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# JANUARY 1991

Vol. 14 No. 1
survey by Bill Sommerwerck (who is now suffering from a nasty case of "Spock Ear" as a result); and loudspeakers from PSB, JBL, Vieta, and—God willing, and with a following wind—the Wilson WATTS and Puppies.

And now! We're sure you've been waiting for it. We recorded it last January. We've been a while getting it edited and transferred to black vinyl, it's true. But now it's ready. Next month sees the release of Stereophile's second LP. Recorded in purist fashion in the exquisite acoustic of Santa Barbara's Unitarian Church by Water Lily Acoustics' Kavi Alexander, cut by Doug Sax, and featuring Canadian virtuoso Robert Silverman turning in a muscular performance of Brahms's F-minor piano sonata, Intermezzo, we dare to think, is a must-have recording. The February Stereophile will include a report on the disc's genesis by Thomas J. Norton, and that oh-so-important order form. (Don't send us any money yet!)

Stereophile, January 1991
as we see it

working in the front line

Martin Colloms discusses the role and responsibilities of a hi-fi reviewer

A committed audio equipment reviewer operates at the front line of audio subjectivity. Working on behalf of a readership made up of consumers thirsting for independent, informed opinion and advice, a reviewer is commissioned by the editor of a magazine to produce reports with a technical and subjective content on a wide range of available audio products. These reviews must be both fair and completed at short notice on a relatively small budget.

How is it possible to do this successfully, when a similar task undertaken by an industrial laboratory or test house would take five times as long, cost ten times as much, and deliver a verdict of arguably poorer relevance?

1 Originally titled "Subjectivity and Hi-Fi Equipment Reviewing for the Consumer Audio Press," this article, in a somewhat different form, was intended to be presented as a paper at the second "Perception of Reproduced Sound" Conference, scheduled to be held in Denmark in the summer of 1990. Unfortunately, the conference was canceled due to lack of interest from potential attendees. A collection of the papers presented at the first, 1987, Denmark conference has been published, however, and is available under the title Perception of Reproduced Sound from Old Colony Sound Lab, P.O. Box 243, Peterborough, NH 03458, for $35 including S&H. (Telephone charge-card orders: (603) 924-6371 or 924-6256.) This collection is essential reading for any audiophile interested in tying the fields of observation and measurement together.

JA

Stereophile, January 1991
In Search of Sonic Perfection, Adcom
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The fewer circuits a musical signal encounters on its way to your loudspeaker system, the greater its musical purity will be. Now, through obsessive attention to detail and design ingenuity, Adcom has created the GFP-565 — the world’s first affordable preamplifier with direct, linear gain path circuitry. By combining the GFP-565 with any of Adcom’s power amplifiers, you can experience the exceptionally lifelike sound which has astonished even the most demanding critics.

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Bi-amped and tri-amped systems are easily accommodated by this flexible arrangement.

Pure Convenience

The minimalist aesthetics of the GFP-565 are deceptive in their simplicity. Without being overly complicated to use, this preamplifier is able to integrate and control all of the components in the most sophisticated of music systems. There are five high-level inputs as well as a phono input. A separate front-panel switch allows the use of an external processor, only when needed, leaving both tape circuits free. And, of course, you may listen to one input while recording from another.

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Details you can hear
Any reviewer worth his salt is a crusader working in the best interests of the consumer.

Primary responsibility to the consumer
Any reviewer worth his salt is a crusader working in the best interests of the consumer. In a technical field such as high-quality audio, few consumers are fully qualified to judge absolute performance for themselves; if forced to rely on the advice of retail salespeople, they may not be confident of the quality of the advice given.

Equipment critics working for the audio press are therefore vested with a heavy responsibility: to try to produce fair, consistent, accurate opinions for their readers’ guidance. On the other hand, they also have a duty to be fair to the designers and manufacturers of the audio equipment they write about. Unfortunately, some manufacturers object violently when expert critics fail to agree with their own opinions. Others, however, accept the situation philosophically, in the generally correct belief that good equipment will win in the end, regardless of occasional reversals or inaccuracies of subjective opinion.

Though we would like to treat equipment reviewing as a scientific process, and many steps have been taken in that direction, fundamentally a review is based on opinion, of which a large proportion is composed of wholly subjective reactions to sound quality.

The role of lab testing
If the reviewer is prepared to spend the money, it is not difficult to set up a sophisticated test laboratory to measure all the standard parameters relevant to an audio unit. It is certainly most helpful to have access to detailed lab reports when writing a review. Indeed, such reports are essential if erroneous conclusions are not to be drawn concerning sound quality. Some of the commoner pitfalls which can trap the unwary subjective critic include errors in the RIAA de-emphasis characteristic found in the phono cartridge inputs of preamplifiers and integrated amplifiers. The equalization is complex, involving three time constants generating nearly 40dB of compensation over the 20Hz-20kHz audio band. I have found mild turnover and slope errors to be surprisingly common, and these can dominate the subjective response to the reproduced sound. In fact, one of the greatest difficulties concerns the mental separation of underlying quality characteristics from first-order errors such as frequency-response aberrations and channel imbalance.

Subjective effects of first-order errors
Slight errors in channel balance, either in specific frequency ranges or in overall level, can subtly disturb one’s opinion of the sharpness of stereo focus. Statistically well-controlled testing has not only confirmed the audibility of absolute phase/polarity but also that of level differences as little as 0.2dB. These differences may be of octave or several-octave bandwidth, with a sensitivity of a similar magnitude. The subjective responses to variations in amplitude/frequency response are pretty well documented; the careful reviewer bears these constantly in mind. For example, less than 0.5dB—5%—of treble lift in the 3–10kHz range can give rise to a mildly increased sense of immediacy, transparency, and liveliness without necessarily being directly obvious as treble lift. A similar degree of loss in the 150Hz–400Hz range can make a vocalist appear lightweight and lacking in power in the fundamental range, lending a crisper quality to the sound. This might be preferred on one recording but disliked on another.

Errors in frequency response of only marginally greater amplitude may impart subjective alterations in timbre or tonal balance. The sense of “immediacy”—the sensation of proximity to the performers—may also be affected. Perspective—the feeling of front-to-back distance in the soundstage—is a related parameter. Other effects include the feeling of transparency in the reproduced sound. Loudspeaker designers become keenly aware of these subjective effects, which may be deliberately or otherwise hidden within the normal tolerances of the amplitude/frequency responses of a nominally well-designed loudspeaker system.
Musical enjoyment, performance, reliability, durability, beauty, stability, compatibility, value, pride of ownership.

