn't feel that and therefore it's dead. So in a recording the rests and silences must be lessened. And in recordings, the dynamic contrasts have to be much stronger. In a concert, for example, when you create a crescendo which goes up to fortissimo, the physical energy that goes into producing it almost substitutes for the real forte. In a recording, however, you must compensate for this absence of the visual.

GE: Your first recordings were made on 78s and have spanned all the technological advances up to and including those of the present day. How do you feel about digital recordings and the compact disc?
JS: The results of the CD are far superior in sound to anything we have had before. I'm impressed and delighted when I hear recordings remastered on CD. Still, the old Mercury one-microphone recordings are superior to many of the multi-channel and multi-miked recordings of today.

GE: Do you have any particular interest in the equipment used in home sound reproduction?
JS: I don't listen to my own recordings, but I listen to those of others and, finally, after many years of being nudged by friends, I think I have some fairly good equipment. I built myself a very large music room, so I had to have some new equipment. But what is it? I really don't recall. I think it's "N" something. It's NAD, I think, and it sounds quite good.

GE: As one of the world's most distinguished pedagogues, what do you look for in a prospective student?
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JS: There's nothing like talent. But beyond that, I'm looking for the kind of functional brain that can understand the basic principles I'm trying to implant—principles with which a musician can work for a lifetime.

GE: How do you approach the task?

JS: Basically, we discuss problems and their various solutions because all my life I've deliberately been trying not to create clones. It's a matter of getting the most out of an individual's God-given talent—assisting, really, because no teacher can create something a person doesn't have. Then, of course, out of hundreds of students, only five or six might become performing artists of whom the public takes notice.

GE: To what extent do you believe that talent accounts for such notice?

JS: In an article I wrote many years ago I noted that having an international career is not just dependent on musical artistry. Of the 40 or 50 qualities that contribute, only five or six are truly artistic or musical elements.

GE: What are some of the others?

JS: Stomach.

GE: Stomach?

JS: Yes. For instance, if someone gets off a plane and, because of food or jet lag or whatever, can't perform immediately at a high level, then he or she won't make it. Or if one doesn't have the ability—not so much the luck—to pick the right place at the right time and know the right things to say to the right people... Well, I'm sure you get my point. But these musicians can enrich life in orchestras or teaching or in chamber music or whatever. So they have to be prepared for every aspect of music making, and that starts with a maximum understanding of handling of the instrument.

GE: By that, do you mean technique?

JS: Well, we call it technique, but that's sort of a limiting word. What I mean is not only to play something fast and accurately, but to be able to produce any kind of sound appropriate to the music. It is well known that, personally, I do not like to produce sounds automatically associated with the cello. The sound of the voice is number one for me, and one of the major attempts of my life is to create vocal sounds from bass to coloratura. Also, there are the various sounds of the symphony orchestra because I believe that composers basically hear orchestral or vocal sounds when they write for the cello or violin. For example, Dvorak heard the cello as presenting a horn theme in his concerto, and Haydn, in his C-Major Concerto, often focused on bel canto vocal sound. So obviously, composers did not limit themselves only to the sound of the instrument they were writing for.

GE: Does this insight influence the way you approach, or re-approach, a work?

JS: If it's an old piece, one searches for new treasures to be found that initially escaped attention. Then, as time goes on, one focuses on different musical elements. In the earlier stages—in order to avoid criticism for inexactness—one focuses on technical proficiency. Later, it becomes much more a matter of structural or melodic elements and eventually it becomes the quality and richness of the sound palette. One never stops the process because it takes a lifetime.

With a new piece, one first sits down and reads it like a book, trying to find out what it's about. Then, hopefully, you develop a concept of the piece—the way you want to speak it. At that point you sit down with the instrument and work out the details.

GE: And that's when you make the "adjustments" you referred to earlier?

JS: Yes, in those instances when I feel a composer did not find what's best for the piece through that particular instrument. I make alterations in the Schumann concerto and slight alterations in the Haydn C-Major Concerto, for instance, because I feel they wrote something imagined on the piano which does not come out clearly on the cello. In the opening of the Schumann, for example, there is a fast run that—although there is no problem in playing it—just doesn't play. It doesn't sound right. So I change the rhythm in that bar. And in the Haydn—which I introduced to the United States many years ago—I occasionally raise something an octave. Someone in the New York Times once mentioned this as if I had made a mistake or something, but I do it because I feel that in the written range the material loses its significance.

Let me tell you a most revealing story of what I'm talking about. As you know, I'm sort of the one who brought Zoltán Kodály's Sonata for Solo Cello to the world. I've recorded it four
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times and I played it many times in his presence. Well, there are various editions of the piece and there are some doubtful notes—probably printing errors. So the last time I saw Kodály, I asked, “Could you tell me, finally, is it a g or a g# on page such and such?” He thought for a while, and then he said, “Yes.” That’s all he said—which means that he wasn’t particularly concerned.

**GE:** Many string players swear by the “Starker Bridge.” Would you explain what it does and how?

**JS:** In electronic terms, the Starker Bridge acts as a tiny preamplifier. Small, conical holes are drilled at the feet of the bridge, like the horn that Rudy Vallee sang through. And it’s the same principle. When the sound travels from the string through the bridge to the body of the cello it enhances the vibration. According to electronic measurements it enhances the overtone response and, in cases where an instrument’s sound is not open, it opens it up. As a result, it also makes the instrument easier to play.

**GE:** What do you think the function of a critic should be?

**JS:** There is no need for critics.

**GE:** First of all, there is no need for critics and it’s very seldom in music history that we have real critics. What we have are reviewers—that is, people who are better trained than the audience at large and who give their impressions of a musical event. Unless, of course, they have a definite specialty. When Harold Schonberg speaks about piano playing—he’s spent a lifetime playing things on the piano and studying the works, so he’s a fairly knowledgeable pianist. But when he starts applying the same standards to brass playing, to string playing, to opera—then it’s a matter of a person trying to criticize something he’s not qualified to do.

**GE:** So I gather you don’t think there are many good reviewers.

**JS:** No—I think there are a lot of very good ones who write very well. And a reviewer’s basic job is to write interestingly. But their job is not to tell the performer that he did some-

thing wrong or right. The fact is, how on earth can a reviewer truly be acquainted with every aspect of music-making and the entire literature? He may have heard a certain piece on a record, while the performers have spent years studying it.

When I was principal cellist of the Chicago Symphony I knew the great Claudia Cassidy very well. She wrote the greatest nonsense, but it was always interesting reading. Sometimes it was totally contrary to what truly happened musically, but the writing was fascinating and that’s all that mattered. The musicians never took seriously her views on music.

**GE:** Let’s turn to conductors. Do you think of them as accompanists or as equal collaborators?

**JS:** Always as collaborators—and the same for pianists as well. Unfortunately, it was a great colleague, Gerald Moore, who pushed the term “accompanist” into the public consciousness even more when he wrote his book, The Accompanist. But I believe the term should be deleted from the language, and I’ve been fighting for decades and decades never to use the word on a program. In the Beethoven or Brahms sonatas, for example, it’s impossible to consider the piano part “accompaniment.” And even in the song literature, the piano is equally or even more important than the voice.

**GE:** Finally, how would you like history to assess your accomplishments?

**JS:** That I’ve done my job. I don’t think about whether I’m number one or two or three or whatnot as a cellist. I’m simply interested in the totality of what I’m doing—teaching, writing, playing, and effecting some changes in the understanding of music. Hopefully, I’m guaranteeing that the generations that went through my hands as a teacher will profess the same principles that I learned from such great musicians as Adolf Schiffer and Leo Weiner. I hope it goes on.
"In its price category, the Adcom GFA-535 is not only an excellent choice; it's the only choice."

The complete report:
Sometimes products are too cheap for their own good, and people don't take them seriously: the Superphon Revelation Basic Dual Mono preamp, Rega RB300 arm, AR ES-1 turntable, Shure V15-V MR cartridge, and the B&K ST-140 power amp. They can't be any good because they cost so little, right?

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Actually, when Rob Ain from Adcom called, I was about as enthusiastic about the GFA-535 as you were before you finish reading this piece. But Rob insisted, "You've gotta hear this amp."

He brought it over the next day, along with the GFP-555 preamp ($499.95), and we put both pieces into the rest of the system: a Shure Ultra 500 in a Rega RB300 arm on an AR ES-1 table, with Quad ESL-63 speakers on Arcici stands. Then we chatted for a half hour or so while the electronics warmed up.

And then, simultaneously, the two of us decided to shut up and listen.

"I've never heard the Quad ESL-63 sound better," Rob said. Of course, he was hardly an impartial observer, but the sound was extraordinarily clean, detailed, and musical. If it wasn't the best sound I have ever heard from Quads, it was pretty close.

This humble $300 amplifier was driving a pair of very revealing $3000 speakers and giving a very good account of itself. (We listened first to some Goran Sollscher classical guitar.) "So how come this product isn't flying off the dealers' shelves?" I asked Rob.

"I don't know. Everyone wants the GFA-555 with 200 watts per channel. Including people who don't need it."

"Does the GFA-555 sound any better?" I asked.

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Rob pointed out that while the GFA-535 is rated at 60Wpc, it puts out more like 80. And while I did not do any measurements, my experience with other amps tells me Rob's right. I suppose Adcom doesn't want to steal sales from its GFA-545, rated at 100Wpc and selling for $200 more.

After a couple of hours, Rob left, grinning from ear to ear, and I later sat down to listen alone. True, when I tried certain Telarc and pushed hard I could get the amplifier to clip—two LEDs quickly light up (very useful). But the Quads were running out of the ability to use the power anyway. My first impressions
were confirmed: the GFA-535 is one of the best amplifiers around for driving Quads. Spendor SP-1s, too.

Suddenly, it hit me what this meant. Conventional wisdom had been dealt a severe blow. You know, the old saw that you should never power a good pair of speakers with a cheap amplifier. Here was a cheap amp—one of the cheapest on the market—that sounded good with Quads, Spendors, later Vandersteens. Probably Theis, too—at least the CS1. What it means is you can stretch your speaker budget a bit and get the speakers you really want, then economize by buying an Adcom GFA-535 for $299.95. True, you may be a little power shy, but probably not much. And to say the least, the GFA-535 would make a decent interim amp.

What does the GFA-535 sound like? (You thought I'd forget that part, right?) Well, this is one of the most neutral amps I've heard.

"The GFA-535 reminds me of...amplifiers that sell...for about three and five times the price!"

The bass, like everything else, is neutral, certainly not fat and overdone. But it's here where you notice that this amp is not a powerhouse. You just don't get the solidity and extension you get with a very powerful (and expensive) solid-state amp. Nor do you get the breadth and depth of soundstage that you often find with a very powerful amp. The Adcom GFA-535 sounds a wee bit small, which it is.

My only criticism, and it's more of a quibble, is that the speaker connectors are non-standard and unique (so far as I know). You insert bared speaker wire into a hole and twist the connector tight a quarter turn. Most speaker cables will fit, but some will not. Certainly MIT won't. Neither will the best Kimber, the kind with eight clumps of strands. The less costly four-clump Kimber will, and proved an excellent choice. My sample amp was quiet—

"This amplifier is so good and so cheap that I think any CD owner who buys an integrated amp is nuts."

no hum—and ran cool. There are selectors for two sets of speakers. And the 535 looks nice.

And talk about economy: If you're not into LPs anymore, you could buy a Mod Squad, dbx, or Old Colony line-level switching box—or possibly a B&K Pro 5 preamp, with its switchable line amp section (only $350), or the Adcom SLC-505 passive preamp ($150)—and run it with a CD player. In fact, if you are into CD only (no tape, no tuner, no phono), you could buy a CD player with a variable volume output and run it directly into the Adcom. This amplifier is so good and so cheap that I think any CD owner who buys an integrated amp is nuts.

In its price category, the Adcom GFA-535 is not only an excellent choice; it's the only choice. The real question is whether you should buy one even if $299.95 is much less than you planned to spend for an amp—ie, whether you should put the money into a better CD player or pair of speakers instead.

"...the baby Adcom is one of the finest solid-state amps I have heard...so good for so little money as to be practically a gift."

While it doesn't sound particularly tubelike, it avoids the typical transistor nasties through the midrange and into the treble. I wouldn't call it sweet—there's no euphonic coloring—but it isn't cold or sterile. What it is, is smooth. And detailed. Far more detailed than I would ever imagine a $300 amplifier could be. The GFA-535 reminds me of the Eagle 2A and PS Audio 200C, amplifiers that sell, respectively, for about three and five times the price. Of course, they have more power. And they are more detailed. The point is, the Adcom comes close. Very close.

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At the beginning of the year, Michael Emmerson, President of BMG Classics, announced wide-ranging plans for the Eurodisc and RCA Red Seal labels, including not only the signing of Sir Colin Davis (long faithful to Philips), but a big roster of Soviet artists, one of whom—the young pianist Evgeny Kissin—prompted this month’s feature.

When Kissin made his first UK recording last May, with the LSO under compatriot Valery Gergiev (RD 87982), he was 17. Already he shows extraordinary power and authority, although this registers better in the coupled six selections from Rachmaninoff’s Op.39 Études-Tableaux. Frankly, although this is a Keener/Hatch production—both sensitive musicians—the technical quality is seriously disappointing, with diffuse orchestral sound and less than ideally focused piano. I can’t help thinking that, for a debut, some cheating in the balancing would not have been unwelcome! Kissin is rhythmically alert, muscular, yet he plays with a wide palette of colors—as the first-movement Allegro develops, sounding not unlike Rachmaninoff himself. But the extreme sluggishness of the accompaniment ill-fits Kissin’s propulsive style: is it that Gergiev’s beat was hard to follow, that his expressive style was not “felt” by the orchestra? Or was the LSO basically out of sympathy with the project?

It’s hard to tell; yet unexpectedly the LSO appears under Szell’s one-time assistant conductor Wyn Morris in the same concerto, coupled with the *Paganini Rhapsody* on an MCA CD. The hard-toned American pianist David Golab is the soloist. Morris is currently recording a Beethoven symphony cycle for this bargain label company. I thought the concert performance of the *Rhapsody* betrayed an astonishing insensitivity, notwithstanding Golab’s showy technique. But in the recording, what is more striking is the obvious attention paid by the orchestra to Morris’s very “Russian” manner. (Even so, I don’t recommend this issue other than as a curiosity.) A far better coupling is in the cheap London “Weekend Classics” CD series, with Julius Katchen and, respectively, LSO/Solti and LPO/Boult (Concerto/Rhapsody, 417 880-2). The 1959 Concerto recording was originally coupled with a dazzling Balakirev *Islamey* (STS 15086, nla). Once considered demonstration-worthy, the sound is now hissy and bass-heavy on CD. Solti drives the tutti coarsely, and there is some insubstantial wind playing against Katchen’s faster passage-work. Listening to the LP again, I can’t say I can
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endorse his alternately slow, then artificially mannered expressive chording. Here, it is the Boult coupling which deserves its classic status.

"Classic status"? What about the composer's C-minor Concerto? There are, of course, two Philadelphia recordings which featured the composer himself. The first, from acoustic 78s (1924), is a composite with one shellac side from the more familiar 1929 set; Stokowski conducted both, proving a wonderful collaborator. There is some deeply poetic work in the first version: I find the string slides in the slow movement very touching, after the cadenza, yet these are almost absent (radically toned down) in the 1929 remake. With its more pungent solo balance, this has a more assertive feel, with a festive richness in (iii) where the older recording was dim and pokey — though Rachmaninoff himself is clearer in his first solo there.

The disastrous premiere of the First Symphony destroyed Rachmaninoff's self-confidence as a composer: he turned to conducting, but suffered from depression. The help gained from psychiatrist Nikolai Dahl energized Rachmaninoff, who had been asked by the London Philharmonic Society for a piano concerto. The Second was completed in 1901 thanks to hypnotherapy, and Rachmaninoff gave the first (Moscow) performance with Siloti conducting.

Rachmaninoff's historic performances are coupled on two separate RCA CDs: 2 & 3, Ormandy, 1939-40 (85997-2-RC); 1 & 4, Ormandy, 1940-41, with Rhapsody (Stokowski, 1934) (86659-2-RC). Historic record buffs and my HFN/RR colleague Robert Cowan assert that one of these Red Seal remasters is in "electronic stereo." I can't say that I hear this — both CDs are credited to the same reissue team — although the sound of No. 2 is diffuse and possibly contains some electronic spread enhancement. The whole series was at one time subjected to fake stereo remastering for LP. What I can confirm is that HMV's first LP transfer (CSLP 517) was markedly superior to either the Victrola LPs or the CD sound. That said, the Rachmaninoff/Stokowski Second has a definitive character, and is fairly emotionally involving. Though it would be good to have the first 78s in the catalog again.

A cycle which most critics have rejected, for its athletic speeds, is the Kocsis/San Francisco/de Waart. The LP with the Rhapsody (Philips 412 738-2) is already deleted, and I see no equivalent CD listing. Kocsis is too individual an artist to set aside, and his technique and creative insights overcome reservations about a disappointingly woolly engineered sound. This is a comparatively cerebral reading of the solo part: some may find it unsympathetic, since it is not conventionally romantic, but more concerned with constructional aspects; eg, the abstract effects of emotional peaks and troughs. Rachmaninoff with a Mozartian balance?

Another figure from the past, strongly associated with the Concerto, is Artur Rubinstein. In 1973 RCA released a Quadracord recording (no coupling at all) with Ormandy and the Philadelphia Orchestra (ARDI-0031), but this has not been transferred to CD. Instead, we have the more exciting Reiner version, again with the Rhapsody. On the quadraphonic remake the two veterans offer a protracted account of the Adagio, which strains the windwinds' intonation; it sounds as though Rubinstein has by this time lost his way to the heart of the music. The 1961 version sets a virtually exact solo reading of (ii) in a far more dramatic and involving context (if marred by an acidic edge to close-balanced strings). This is prime Rubinstein, but what a meal he makes of the cadenza in (ii), banging away in the lower register, artful in his arpeggios and slowing the florid lead-back — all in merciless closeup! However, my preference is for RCA's Van Cliburn Chicago/Reiner recording. On CD this is coupled with Tchaikovsky 1/Kondrashin (orchestra unnamed, 5912-2-RC). Even the young Texan is put on his mettle by Reiner's wicked accelerating at the end of the work, but how idiomatically Russian this sounds!

The same coupling with Jorge Bolet and the Montreal SO/Dutoit (Decca 421 181-2) was the non-event of 1987, with recorded sound as gutless as the performances. A version which is decidedly overexposed at present is Earl Wild's 1965 Second with RPO/Horenstein. Charles Gerhardt produced his Rachmaninoff cycle for Reader's Digest, and these discs attracted a cult following. RCA made rather poor Gold Seal LP transfers, then Chesky made the C-minor Concerto their first release. On direct-metal-mastered LP (CR-2) it has no coupling (but acres of reflective vinyl to enable azimuth setting of your cartridge); on CD there are two piano solos, Tausig arrangements, and Horenstein's impressive Rachmaninoff Isle of the

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Dead (CD-2). Chandos UK then released the Concertos/Rhapsody as a 2-CD pack (CHAN 8521 & 2), but with no LP equivalent. Later they did provide a 2-LP set (DBRD 2011), but with digitally mastered material on long sides this could only be recommended to a collector desperate for the performances. Kenneth Wilkinson's fine engineering is better served by Chesky. And I would go for the CD, primarily for the tone-poem, rendered here as translucent as a Mahler score. Wild's is a lightweight, at times infuriatingly flippant-seeming set of performances. Yet how beautifully he starts the C-minor; and how clear is the string writing in Horenstein's hands. Except where Wild presses too eagerly for display passages, this is one of his better Rachmaninoff performances, and the solos contain some delicious moments. The recording dates in timbres and balancing: a sound engineer could probably plot the mic layout from what he hears on this CD.

There is one other important recording to outline: Richter's famous DG, now on CD with his Prokofiev 5 (415 119-2). It is surprising that Richter's Tchaikovsky 1 with VSO/Karajan is nearly always brushed aside with comments about the two not seeing eye to eye over tempo, while his Rachmaninoff with the Warsaw PO/Stanislav Wislocki is mostly regarded as exemplary. Yet Richter's is decidedly a moody, waywardly detailed account. The orchestra is not at all world-class, with thin winds; the soloist is exaggeratedly forward of the orchestra. But however questionable, Richter's is an absolutely riveting piece of playing. I have only the analog LP, and from it I suspect that CD collectors should regard this one as a "historical" purchase. (It is well known that a year or so ago Richter was persuaded to undertake a series of recordings, to be a "retrospective" edition. He seemed pleased, then resolutely forbade any to be released!)

In Vol.11 No.11 Igor Kipnis reviewed a Moiseiwitsch series of special import LPs. These included his older EMI Rachmaninoff Second; but a Philharmonia/Rignold 1955 Abbey Road recording was also available on EMI/World Records (SH 380), with an early stereo Paganini Rhapsody. The pianist, at that time in the twilight of his career, had been a close friend of the composer—they met in the 1920s, both émigré pianists seeking work in America. Moiseiwitsch played the concerto frequently (I recall seeing him at a Prom perfor-

mance under Sargent); his reading was aristocratic and spacious. His careful but not placid view of (ii) is, as has been remarked, quite unique. A pity his conductor serves him insidiously.

Miscast pianists such as Foldes, Curzon, Entremont, Vasary, and Weissenberg have recorded the Second. Scarcely known or unlikely names are listed: Jenner, Blumenthal, Baekkelund, Hatto, Tacchino. Perhaps the best of today's choices is Ashkenazy, in his Concertgebouw cycle with Haitink. The Second comes with the Fourth (London 414 475-2), or, frustratingly—since the Rhapsody is omitted from it—in a 2-CD package of all four Concertos (421 590-2). There have been earlier Ashkenazy recordings, with Kondrashin, then Previn, but with its beautifully balanced sound and reflective style, results are eloquent—once past the rather heavy underlining of the opening string passages (reminiscent of the Wislocki/DG). There is a certain "distanced" character in the orchestral sound, only partly due to the ambience of the big hall, which sets off Ashkenazy's confiding of Rachmaninoff's more melancholic side. With so much of the text revealed unsensationally, this is deeply satisfying.
What's A Transfer

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

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

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

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Two Beethoven Symphony Cycles

Mortimer H. Frank

BEETHOVEN: The Nine Symphonies; Egmont Overture
Bernard Haitink, Concertgebouw Orchestra of Amsterdam, Lucia Popp, soprano; Carolyn Watkinson, contralto; Peter Schreier, tenor; Robert Holl, bass. Netherlands Radio Chorus, Robert Gritton, chorusmaster. Philips 416 822-2 (6 CDs only). Cees Helykoop, Willem van Leeuwen, Fiona Gale, Hein Decker, engs.; Volker Straus, prod. TT: 6:05:08

BEETHOVEN: The Nine Symphonies; Fidelio, Leonore No. 3, Consecration of the House Overtures
Riccardo Muti, Philadelphia Orchestra, Cheryl Studer, soprano; Delores Ziegler, mezzo; Peter Seiffert, tenor; James Morris, bass; The Westminster Choir, Joseph Humberfield, dir. Angel/EMI CDS 7 19 489 (6 CDs only). John Kurlander, Michael Sheady, engs.; James Mallinson, David Groves, prods. DDD. TT: 6:29:46

Those who have come to believe that the market is glutted with Beethoven symphonies should find nothing in either of these integral editions to promote a change of view. Although the Bernard Haitink set scores in every way over the one led by Riccardo Muti, each falls short of matching the best now offered in the CD catalog.

These sets share a number of external features. Both present the finest of world-class ensembles distinguished for their virtuosity, with international celebrities in charge on the podium. Furthermore, the shortcomings of each cycle rest mainly with deficiencies in direction, though in the case of the Muti set, they go well beyond that. And, coincidentally, each set includes one CD that has been previously released, 5 and 7 in the Haitink, 1 and 5 in the Muti.

Whatever their failings, Haitink’s readings have many distinctions. The Concertgebouw plays beautifully, with a discipline and smooth lustrous sonority that few ensembles can match. Indeed, it is the superiority of the orchestral execution here that sets this cycle above Haitink’s earlier one with the London Philharmonic, the Dutch winds, in particular, boasting a tonal allure and technical proficiency that may well be unique. Still another virtue of this cycle is its engineering: natural string tone, wide dynamic range (especially in the finale of the Ninth), and an appropriately distant perspective. These, obviously, are the very features that contribute to the illusion of being in a good concert-hall seat, which is precisely what an intelligently engineered recording should do.

But it is in not suggesting the quintessential Beethoven that some of these performances fail—a failure rooted in what might be termed (to borrow a phrase used by a friend and fellow critic) Haitink’s “excess of moderation.” Frequently things sound just a bit too smooth, too refined, and too straightforward, the craggy, abrasive, and eruptive Beethoven being lost in the process.
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The jagged-edged humor of the finale of Symphony 2, for instance, is eroded, thereby neutralizing much of its saucy wit. The first and second movements of 9 (Haitink’s third recording of the work), despite their apt pacing, move forward doggedly, with almost no rhythmic inflection, so that little of their tension and implicit contrasts is conveyed. What’s more, at the very opening of the work, Haitink fails to project the majesty in the birth of the grand tonal universe that grows from Beethoven’s initial harmonic void. Similar problems infect the first movement of the “Eroica,” which, for all of its rhythmic rectitude and freedom from mannerism, packs little of the wallop that stamps its revolutionary character.

In part, these shortcomings may be tied to the overall acoustic, which, while realistic in a general sense, remains ill-suited to Beethoven. More specifically, recessed brass and the long reverberation of the Concertgebouw itself conspire to blunt the cutting edge of a sonority that should have greater color, bite, and focus. This is especially true in the first movements of 3, 6, and 9, and to a lesser extent in the finale of 7.

On the other hand, this set has its distinctions. Symphonies 4 and 8 (paired on one disc) are superb. In both works, Haitink suggests an apt humor, clarifying the delightfully pointed part exchanges in the second movement of 8 and the impish humor of the bassoon in the outer movements of 4. And in both scores, tempos are ideal—bracing but never so fast as to cause blurring. In addition, the performances of 5 and 7 (reviewed in the July, 1988 Stereophile) have much to recommend them, as does the light, transparent, bubbly reading of the First.

Perhaps the prevailing low-keyed neutrality of Haitink’s style, along with his generally well-chosen tempos and disdain for mannerism, will lend these performances a durability that many repeated hearings alone can determine. (The only instances of anything even approaching a mannerism here are an awkward breath-pause inserted just before the reprise in the third movement of 8, and a fussy oboe cadenza in the first movement of 5.) Many listeners, however, may well prefer a more colorful, unbuttoned, vibrant Beethoven. The absence of these traits rests ultimately with the conductor, as may also the excessively blended orchestral tone. Certainly Haitink’s fine reading of the Egmont Overture, where the brass cuts through with telling effect, suggests that the defects in sonority lie with the conductor, not the engineering.

Haitink is inconsistent regarding repeats, but intelligently so, observing those in the first movements of 1, 2, 4, 5, 6, 7, 8, the finales of 1 and 4, and the second movement of 1. Among all of these, that in 7 alone seems redundant, making the movement unnecessarily long without providing any compensatory formal balance. Only the first repeat is observed in the second movement of 9, and a gratuitous da capo is thrown into the third-movement reprise of 1. Haitink follows the Urtext in the second movement of 9 (omitting the brass reinforcements favored by many other conductors) and in the first movement of 5 (where he does not make the usual substitution of a solo horn for Beethoven’s specified bassoon).

Far more disappointing than Haitink’s traversal is Riccardo Muti’s. For one thing, the velvety Philadelphia sound—undoubtedly attractive in itself—is utterly misplaced in Beethoven: Timpani are soft and spongy; plush, vibrato-laden strings overbalance winds and brass, creating an excessively soft focus; and the bass is too weighty and thick, replacing Beethovenian muscle with Philadelphian flab.

Worse yet, the engineering seems synthetic, solo winds and brass sometimes sounding far too close, other times as if they were in the next county. The horn that so humorously anticipates the recapitulation in the first movement of the “Eroica,” for instance, is far too remote; the flute that provides key counterpoint in the third movement of the “Pastoral” is virtually inaudible; and the trumpets, which add considerable spice and wit to the third movement of Symphony 8, are buried in the turgid orchestral fabric. What’s more, the general perspective is claustrophobically close, exposing a number of sonic intrusions that one would never notice in the concert hall: fingers smacking the keys of wind instruments, bows bouncing off strings, and the usual assorted clatter unavoidably generated by musicians’ movements.

All of these drawbacks might be less disturbing were Muti’s readings persuasive, but time and again he seems unsympathetic to the music’s basic style. Least unidiomatic (with one exception, noted below) are his accounts of Symphonies 1, 2, 5, and 8, all of which move along in a rather slick, inoffensive way that displays little sensitivity to phrasing or shaping.
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and virtually none to the creation of plateaus of tension that are so much a part of the music’s dramatic backbone.

Far more wayward is Muti’s high-gloss insensitivity in 4, which, especially in its absurdly fast first movement, is made to sound trivial. Equally egregious are the mannered dynamic swells imposed in the first-movement development of 7, where Muti’s failure to clarify the dominant dactylic rhythm neutralizes the music’s character and blurs its profile. Indeed, Muti here sounds far more affected than he did in his earlier (1980) Angel recording of this work with the same orchestra. And his previous Philadelphia account of the “Pastoral” (also issued by Angel), if far from ideal, at least conveyed some of the bucolic joy absent from this leaden, thickly textured remake.

And then there is the Ninth, with its bland, fragmented first movement and colorless second movement having a Trio without even a hint of the requisite ethereal lightness. Surprisingly, the last two movements fare far better, but cannot redeem the whole. Atypical of the sound elsewhere in this set are tight, well-focused timpani.

I have left Muti’s “Eroica” for last simply because it proves interesting, albeit in an often heavy-handed way: less slick and superficial, with a strength and flexibility he rarely manages elsewhere. Following the Urtext, for instance, in the first movement’s coda, Muti makes the peroration compelling without having the main theme reiterated by the added trumpets favored by most conductors. And in the Funeral March, his clarification of voices underscores stabbing dissonances and the winds’ suggestion of tortured sobbing. Many other performances, of course, have achieved this, and it may be that this “Eroica” sounds better than it is simply because Muti’s other performances (including those of three overtures) are mainly dismal.

That Muti is intellectually and temperamentally out of his element in Beethoven is suggested further by his rigid literalness in incorporating every single repeat Beethoven specified, regardless of what sense or formal balance might dictate. He even adds unspecified first repeat in the reprise of the second movement of the Ninth.

Many collectors may come to see this set as evidence of the alleged lack of great conductors today. Such a view misses a key point. In the past, not everyone recorded the Beethoven symphonies. The 78rpm era featured only one integral cycle (produced over an 11-year period with Felix Weingartner), and the LP was well into its fifth year before the phonograph’s next cycles (Walter and Toscanini) appeared. Today, with the CD only a little more than five years old, we have new digital editions and reissued analog ones crowding the laser market. That three splendid all-digital cycles exist (Herbert Kegel’s for Capriccio, Herbert von Karajan’s for DG, and Gunther Wand’s—soon to be completed—for Angel) dispels the notion that commanding conductors today are in short supply. Furthermore, the analog cycles of Leonard Bernstein and Karajan recorded in the late ’70s for DG are among the finest produced in any era, and comprise compelling entries in the CD catalog.

The main thing to keep in mind is that distinguished Beethoven interpreters are not in short supply. But we have far too many conductors recording the composer’s music without understanding or sympathy. Not every actor, after all, need play Lear to prove his worth. Perhaps the time has come for record companies to recognize that the Nine need not be a rite of passage that for many—consumers as well as conductors—leads nowhere.