Size, weight, heat, distortion, downtime, coloration, veiling, listening fatigue, consumer regret.

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Table courtesy of Fairhaven Woodworks
Unscrupulous speaker designers have frequently exploited such subtle changes in energy balance to result in a design with a particular accentuated subjective parameter. Such designs may well be commercially successful for a while; ultimately, however, a consensus develops among listeners indicating that a particular design favors one class of music or type of recording over another, and the trick is exposed, if not fully understood.

**Loudspeaker reviewing problems**

If hi-fi reviewing in general is considered to be a hazardous undertaking, speaker assessment must rate as a veritable minefield. There is so much potential here for inconsistency of opinion that the test results need to be most carefully balanced before appearing in print. Factors to take into account include: 1) the listening-room environment and its relationship to the specific design of speaker; 2) the mounting and placement of the speaker; and 3) matching to the associated audio chain, including the amplifier and the maximum available headroom. Ultimately, the good taste and judgment of the critic or critics will remain a dominant factor.

Without going into great detail on the subject of loudspeaker assessment, it is worth noting that a considerable quantity of interesting and revealing laboratory data can be amassed for a particular model. These measurements may indicate that a given design could not possibly be a bad performer, yet conversely, no amount of good measurement results can guarantee that a loudspeaker is really any good and will therefore be the beneficiary of strong reviews and successful sales in a competitive market. The history of high fidelity is littered with superbly engineered models which have measured well but never made it in the real world. How does the reviewer explain to a designer who only believes in graphs and meter readings that his brainchild does not sound involving or interesting?

Good lab technique is a vital part of reviewing and acts as an error trap, identifying common design weaknesses and faults, or the effects of manufacturing tolerances. There is always the temptation, however, for the reviewer to use the lab results as a foundation on which to base his or her arguments. Subjectivity again holds sway, even in the interpretation of such measurements. If the product is not felt to sound good, measured weaknesses may be brought into focus. Conversely, if the unit is favored, the reviewer must then guard against the tendency to ignore or gloss over measured imperfections.

**Subjective opinion & sound quality**

The assessment of sound quality is the foundation of a good review; without it, the review is almost worthless. Yet how can sound quality, in its broadest sense, be accurately assessed without recourse to the time and expense of fully validated statistical testing? Many members of the audio establishment would prefer not to hear the answer: The ability to assess sound quality is not a gift, nor is it a feature of a hyperactive imagination; it is simply a learned skill. Like any skill, it is acquired by example, by relevant education, and by practice. A basic understanding of music is helpful, not least because much of the subjective characterization is necessarily based on musical terminology and critique. Regular experience of live music-making is exceedingly valuable in order to refresh one's aural memory for natural sound. The latter must form the true foundation of all subjective assessment.

Subjective assessment should be a disciplined process, but should not be so rigorous as to

The ability to assess sound quality is not a gift, it is a learned skill.

The less the critic personally cares about the outcome of a test, the more aware he or she is of the subjective quality differences.
exert undue stress on the assessor. It is a well-observed fact that a person's sensitivity to subtle but worthwhile sound-quality differences reduces to near-invisibility under stressful and trying test conditions.

For example, it is well known to most critics that if you arrive at a situation where differences appear to be small, the harder you try to hear them, then the more impossible the task becomes. On such occasions, a scheduled rest, a change of program, and a conscious effort to relax and distance one's immediate concentration on the matter at hand, generally lead to a recovery in acuity. Paradoxically, the less the critic personally cares about the outcome of a test, the more aware he or she is of the subjective quality differences concerned.

Greatest awareness of the long-term quality of an item is generally obtained by the single presentation method, while maintaining critical control of absolute level and channel balance, combined with an awareness of any relevant response errors. Initially, single presentation techniques were confined to loudspeakers; they later extended to cover RIAA preamplifiers, pickup cartridges, tuners, power amplifiers, and then to preamp line stages and CD players. Finally, the technique has been applied to the reviewing of audio cables and passive components such as resistors, inductors, capacitors, and even printed circuit boards (PCBs) and PCB tracks.

A whole multitude of subjective differences has been identified which relate consistently to engineering differences. At present, however, established measurement has great difficulty in elucidating these differences; as a consequence, most academics tend to regard them as irrelevant. Such skeptics would certainly not like to hear that a number of audio critics can reliably identify the sound of specific kinds of metallic conductor used in audio cables.

If it is accepted that such effects exist, it is our duty as engineers and scientists to understand and control them to our advantage.

The High End
If any sense is to be made of it, then true high-quality audio, the "High End," must be set apart from the audio business as a whole. Quality audio is a relatively small, specialist industry composed mainly of companies run by enthusiasts who in the main believe in what they're doing, namely the advancement of the fidelity of reproduced sound. Yet this industry is founded on a solid scientific base, melding mechanics, acoustics, and electronics to advance the listening experience. Nonetheless, its top designers have learned to mistrust a significant proportion of conventional scientific wisdom, having found that it did not adequately describe or control the observed subjective aspects of equipment design and performance.

This is also true for professional equipment reviewers. Using natural sound as the ultimate arbiter, they have been increasingly driven to use a greater proportion of subjective analysis to successfully differentiate among the devices under review.

From a greater audio perspective, an outsider could legitimately ask what is the point of pursuing such small audio differences in sound quality when audio reproduction as a whole is more or less perfect? There are also those who say that the available engineering results prove that reproduced sound is about as good as it needs to be, given our limited ability to control the acoustics of the listening room. Conversely, those who are very familiar with the sound of live music judge reproduced audio to be a travesty of the truth, and refuse to take it seriously.

Those who are very familiar with the sound of live music judge reproduced audio to be a travesty.

Both sides of this debate are often outraged by the large sums of money asked and paid for high-quality audio equipment; they appear to take comfort from the belief that the industry is engaged in some sort of elaborate deception, hoodwinking the unsuspecting public. Nevertheless, the subjective properties of high-quality audio equipment are real, and are both readily perceived and valued by enthusiasts who want to spend their cash as wisely as any other careful consumer. It is not the function of academics or reviewers to tell someone what he or she should or should not want.