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One of Sviatoslav Richter’s most spectacular and important recordings, made at the time of his debut in London in July, 1961, was that of the two Liszt concertos, which were recorded in stereo by Mercury on 35mm magnetic film (now available on Phillips CD). The three performances on this CD preceding those six recording sessions are taken from the actual London concerts of July 16 (the Dvorák) and 18 (both Liszt concertos); Fonit-Cetra, incidentally, had already issued the Liszt on CD, together with the other concerted work performed on the last-named concert, Liszt’s Hungarian Fantasy, a disc I have not heard. The mono sound provided on the present, well-filled Hunt “live” disc cannot, of course, compare in fidelity, depth, and richness of detail with the subsequent Mercury recording sessions, but this does seem to be Richter’s only live CD version of the Dvorák (Angel has an excellent studio performance with Carlos Kleiber conducting). The three concerti add up to a combination of rare pianism, ranging from the introverted poetry of the lyrical sections to grand fireball virtuosity. Kondrashin, always in total rapport with his soloist, is equally impressive. What may make a difference, however, is the prospective listener’s tolerance for mediocre to only fair sonics; in addition to shallowness in the orchestra, as well as dry, mostly unsonorous and not very characterful piano reproduction, there are moments of constriction—even, at times, of distortion—which may weigh more and more unpleasantly upon impatient ears. —Igor Kipnis

**DVORÁK: Symphony 9, American Suite**
Libor Pesek, Royal Liverpool Philharmonic Orchestra
Virgin VC 790 723-1 (LP), 790 723-2 (CD), Mike Clements, eng.; Andrew Keener, prod. DDD. TT: 67:12

It might seem great folly that both Chailly and Pesek have so readily committed this much over-subscribed symphony to disc after such limited times with the orchestras in their charge: Chailly made his recording in January ’87 in the Concertgebouw Hall, knowing that he was to be the next principal conductor of the orchestra, but a whole 18 months before officially taking up that post; Pesek’s was made only one month after he became principal conductor of the Royal Liverpool Philharmonic in England. Would it not have been of greater value for them to have waited a few years in order to assimilate their own, more individual interpretations?

The results, regardless, are reasonably good. Their timings for three of the movements are very similar; there is a minute’s difference in the Largo, Chailly’s being one of the slowest on disc. But I felt no lack of impetus here. Surprisingly, it was Pesek’s, with his quirky mannerism of pulling the tempo about, that seemed to falter in places. This feature is particularly destructive in the Finale, which loses the tension it attempts to build—and here Chailly fails too. But what so impresses with Pesek’s reading is the way the orchestra gives everything it’s got: immaculately rehearsed, it gives the impression of a well-oiled machine, entirely in tune with itself, being set into motion. Yes, the Concertgebouw does too, of course, but I was more aware of the strength of character of each orchestral group than of a single, homogenous unit. Chailly’s is the more colorful recording, but I prefer the presence of Pesek’s, the much-admired team of Andrew Keener and Mike Clements capturing so accurately here the characterful and spacious ambience of the Liverpool Phil’s home venue. Only in the loudest and most densely scored passages does the sound become blurred and unfocused (even on CD, with its sharper definition than LP here), while Chailly’s more
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The 26-strong, conductorless Orpheus Chamber Orchestra, founded in 1972 by Julian Fifer and a group of friends in New York, was in its early years a democratic cooperative consisting of freelancers who came together for only six months of the year—unconducive to a consistent style and quality of performance. Now they operate under a slightly more hierarchical system which works much better: a nucleus, comprising an elected concertmaster and four or five other performers, prepare—and therefore lead, to a certain extent—particular works under rehearsal. As this group changes, and is subject to the suggestions of the rest of the ensemble, the qualitative judgments that ensure a high standard of work and sensitive balance are still the responsibility of each member.

On this disc, the strings of the ensemble take on two of the most popular Romantic works for this medium and prove that a conductorless group can still be capable of very sound coordination and immaculate articulation. Their tone is rich and full-bodied, dynamics are well-considered and exciting, and their commitment is, at all times, compelling. But what is lacking is an element of relaxation: ends of phrases are rushed, sections of the ensemble are guilty of speeding up when playing alone, and little is lingered over for greater point. The Orpheus has evidently decided on a confident, sometimes even aggressive approach to these works rather than a more tenderly persuasive interpretation. As this is also applied to the two Elegiac Melodies, I find none of these readings really win me over.

As the string orchestra is considered one of the easier instrumental groupings to record, I am surprised at the rather flat image DG has produced here. Textural detail should also have been more distinct, in fairness to every member of the ensemble’s whole-hearted contribution, but at least their enthusiasm and vigor have been captured by the presence of this recording.

—Barbara Jahn

HAYDN: Piano Trios, Hob.XV: 12, 13, & 14

Patrick Cohen, piano; Erich Höbarth, violin; Christophe Coin, cello
Harmonia Mundi MNC 901277 (CD only). DDD. TT: 69:52

Dating from 1789 and 1790, these are among Haydn’s most mature trio. In every way they are inventive and filled with dynamic surprises: stark contrasts of mood and dynamics, bold modulations, rich chromaticism, and touching melodies shaped by unexpected turns. In short, these works are prime examples of why Haydn, more than any other composer, stands as Beethoven’s progenitor.

The three very able instrumentalists featured here strike a perfect balance between the modern, occasionally lush sonority of the Beaux Arts Trio and the biting, at times almost annoyingly astringent sound of the period instruments used by the Haydn Trio of Vienna (in a decade-old cycle recorded for Telefunken, no longer listed in Schwan). Although the three performers featured in this new release use modern instruments, they demonstrate how these may be played with style and taste. Vibrato is minimal, yielding a pure string tone, yet one that is free of the unpleasant nasality that sometimes afflicts “authentic” 18th-century string sound. And Patrick Cohen certainly suggests a fortepiano in his lean, delicate coloring of the keyboard part. In other words, what these spirited and stylish performances make clear is that the ethos of “authenticity” can be conveyed as well with modern instruments as with period ones.

The group’s inclusion of every repeat swells the length of this disc by at least ten minutes. The sound is rather close, but never claustrophobic, with a realistic “buzz” on the cello and a wide dynamic range. My only complaint is breathing that is so audible in the opening movement of XV:13, it sounds like a fourth instrument. A release well worth investigating.

—Mortimer H. Frank

LIGETI: Chamber Music

Trio for Violin, Horn, and Piano; Passacaglia ungheres; Hungarian Rock; Continuum: Three Pieces for Two Pianos

Saschko Gawriloff, violin; Hermann Baumann, horn; Eckart Besch, piano (Trio); Elisabeth Chojnicka, harpsichord; Antonio Ballisti, Bruno Canino, piano (Three Pieces)

Stereophile, April 1989 195
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I thought contemporary composers were supposed to be full of the dour self-importance and posturing that made them the darlings of academia and the devils of audiences. György Ligeti says otherwise through the music on this disc. Here is a composer who dares to take the principles of modern composition out from between the dry dust-jackets of theory and put them squarely in the human domain. Make no mistake: this is "modern" music, but most of it is approachable and engaging, not cold or distant.

How different it is, too, from the Atmospheres (1961) and Lux aeterna (1966) we all heard in the film 2001! Ligeti's earlier coalescence of melody and rhythm into a timeless orbit of sound is broken down elementally in this more recent music. Composed mainly between 1976 and 1982, these pieces give us wit, emotion, and intelligence. They are, for the most part, fairly easy to follow on at least a melodic level, while offering deeper rewards beyond.

The Trio for Violin, Horn, and Piano is, over its four movements, wry, plucky, and moving. Brief ostinato-like figures are explored and manipulated to fascinating extremes of diversity, and the final movement is a moving lament.

In three short works for solo harpsichord—"Continuum" (1968), "Hungarian Rock" (1978), and "Passacaglia ungherese" (1978)—one can find everything from a mild parody of jazz to evidence of Ligeti's kinship with Minimalism. (His Poem symphonique for 100 metronomes of 1962 was something of a forerunner of the so-called phase techniques prevalent in Reich, Adams, Riley, and Glass, as well as of Ligeti's own fascinating "Continuum.") Indeed, one of the movements of Three Pieces for Two Pianos, also on this disc, is titled "Self-portrait with Reich and Riley."

While the sound is very good throughout, this CD is not exactly a showpiece of realism. It does, however, present many kinds of "tests" that can be interesting and revealing. The Trio is perhaps the best of all, having the image and sound of a very small, bright hall. The violin is a bit wiry at times, and the horn has a plastic-sounding tint in the upper registers, but the detail is amazing. If, in the more complex passages, you can't clearly differentiate the lower horn notes from the piano, your system is in trouble. There is good depth but little ambience. At about 4:50 of movement four, there are also some killer low piano notes.

The harpsichord pieces are close-up and very jingly, lacking the sense of "emptiness," or space, that is always heard live. Use them to check high-end and transient response.

Although the notes indicate that everything was recorded in the same studio by the same people, the difference in piano sound between the Trio and the Three Pieces is significant. The latter is richer and more involving.

This release is highly recommended: the music is fresh and rewarding; the performances are vigorous; and the sound is fun, sort of.

—Robert Hessen

MAHLER: Das Lied von der Erde
Peter Schreier, tenor; Jard van Nes, mezzo; Frankfurt Radio Symphony Orchestra, Etibau Inbal
Denon CO-72605 (CD only). Peter Willmoes, Detlev Kirtler, engs.; Yoshiharu Kawaguchi, Richard Hauck, prods. DDD. TT: 61:20

This new Das Lied von der Erde, which closes Inbal's Frankfurt Mahler cycle, works differently from almost any other performance I have heard. Inbal's approach to Mahler, fanatical in attention to chamber-like sonorities and elucidation of inner voices, brings considerable light to the four small-scaled central movements. The tenor-song "Von der Jugend" is especially effective, Inbal's conducting, Schreier's lithe voice, and the uncanny ability of the FRSO players to listen to each other combining to make this song a most perfect miniature. "Der Einsame in Herbst" benefits from the exaggerated spaciousness and clarity of Denon's recording technique, the threads of counterpoint between muted strings and soft woodwinds absolutely startling. I don't know if anyone has made better digital recordings of orchestral pianissimos than Denon.

But Das Lied is no series of miniatures; it's a tightly composed, cyclic, highly self-referential song-symphony. It is also voluptuous music, and arguably the most personal reflection upon mortality to appear in 20th-century art. Inbal's Olympian approach misses this vitality and connectedness with the Earth. In the opening "Das Trinklied vom Jamm der Erde," his calculation forces the music out of shape, nowhere approaching the kind of hedonistic sound-world created by the great interpreters—Walter, Bernstein, Reiner—for the tenor to tell his tale. The last movement, "Der Abschied," in Inbal's hands, is an intellectual exercise. The reading is paradoxical: at 28:35, not particularly slow, but with a lot of space. Inbal uses this space to analyze the music; examining it rather as Alfred Brendel's detractors would have him putting Liszt to the knife. You will, of course, perceive details unheard before, and that is all to the good; you will become aware of Mahler's daring orchestrations and harmonic outrages. But it all lacks

Stereophile, April 1989 197
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soul, Inbal's approach akin to conducting *Das Lied as Pierrot Lunaire*, and who wants that? Subjected to this scrutiny, some of the work's seams begin to show: never have I been so aware of the formal weaknesses of Mahler's *ersatz methode chinoise*: the grafting of pentatonic motifs upon Viennese orchestration.

The words "Du, mein Freund" in the second "Abschied" poem begin one of the great transitions in song; transition from observer to subject, third person to first, and in all likelihood from Mahler as artificer to Mahler speaking directly. When Inbal and van Nes reach this nexus, all I notice is a shift to major key, and a sense that the work will soon end. This illustrates that Inbal lacks the fundamental qualifications for conducting this work successfully, and that is to be a great storyteller. Even so totalitarian a conductor as Fritz Reiner, in his RCA reading with Richard Lewis and Maureen Forrester, joined unreservedly with his singers in this great song.

Inbal compounds his Apollonian excesses by his choice of two singers more familiar in performances of Bach than of Mahler. The young Dutch mezzo van Nes has a clear and womanly voice, with excellent control over dynamics except at the loud end, where she occasionally gets a mite hard. Schreier's voice is rather light and pure for this material; he'll convince no one that he's a drunken poet. His high notes float almost effortlessly, but there is also a falsetto quality which was not present in his voice nine years ago when he recorded his great *St. Matthew Passion* with the late Karl Richter.

I implied earlier that Inbal isn't quite unique in taking a clean-lined approach to *Das Lied*. Otto Klemperer's 1967 Philharmonia recording is just as free from emotionalism, just as single-minded in laying out the details of the scoring; but that's where the similarity ends. Klemperer's clear-eyed intensity brings us to the work's conclusion with a sense of life as justified. Fritz Wunderlich sings the tenor part as well as it's ever been sung, and Christa Ludwig is among the best mezzos. Excellent sound, too, on analog LP from the UK or France (I have not heard the Angel CD release). Bruno Walter's two studio recordings also demand attention. I prefer his tougher 1960 reading on CBS. The problem with Walter's famous 1952 Vienna recording with Kathleen Ferrier is that it hasn't been available in decent sound for years; the recent London CD is execrable, and, I am informed, in unacknowledged ph-phony stereo-eo. Bernstein's 1966 Vienna account is passionate and personal, with Dietrich Fischer-Dieskau singing the last movement as ravishingly as any mezzo. The performance is unfortunately let down by some ordinary singing by the American tenor James King. The Bernstein is currently out of the catalog, and long overdue for CD reissue.

Two last notes on Denon's recording: playback of the CD is surprisingly coherent as to absolute polarity, and very demanding as to speaker positioning. Also, unusual for a Denon production, the positioning of the secondary mikes appears less than ideal: flashes of sibilance occasionally appear atop Schreier's voice, presumably from a close-in mike, and the images of the singers tend to enlarge as they get louder.

—Kevin Conklin

**MAHLER: Symphony 2 ("Resurrection")**

Benita Valente, soprano; Maureen Forrester, contralto; Ardwyn Singers, BBC Welsh Chorus; Cardiff Polyphonic Choir; Dyfed Choir; London Symphony Chorus, John Hugh Thomas, chorus master; LSO, Gilbert Kaplan

MCA MCD 2-11011 (2 CDs only), Tony Faulkner, eng.; James Mallinson, prod. DDD. TT: 83:17

The Gilbert Kaplan Mahler 2 has, since its release last November, become the cultural event of New York's record-buying public. By December it had edged its way ahead of Bernstein's new Mahler 2 on the *Billboard* classical charts. Critical acclaim of the highest order began to appear in advance of the release date in *Ovation* and the *American Record Guide*, a highly unusual occurrence in US musical or record journalism, where reviews often take months to appear after the recordings have been released. What goes on here?

Mr. Kaplan is rich. Not quite as rich, perhaps, as Donald Trump, but rich. He first heard Mahler 2 as a teenager, and became obsessed by the work. But instead of beginning disciplined musical study with the hope of acting out his obsession at some later time, he majored in business, where he enjoyed great success as an investor and an investment counselor. His crowning achievement was the founding of *The Institutional Investor*, which has come to be regarded as the bible of its field.

Mr. Kaplan's fortune has placed him in the highest sphere of New York's social and cultural milieu. He is Chairman of the Board of the American Symphony Orchestra, and a member of the Boards of the Carnegie Hall Corporation, and the Westminster Choir College. His importance as a patron of the arts, and his fascination with Mahler, is further emphasized by his funding of the restoration of Mahler's composing cottage on Lake Attersee in Steinbach, Austria, and its conversion into a museum for scholars and other interested parties. He also paid a very pretty penny for Mahler's original manuscript of the "Resurrection," for which one can scarcely fault him—he plans to pub-
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As early as 1979, Mr Kaplan was employing the American Symphony as a rehearsal band to help him learn to conduct the work. His live performances of the work have been raved about, but not ranted over, just as this recording has been.

Aside from rudimentary piano lessons as a child, he is without musical training, except for the advice he has been able to coax from a number of professional conductors, including Georg Solti. His ability to read music is, by his own admission, minimal. He has listened to virtually every recording of Mahler 2 ever made, and, for a period of time, traveled throughout the world to hear every performance he could get to. Mahler 2 remains the sole work in Mr. Kaplan's repertoire. His avowed purpose has been to reveal the work with a degree of accuracy, truthfulness, and sincerity never before attained in the annals of phonological or performance history.

This recording does have several things going for it. Soprano Benita Valente is far more convincing and characterful than Barbara Hendricks in the new Bernstein recording. Even though Maureen Forrester is a bit past her prime, she's a great Mahler veteran, and her presence adds credibility as well as musicality to this project. Mr. Kaplan has provided not one, but two liner books, one with his own detailed essays and analyses of the work, and the other a first-time publication in English of Mahler's personal correspondence on the subject of Symphony 2. In addition, the organ used for the coda is an instrument Mahler actually played, the Newberry Memorial Organ, Woolsey Hall, Yale University, New Haven. The bells are those of the Yale Memorial Carillon. These Yale instruments are dubbed in, of course, since the recording locale was St. David's Hall, Cardiff, Wales.