Subjective testing in other fields
A classic example of subjectivity in action is the assessment of wine. Those practiced in the tech-
VISUAL AUDIO
Music that looks as good as it sounds.
nique can perform seeming miracles of discrimination, analysis, and even specific identification, both of a wine's origin and year. Such abilities, hardly a matter of public dispute, form the basis of quality control and assessment for a vast industry, where the final price relates very little to the chemical composition of the end product. The price asked for a bottle of wine depends on how you and others value the pleasurable subjective response which derives from its consumption.

The subjective analysis of the quality and worth of wine is a learned skill from which we all can benefit. There are, of course, many who care little for the difference between an ordinary and a great vintage, but the craftsmen do not work their skills for undiscerning customers.

There is a distinct parallel between this and the purchase of a good-sounding power amplifier. Here the designer's skill has resulted in an exceptionally accurate sound, an achievement which parallels that of a vineyard manager who nurtures a superb growth. Such creations must be worth more than run-of-the-mill products.

Subjectivity overrules engineering in many other fields; for example, in the manufacture of musical instruments, or the technique of a good chef. A concert-goer familiar with good music-making is immediately aware whether an orchestra is playing well, and if the conductor has a good relationship with the band. Interestingly, one of the subjective effects of poor-quality audio equipment is to give the strange impression that the orchestra is not playing well. This aspect cannot be associated with any single specific measurement at present.

Subjectivity in audio reproduction does not always have to be reduced to the lowest common denominator and forced to endure the scientific methods of insensitive double-blind trials to prove its existence.

How to get an academic paper published

A paper presented to an academic body or published in a journal is subject to referees, supervised by an experienced periodicals editor, and may also be supported by colleagues or cross-checked by senior members of the community before seeing the light of day. Such procedures are intended to filter out low-grade material and ensure that the paper is worthy of publication. By contrast, many submissions to the consumer press are of dubious worth, and sometimes their claims horrify the scientific community, which prides itself on substantial research based on tried and tested methods.

Many of the advances made by the industrial world rely on such established practice and, above all, the correct mental attitude. Young scientists are trained—I would hesitate to say brainwashed—to comply with the status quo. They are instructed to follow the established advice and direction of their mentors. However, such academic structures are generally conservative, opposed to change, and poorly receptive of new and radical ideas.

Academic structures are generally conservative, opposed to change, and poorly receptive of new and radical ideas.

Such attitudes tend to suppress freedom of thought and innovation. Furthermore, science is littered with discoveries which were largely accidental; had they been ignored simply because they did not conform to the status quo, the loss to mankind would have been incalculable.

Examples include the chance arrival of the airborne penicillium mold in a particular scientist's laboratory, while centuries earlier, Kepler had been attempting to solve the problem of planetary motion within the conventional paradigm. Ptolemaic and Copernican laws only allowed for purely circular orbits. Kepler's discovery that the orbits must be elliptical was something he could not wholeheartedly believe in, and he referred to it as merely a computational device, yet this discovery led to a wholly new framework of physics later developed by Galileo and by Newton.

"The active researcher must see beyond the imprisonment of the prevailing paradigm, and if so led by observation, he must be allowed to go beyond the boundaries of what is considered true or plausible."

"Science can benefit from a hint given by Nature only if there are open-minded scientists who grasp the significance of a hint."

"Serendipity supplies science with its blind edge... allowing scientists... to transcend established frameworks of knowledge, estab-
lished world pictures.”

This applies most strongly to the assessment and analysis of reproduced sound quality, where variables exist for which there is no good engineering framework.

Do CD players sound the same?
We will assume, for the purposes of argument, that all CD players under subjective consideration have correctly operating error protection, an excellently flat frequency response, near-perfect channel balance and separation, and, by present standards, negligible non-linearity or related distortions. Let us also assume that all have a low output impedance and a nominal output of 2V RMS for 0dB, full modulation.

Conventional wisdom tells us that these are essentially perfect sound sources: remember the original CD slogan, “Perfect Sound Forever.” Yet my experience of a very large sample of 300 models, with approximately 30% of repeat auditions, has been that such CD players do not sound the same. Very little correlation can be shown between sound quality and exaggerated technology claims or lab measurements, even when the latter are of extraordinary sensitivity. For example, transfer linearity is routinely measured over a 115dB dynamic range, frequency response and balance to ±0.01dB tolerances, and distortion to a threshold 120dB below peak level.

However, great correlation is shown between the generic types of player, both in terms of absolute merit and detailed subjective characterization. It is accepted that there exists a genuine scale of absolute reproduced sound quality for audio equipment, which generally improves in proportion to the cost. In the case of CD players, a similar relationship for sound quality is also apparent.

Having begun a scale of subjective merit for loudspeakers using scores from 0–10, representing no merit at one end of the scale to the best possible at the other, I transferred this method of ranking to amplifiers. Some years and some 150 amplifiers and preamplifiers later, a problem developed. Equipment was improving, something regularly verified by returning to long-term references. The best-sounding models were now being marked in a more logarithmic fashion, bunched in the range between 9 and 10 on the scale. This could not continue indefinitely, and I decided to make the scale open-ended—to reassess the top performers, and to give them corrected scores which bore an observed proportional relationship to the earlier references. Over the years, assessments have seen the current “state of the art” score move from the original “10” to “13,” then to “18,” and in 1990, to “24.” The percentage ratings I give in published reviews are based on the state-of-the-art value in force at that time. A component currently earning a merit grade of 12 when auditioned, a budget design for example, therefore gets a worthy 50% overall rating in print.

A mental attitude can be adopted for assessing CD players which helps free the listeners from concerns about the medium and its fascinating technology. Since the music emanates from a constant source—the optical disc recording—and since it emerges at line level, fully equalized, it has proved to be convenient to consider a player as just another line stage in a quality preamplifier. A similar merit-assessment procedure and similar criteria are therefore used for CD players. Some 300 players later, this premise is still valid, and CD-player sound characteristics are closely allied to fundamental differences noted with various qualities and types of audio amplifier electronics.

The very first CD players scored in the 6–7 out of 10 range; they were clearly inferior not only to the best contemporary electronics but also to the better analog, black-disc turntables. This came as a huge disappointment to many enthusiasts, including myself, who expected great things from the CD medium, and who thought the merits of the technology were cut and dried. Though the early players were initially impressive sonically and most rewardingly automated, the pleasure gained from the silent surfaces and slick facilities gave way to subjective boredom and, ultimately, to significant listening fatigue. The syndrome I noticed with early CD replay is a common one among hi-fi fans, where the protagonist plays many excerpts from demonstration tracks, but never settles down to enjoy a complete performance.

It took a full three years of commercial development before CD sound broke through the “10” level, which in 1990 represented the average for the whole industry. Players scoring 5 on the current 24-maximum scale are usually found in cheap music centers, while a player that wins respect in the more critical

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Listen—and Choose Westlake
areas of the industry will score 14 or more. Genuine audiophile players are rare and score above 16, generally costing in excess of $1000. Recent high-end players and processors using both Bitstream and multi-bit DAC technology have shown that a score of 24 is attainable; no doubt this reference level will be bettered by further design refinements in the future.

Those who do not care either consider such differences inaudible, or deliberately deem them irrelevant or inconsequential. However, these differences are crucial factors in determining purchase for those who do care and do listen.

Comparisons may be drawn between some of these subjective differences and those found in the more familiar area of loudspeakers. For example, the treble reproduction of a good pure ribbon or electrostatic drive-unit can reach a high standard of naturalness and purity. The contrast with a budget dome or papercone tweeter is an obvious one, the latter often characterized by grainy, sibilant, and fizzy effects combined with a masking of fine detail and harmonic subtlety. Moreover, these differences would seem to be confirmed by delayed resonance and frequency response measurements.

When a CD player is evaluated with a ribbon or equivalent high-quality transducer in the chain, treble differences are observed which resemble those that would result from substituting an inferior tweeter. Yet in this case, there is no obvious measured parameter that correlates with this aspect of CD performance.

Moving down in frequency, varying the total "Q" factor of a loudspeaker system's low-frequency alignment leads to measured changes in bass response that relate well to the subjective changes. A similar variability in subjective bass quality, akin to Q variations in a loudspeaker system, can be heard between CD players of identically and perfectly flat frequency response, generally extended (~3dB) to below 3Hz.

Well-behaved loudspeakers of low stored energy characteristic and uniform axial and off-axis frequency responses tend to sound good. They can also present good stereo images, developed with a pleasing impression of image depth where the recorded material so allows. We also know that a more resonant class of speaker tends to mask low-level detail, ambience clues, and the like, and produces "ping-pong" stereo with little depth or ambience. A comparable effect may be heard with CD players; some give a rather flat, sterile image while others deliver rewarding levels of depth and clearly reproduced ambience, corresponding well to the original recorded acoustic. Again, no measurement can pinpoint such variations.

A further aspect concerns timbre, or tonal balance. Anyone who has recently heard orchestral string sound will testify that most reproduced string tone is a travesty, even with high-quality equipment. All the processes involved in recording and reproducing seem to impart a cumulative hardening, embrittlement, and congestion to orchestral strings (see Sidebar). CD players are no exception, though significant differences can be observed between them. As
with the other parameters discussed, this is not amenable to laboratory analysis. Weighing the timbral differences in the context of a loudspeaker's sound, one might suspect significant variations of about 1.5dB magnitude in the lower presence-range octave; eg, from 1kHz to 2kHz.

**Anyone who has recently heard orchestral string sound will testify that most reproduced string tone is a travesty.**

Now for an even more contentious area.

**The sound quality of passive electronic components: capacitors, resistors, inductors, cables**

Very small differences in subjective sound quality can be identified. For example, listening tests have revealed audible differences between groups of metal-film and other types of resistor used in audio equipment. In these tests, the listeners had no interest or foreknowledge of the resistor types, and would not have known how to identify them even had they felt like trying. These auditioning results have been given strong practical confirmation by real amplifier designs.

Similar subjective tests involving capacitors have resulted in a number of improved-sounding products employed in loudspeakers and amplifiers. In one double-blind listening sequence, a group of electrolytic power-supply capacitors was assessed for their contribution to the sound of a complete high-grade stereo amplifier. All of the capacitors tested were used well within their ratings. Their internal design, foils, and electrolyte chemistry were different, however. The capacitors were properly formed, then uniformly disguised and soldered directly into circuit by an independent operator in a location remote from the listeners. There were no other variables in the experiment. The listeners were asked both to assign merit scores to each presentation and describe the sound quality. The results showed good consistency for the limited number of repeats employed; the engineers involved were astonished to find that the capacitor differences were highly significant, determining between 20% and 30% of the overall performance of the amplifier. Each type showed complex differences in virtually all of the normal subjective audio characterizations, including bass damping, stereo focus and depth, timbre and treble distortion, and/or treble brightness. No measurable differences were observed for the complete amplifier using any of these capacitors.

Another revealing example is the effect of printed circuit boards on amplifier sound quality. In one example, an amplifier was prototyped in hardwired form using phenolic paper pin board, with a physical layout and connection wiring precisely conforming to a correctly designed printed circuit board. Thoroughly measured and auditioned, it gave an excellent performance. Second prototypes were then built using pre-production pcb's. By intensive measurement, the two were judged to be almost identical, yet the sound quality of the second version was significantly poorer. After some investigation, the pcb was suspected as the reason for the poor sound; several complete prototypes were therefore made with different board dielectrics; eg, bonded paper and glass epoxy. Different foil thicknesses and copper purities were also tried. All measured well, yet all showed further sound-quality differences, the work leading to identification of a satisfactory compromise.

Conventional electronic wisdom indicates that while pcb quality may be relevant above 50MHz, it is of no importance to audio amplification working at less than a hundredth of that frequency. This may be true for noncritical applications, but where sound quality matters and where sensitive critical auditioning is
THE WORLD'S TOP STUDIOS ALREADY RECORD ON SONY DIGITAL.
involved, not even the printed circuit can be left to chance.

When a single high-quality plastic film capacitor can be audibly identified under double-blind conditions, it is not so surprising that the much poorer dielectric of a pcb has an audible effect on a high-quality amplifier.

Still less welcome to the engineering establishment is the discovery that audio cables vary in their subjective accuracy; rather less than amplifiers, it must be immediately noted, but nevertheless in ways which can be described and ranked on merit.

With the finest of today's systems the best cable is fortunately close to invisibility in audio terms—the ideal condition. The results from cable reviewing suggest that the use of poor or inappropriate cabling leads to a loss of up to 30% in performance in a state-of-the-art system.

The significance of cable quality is understandably proportional to the quality of the reproducing system, and becomes irrelevant in the context of rack systems and similar fundamentally compromised systems. The primary requirement for assessing small sound-quality differences is that the reproducing system used must be of the highest available quality, chosen by a combination of trial, experience, and informed opinion. It must then be optimally set up and installed in a room possessing favorable acoustics, and fed neutral, high-quality program. Put bluntly, there is no point in attempting to quantify the perceived depth in a stereo image illusion if the system is incapable of reproducing it, or if the source material lacks the necessary recorded information.