What does all of this add up to? Virtually every i is dotted, every t crossed, and nearly every tempo scrupulously observed, as dutifully promised by Mr. Kaplan. But, with the exceptions of Ms. Valente and Ms. Forrester, one feels the performers' caution at every turn of phrase. No one takes any chances. Mr. Kaplan knows the work by rote, but lack of professional training or experience robs him of the ability to give his performance an authoritative personal stamp. The stature of a great work such as this is its ability to withstand or even thrive upon the variety of personalities to which it is subjected, whether it be the cerebral austerity of Klempner, the warm devotion of Walter, the chrome plate of Solti, the willful excess of Rattle, or the fervent hazamut of Bernstein. It needs a point of view; otherwise, it's nothing more than a scholarly dissertation.

The most poignant example of Mr. Kaplan's inability to realize his own good intentions comes at the first chorus entry in the Finale. In his essays, Mr. Kaplan takes no fewer than three occasions to emphasize his concept of this entry as the quietest choral entry in choral/orchestral music. On this recording, I'd call it a plain vanilla mezzopiano. Be reminded that Mr. Kaplan has not only the services of the excellent LSO Chorus, but a whole fistful of Welsh choirs as well, from a region revered for its choral traditions. To cite only one other recent example, this entrance in the new Bernstein/DG is not merely a true pianissimo, it is the true epitome of the hushed, expectant, and mysterious "... Aufersteh'n..."

I doubt that A-B comparisons between LP and CD would serve any purpose in terms of this recording. The CD sound is spacious, detailed, and smooth, but the dubbed-in organ and bells, with their overlays of three different acoustical sites, sound obvious and hokey. Why the great reviews elsewhere? Mr. Kaplan, professional observers have noted, has progressed from an inability to give the initial downbeat to an ability to lead the entire work from memory, and to prepare his performances correctly in terms of dynamics, tempi, and expression, a phenomenal achievement for a person of his background. Moreover, one would have to assemble some half-dozen other Mahler 2 recordings in order to hear every detail which Mr. Kaplan's recording reveals. For these reasons, I believe certain critics have been carried away by the highly unusual circumstances surrounding Mr. Kaplan's musical endeavors, and are so impressed by the appearance of the trees that they have neglected the condition of the forest. —Richard Schneider

**MOZART: Le Nozze di Figaro**

Hakan Hagegard, The Count; Arleen Auger, The Countess; Barbara Bonney, Susanna; Piaferi Salomaa, Figaro; Alicia Nafe, Cherubino; Della Jones, Marcellina; Carlos Feller, Bartolo; Edoardo Giminez, Basilio; Francis Egerton, Don Curzio; Nancy Argenta, Barbarina; Enzo Florimo, Antonio. Drottningholm Court Theatre Orchestra & Chorus, Arnold Östman

L'Orseau Lyre 421 333-2 (3 CDs only). John Dunkerley, Simon Eadon, engs.; Peter Wadland, Michale Haas, prods. DDD. TT: 3:06:26

While not as across-the-boards brilliant and revolutionarily eye-opening as his Cosi (L'Orseau-Lyre 414 316-2), Östman's Figaro is almost as enlightening and just as entertaining. In addition to generally brisk tempi and the welcome sounds of period instruments, we are introduced to some interesting rhythmic alterations, some of them jarring and a bit offputting. But
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the performance pleases immensely.

Petteri Salomaa, the Figaro, is here far more suitably cast than he was in the recent Roger Norrington performance of the Beethoven Ninth (EMI CDC 749221 2). Under Östman’s expert leadership, Salomaa manages to color his phrases with wit and intelligence, creating a flesh-and-blood character for us to like. He’s suave and convincing throughout — just the way Figaro was in the Rossini opera and the earlier Beaumarchais play. The voice itself is appealing without being spectacular (Östman tends to go for ensemble singers), but Salomaa is a Figaro to remember.

His better half is the lovely Barbara Bonney, a thoroughly un mann ered singer who enchants more and more upon repeated hearings. This Susanna does not suffer from a case of the cuties, thank goodness; she is, rather, a sharp girl in a tough situation and knows that it is her job to please everyone and make an uncomfortable situation better. Just listen to her in her first-act duet with Marcellina — while oozing charm, she also cuts sarcastically. Her last-act aria, and particularly the recitative “Giunse alfin il momento,” are taken too quickly for my taste, but that’s Östman’s doing, not hers, and she sings exquisitely. Bonney’s Susanna may be the finest on discs.

Haken Hai geggard is a fabulous Count, singing with handsone tone and great attention to the text. His third-act aria is just about perfectly articulated, and his work in the duets, trios, and ensembles is no less fine. The reasons for the love-hate feelings an audience always has for this character are clear as a bell here — he’s an alluring rake, and smooth as silk. Arleen Auger is somewhat of a disappointment as the Countess — this excellent singer’s tone turns a trifle sour at times during this performance, and the strange, lilting rhythm infusing “Dove sono” doesn’t help matters. Her spirit and interpretation are successful, but the sound itself doesn’t always fall kindly on the ear. Alicia Nafe’s Cherubino is missing the individual approach this role requires; it’s a special part, and great Cherubinos tend to leave their own mark on it. Nafe is good, but it will not be hard to forget her. The rest of the luxurious cast is excellent, with Carlos Feller and Della Jones as Figaro’s Dad and Mom worthy of particular praise.

Östman, as mentioned above, makes some peculiar decisions about rhythms and tempi with which some may strongly disagree. I found all of them interesting enough to pay heed to and was more often convinced than not. He has his cast sprinkle both recitatives and arias with liberal appoggiaturas, and there’s the occasional tasteful embellishment to the vocal line. I must admit that I miss the usual rambunctiousness of some of the broader moments in the action, but relish the divine tip-toeing which goes on in the final act. Clearly, Östman sees this as an intimate chamber work, and there’s no valid argument against that approach. The Drottningholm forces play exquisitely; like the leader, they emphasize the jewel-like quality of the work and its implications.

The score is presented more than complete — six numbers Mozart composed for the opera at different times are included. Stupidly, these are placed at the end of the CD on which they would appear. Presumably this is so that scholars can easily program them in place to compare and contrast with the usual versions, but all it does is interrupt the action for the listener who would rather hear an act straight through. I would have preferred a group appendix at the close of the opera. The sound is crystal-clear and honest, with none of the brittleness that recording “original” instruments occasionally brings. My favorite recorded Figaro remains Sir Neville Marriner’s (Philips 416 370), but this one should be in most collections as well. For all its quirks, it rings true and presents the opera in a way which teaches us to hear slightly differently. It also offers a good time. More than highly recommended.

— Robert Levine

**MOZART: Symphonies 25, 28, & 29**

Charles Mackerras, Prague Chamber Orchestra

Telarc: CD-80165 (CD only), Jack Renner, eng.; James Mal linson, prod. DDD. TT: 76:53

These performances, like Sir Charles Mackerras’s previous excursions into Mozart’s symphonies, will probably prove controversial. As before, a major problem here is sound; not that of timbres, which are wonderfully natural throughout, but of the hall, which generates far too much resonance for this relatively intimate music. As a result, details are occasionally blurred, and the horns, which lend Symphonies 25 and 29 considerable color, lose much of their requisite piquancy. Again Mackerras includes a harpsichord, a decision doubtless based on the conductor of Mozart’s day having sat at a keyboard, tinkling along with the ensemble to promote unity. But modern orchestras need no such tinkling when there is a conductor on the podium; furthermore, the harpsichord is harmonically redundant, Mozart’s bass-lines being complete in themselves. Then, too, Mackerras includes all specified repeats (those of developments and recapitulations as well as those of expositions), and throws in further repeats in the reprises of minuets. Admittedly, he is not alone in this regard, but favoring such fundamentalism fails to take into account

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that Mozart's era had no phonograph to permit repeated hearings.

This said, let it be added that much of Mackerras's work here is admirable, particularly in Nos.28 and 29, the latter sung with a lovely relaxed grace that benefits from the conductor's care in clarifying counter-melodies. Some may object to his inclusion of timpani in No.28 (George Szell favored them in his splendid old recording for CBS; James Levine does not in his recent effort for DG), and some scholars have doubted the authenticity of the timpani parts that survive. Nonetheless, their inclusion italicizes the festive spirit of the music already suggested by prominent trumpet parts. My major reservation concerns Mackerras's rather cavalier way with No.25, a score by a 17-year-old filled with a nervous, even violent explosiveness that Mackerras underplays, especially in the finale: it sounds merely jaunty when it should seem angry.

No other CD brings these three works together. Those favoring Mackerras's style but in better sound and with slightly more precise execution might investigate Levine's versions for DG. And Karl Böhm (also for DG) has recorded an admirable (and considerably more traditional) account of No.29. — Mortimer H. Frank

NIELSEN: Symphonies 4 & 5
Herbert Blomstedt, San Francisco Symphony

NIELSEN: Symphonies 3 & 5
Ruth Guldbæk, soprano; Niels Moller, tenor; Royal Danish Orchestra (3); NYPO (5); Leonard Bernstein CBS MK 44708 (CD only). John McClure, prod.; Larry Keyes, eng. ADD. TT: 70:52

As much as I admire the London CD of works by Hindemith performed by Herbert Blomstedt and the San Francisco Symphony (reviewed in December, 1988), I believe the Nielsen recording shows Blomstedt/SFSO, as well as the London production team, in an even better light. Perhaps Mr. Blomstedt's Scandinavian background gives him special insights into Nielsen. Whatever, he manages to produce two of the most engrossing readings of these works since Luayi Grondahl's EMI 78s of Symphony 4 with the Danish State Radio Symphony from the late 1940s; or, of Symphony 5, since Horenstein/LSO on Unicorn, or Bernstein's NYPO recording on CBS, each from the 1960s. The nearest competition for 4 would be Martinon/Chicago on RCA, a powerful and virtuosic performance much deserving of re-release, as is the Horenstein 5. The Bernstein 5 has been re-released on the CBS Best Value Series. Other recent recordings, such as Salonen's 4 and 5 on CBS, and Berglund's 4 on RCA, are neither as involving intertextually, nor are they played with the virtuosity of the recordings under direct consideration here, or the earlier competition as cited.

Nielsen has enjoyed periodic revival/eclipse cycles over the years. At his best he strikes me as a consummate professional, an effective writer, a first-rate tunesmith and orchestrator, but ultimately naïve in terms of statement. Each of these symphonies deals with conflict on a broad scale, and each features episodes and devices, as well as themes marked by striking originality. Yet each is undone by its coda, which brings us resolutely back to the home key tonic for unequivocally happy endings. It's all just a bit too simplistic.

One conflict-expressive device in 4 is the use of two pairs of timpani at opposite sides of the stage, to engage in a rhythmic antiphonal slugfest in the Finale. The London production has wisely resisted the temptation to overemphasize the separation, but the very idea as composition calls too much attention to the phenomenon of timpani playing, as opposed to the phenomenon of conflict. In 5, a more successful device is employed in the first movement: As the full orchestra, led by the brass, intones a solemn anthem-like chorale, the snare drummer is called upon to improvise on previously played rhythmic figures, as if the player were attempting to disrupt the performance. The chorale prevails, but the movement ends unresolved, so Nielsen doesn't disappoint me until the very closing bars of the Finale.

I wish I could say the same for the SFSO drummer, who gives in to a succession of rolls and ruffles instead of maintaining the type of figured playing which forms the basis of the drum part heard earlier. Bernstein's NYPO snare drummer, the celebrated Eldon (Buster) Bailey, credited on the CBS recording, has the right idea, and the technique and style for which he is renowned, to back it up. The Bernstein CD comes with Nielsen's Symphony 3 ("Espansiva"), a work which remains ambiguous to its final note, played with native authority by the Royal Danish Orchestra, recorded in Odd Fellow Palace, Copenhagen.

Blomstedt/SFSO/London have nonetheless done a terrific job with this one. The milking appears to have relied more on a basic stereo pair, with less reliance on spot mikes than with the Hindemith. I hope they continue this trend. As might be expected, Bernstein's interpretation is more intense, but Blomstedt is by no means bland by comparison. The 20- or so year-old masters of Bernstein's recordings have been well restored. A difficult choice is made only a little easier since the duplication involves only one of the two works. I admit that despite what I consider to be Nielsen's weaknesses, I

Stereophile, April 1989 205
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enjoy his works when they are performed and recorded as well as they have been in each of these examples.

—Richard Schneider

POULENC: Poulenc D’Après Poulenc
Les Biches; Deux Novelettes; Aubade; Caprice pour Piano d’après le final du “Bal Masqué”; Huite Nocturnes: Nos. 1–3; Air chanté; Trois mouvements perpétuels; Trio for Piano, Oboe, & Bassoon; Quinze Improvisations pour piano, Nos. 2, 5, 9, & 10; Le Bestiaire au Cortège d’Orphée
Francis Poulenc, piano; Walther Straram, Concerts Straram Orchestra of Paris (Aubade); Suzanne Peignot, soprano (Air chanté); M. Lamorette, oboe, & G. Dherin, bassoon (Trio); Claire Croizet, soprano (Le bestiaire)
Pearl GEMM CD 9311 (CD only), Denis Hall, eng.; Charles Haynes, prod. ADD: TT: 69:30

With the exception of a single French Ultrasound disc of three songs made with his long-time colleague, Pierre Bernac, this CD collection includes all of the discs Poulenc recorded on 78s between 1928 and 1934. Originally made for European Columbia, these 23 sides are totally delightful and must be considered indispensable to the Poulenc enthusiast. The composer’s playing, whether solo as in the popular Mouvements perpétuels or in consort with singers or instrumentalists, ranges from wittily rakish, sly, and debonair to elegantly expressive, warm, and tender. And throughout, there is always that wonderful rhythmic propulsion. Of course, his playing can indeed also be a little slapdash, but that, too, is part of his inimitable style. Furthermore, the transfers, in which, fortunately, not too much surface has been removed (not nearly as much as some of the disastrous NoNoise operations currently foisted on CD buyers), retaining both color and recording ambience. For those uncomfortable with 78 surfaces, be warned; others, for whom the performance and music are paramount, will be, I think, pleasantly surprised at how much color can actually be revealed in these old discs, one of the very best CD transfers I have had the pleasure of hearing. The accompanying leaflet annotations are generally satisfactory, but texts and translations for the songs have not been provided; matrix and 78 catalog numbers are included, but specific recording dates, as promised on the backliner, are nowhere to be found.

—Igor Kipnis

ROSSINI: La Cenerentola
Agnes Baltsa, Cenerentola; Francisco Araiza, Don Ramiro; Ruggero Raimondi, Don Magnifico; Simone Alaimo, Dandini; John del Carlo, Alidoro; Carol Malone, Clorinda; Felicity Palmer, Tisbe; Ambrosian Opera Chorus, Academy of St. Martin-in-the-Fields, Sir Neville Marriner
Phillips 420 468-2 (3 CDs only). Roger de Schot, Martha de Francisco, engs.; Erik Smith, prod. ADD: TT: 2:29:01

This is a delightful reading of one of Rossini’s most delectable scores. Those critics who have been bemoaning the fact that Agnes Baltsa was ruining her voice by pushing the chest sound too far into the head can go back to being critics rather than voice teachers: Miss Baltsa sounds fresh and pert, with very few vocal problems. Indeed, she infuses the title role with just the right meekness and lightness; if one were to argue at all, it would be with an occasional smudged coloratura passage and a slightly too aggressive and charmless “Nacqui all’affanno.” But otherwise her Cinderella is fluid, well-drawn, and entertaining, worthy to stand beside the best (to my ears, Teresa Berganza’s on DG 415 698-2).

Her Prince is Francisco Araiza, who here turns in his finest recorded performance to date. All of the passagework is in place, he lightly embellishes the vocal line tastefully, the high Cs ring out with a nice “ping,” and the voice is evenly and well-produced. I also like the fact that he makes the Prince a forceful character—only a tenor with his technique so firmly in place dares to sing out and with expression and attention to the text as does Mr. Araiza. Bravo! As the prince’s valet cum prince, Dandini, Simone Alaimo is disappointing. The role requires great agility and great personality, and Alaimo comes in with about 75% of both. He doesn’t ruin anything, but he hardly stands out.

The two lowest voices come off quite well. Ruggero Raimondi is a breathtaking Don Magnifico—what a joy it is to hear this bass in a role which suits him after so many years at attempting Verdi with only moderate success. It is good to know that the heavier repertoire has ruined only Raimondi’s reputation, leaving the voice intact. His Magnifico is nasty, funny, and capable of handling all the little notes. He falls out of synch with the orchestra during his Act II aria, but otherwise I have no complaints about his singing. I do wish he’d been able to control his false sobbing at the point in the score where he announces that his third daughter is dead, however—it’s a perfectly ghastly moment, and he makes it even worse by behaving like one of the Monty Python troupe. John del Carlo, a bass new to me, manages to make the “fairy godfather,” Alidoro, less of a windbag than usual—here he is an energetic maker of magic who sings his aria and his part in the ensembles with élan. The sisters are properly nasty and sing in tune.

Sir Neville is to be congratulated for keeping the goings-on lively and witty and for eliciting superb playing and singing from orchestra and chorus. I enjoyed how gently the first Ramiro-Cenerentola duet begins. He also has put an
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end to the always weird, if entertaining, rolling of the r in the sextet “Questo e un nodo avviluppato,” and the music sounds all the better for it. The recording is all one could ask for—brilliant, sharp, and pointed, with the breadth for the large moments and the intimacy to hear the inner voices and Róssini’s engaging wind writing. Can any other company record opera as truly as Philips? I doubt it. At any rate, if your collection lacks a Cenerentola, this one will fill the gap handsomely.

—Robert Levine

WEBER: Clarinet Concertos 1 & 2, Concertino
Antony Pay, clarinet; Orchestra of the Age of Enlightenment
Virgin 790720-1 (LP), VC 790720-2 (CD). Nicholas Parker, eng.; James Mallinson, prod. DDD. TT: 53:04

These are exquisite pieces, full of operatic lyricism and that magical atmosphere so characteristic of Weber’s scores. Soloist/director Antony Pay is quite marvelous, equal to the virtuosity asked of him, sensitive to the fluid phrasing of each score, and well in control of the attentive band of period-instrument musicians in his charge.

All three works were written for Heinrich Barmann, the clarinet virtuoso whom Weber first “discovered” in the King of Munich’s orchestra; indeed, the pieces were commissioned by the King for this fine clarinetist, and Weber touchingly records in his diary that after the first performance of Concerto 2 the work was received “with delirious applause, thanks to Barmann’s heavenly playing.” With their friendship firmly cemented, Barmann and Weber toured together thereafter, to mutual advantage.

Pay’s instrument is a 1983 Bangham copy of a French, seven-keyed, B-flat clarinet of around 1800. Two extra keys have been added to make it more closely resemble the ten-keyed German instrument that Barmann would have played in 1811 when these works received their first performances. Its highly individual voice has been readily captured by this warm, but sharply focused recording. With no appreciable difference in sonic quality between LP and CD, either format should give immense pleasure.

—Barbara Jahn

April 17, Nov. 27, & Dec. 10, 1966: Haydn: Sonata No.38 in F (Hob.XVI/23); Schumann: Blumënstuck, Op.19; Scriabln; Sonata No.10; Debussy: L’isle joyeuse; Mozart: Sonata No.11, K.331; Chopln: Nocturne, Op.72/1; Mazurka, Op.33/14; Liszt: Annéses de Périeninage (Suisse): Vallée d’Obermann


The excitement of Horowitz’s return to live performing, Carnegie filled to overflowing, the physical appearance of the pianist as he walked to his instrument on the afternoon of May 9, 1965, the absolute hush and electrifying sensation that permeated everyone in that audience as Horowitz sat down to begin his program, are experiences that I can never forget (I was fortunate enough to have been able to attend both this and the 1968 TV concert). Although the purely aural portion of these well-known “live” recordings deserves a place in every important piano collection, the total experience of those events, as I think anyone who was there would admit, cannot quite be captured on disc. Nonetheless, these well-planned, on-the-spot recordings are of greatest importance for reasons almost too numerous to list, not least for their unique documentary value.

There are tremendous things here: scintillating Haydn, a wonderful innigkeit in much of the Schumann, the shattering Liszt, brilliant Debussy, stupendous Scriabin, and on and on. There are also some highly individualistic moments; there is also a choice of Chopin first Ballades—the 1966 version is far less skittlish and much more rapturous than that of 1965. There are encores such as the Moszkowski or the Carmen Variations, which almost make your hair stand up on end. CBS’s CD transfer and programming (for timing purposes, the order of the end of the 1965 recital has been altered, so that the encores come before the final Chopin Ballade) are exceedingly well done; the three CDs sound better in all respects than the LP originals, even when a little tape hiss and some occasional rumble is noticeable. As piano sound, of course, the reproduction features a rather typical shallow bass and dry, semi-close miking; in general, the best sound is that of the TV recital of 1968.

—Igor Kipnis

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VLADIMIR HOROWITZ: Live at Carnegie Hall
(The Historic Recitals of 1965, 1966, & 1968)
Vladimir Horowitz, piano

PAVAROTTI: At Carnegie Hall
Luciano Pavarotti, tenor; John Wustman, piano
This recital is billed as “Recorded in Carnegie Hall. Based on a concert given by these artists on 1st November 1987.” Is this to be a new category for the Grammys? Would the marketing department at London and the superstar himself like to offer an explanation?

The opening number, Scarlatti’s “La violetta,” finds the tenor slightly too thick-voiced; this song really needs a genuine lyric tenor, a category into which Pavarotti hasn’t fit for a number of years. He has trouble getting around the little notes, and the microphone-on-the-chin recording emphasizes the difficulties. But, “Pieta, Signore,” attributed to Alessandro Stradella, is quite good, and “Che fiero costume,” which follows, is exquisite, with an almost real, well-placed trill at its close. After a successful if incongruous “Ave Maria” by Schubert and two other vaguely religious pieces which have no impact whatsoever, we arrive at a half-hearted reading of the Duke’s “Ella mi fu rapita . . . Parmi veder le lagrime” from Rigoletto, and begin to wonder whether someone in possession of all his marbles had put this recital together.

This sense of wonderment is cemented by the following three selections, which, incidentally, are worth the price of this release. They are Liszt’s settings of three of Petrarch’s sonnets, and rarely have I heard Pavarotti so involved. The relatively new (to him) and fascinating material is an obvious challenge, and he rises to the occasion both interpretatively and with clear, passionate, ringing tones, his high B-naturals sounding like beacons of light. One of Donizetti’s most beautiful arias (actually composed by his student and friend Matteo Salvi—pardon my scholarship—although you’d never know it from the slightly sycophantic notes by Gerald Fitzgerald which accompany the disc), “Angelo casto e bel” from Il duca d’Alba, follows. If one were to compare this performance with the same tenor’s of 20 years ago on (I believe) his first recital disc, one would see how phrasing and elegance have deteriorated with fame and age. “M’appari” from Flotow’s Martha and a bon-bon or two complete the recital, and they sound unimportant and unenergized, although “A Vucchella” is lovely.

The sound on the CD is expansive and natural, but gives the feeling of a too-large empty hall, which is precisely where this was recorded. The LP is more constricted and tends to distort, and the piano comes across as tinny, but the whole is more intimate sounding. I’d stick with the CD. What can I say? There are gorgeous moments here, as one would expect, but the program—an unfulfilling evening but a fine group of excerpts—makes almost no sense and is better heard in chunks. I recommend it for
the Liszt alone, and there are other bonuses. I sometimes worry that after Pavarotti retires there won’t be any pirated recordings to look forward to because every note he’s ever sung—even those “based” on other things—will have already been released. But I only worry sometimes—otherwise, I just revel in the sound, which rarely disappoints. —Robert Levine

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LUCIANO PAVAROTTI: In Public
Excerpts from La Boheme (Puccini), Idomeneo (Mozart), I Capuleti e i Montecchi (Bellini), La Traviata and Rigoletto (Verdi)
Luciano Pavarotti, tenor; assorted singers, conductors, and orchestras
Rodolphe RPC 32496 (CD only). ADD. TT: 73:00

The genial, ebullient, corpulent (although less hypertrophic than heretofore) physical impression of Luciano Pavarotti comes across the TV screen as a good-natured caricature of the Italian operatic tenor. Not that this damages his immense popularity with millions of fans; nor, of course, should it! Nonetheless, Pavarotti’s larger-than-life extraversion seems to infuriate those neo-sophisticates and working critics whose supercilious sniggers and sophomoric sarcasm indicate that they have apparently misplaced that basic professional obligation: to review the quality of musical performance, without prejudice. One can only surmise what snide comments might have greeted that most famous extravert, Enrico Caruso, had television been invented several decades earlier.

Not that this is intended as a vocal comparison between the two tenors. Caruso had the temerity to shuffle off this mortal coil before I was born, but I have been privileged to hear in live performance (and occasionally work with) such now-legendary tenors as Beniamino Gigli, Richard Tauber, Jussi Björling, Giuseppe di Stefano, Nicolai Gedda, and Fritz Wunderlich, to name just a few. On the basis of these unforgettable experiences allied to a lifetime of study, I am convinced that Pavarotti belongs in that august company.

That he has one of the most beautiful natural instruments of the century is, for me, without question. When so motivated—regrettably, not every time he performs—his blend of musicality, text articulation, and vocal histrionics, if not the apogee of probing subtlety, can be sensitive, tasteful, and moving. Although the voice continues to be a formidable instrument, erosion due to the passing of years (exacerbated by periods of production uncertainty), together with injudicious experimentation with overly dramatic roles, has diminished yesteryear’s honeyed lyricism.

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As this release offers healthy samples of the unspoiled Pavarotti talents at the very start of his eminently successful career, it is both intriguing and valuable. From his 1961 debut performance in opera, as Rodolfo in La Bohème, there is a wonderfully fresh-sounding, ardent “Che gelida manina.” The superb voice, employed with divinely appropriate eloquence, is heard in excerpts from a 1965 La Traviata and a 1966 Rigoletto (conducted by Carlo Maria Giulini). In both operas, Pavarotti’s soprano partner is Renata Scotto, also youthfully fresh of voice and free of the wide vibrato that later marred her singing.

Of musical and historical significance are three selections from a 1964 Glyndebourne production of Mozart’s Idomeneo, the only opera by that composer in which the tenor has appeared. At that time, he sang the role of Idamante (often sung by a mezzo soprano), and is heard in tandem with soprano Gundula Janowitz. In his biography, Pavarotti credits this Glyndebourne experience with his learning to sing in the Mozart style, piano and legato; also with taming his native exuberance. Be that as it may, listening to these excerpts and recalling his recording in the title role of Idomeneo (reviewed here, December 1988), I only regret that he didn’t sing more Mozaratean roles. What a marvelous Tamino in Die Zauberflöte and Ferrando in Così fan tutte he might have been.

Of consequence also are three excerpts from a 1966 production of Bellini’s infrequently encountered I Capuleti e i Montecchi, a spurious version of the Romeo and Juliet story containing some of the loveliest melodies in Italian opera. In a lengthy duet, Pavarotti is paired with the Spanish tenor Giacomo Aragall, also the possessor of an exceptional voice, who, however, never quite made it to the summit of superstardom.

Devotees of the highest of fi should be warned: As these opera selections originate from airchecks and/or “pirate” tapes, sound fading and distortion are the rule. But so is the enjoyment of hearing a great tenor voice—which, for the most part, succeeds in penetrating the sonic morass—in unspoiled condition and used with poetic sincerity of purpose. —Bernard Soll

It is often said that anyone with a recorder and a couple of microphones can record an orchestra. It’s true, assuming you can get permission to do it (another story entirely). But that statement fails to address an important question: “How well?”

The rudiments of any skill can be learned from books. Practice can develop a fair level of competence. Beyond competence, however, the student is governed by his genes and/or family environment, depending on which theory of human potential you subscribe to. Whatever the reason, some practitioners of both disciplines never seem able to transcend mere competence, while others go on to become legends in their own times. John Earegle, chief recording engineer for Delos Records and producer of this fascinating recording, may or may not qualify as a legend, but he is obviously ‘way past “a fair level of competence.”

Most record companies, no matter how dreadful their orchestral recordings, treat the specifics of their recording techniques as trade secrets. With few exceptions, the idea of detailing in the jacket notes how a recording was made is as unthinkable as using a color photo of the producer’s privates on the album cover. Yet here, for the first time, is a collection of II different recordings with accompanying notes documenting in reasonable detail how every one of them was “done.” In truth, this would be of little interest to readers of this magazine if the recordings themselves were typical big-company dross, but these are superb recordings, from which other classical record producers could (and are hereby invited to) learn a lesson or two.

John Earegle is not quite a microphone minimalist. Like Keith Johnson, he does not feel constrained to confine himself to the purists’ pair—two microphones and no more, regardless—if more than that seem called for. If one or another part of the orchestra sounds “weak,” or the hall reverb isn’t being picked up to his taste, he will not hesitate to fly as many additional microphones as he feels are needed to do the job right. The result is some of the best symphonic recordings that you’ll find on CD. (All the excerpts are, of course, from Delos’s extensive catalog.)

Spectral balance is right on the money, and the overall presentation is very realistic. There is no shrillness, no squawk, no bass shyness, and the dynamic range is as wide as the real thing. Bass is full and, at times, very deep, but with superb pitch delineation; there is never a trace of boominess or hangover. These recordings strike an almost ideal balance between detail (closeness) and blending (distance), and the ambience never intrudes on the music. You
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can definitely hear the uniqueness of each recording hall in all of these, yet I do not get from any of them the feeling—as I do from most Telarcst—that the music is subservient to the hall acoustics, rather than the other way around. Yet these are not the best orchestral recordings I have ever heard, and the the reason, I believe, is because they were not quite minimally miked.

Eargle seems convinced that a simple twomike pickup cannot adequately capture the woodwind section of an orchestra. An additional stereo pair was used over the orchestra in virtually every one of these recordings, and it sounds like it. The woodwinds sound closer than the rest of the instruments, and that section of the orchestra sounds more dimensionally compressed—front to back—than the rest of the orchestra. The effect is fairly subtle, simply because the mixing was retrained, and may not be noticed by a listener who has not heard a lot of true two-mike recordings, but it is audible, and I don't much care for it.

I don't know why all recording engineers must fight tooth and nail to prevent a symphony orchestra from speaking for itself. Believe me, guys, an M-S mike or two ORTF-oriented cardioids can do the job, without help, if literal realism is really what you're striving for. Other than having them play louder, there is simply no way, without inserting some kind of digital delay à la Denon, that you can "bring out" a group of instruments without making them sound closer than the ones around them, and as far as I'm concerned, there is no need to try. If the woodwinds sound balanced to the conductor, then that's the way they should sound. Does it ever occur to any recording engineer that the instrumental balance he hears might possibly have to do with the frequency response of his loudspeakers or microphones? Or even, Heaven forbid, his own distorted judgment about what constitutes "correct" instrumental balance?

On the other hand, I find no fault with the use of an extra stereo pair to enhance the ambience of a "dry" hall—another trick that Eargle uses on a number of these recordings. But I do not like the double-arrivals of direct sounds that I hear when the ambience mikes are omnis placed far behind the main mike array. In my view, ambience mikes should be cardioids or, better still, hypercardioids, placed close to the main mikes and aimed toward the rear corners of the hall. This provides independent control of rear ambience relative to direct sounds, but gives much better integration of the two. And the directionality of the ambient mikes allows for some control of discrete echoes, on the basis of their directions of arrival.

These certainly aren't bad, or even mediocre, recordings; in fact, they're uniformly excellent. They are just not as good illustrations of real soundstaging as they could be—or as I have gotten from most of my own recordings of symphony orchestras. (I have never felt the need to use anything but a basic stereo pair.) One thing that would have made this album even more useful would have been diagrams showing where the instrumental choirs were placed, although the imaging is good enough most of the time that you should have no trouble figuring this out yourself. The jacket notes are adequately detailed—much more so than with your average classical CD, but since I got only a sheaf of Xeroxed pages with my (pre-release) copy, I cannot report how many pages they ended up occupying.