A wine taster cannot perform when using dirty or contaminated glasses; likewise, an art critic cannot make reliable judgments when wearing shades.

Detailed comparative tests made on audio cables have brought to light a diversity of previously unsuspected and therefore neglected factors which have subjective consequences:

**Dielectric:** A good correlation has been observed between dielectric loss and sound quality. A vacuum insulator shows the lowest loss, followed by air, and then by a range of dielectric materials commonly used for cables of all classes. The subjective ranking correlates with their dielectric properties. Thus, foamed or predominantly air-spaced types with PTFE, polypropylene, and polyethylene dielectrics...
Introducing Sony Digital Audio Tape Recorders.

To capture all the power, the passion and the pulse of the world’s most-admired musicians, the world’s most-respected studios turn to Sony Digital Recorders. But up till now, digital recording has remained where it was born—in the studio. Now those days are gone. Welcome to the age of Sony Digital Audio Tape, DAT.

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The DTC-700 also demonstrates the tangible benefits of Sony's studio expertise. You can hear it in High Density Linear Converter circuitry that faithfully renders even the most delicate sonic shadings. You can experience it in our high-speed loading system and ultra-stable 4-motor transport. And you can enjoy it in scan, search and programming features conventional decks can only dream of. Which means the DTC-700 not only defines DAT, it also refines it.

For more information, call 1-201-SONY-DAT. Better still, visit your authorized Sony DAT dealer. Where you’ll discover you don’t have to be a recording professional to make professional-grade recordings.
If "scientific" methodologies had been adopted many of these results would not have been observed.

score highly, while higher-loss materials such as PVC are distinctly inferior, even to the point of generating identifiable colorations and changes in timbre. Associated with the subjective performance of the cable dielectric is the insulating thickness, this often related to the manufacturer’s voltage rating. Better sound often follows higher ratings. Solid dielectrics are common and include those plastics mentioned above, as well as higher-molecular-weight polymers, ceramic powder, silicone rubber, and resin-impregnated glass fiber. Natural thread such as cotton or silk has been tried, plus various grades of carbon-based rubber. Every dielectric can be shown to have its own distinctive sound, even when used in a line-level interconnect application of just 1m in length.

**Metallurgy:** Many establishment audio engineers consider that Ohm's Law is wholly sufficient to describe current flow in a wire, and that all metallic conductors must sound the same owing to the fundamental property of free electron mobility in this class of material. However, there is now strong evidence to indicate that the choice of element or alloy for a conductor, its metallurgical history, and its absolute purity all affect the sound quality. This finding, unwelcome for those working in this field, cannot be ignored. It seems a cruel twist of fate that of the many conducting materials tried, high-purity silver sounds the most accurate, as it costs approximately 100 times as much as the substantially effective and most widely used material available: copper. Some physicists approached on this subject have invoked quantum theory to analyze the behavior of metallic conductors in varying states of practical purity, particularly with respect to the boundaries between metallic crystals.

**Geometry:** The physical design of a cable is a variable which affects sound quality. There is a strong association between a balanced symmetrical twisted pair or twisted quad construction and a sound quality that is judged to be superior to a coaxial construction. The form

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Stereophile, January 1991
of the conductor also matters—whether it is solid-core or stranded. Generally, the single strand is preferable unless the wire is of unusually high purity, and the strands are bound in intimate electrical contact.

**Cable assessment**
For cable assessment, the reference should be taken to be an absence of cable in that particular link, achieved by positioning the program source very close to the next unit and joining them by pure silver wire links barely 20mm long. The cables under test are substituted for this near-perfect link and their negative sound-quality characteristics assessed. In a recent test,5 50 interconnect cables were successfully analyzed subjectively by using the single presentation method. Occasional return to the reference helped refresh the memory, while repeats constituted 25% of all the tests and gave reasonable confidence in the reliability of the judgments.

**Conclusions**
This article has barely touched on the wide scope of the judgment of sound quality of audio components for review. While it is readily acknowledged that the bulk of the listening tests mentioned are not based on established "scientific" procedure, control methods have been used as far as is possible. However, if "scientific" methodologies had been adopted, many of these results would not have been observed—not, as the cynics would have you believe, because the differences do not exist, but because rigorous subjective testing requires an inordinate time scale, often imposing sufficient stress to desensitize the subjects.

In one well-researched case, however, a pair of good-performing, extensively measured amplifiers was found to be easy to differentiate by ear under normal review conditions, one being clearly more accurate than the other.6 A single presentation test was subsequently devised for a meeting of the London AES, where a large number of listeners (90 or so) participated in a controlled listening experiment to see a) whether two amplifiers could be differentiated, and b) whether one was preferred to the other. The judgment method required that the audience score each presentation as a new trial, this constituting the database. On first publication of the results,7 some colleagues helpfully pointed out certain analytical weaknesses.8 Sufficiently good data was obtained, however, for a statistician to confirm the validity of the test and find that while the aural sensitivity of the unscreened AES members under the difficult conditions of a public meeting was not very good, they nonetheless were able to collectively discriminate, and moreover did prefer one amplifier to the other. This agreed with the original review findings. The test was exhaustively researched with regard to load matching, absolute level, and the like. CD was the program source, and no switch box was involved.

Good hi-fi reviewing has moved beyond the basic framework of a comprehensive lab test and engineering analysis coupled with descriptions of finish, facilities, and ergonomics and a cursory listening check to make sure all is in order. Extensive listening work using consistent and methodical techniques, especially numerical scoring, has shown that many engineering factors are responsible for audible changes in reproduced sound quality, not least in absolute merit. Many of these factors are at present dismissed by the electronic and acoustic establishment.

Subjective assessment is a learned skill, one which is greatly helped by a familiarity with and an understanding of music. Frequent acquaintance with live, natural sound is also vital. Such a skill may be used routinely to judge fidelity, without persistent calls to statistically prove the results.

The best high-fidelity products are seen to be the result of an alliance between good scientific engineering and the art of high-quality reproduced music. Top audio designers make no secret of the absolute necessity for them to practice or purchase the skill necessary to judge the sound quality of their creations at every stage, from conception to production.

Fundamental research is necessary to track down and quantify the many causes of sound-quality variations now familiar to dedicated reviewers.