—J. Gordon Holt

**Show Music**

**CHESS: Original Broadway Cast**
RCA 7700-1-RC (LP), 7700-2-RC (CD). Chuck Cavanaugh, eng.; Benny Andersson, Bjorn Ulvaeus, prods. DDA/DDD. TPs: 60:42, 72:19*

Chess is the latest musical to travel the LondonBroadway route successfully pioneered by Andrew Lloyd Webber. The show has had more than its share of tribulations, including a major change in overall concept, numbers dropped and added, a new director, etc. Reportedly, Tim Rice virtually washed his hands of the production prior to the Broadway opening. In any case, reviews were mostly negative, and the show closed after 68 performances. It was a courageous decision on RCA's part to release the Broadway cast recording, especially considering the fact that they already had the British recording, which has apparently been selling quite well. They certainly made the right decision: this recording, more so than the British one, reveals Chess to be a work of considerable attractiveness and originality, with a score that combines pop, rock, and neo-Puccinian elements, but somehow still sounds integrated.

I've said it before and I'll say it again: for me, music is what makes or breaks a musical, and this is where, whatever the problems with the stage production, Chess succeeds admirably. "One Night in Bangkok," "Nobody's Side," and "I Know Him So Well" were hits in Europe, and they are indeed effective in an up-tempo, rock-influenced way. But my own favorites are "Anthem," (with a subtle quote from the USSR national anthem), "You and I," "Lullaby," and, especially, "Someone Else's Story," a brilliant

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number that would become a standard if there were any justice in the world (I'm not holding my breath). "Lullaby" and "Hungarian Folk Song" have Hungarian lyrics (badly mispronounced, if this matters to you) that are actually quite good; presumably, they were written by that well-known Hungarian lyricist, Timoti Rizs.

Bjorn Ulvaeus and Benny Anderson, the composers, are better known as members of ABBA, the group with the Swedish music this side of heaven (sorry!). Through their work on Chess, they join Les Miserables' Claude-Michel Schoenberg as the musical theater's "great European hopes." Chess also catapults Judy Kuhn to the forefront of musical-theater performers. Ms. Kuhn has already been acclaimed for her more limited contributions to Rags and Les Mis (a Tony nomination); Chess gives her a crack at a real starring role, and she rises to the occasion superbly. David Carroll and Philip Casnoff are effective as the rivals for her affections, as well as for the world chess championship. Sound quality, while more than acceptable, is not as good as on RCA's Into the Woods or Anything Goes, in that solo voices have too much sibilant emphasis. The LP omits five of the numbers (including the full version of "You and I"), and generally sounds less clean than the CD.

—Robert Deutsch

SHOW BOAT
Jerome Kern, music; Oscar Hammerstein II, lyrics
Frederica von Stade, Magnolia; Jerry Hadley, Ravenal; Teresa Stratas, Julie; Bruce Hubbard, Joe; others. Ambrosian Chorus, London Sinfonietta, John McGlinn, cond.
EMI A1-49108 (3 LPs), CDS 49108 2 (3 CDs), John Fraser, prod.; Michael Steady, John Kurlander, engs. DDA/DDD. TF: 3:41:31

This is an important recording. Clearly a labor of love for conductor John McGlinn, it is at once the most complete, most authentic, and generally best-performed recorded version of this landmark in the evolution of American musical theater. The completeness (every musical number, even ones dropped prior to Broadway, is included, as well as most of the dialogue and the music that underscores it), and authenticity (this is the 1927 Broadway version, using the original Robert Russell Bennett orchestrations) are laudable, but what impresses me most is the theatrical and musical vitality of the enterprise. This is no overly respectful recreation of a museum piece; you just know this is the way Show Boat is supposed to sound, and the recording reveals the movie and the updated "performing" versions to be cartoon-like facsimiles of the original. Yes, the great songs ("Ol' Man River," "You Are Love," "Can't Help Lovin' Dat Man," "Make Believe," "Bill") are there, but they are integrated into the theatrical whole, and are supported by numerous lesser-known (even virtually unknown) but musically worthwhile songs ("Mis'ry's Comin' Around" is particularly effective). As an appendix, the recording contains songs written for the original London production and for the 1956 movie (including the charming "I Have the Room Above Her").

The recording is a triumph for its stars. Frederica von Stade showed promise in the Telarc Sound of Music; here, with better direction, the promise is fulfilled. She not only sings beautifully but really acts the character. Jerry Hadley confirms my impression of him as being perhaps the most gifted of the new generation of tenors. (Earlier this year, he sang an outstanding Hoffmann in Toronto.) As for Teresa Stratas, this superb interpreter of Puccini and Kurt Weill has now added Julie to her definitive characterizations. Bruce Hubbard (Joe) sings "Ol' Man River" well, but my memory of Willard White's Porgy makes me wonder whether White, the original choice for the role, would have been even better. The many smaller roles have been cast with first-rate performers—Karla Burns' no-nonsense Queenie and Paige O'Hara's delightful Ellie are standouts.

The issue of casting Joe brings up the one controversial aspect of this Show Boat: racist language. John McGlinn has kept the original words to "Ol' Man River," arguing that substituting "Colored folks work ..." or "Here we all work ..." for "Niggers all work ..." is not only inauthentic, but glosses over the racism that is depicted in the libretto. Willard White and the original black chorus found the words offensive, refused to sing them, and withdrew from the recording. Bruce Hubbard (who had sung Joe in the Houston Grand Opera production) was brought in, and the Ambrosians had to double as the black chorus. It would be presumptuous of me to question whether White and the others made the right decision; what I can say is that the sub-theme of racial intolerance seems to me to give the show much of its strength. Particularly powerful is the "miscegenation scene," in which Julie's husband Steve, about to be charged with miscegenation for having married a woman who is part black, cuts her finger and sucks her wound, then claims that he, too, is black, because "one drop of nigger blood makes you a nigger in these parts." The scene plays with chilling impact.

Sound quality is something of a disappointment. Unlike most of the CDs I've been listening to lately, this recording evinces faults that I associate with early examples of digital technology: some hardness at high levels (particularly brass, massed strings, and chorus) and a tendency for the soundstage to collapse in the
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of Ah severe; big hardness, with (especially phenomenon ord.) decreed of the restored stands might haze of Danger, “Side Two” — "The Further Adventures of Nick Danger, Third Eye" — remains the classic parody of '40s radio drama, and is every bit as funny years after I just Said No. And if those of you born about the time this record was first released can believe it, there is nearly an hour of comedy here with no obscene words! RL has already said his piece on Firesign in these pages (Vol.11 No.2), and I haven’t anything to add except that MFSL has done a great job; Firesign got a lot of bad pressings in the old days, and this CD cleans up a lot of the problems I remember (my LP having died the death in one move or another). Great liner notes by Phil Austin, too.

Hold the anchovies? You’ve got the wrong man; I spell my name. . . —Les Berkley

THE FIRESIGN THEATRE: How Can You Be In Two Places At Once When You’re Not Anywhere At All?
Mobile Fidelity Sound Lab MFCD 834 (CD only). Firesign, prods. AAD. TT: 56:23

Ah yes, 1969. The November Mobe. Driving down to Washington, DC in Dave Fenster’s ’67 Mustang, hitting the Maryland border at 105 with lights burning bright to show the fuzz that we Supported Our President. Her name was Gayle, she came from somewhere in the hills of North Carolina, and we shared a blanket in the lobby of George Washington University, smelling of tear gas. Outside it was 14°F, but there was warmth in her dark eyes and . . .

No, no, RL, you don’t understand how audióphiles work! To get him out of this flashback, all you have to do is flip the Mode Selector Switch, like this—CLICK!

Well, I’m afraid it really is 1989, the President of the United States is named Shickelgruber, and this classic Firesign record, lovingly restored by the good folk at Mobile Fidelity, stands the test of time somewhat better than I do. To be sure, the slightly (ha) drug-tinged haze of “Side One” does seem a bit dated, and might not appeal to a first-time Firesigner, but “Side Two” — "The Further Adventures of Nick Danger, Third Eye" — remains the classic parody of ’40s radio drama, and is every bit as funny years after I just Said No. And if those of

1 These intermittent distortions of the soundstage do not interfere with the general mood and atmosphere; in other words, JA, please note—the deficit is in ambition, not ambiance.

Jazz

GARRY DIAL & DICK OATTS: Dial & Oatts
Dick Oatts, saxes, flute; Garry Dial, piano; Jay Anderson, bass; Joey Baron, drums; 30 strings

Evans and Ellington aside, the jazz suite is often a patched-together, padded-out affair—a couple good tunes and a lot of filler. Add “sweetener” (strings) and, more often than not, within a year the result justifiably ends up in the cut-out bins.

Not so here. Dial & Oatts is not only one of the most beautifully recorded jazz albums I’ve heard, it’s also a true suite that sounds like a unified composition. These 15 settings for acoustic jazz quartet and strings have much in common, both in playing style and composition, with Keith Jarrett’s American quartet of the ’70s, with Jan Garbarek sitting in for Dewey Redman. (“Hurry Up & Wait” could be from any Jarrett quartet LP of that era.) Oatts possesses much of Garbarek’s clean, clear, unsentimental tone, though with a bit more vibrato. Dial pounds his Steinway with intelligently tethered fury; helped to no small degree by the intimate but natural recording. Joey Baron’s drumming is propulsively explosive in the faster, angrier tunes, and fills with Paul Motian’s seemingly pulseless grace in the quieter moments. Adding to the Jarrett impression is Jay Anderson’s bass, which shares Charlie Haden’s full tone but lacks Haden’s sense of high drama and often self-indulgent ostinatos.

Oatts (horn player for DMP house band Flim & the BB’s) and Dial have played together for the past 11 years in red Rodney’s band, and it shows. A few highlights: “Patience” for world-class ensemble playing; thick, muscular, woody, tenor sax (à la Wayne Shorter on Illus) on “No Options,” with the sentient detonations of Baron’s drums; and lonely tenderness on “Between Us.”

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a serious jazz album these days, the tunes make their points succinctly and eloquently, then move on, linked by strings. The always-leaping melodies, though unified in color and language, are all distinct, strongly voiced, hardly cut from the same cloth at all. There is a cleanliness of line here, fresh and cool, a seamless open-endedness that quenches the thirst and clears the air for Dial & Oatts' substantial, uncluttered playing. In fact, it isn't until "I Dig Your Do" (track 11) that there is any "swinging" at all, in the classic sense.

The arrangements—by Dial & Oatts, with one exception—are models of their kind: lean, spare, unbusy, with little gush or slush. "Major," set by conductor Carlos Franzetti, is a marvel of exciting, witty surprises supporting a slippery Dial melody. It's surprising enough that 30 real string players were used instead of a Synclavier; it's astounding that they were recorded live in the studio with the sax and piano on some cuts. Producer Tom Jung, in his never-ending quest to "eliminate electronic barriers," recorded D&O entirely in the digital domain, "converting[ing] the individual microphone signals through a Yamaha AD808 8-channel high resolution 16-bit A-to-D converter system on the studio floor...literally at the players' feet." All overdubbing was then done entirely in the digital domain, with only that first, single A/D conversion. It sounds very, very good. Let's have less fusion, DMP, and more lasting music like this.

—Richard Lehnert

MARK ISHAM: Tibet (soundtrack)
Mark Isham, trumpet, perikphone, percussion, electronics; David Torn, Peter Maunu, guitars; Bill Douglass, bamboo flutes; Doug Lunn, bass; Kurt Wortman, percussion; others

MARK ISHAM: The Beast (soundtrack)
Mark Isham, trumpet, electronics; David Torn, guitar; Kurt Wortman, percussion; others
A&M SP 3919 (LP), CD 3919 DX 003769 (CD*). Stephen Krause, eng.; Mark Isham, prod. DDA/DDD. TT: 47:43, 50:57*

MARK ISHAM: The Moderns (soundtrack)
Mark Isham, trumpet, electronics; Sid Page, violin; Peter Maunu, violin, mandolin, guitar; Ed Mann, vibraphone, marimba, snare; Dave Stone, Patrick O'Hearn, bass; ChariElle Couture, vocals, piano; Rich Rutenberg, piano; others
Virgin 90922-1 (LP), -2 (CD). Stephen Krause, eng.; Mark Isham, prod. AAA/AAD. TT: 45:37

MARK ISHAM: Castalia
Mark Isham, trumpet, keyboards, electronics; David Torn, guitars; Peter Maunu, guitars; Patrick O'Hearn, bass; Terry Bozzio, drums; Paul McCandless, reeds; Gayle Moran, vocals; others
Virgin 90990-1 (LP), -2 (CD*). Stephen Krause, Ben Rodgers, engs.; Mark Isham, prod. AAA/AAD. TT: 48:30, 57:43*

In the last few years, whenever I've watched a movie and heard a classic mid-'60s Miles Davis-ish trumpet lick (usually muted) on the soundtrack, I've learned to expect to read Mark Isham's name in the credits. (Though I was fooled in '87, when Davis himself scored Siesta.) Isham's music, whether for films or his own few releases (Castalia is the third such), invariably exhibits his impeccable knack for the right texture at the right time. Isham does not go for easy harmonic resolutions, though his music is not harmonically complex. In his better works, the listener is quickly taught to appreciate the most basic resolutions—thirds, fourths, and fifths. Slow, simple chordal progressions are not taken for granted, but seem discovered as if for the first time. This is possible only through Isham's careful, studied digestion of each note, texture, and chord as it is voiced. This is neither Minimalism nor New Ageism—though Isham is often numbered in the latter's ranks—but simply solid, serious, sensitive music-making.

Isham composes film music even when he doesn't. His music, rather than demanding accompanying programs, seems to provide its own dramas and stories. Castalia's compositions are perfect examples: In "My Wife with Champagne Shoulders," a truly gentle, loving piece, a choir of fin de siecle strings descends in an endless, dying fall. "A Meeting with the Parabolist": if Isham plays the best Miles licks around today, Patrick O'Hearn plays the best Jaco. Now that New Age has almost entirely co-opted any legitimate use of the word "atmospheres" (when what actually seems meant is climate control), it's good to hear a master of the form. Zappa alumnae Bozzio and O'Hearn alternate apocalyptically ascending rhythmic crescendos with percussive tracery, synthesizer touches, and muted trumpet caresses. Bozzio, in particular, impresses with his late-DeJohnette finesse.

In "Tales from the Maiden," a dreamy, vaguely Eastern melody soars and falls in flurries of reed solos by Oregon's Paul McCandless, the result similar to Carla Bley's "A.I.R. India" from Escalator Over the Hill, but with more serenity. Isham's electronic percussion is the most natural-sounding I've heard. The highlight of the album is "The Gracious Core," uniquely scored for trumpet, voice, highland bagpipes, and minimal synthesizer: distant, haunting pipes and drums over

2 My apologies for the lateness of this much-delayed review. Every time I was ready to publish it, Isham released a new record that just had to be included. No doubt another will have arrived by the time this sees print...
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even more distant thunder, with a trumpet in the foreground, minimal melodic fragments slowly coalescing into a majestic finale. Isham has developed a unique trumpet style that alternates between Baroque figurations and cool jazz, unified by a strong tone; he uses this voice fully here. Terry Bozio's authentic Scots-style drumming is darkly, gothically impressive. The sound is full and rich, very like ECM's, the entirely false soundstage intricately delineated.

The Moderns, of course, is film music, for the Alan Rudolph film of the same name. As one might expect, the music is elegiac, melancholy, and sad, fitting the nostalgic 1926 Paris setting. Isham's "L'Orchestre Moderne" is an odd combination of trumpet, electronics, violins, vibes, marimba, bass, piano, cello, drum machine, and the very French jazz singer CharlElle Couture. At the risk of over-neologizing, much of the album is chamber jazz ballet music, as much influenced by Satie and Debussy as by Louis Armstrong and Bix Beiderbecke.

From the first bars of the "Les Modernes" (the main title music), the ensemble dynamics of the combo playing this dream-tango music impress as being so telepathic as to be conducted, or so conducted as to be telepathic...they swing. Sid Page, who long ago recorded with Dan Hicks and his Hot Licks ("I Scare Myself"), plays a meltingly melancholic solo violin.