7 Martin Colloms and Rosamund Weatherall, "Amplifiers Do Sound Different," *HFN/RR*, May 1986; also see Martin Colloms's and M.E. Le Vois's further analysis of the London AES amplifier test results, "Views" (Letters to the Editor), August 1986.
8 Notably Stanley Lipshitz in a private communication.

*Stereophile, January 1991*
Chronos.
Is it beautiful sound enhanced by sensual design?
Or beautiful design enhanced by sensual sound?

When you hear the new Chronos tube preamplifier with separate power supply, and the new Chronos 112 Watt monobloc tube power amplifier, the decision is yours. You may think it's both.
Proceed digital components. Innovative expressions of technology dedicated to a singular goal: reconstruction of the musical information encoded in the digital medium with convincing fidelity.

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The PDT digital transport combines our PCD transport mechanism with active circuitry which supplies a superior quality digital output to complement an external processor. An ideal component for those seeking the highest level of sonic performance from compact disc.
I just didn’t know... 

Editor:

...so I decided to subscribe to Stereophile. A week ago I received my first issue, which came with a test CD. I have learned more about sound reproduction in one week with Stereophile than Audio, High Fidelity, or Stereo Review combined, ever taught me. I am sorry I waited so long to subscribe. I guess I just didn’t know who you were.

J. R. Lovern

Columbus, GA

Just one clear head?

Editor:

Concerning Mr. Mitchell's “A Question of Scale” article ['As We See It,” Vol.13 No.9], it's nice to discover that occasionally the thoughts of one clear head are allowed to appear in your journal.

David J. Meraner

Scotia, NY

Truly amazing

Editor:

I just wanted to write and let you know that Stereophile is the best audio magazine I have ever read. I just received my test CD and found it truly amazing.

John N. Karagan

Lansing, IL

This may be interesting

Editor:

I am going on my second subscription now and have finally been prompted to write.

Your magazine seemed a bit pompous when I first scanned through your “start-up” issue (Vol.13 No.2). However, when I got the free time to sit down and read the issue, I thought, “This may be interesting—let’s wait and see if these guys are for real.”

The things that I have liked the best: 1) The interviews; eg, Bob Carver, Graham Bank, and David A. Wilson; 2) the letters and responses in every issue; 3) the equipment reports which allow me to form my own opinion from well-presented information; 4) the “Manufacturers’ Comments”; and 5) the classical music knowl-

edge and remarks. I have been putting a classical library together for about four years, and have found extreme variations in “readings” and recordings of pieces.

This can be frustrating with quality albums costing what they do (when you can find them), and CDs even more costly. Thank you for some guidance in this area.

Lee Sarrell

Philadelphia, PA

Save me, Sam!

Editor:

I am holed up in my basement surrounded by all my beloved stereo gear with a revolver in my hand. If Sam Tellig doesn’t come back, and soon, I’m blowing my brains out.

Ross McKerras

Malibu, CA

Get back to work, Sam!

Editor:

I was very sorry to read that Sam Tellig has decided to hang up his pen. It would be a very sorry affair indeed if the Armor All controversy played any role in his decision. The very fact
B&W's legendary 800 Series continues. The MATRIX 801 and 802 have profoundly redefined the upper limits of dynamic loudspeaker performance. Now the MATRIX 803 delivers the same uncompromising sound. Kevlar midrange, time aligned 'tweeter on top', sixth-order bass alignment and B&W's unique MATRIX honeycomb enclosure technology combine, once again, to achieve the ultimate in flawless music reproduction. MATRIX 803's sleek appearance, economy of space, and lower cost continue the legend that is B&W 800 Series, beautifully.

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LISTEN AND YOU'LL SEE
that the AA tweak raised such a fuss proved that the art of tweaking is still alive and well, even in the digital domain. I myself thought tweaking was a dying art, given the onslaught of digital-based sound reproduction. Being a hard-nosed mainframe programmer by profession, I was firmly in the “bits is bits” camp before the AA storm arrived on the scene. Since then, I have had quite a few chuckles listening to the experts on one side explain why these tweaks cannot possibly change the nature of the sound reproduced, while yet others explain exactly why such modifications do have a measurable effect. Sure, I was mad when one month after recommending it Sam had to modify his position and state that it could harm the CD or possibly fog the transport laser. But while I was washing away the Armor All from my CDs I had a good laugh at myself and how with a few strokes of the pen Sam transformed me from a doubter to a believer. Well, Sam, take a few months off and think about the meaning of life and then get back to work at Stereophile. As for the relative value of the AudioCheap-skate or Anarchist to Stereophile readers, I can only say that were it not for Sam’s column I would still be listening to my mass-produced stereo equipment and wondering how anyone could possibly afford high-end audio equipment. I, for one, appreciate equipment reviews that deal with equipment affordable by the great unwashed.

Mark Fortier
Olympia, WA

Come on back, Sam!
Editor:
I was sorry to read that Sam Tellig has decided to stop writing his “Anarchist” column. I’m especially sorry to find that this relates directly to the Armor All incident. I’m somewhat stunned by some of your readers’ reactions about the possible after-effects of Armor All. I realized when I experimented with Sam’s and Lars’s discovery that I was responsible for my actions, not Sam. Any time you experiment like this, there are possible repercussions to consider. Obviously, some of your readers don’t feel this way. And I have yet to see verifiable proof that Armor All does harm CDs.

Today it seems people expect to lead an insulated, no-risk life. Blaming their (possibly) negative results on someone else is awfully convenient. Where has the old, rugged individualism that built this country disappeared to?

Is everyone expecting a “cradle-to-grave” care package to take care of us? This seems to be the mentality of people who have written you and are unable (or unwilling) to accept the consequences of their own actions.

Sam, I don’t give a damn if the Armor All experiment destroys all of my CDs! I certainly knew I was taking a chance when I used it. And besides, for all those whiners out there, Sam revealed that he’s had good luck with Dawn dishwashing liquid in removing the Armor All coating from his discs (so have I).

I’m sorry this incident has affected Sam in such a negative way. I also realize the fallout has probably been greater than we readers will ever know (knowing how people like to kick someone when they’re down). The very qualities that made Sam’s writing so much fun—his sincerity and his sensitivity—have also made him vulnerable to this backlash. And it’s a shame. I’ll miss him.

Sam, come on back any time. There are some of us out here who don’t mind taking responsibility for our lives and appreciate good intentions. Don’t let them beat you down!