The rest of Isham's music is cut from the same cloth (good news), but there's more: CharlElle Couture's ingratiating bistro vocals on his own songs ("Dada Je Suis" and "Paris Le Nuit"), and two vintage, entirely uncredited recordings that deserve some ink: Sidney Bechet plays Mezz Mezzrow's "Really the Blues" (excerpted from The Complete Sidney Bechet, 1932-1941, RCA) in a remarkably fine cleanup of the old 78. I've never been a fan of Bechet's lugubrious sentimentality, but the atmospheric value is high. The real gem is 1920s chanteuse Lucienne Boyer singing Jean LeNoir's "Parlez-Moi D'Amour" (from the Capitol Retro Collection, 1925-1937). The delightfully bittersweet tune itself falls between art song and standard, and Boyer's smiling-through-tears performance had me smiling through my own. When my polyglot fiancé translated the poignant lyrics for me, the song improved even more. This little three-minute jewel is worth the price of admission (too bad I had to call Virgin Records to find out all the information in this paragraph). The song is given an 8½-minute workout by L'Orchestre Moderne at the end of the soundtrack, but this update is the only piece that doesn't really work; the over-busy percussion is as obtrusively self-absorbed as Couture's vocal.

The recording is rather dry, with standard false studio ambience; the two solo Couture cuts are lively exceptions. The sound of both Moderns and Castalia is strikingly superior on LP, in depth, soundstaging (real or false), bass, highs, midrange depth and bloom, you name it. Though Castalia has an extra track on CD—the nine-minute "In the Warmth of Your Night"—this less than interesting composition hardly makes the CD a must-have.

Both recordings are recommended, though Castalia is a safer bet for fans of Isham's work as it has evolved up till now. The Moderns is varied enough to be consistently interesting, but perhaps too much so to support the ambient "listening" practices too many of us have adopted these days. Too bad; it deserves close and loving attention.

The Beast is something else again, its hard-edged, much more overtly "electronic" sound having more in common with the music of Georgio Moroder, Ryuichi Sakamoto, and Vangelis than anything Isham's done before, but reminding most of Byrne/Eno's My Life in the Bush of Ghosts, sans most of the vocals.

According to the liner note, the 50-minute CD is halved by only two tracks, "Badal" and "Nanawatai," but the disc is actually cut into 10 separate bands (track 5 of "Badal" is not found on the LP). "Badal" slowly builds its zig-zagterraced dynamics from layers of synth washes, Afghan singing (the film is about the USSR's invasion of Afghanistan), electric guitar crashes, techno/syntho/metallo rock, and more Miles-ish trumpet. Kurt Wortman, with whom Isham has worked since their days in Art Lande's Rubisa Patrol, provides judicious percussion exotica, David Torn the guitar splashes.

The basic compositional building block, set forth by Byrne/Eno in Ghosts and now often used to denote The Mysterious East, is a long, slow, sinuous, vocal-like melody floating somewhere in the mid- to treble range, anchored by a much faster-tempoed, low-pitched drum rhythm (with intermittent bass), and lots of reverb. The effect is one of spaciousness, usually from the large sonic hole left between these two elements.

"Nanawatai," from the title on down, is much like the sidelong cuts found on Miles Davis's Big Fun, particularly "Lonely Fire" and "Life," complete with electronically altered trumpet and some gorgeous Afghan singing by Shala Barashalesinger. This has one of those endless raga-like rhythms that sound as if they could go on for days, the heartbeat of Isham's musical marketplace where Europe, Asia, and Africa meet, rhythm the only common tongue.

It's effective and atmospheric enough—all you really need from a soundtrack—but while The Moderns and Castalia bear repeated listen-
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ing, *The Beast's* opiated, quicksand-like unease is better suited to the suspenseful film for which it was written. Stereo separation is much better on the LP, for some reason, whose entirely false soundstage also sounds more convincing. But this is a digital master; I can't help thinking that the consistently superior illusion of depth I've been hearing on LP transcriptions of digital master tapes is due to the contrast between the musical signal and the stylus/groove noise floor. If this is so, then CD sound, supposedly (and effectively) lacking any noise at all, suffers by having no background against which the music can take the fore, thus having an attenuated sense of depth.

The same sonic phenomenon is audible on *Tibet*, Isham's soundtrack for the Windham Hill LaserDisc of the same name. *Tibet* has much in common with Isham's music for *The Emperor's New Clothes and Never Cry Wolf*, two more soundtracks with Oriental subjects. Even relatively new Isham fans will have heard most of this before: synth and cymbal washes, endless reverb, single guitar and trumpet or flugelhorn notes held for long, long moments; Isham's most "New-Agey" disc since his debut *Vapor Drawings.*

The third of the five "Parts" that comprise *Tibet* has music of more substance: Isham's trumpet over Doug Lunn's lunging bass, oriental percussion, and synthesizer, with Tom Sassa intoning haiku (in Japanese! Oh well, it's oriental, right?).

But Part IV's Wagnerian brass chorales (arranged by bass trombonist Ken Kugler) are worth the admission price, even if recorded through a wavering electronic scrim. These slow chords move with the weightless majesty of whales and clouds, Isham's porpoise-like muted trumpet darting among them (scuse the purple prose).

After more haiku, Part V evolves into a melody of simple beauty, almost too spare, of the sort I've come to respect Isham for so much: gong/chimelike percussion, layered drums, synth sheets, and Isham's Wayne Shorter–like solo on perkiphone, whatever that is (sounds like a nasal soprano sax).

The LP transmits more of the "burr" of the brasses from this analog master, but the CD has greater spaciousness. The format is up to you; my LP sample had poor surfaces, but this is rare for Windham Hill—you won't regret buying vinyl.

—Richard Lehnert

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**Popular**

**JOHNNY CLEGG & SAVUKA: Shadow Man**


It was José Ortega y Gasset who said that cultural innovations come from small, talented, and ostracized minority groups, whose creation is eventually co-opted and diluted by the mass culture, which uses the formerly revolutionary ideas to its own ends. Maybe that's why Clegg's band, which last year gave us the well-crafted, spirited, occasionally inflammatory *Third World Child*, has trooped into a California studio to record this new disc. The result is more quality pop, nearly as danceable as *Third World Child*, certainly not as politically sharp nor as rich in ethnic cross-fertilization.

Those elements which I perceive as African are toned down, so there are fewer of the bouncy guitar block chords and call-and-response vocals which dominated the first album. More lyrics are in English. The pop devices in *Shadow Man* are more conventional—though there are still delicious moments like the guitar-and-marimba bridge in "Dance Across the Centuries." The words sing less a protest than a message to all races to get their acts together before things fall apart. ("Talk to the People" is surprisingly well-balanced in observing social ills, and "African Shadow Man" is a nifty, if obvious, treatment of the problem of African identity.)

There are clumsy moments, too: in "Joey Don't Do It," Clegg's voice and instrumental arrangement kowtow a bit too steeply to the *Graceland* formula; and his voice, always trebly, becomes irritating in "Siyayilanda," reminding me for all the world of early-'70s Yes-soid Jon Anderson.

Sound is CD-middling. There's decent stage depth—you can detect the stacking of tracks, but the individual layers are thin. Much use is made of absolute polarity information, tracks mixed out-of-phase relative to each other; so you'll have to choose whether, say, the lead vocal or the percussion is to sound sharp and forward. Lateral spread is narrow, timbres often dull. Bass is particularly weak, the dub electric bass sounding deep enough, but without impact (it's not at all tuneful, JA!).

I would think *Shadow Man* far less likely than *Third World Child* to offend the sensibilities of the South African government. Maybe the requirements of the Anglo-American mass market are a more restrictive censor than the RSA. But there's also something José Ortega left out: It takes a mass market to execute a revolution. Now that Clegg and Savuka have the hit
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Stereophile, April 1989
CROSBY, STILLS, NASH & YOUNG: American Dream
DDA/DDD. TT: 57:31

These rock superstars sure don't look like one might remember them when they were "scared shitless" on the stage of Woodstock, 20 years ago. But, one might argue, very few people look like they did in 1969. Crosby, Stills, Nash & Young still sound the same, though, and that's what counts.

First of all, there's a lot of music on this album—a little less than an hour, CD and LP alike. There are 14 songs recorded in Neil Young's home/ranch studio in Northern California. There are also no surprises; these guys just picked up where they left off a short while ago. Of course, subject matter is still pertinent, but now pertinent to 1989. Fans won't be disappointed; it seems as if CSN&Y didn't get together to make some money by making an album, but that they actually had something to say. It also sounds like they had fun doing it!

It's easy to tell who wrote which songs, even if you don't look at the credits. Neil Young's title cut is the best on the album, about the disillusionment of the American public after the Gary Hart affair (great song, terrible video), but other standouts include Neil's "This Old House" (containing some vintage/patented CSN&Y four-part harmonies), the ballad "Got It Made," Crosby's hard rocker "Nighttime for Generals" (with a guitar solo inspired by James Marshall Hendrix), and Nash's "Clear Blue Skies" and "Soldiers of Peace."

There are some musts-to-avoid: "Shadowland," a nauseating Caribbean-style ditty, and the syrupy-sweet "Compass" fall in that category. Not bad, though, considering there are 14 cuts.

The LP survives 57+ minutes of music pretty well—credit should be given to what Neil Young calls "Digitube Recording"—but, auditioned with one cartridge, the LP contained more surface noise than I've ever heard before. The same record with a different cartridge was much cleaner. That much music on a black disc is asking for trouble. Instead, buy the CD; high-end sound quality was a little cleaner overall.

It's nice to have CSN&Y back. Let's hope their next album is as inventive and isn't as long in the making. —Gary S. Krakow

Dylan & The Dead
ADA/ADD. TT: 44:04

Folks, you can sit out this 1987 live set. The Dead could be any one of Dylan's anonymous post-Rolling Thunder bands, for all they get to contribute. Dylan sounds tired, the Dead uninspired (except for liquid Jerry Garcia solos on "Slow Train" and "All Along the Watchtower," and some great Phil Lesh bass counterpoint on "Watchtower"), and the sound, LP or CD, is the typical muddy live-Dylan hash. Nothing is added to these songs (all previously recorded), and much is taken away, particularly from "Queen Jane Approximately" and "I Want You," which turns from a vulnerable, wistful masterpiece into yet another Old Testament rant. I mean, how seriously can we take this stuff when Dylan himself can't be bothered to remember the words? What could the singing of these songs possibly mean to him anymore? On the last cut he rhymes "Knockin' On Heaven's Door" with the tossed-in "Like so many times before." Really, Bob? "Dying" like so many times before? What do you mean? Does it matter? And does anyone need to hear "Joey" again? Ever? Nor does it help that every one of these seven songs sports exactly the same arrangement: medium-tempo verse/break/verse/break/repeat-last-phrase-of-song-ad nauseam-and-back-away-from-mike.

Rick Griffin's powerful album cover, in the grand old '60s Dead tradition, is the best thing about this turkey. Hey, I've just had a great idea—let's all just roll over, forget about it, and go back to sleep. . . .

—Richard Lehnert

ROB WASSERMAN: Duets
MCA-42131 (LP), MCAD-42131 (CD). Rob & Clare Wasserman, Elliot Mazer, David Grisman, prods. AAA/ADD.
TT: 44:12

Rob Wasserman has produced an extraordinary album; part jazz, part rock, and completely wonderful.

Wasserman was born in California in 1953, studied violin until age 12, and saw an acoustic bass in the window of a second-hand store when he was 20. The rest is history: he's played with Dan Hicks, Jerry Garcia, Maria Muldaur, Van Morrison, and Oingo Boingo. His first album, Solo, in 1983, was just Rob and the bass. That LP caused Wasserman to jump to the top ten in the Downbeat Reader's Poll (Jazz Musician of the Year in '84, '85, '86, '87). Jazz Album of the Year in 1983, Acoustic Bass in 1983-87, and Composer in 1985, '86, '87).

Duets delivers just what the title promises: one-on-one sessions with some of the best in rock and jazz: Aaron Neville, Lou Reed, Rickie

Stereophile, April 1989
Lee Jones, Jennifer Warnes, Bobby McFerrin, Dan Hicks, Cheryl Bentyne of Manhattan Transfer, and Stephane Grappelli.

It's difficult to believe the album could start at such a high point and keep up the quality until the end. That first cut features Wasserman on the double bass and Aaron Neville's unbelievable voice doing Hoagy Carmichael's "Stardust." Neville, lead singer of New Orleans' own Neville Brothers, had one huge solo hit in the '60s ("Tell It Like It Is") and the distinction of performing at the best concert I've ever witnessed: 2½ years ago, in a church in Brooklyn, NY, Mr. and Mrs. Krakow and some 400 others sat mesmerized as Neville, accompanied by only a piano, showed what a real singer could do with some of the most popular songs of the '30s, '40s, '50s, and '60s. On Duets, Neville shares these talents with Wasserman and with us. His rendition of "Stardust" must be heard to be believed.

Cut two is no slouch either. Rickie Lee Jones and her guitar join up with Wasserman for "The Moon is Made of Gold," written by Rickie Lee's father, Richard, when she was born. Delightful. (On the CD, there's a second duet with Rickie Lee, an adventurous version of "Autumn Leaves.") "Brothers" features Bobby McFerrin doing scat and playing his body; on "Duet," Wasserman double-tracks on the double bass; and Lou Reed on electric guitar (sounding a lot like Norman Greenbaum's "Spirit in the Sky") and voice delivers an unforgettable version of the Johnny Mercer/Harold Arlen standard "One For My Baby (And One More For the Road)."

Jennifer Warnes opens side two with her beautiful version of Leonard Cohen's "Ballad of the Runaway Horse." The next cut was really the first one recorded: a duet with Dan Hicks singing/scatting "Going With The Wind." They had worked together before, and at the session Wasserman let Hicks call the tune, a pattern which he decided to continue for the rest of the album.

"Angel Eyes," with Cheryl Bentyne, and Stephane Grappelli's lovely version of "Over the Rainbow," close out the album.

Recording quality is high; the LP pressing is wonderfully quiet. But the CD gives you that extra Rickie Lee Jones song. The choice is up to you.

For Duets, Wasserman sought out favorite singers and performers of his that he thought would work well in the bass-voice setting. Since he didn't have all that much money to spend on performers of this stature, he asked them to take a share of the royalties, giving each guest an equal percentage of the profits. It's to our benefit that they did. Go out and buy this one—for sheer enjoyment.—Gary S. Krakow

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Stereophile, April 1989
Altec Lansing Bias 550 active loudspeaker system

Editor:
"Awesome low end." "Extraordinarily smooth middles and highs." "And remarkably good depth."

Not exactly a negative reaction to a pair of high-fidelity speakers.

Coming from J. Gordon Holt, founder and chief tester of Stereophile and one of the industry’s most highly regarded critics, high praise indeed for the Altec Lansing Bias 550 speakers.

Maybe that’s why, as the chief designer/engineer of the Bias 550 and all the other critically acclaimed Altec Lansing products, I find Larry Archibald’s attack on the 550 in this issue of Stereophile so incredible.

Mr. Archibald’s own chief tester is not the only critic with whom he disagrees. Lawrence B. Johnson of Ovation, Michael Riggs of High Fidelity, Ron Scribilia of Audio Times, Nancy Malitz of Gannett News Service, and Rich Warren, writing in the North Shore Magazine, have been universal in their praise of the Altec Lansing Bias 550. So have many internationally renowned musicians, and many sophisticated consumers and high-fidelity buyers.

I might be able to understand Mr. Archibald’s difference of opinion relative to a loudspeaker as innovative as our Bias 550. That his totally subjective review also criticizes our corporation and me personally is something I cannot understand. I am puzzled and saddened that he chose to vent his personal emotions in this product review.

Tommy Freadman
Chief Design Engineer
Altec Lansing Consumer Products

I think it fair to point out to readers that J. Gordon Holt’s favorable reaction to the Bias 550 was at the press conference held by Altec for its launch. His auditioning of the review samples in a more familiar listening environment did not lead him to disagree with Larry Archibald’s review findings.

—JA

Delaware Acoustics DELAC S10 loudspeaker

Editor:
First, let me thank John Atkinson (and Stereophile) for a comprehensive review of our DELAC S10 loudspeaker. His comment that the soundstaging precision of this design "stunned" him was particularly gratifying.

In turn, I was impressed with the accuracy of many of JA’s listening observations with respect to our own computer simulations, measurements, and listening tests. At the same time — without meaning to take issue with JA’s conclusions — I feel that some of his criticisms may have vanished under other listening conditions. In particular, I was naturally somewhat disappointed and surprised at his mention of a midrange coloration noticeable on vocals. While we have not observed such a coloration using the S10s, I believe that absorptive materials such as drapes behind the speaker will reduce any perceived upper-midrange excess.

A possible explanation for JA’s observation is his choice of power amplifier. The VTL Compact’s unusually high 1-ohm output impedance will interact with the S10’s low 4-ohm impedance to produce a 2dB dip from about 300Hz to 600Hz (and reduced bass response below 50Hz). Thus, the excessive lower-midrange dip evident in JA’s measurements of the E10 equalizer (with the VTLs driving the speakers) can be seen to coincide with the frequencies where the S10’s impedance drops, and has the effect of implying an upper-midrange excess. This suggests that the 1000Hz “cupped-hand” coloration (as well as the subjective pink-noise coloration), JA noted may at least in part be an artifact of the VTL/DELAC interaction. Perhaps JA would favor us with a brief re-audition using an active solid-state preamp, solid-state power amp, and the “L” version of the E10 equalizer (and perhaps a more acoustically absorptive listening room)?

As for the bass balance, this is another area which is clearly dependent upon the speaker/room and speaker/amplifier interfaces. During fine-tuning of the S10 design based on listening tests, we determined the circuit values for the E10 equalizer which we felt produced the most neutral balance in our listening room (22' x 12' x 8' high; carpeted; speakers on the long wall). If, however, any purchaser feels the balance to be lightweight, Delaware Acoustics will happily adjust the E10 equalizer as desired. (It
should also be noted that the S10 manual includes an Appendix detailing the use of subwoofers where greater bass extension or power levels are required. This includes instructions for constructing a carefully matched, phase-coherent, line-level subwoofer crossover using only a few passive components.

I don’t mean to imply that the DELAC S10 is entirely uncolored; only that the overall coloration level may be milder than in JA’s system, and is more than balanced by the controlled frequency extremes, “immediacy,” and “holo-graphic” imaging kindly noted by JA in this issue.

JA’s conjecture about the relationship between the width of the human head and that of the loudspeaker baffle is insightful and intriguing. While I haven’t seen any directly related studies, it does seem reasonable that anecdotally mixed voice should reproduce best from a head-shaped baffle. The added tonal balance of real or artificial reverb, on the other hand, should reflect the dispersion qualities of the human voice, relieving the loudspeaker of this task.

Finally, while sound quality was the main determining factor in designing the DELAC S10, your readers may be interested to know of the slender, veneered enclosure’s ability to fit beautifully and unobtrusively into any living space, even in the case of a four- or six-speaker surround system.

Ralph Gonzalez
President, Delaware Acoustics

Monitor Audio R300/MD loudspeaker

Editor:
Thank you for your very fair review of the R300/MD.

1) You correctly brought out their sonic merits while pointing out reasonably that the “faults are minor.” Indeed, “we’re talking about a $699 pair of speakers here, not some cost-no-object fantasy object!”

2) Further, we appreciate your acknowledgement that Monitor Audio leads the way in metal-dome technology. Monitor Audio was the first to design and suspend metal domes onto a surround (a unique piston technique), hence achieving near-perfect piston action. MA also designed the vented voice-coil assembly, allowing the dome to be kept cool; an absolute must for long-term, high-power use.

To date, MA has designed four unique metal domes which, in their respective categories, are being adopted by others as “the best”; eg, Heybrook, Rogers, British Fidelity, TDL, etc.

3) Your readers might like to know that we shall be showing the R300/MD, along with the new MA1200 Gold/MD, at the Stereophile show in April. The gold-anodized magnesium-alloy domes are a good two years ahead of anyone else’s developmental work in the field. Aside from Monitor Audio’s present application of them in the Model MA1200 Gold/MD, they will remain, for other speaker designers, a “fantasy object.” However, I should stress that the MA1200 Gold/MD is reasonably priced, assuming one doesn’t wish to spend a fortune for “cost-no-object” sound quality and finish!

Robert Sinclair
Director of Sales & Marketing, Monitor Audio

Ohm Acoustics CAM 16 loudspeaker

Editor:
Thank you for reviewing our $300/pair, nearly conventional, Coherent Audio Monitor (CAM) 16 speakers without being too "pun"-ishing. We think we came out of it all without too much egg on our faces. After all, we know that you were only "yolking" around. We can’t be too unhappy with a Stereophile review of our least expensive loudspeakers when John Atkinson found that on male speaking voice “the Ohm 16 came off quite well here”; on piano recordings "...and here, again, the Ohm did quite well," and that "Dynamics were excellent, almost over-easy, the '16s playing loud with only a slight sense of strain. Drums had good weight..." John did, however, have a number of other complaints but qualified them by saying, "However, these faults must be considered minor in view of the low price; overall, the '16 is a well-balanced design and none of its problems particularly get in the way of the music." We would also like to note that in his measurements "the -6dB point lay at a very low 31Hz." This is unsurpassed by any of the other speakers reviewed in this series and provides an extra full octave deeper bass than eight of them. They ranged in price to $2600/pair.

If John had possessed the CAM owner’s manual (which had not been printed at the time, but which we have been supplying for the last 30 days), he might have found some of the suggestions regarding setup and placement (unique to Ohm CAM speakers with their egg tweeter
module) helpful in reducing or eliminating some of the problems he mentions. We have listened to the '16s in many rooms and in many different placements within those rooms. Having just spent the last two days attempting to reproduce John's tests as best we could, we believe that the following small changes would produce very noticeable improvement:

1) Positioning the speakers so that the woofers and tweeters cross-fire at a point slightly in front of the listening position.

2) Positioning the speakers within 18' of the rear wall.

3) Possibly positioning the speakers a bit closer together to assist their coupling in the low bass. (We were not sure of the speaker spacing during John's tests.)

These suggestions are merely educated guesses at correcting the problems that John found as we have not had the opportunity to listen to/in John's environment. We have a high degree of confidence in these suggestions, however, since by placing the speakers on stands below ear level, well out from the rear wall, positioned so that the axis of each speaker intersects at or behind the listener, and placed well apart, we were able to duplicate most of John's listening problems with the CAM 16s in several different listening rooms. Making the above adjustments resulted in noticeably better bass and smoothed out the highs quite nicely. The major gain, however, was a marked increase in apparent depth of the soundstage. This was particularly noticeable on the very familiar and spacious Proprius CD Jazz at the Pawnshop.

We probably should have requested a review of one of the CAM 16's larger siblings, the CAM 32 or 42. We agree with John that the compromises necessary to produce a speaker in the $300/pair price range are great. We disagree that they are too great. We believe that there exist both a market and a need for a good loudspeaker in the $300/pair price range (even among the readership of Stereophile). John suggests that for two or three hundred dollars more (twice the price of the '16s), a buyer would get more and, again, we agree. For $100–$200 more we can (and do) build speakers that offer more of the performance for which a music lover looks. Given the $300/pair frame of reference, however, we believe that we have made the unavoidable price compromises in ways as musically unobjectionable as possible. Looking within John's review, his complete dismissal of the entire price category notwithstanding, it appears that he does not disagree.

John Strohbeen, President
Don Bouchard, Vice President
Ohm Acoustics Corp.
P.S. There is no "air-cored coil in the woofer feed:" The woofer is driven full-range and relies upon its carefully designed, natural roll-off. The coil that John saw was part of an LCR trap after the tweeter filter cap.

SR Trade Bolero loudspeaker
& Forte subwoofer

Editor:
Thank you for the review of the SR Trade Bolero loudspeakers and the companion Bolero Forte subwoofers.

Although SR Trade is a newcomer to the European audiophile community, its designer has been involved in the high end both in retail and distribution for over a decade. The introduction of the Bolero to the Swiss audio market in 1987 caused quite a stir; one dealer sold over 120 pairs in less than two years, and that in a country the size of the state of Illinois!

I was introduced to the Boleros by the designer Boban Radovanovic, or "Radi," as he prefers to be called, during the 1987 Hi-End Show in Frankfurt. Last year at the Swiss Hi-End Show in Egerkingen, I auditioned the Bolero Forte subwoofers. The Boleros, either by themselves or in combination with the Fortes, meet the need for clean and musical resolution from smaller enclosures in smaller environments.

Your criticisms of the Forte subwoofer are well-taken, and will be passed on to Radi. We appreciate the time you took in speaker placement (always of utmost importance), and the attention you afforded equipment/cable interface with the speaker. Later this year we expect to introduce Bolero Grande and Bolero Piccolo.

Hart Huschens
Audio Advancements

Nitty Gritty Hybrid record/CD cleaning machine

Editor:
We appreciate Stereophile's evaluation of the Nitty Gritty Hybrid 2 in the March issue. It's exciting when someone as knowledgeable about audio as John Atkinson discovers the value of using a Nitty Gritty.
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We agree with John’s conclusions concerning the effectiveness of cleaning old records, but we wish he had tested the effectiveness of cleaning some brand-new ones, too. We believe that he would have discovered, perhaps to his surprise, that it is just as beneficial to clean new records. The reason is that most new records are filthy with microscopic dust.

We also agree that it is not nearly as critical to clean CDs, but we feel it is important to remind the CD user that every imperfection read by the CD laser needs to be corrected by the player’s error-correction circuitry. At some point, the number of errors becomes so high as to cause an overload, which results in an audible distortion. Hence the need to clean CDs periodically.

The advantage of the Nitty Gritty CD-cleaning system is its ease of use and effectiveness. There are at least a dozen reports that have gotten back to us about how a particular CD, “unplayable on every player” at some store or radio station, was “saved” by a thorough cleaning on the Nitty Gritty cleaner. Of course, this “saving” ability is also related to our Pure CD cleaning fluid, which repairs minor abrasions in the CD surface.

Thanks for taking the time to test the Hybrid 2—we know cleaning machines aren’t as sexy as amplifiers with thick faceplates and glowing valves. It’s a mark of a conscientious magazine.

Michael Baskin
Nitty Gritty Record Care Products

**TARA Labs Space & Time Phase II speaker cable**

Editor:
I read with interest Enid Lumley’s “Stewpot” article in *The Absolute Sound*, issue 56.

While it may be questionable when we are inclined to believe that a particular methodology can provide the correct answers for a review such as Dick Olsher’s “Cable Bound” (*Stereophile* Vol.11 No.7, July ’88), it is yet more questionable when Enid suggests that the “Cable Bound” review is either worthless or wrong.

I have great respect for both these reviewers and their different reviewing styles. I am rather more concerned that readers will instead prefer to take sides in Enid’s article, which, having political character, reflects her deep respect for Bruce Brisson and the MIT technology. Enid concedes that objections can also be raised about the accurate reviewing of components. But if judging what is accurate in audio cables is now going to depend on whose technology “tests” better, then there would be little incentive for me to create cable products that have “cause” over their interface with amplifiers and speakers out there in the real world.

The fact is, “straight wire with gain” is not just elusive, but unrealistic. Amplifiers are loudspeaker-sensitive and loudspeakers are amplifier-sensitive. Everything to a lesser or larger degree is cable-sensitive, and of course cables are system-sensitive. All of this is true; it just depends from which component’s perspective you are talking.

From my point of view, the audio cable’s role is not just one of a hook-up wire. If properly designed, it has a real chance of having real cause over its interface, giving a better performance from the components and one that is hopefully in tune with the musical aspirations of the designers of those components.

There are many component designers and manufacturers who do not believe that the MIT cables and technology present the finest performance than an audio cable should be able to deliver from their components. Regardless of how accurate it may or may not be, a cable will interact with the related components imperfectly. The challenge, I believe, is to present a cable or cables that will “interface” with the components’ strengths and weaknesses and deliver the finest recreation of the original musical event. It is my aspiration to design and produce the most naturally musical audio cables, that will work perfectly with all components. Too much technology, I would say, is the reason that cable and component designs sound unmusical. It seems to me, the simpler the better. Overdrawn technology in audio cables has seen the baby (music) thrown out with the bathwater (measurable problems).

Since TAS has not reviewed my Space & Time cable products, and EL has not heard the Phase II speaker cable, I suggest that we let the worth and the results of Dick Olsher’s review stand, and that questioning his applied methodology will not necessarily lead us closer to the absolute sound.

Matthew Bond
TARA Labs USA

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100W amplifier putting out marginally less than his 200W amplifier into 2 ohms. We consider the 968W from an SA/2 perfectly respectable, but they in no way represent the current limits of the amplifier. Enclosed are two ‘scope photos: the one on the left shows an SA/2 delivering pulses at over 200A into 0.1 ohm; the other shows the SA/2 delivering a ±100A sine-wave at 1% distortion.

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256 Stereophile, April 1989
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Answers

Recently we received a letter from a reader who had traced the decline in number of editorial responses to published letters, citing a high of 18 back in Vol.9 No.1, and a low of 1 in our January 1989 issue. JA is without a doubt the best editor of a letters column in the English-speaking hi-fi world, but this is one of the few areas in which he and I disagree. He prefers to see our "Letters" column as an open-ended dialog, primarily between readers—and, indeed, many subjects do go on for months with no abatement of passion. Nevertheless, there are many direct questions that I feel only the magazine can answer. I thought I'd take a shot at some that came up in the March issue.

Messrs. Griggs and McClanahan query why the Audio Cheapskate can't write in each issue, even questioning whether ST can meet a deadline. The fact is that Sam has been one of Stereophile's most loyal and prolific of writers; far from having a problem with deadlines, he has frequently delivered several columns ahead of time. The problem is that a never-ending diet of cheap equipment simply wears you down, particularly when you possess the high-end perceptiveness which characterizes this magazine. The Cheapskate simply ran out of inspiration when it came to inexpensive equipment; I'm afraid.

Mr. Syzmanski—in his view, the first of 1000 complainers (actually, he was the only one)—feels, as do some not insignificant members of the editorial staff, that we have sold out by "allowing" Polk Audio to advertise in our pages. This would imply that Stereophile has somehow "vetted" its advertisers for product quality and company integrity. This is not something we try to do with any advertisers, beyond responding to all complaints of fraud or deception—and were we to do so, I see no reason to suspect that Polk would be more likely to be cast off than some of the high-end companies who use our pages. In fact, Stereophile has established its ad pricing policies in such a way as to ensure that a wide variety of companies can advertise. We are confident that you, our intelligent and skeptical readers, will quickly sort the wheat from the chaff—provided you know all that's out there, without our benevolent censorship. Diversity is your best protection.

R.D. Nickolett II, R. Gloria, and Gene Robinson all wrote in with comments about Carver's renewed advertising in Stereophile. There was applause, reproach ("don't ignore him"), and query ("why are they back?"). The event which gave rise to the ban on Carver advertising was not, as many surmised, a fight over the various "challenges." Rather, it was a conversation Bob and I had on the phone one day, in which he threatened to sue Stereophile over its ongoing listing of the Carver 1.0t amplifier in "Recommended Components" (which continues to this day). Bob's observation was that our repetition of the Carver Challenge results did as much damage as the original story, but on a twice-a-year basis! He seemed to feel that we could just as easily delete the recommendation—which we could if, in fact, "Recommended Components" existed for the benefit of manufacturers.

But it doesn't—it's solely for the readers. My explaining this to Bob only seemed to renew the vehemence of his promise to sue us. I thought this broke the rules; after all, Bob, not we, had brought up the challenge from the beginning. It was only fair that he live with both the good and bad consequences of our coverage without promises that could threaten our existence. (Carver Corporation's financial ability to support lawsuits is much greater than Stereophile's.) I decided that if we couldn't have a civilized relationship, we shouldn't have any at all. I couldn't stop him from suing us, but I could stop giving him any hooks to latch onto.

Now, over a year later, things have calmed down. Stereophile's recommendation of the 1.0t as a good deal hasn't put Carver out of business; in fact, it may have inspired some of his new products. And the promise I made myself when agreeing anew to accept advertising is that we review any of his products we want, whether supplied by Carver or purchased. In the end, readers Robinson and Nickolett have it right: we should be reviewing any equipment that might be to our readers' benefit.

Larry Archibald

Stereophile, April 1989
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