L. J. Linton
Tracy City, TN

Interesting but stupid, Sam!
Editor:
I find it interesting and sad that Sam Tellig is leaving Stereophile. Interesting, because I find the affordable, musical components found in our industry to be more plentiful and fun to listen to than most of the expensive “hi-fi” products. I also have found that my customers’ reactions to affordable systems, when set up properly, are those of sheer amazement and joy when they find out how little the system costs. These customers do not usually talk about image specificity and soundstaging as much as they just sit, listen, and generally tap their feet! The most frustrating aspect of my job is not being able to support all the wonderful manufacturers of affordable hi-fi that I want: Companies such as Creek, Royd, Rega, Pinnacle, NAD, Bryston, Fried, Belles, and Mission are just a few that make wonderful affordable products.

I am sad, not because Sam is leaving, but because I feel for anyone, like Sam, who spends their time listening to the equipment and not the music. The fact that he recently found the Naim NAIT 2 to sound “spacious” is indeed
Threshold founders Nelson Pass (right) and Rene Besne with the first Threshold preamplifier, the Model NS10. The NS10 contained advanced single-ended ultra class A and non-feedback technology which predated the present popularity of these techniques. Typically for Threshold, the 1977 introduction of this preamplifier set state-of-the-art standards that are still valid today.

Extending its preamplifier tradition Threshold now introduces the Model FET nine/e

This new component provides cartridge gain plus full line level control facilities within a single chassis. Its design embodies advanced circuit concepts drawn from those of the ultra-high performance Threshold FET ten/e system. As a result the FET nine/e is able to provide a level of music reproduction that will impress the most critical of listeners.

The FET nine/e demonstrates Threshold’s commitment to excellence with craftsmanship and finish that stand as benchmarks for the industry. All gain devices are individually selected for breakdown, gain, noise and linearity. Circuit paths, connectors, and even the front panel fastening hardware is gold plated. Advanced circuit topologies and superb metalwork combine for flawless performance and beauty that will endure over years of rigorous use.

S/160 • S/250 STASIS power amplifiers

These new power amplifiers bring the purity of Threshold STASIS operation into consideration for systems previously restricted to conventional amplifier technology and construction.

Component selection and quality verification are similar in all respects with those applied to the more extravagant Threshold models. This allows the S/160 and S/250 to significantly outclass in linearity, dynamics, and reserves all other candidates for cost effective installations.

Presenting new Threshold components

Your Authorized Threshold Dealer will be pleased to audition these exciting new Threshold components. For the location of your nearest Threshold dealer you may call 1 (800) 888 6055, or write InConcert, 7325 Roseville Road, Sacramento, California 95842.

Threshold
More than audio excellence.
interesting. Running it into the Spica Angeli is not only interesting but stupid.

My only hope is that Sam finds another job writing about “equipment” on another magazine so that people who visit hi-fi stores looking for musical, affordable music systems do not run into him.  

Michael Klein  
Audio Gallery, Pittsburgh, PA

Sam & the Word of God?  
Editor:  
It was with great amusement that I read all of the protests about the recommendation of Armor All. I’ve always enjoyed ST’s columns, but never thought of them as the final word on a subject. Sometimes I agree with him and sometimes not. Isn’t that what columns are supposed to be: a forum of ideas? What’s the fuss, then? Do the readers think that anything printed in Stereophile is The Word of God? Really, aren’t we grown up enough to judge things for ourselves, regardless of who makes recommendations? Isn’t using our own judgment what audio is all about? When did we audiophiles abdicate responsibility for our own actions and our choices?  

I wish that the complaining readers would lighten up a bit. If they want things in black and white, let them read Consumer Reports. In the long run, this controversy may help Stereophile. The “Recommended Components” lists are taken as the gospel by a number of people. Stereophile keeps saying over and over that “Recommended Components” is not the final word on components, but a guideline. Maybe some of the more zealous readers will start using them as comparisons now, rather than as the bible of audio.  

Rick Siegert  
Castle Rock, CO

Be true to thyself, Sam!  
Editor:  
I was distressed to learn that Sam Tellig has decided to abandon his followers…This is untimely. The industry is restive. The objectivity freak assails the subjectivist, the engineer disdains the artist, the number cruncher ridicules the intuitivist. It is imperative that the frontiers of the English language be advanced, and this very battle rages in the annals of Stereophile, waged by Sam and his colleagues in the face of pervasive philistinism. Therefore, I say this:  

Be true to thyself, Sam! Pay no heed to those yipping jackals of the far right. What did you expect? He who smears his CDs with bull semen, or whatever that stuff was, casts the symbolic gauntlet. Now you know them for what they are. Is it really surprising? Of course not. So…pull up your socks and face your destiny. Know that throughout recorded history visionaries have ever been plagued by the running dogs of the establishment extant. You suffer not alone, if this be of comfort. Go forth, firm in the support of the brotherhood of humanists who have come to understand the pitiful futility of quantifying by numbers and graphs and double-blind tests—you name it—the perceptions of the human mind. History will prove you right! There can be no retreat from the path you have trod!  

Jas. F. Cook  
Glen Ellen, CA

As I reported in November, although for a number of reasons Sam Tellig will no longer be writing a regular “Audio Anarchist” column for Stereophile, he remains on the magazine’s staff as a Senior Contributing Editor and will contribute as the muse takes him. As be does elsewhere in this very issue, with a report on the B&K M200 monoblocks. —JA

Again those graphs…  
Editor:  
About Stereophile’s graphs again. Allow me to clarify why I inhale a skeptical yawn whenever I see one. I suspect the proliferation of costly measurement gadgets at Stereophile, and the editorial decision to round up the usual quantitative suspects at the end of each review, has made it a virtual requirement for your writers to speculate chaotically about the meaning of all those squiggly lines—much like high priests interpreting the entrails of a lamb. The instrument is deployed, the measurement made, and the graph printed, so it must become a little embarrassing to shrug and say all this might not mean anything.  

For example, in recent Stereophile reviews of loudspeakers from Thiel, Spica, and Vandersteen, your writers discussed engineering parameters that stressed polarity coherence among the drive-units. Which is fine. What astounded me were your conjectures attributing the unusually adept stereo imaging of these speakers to their phase responses, contradicting observations in other articles that such polarity-confused transducers as the Celestions
“Line protection - you can pay a little for it now, or you can pay a lot for it later.” —Ken Pohlman, AUDIO, November 1987.

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

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Listen To The Critics

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

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

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

For a modest investment, the ADCOM ACE-515 enhances both audio and video clarity while protecting your equipment. Once again, ADCOM lives up to its reputation of offering superior performance at a reasonable cost. For complete technical data, please visit your Adcom dealer. You’ll discover the ACE-515 is more than an accessory. It’s a necessity.
(with their steep crossover slopes and out-of-phase drivers) produced stereo effects of comparable success! Unless Stereophile's reviewers intend to recant their printed remarks on the Celestions and other British tiny tins, depicting an impulse-response spike strikes me as an illogical, even absurd, scheme for explaining the imaging strengths of a loudspeaker.

I do not belittle the curiosity that induces you to meter various electro-acoustical attributes of audio equipment. Nevertheless, even a conscientious researcher like Floyd Toole, using facilities far more sophisticated than does Stereophile, misses the target. The old high-end verity that the ear is the best measuring tool marks only the beginning of the truth. What we really mean is that entrusting our judgment to the type of crude measurement techniques now available is to befooled into adopting an abstract aesthetic alien to the simple act of experiencing music. The equipment jockey may celebrate the low output impedance of an amplifier. So what? That doesn't tell me if that amp will make Coltrane sound like he's blowin' his axe, or blowin' his nose. Expensive experience has taught most of us that a line on a graph that runs as clean and true as a straightedge promises precisely nothing.

Now, I know that you will respond that Stereophile's reviewers do listen. For now, for some reviewers, this may be so. Yet, I doubt that I am alone among your subscribers in detecting more numerous cases where some measured characteristic provides a pretext for extrapolating the musical competence of a component in circumstances removed from the review. The self-contradictory nature of the theories increasingly presented in Stereophile leads me to conclude that you are donning the white lab coat and leaping into the paneled basement of the low-fi measurement mentality much too early. Hey folks, the mere fact that you employ scientific instruments does not in itself mean that your pronouncements are scientific.

What a cheerless turn of events if, in the quest for a shaky engineering "legitimacy," the magazine feeds the very yapping dogma that provoked JGH to found Stereophile in the first place.

William Smith
Somererville, MA

A strong argument, Mr. Smith, and one that

we discuss a lot here in Santa Fe. Should we publish a particular graph? Does it throw light on the component's sound? Does it suggest the opposite? In which case is something else to blame? "Rounding up the usual quantitative suspects" may be a pretty phrase, but it is one that obscures the purpose of our integrating measurements into Stereophile's reviews. Which is not to describe the listening experience—that is and probably will always will be impossible—but to support the reviewer's observations with possible or probable explanations as well as to provide specific information about a component's needs regarding use and potential matching. (A secondary function of the measurements is to build up a database in which patterns indicating a causal connection between what is heard and what is measured will emerge—we hope.)

While I believe that if someone can hear something, it will be possible to find a measurement or, more likely, a collection of measurements that will explain what is heard, making the essential causal connection between measurement and observation is far from trivial. To take your point about the relationship between the technical parameter of time coherence in a loudspeaker's impulse response and the observed precision of imaging, the performance of loudspeakers such as the Thbiels and Vandersteens, as well as the Quad ESL-63, certainly seems to suggest such a causal connection. However, the problem is that, in my experience, just about every subjective phenomenon is affected by more than one technical parameter of a component's design.

Such is the case here. A loudspeaker's observed imaging coherence is a function of its frequency response, its phase performance, its crossover topology, the manner in which its horizontal dispersion changes with frequency, the width and surface treatment of its front baffle, and the presence or absence of resonances in either the drive-units or the enclosure. (And, of course, to other things which have yet to be discovered or which have temporarily slipped my memory.) It is possible, therefore, that a speaker like the Celestion SL700, which has a narrow baffle and a small cabinet which is extremely dead, acoustically, as well as having a well-controlled horizontal dispersion, could offer imaging that competes with loudspeakers that might offer much

---

1 Ably argued by REG, with examples, in issue #65 of TAS.
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Adcom stereo components have earned a reputation among audiophiles, engineers and musicians for extraordinary performance at affordable prices. Now Adcom introduces its newest amplifier, the no-compromise GFA-565, for those in pursuit of absolute power and sonic perfection, but who prefer not paying a king's ransom.

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The ability to deliver very high power into complex loads is a prerequisite for superior sound reproduction. Power supplies capable of delivering the energy necessary for high power, high-current amplifiers are massive. But there are practical limits to the size and weight of stereo amplifiers designed for home use, as well as heat dissipation and reliability constraints. Consequently, the use of two Adcom GFA-565 mono amplifiers offers optimum sound definition, detail and dynamics, satisfying even the most demanding perfectionist.

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Like the GFA-555, the new Adcom GFA-565 sounds superior to amplifiers costing two and three times as much. It is so powerful and pure that it may be the last amplifier you ever buy, even if you upgrade your loudspeakers several times over the years. And that makes the GFA-565 an extraordinary bargain considering its exceptional performance.

*Continuous power output, 20 Hz-20 kHz < 0.02% THD, measured in accordance with FTC specifications.
The Focal tweeter

Editor:
I was interested to read Dick Olsher's rather searching review of the Focal Aria 5 loudspeaker in the October 1990 Stereophile. In fig.13 he presented the vertical response family. Compared to most other speakers for which you present these data, the Aria 5 shows excellent stability of frequency response with vertical listening position, within a ±15° window.

It appears that the D'Appolito configuration combined with the Linkwitz-Riley acoustic crossover is indeed working as advertised. D'Appolito's own pair of speakers would measure even better, since the tweeters were flush-mounted.

Dick Olsher did not like the sound of the tweeter, and he seems to feel that this is due to the "breakup modes" of the Kevlar dome. It could be that this judgment is premature, as there is another factor affecting the sound of the tweeter. Since the tweeter crossover schematic was printed in the review, I was able to calculate the source impedance presented to the tweeter as a function of frequency. This is the impedance that one would obtain by shorting together the speaker system's input terminals, disconnecting the tweeter, then measuring the impedance across the tweeter wires leading back to the dividing network.

This impedance varies markedly with frequency, and it has a severe peak between 3.4 and 4kHz. With the shelving network in place, the source impedance maximum is 126 ohms at 3430Hz. This means that electrodynamic damping of the diaphragm by the voice-coil cannot take place near this frequency, and one can observe a lingering ridge there on the waterfall plot, fig.12. Without the shelving network, the peak is 211 ohms at 3782Hz, and this correlates with a ridge near this frequency in fig.15, the plot for D'Appolito's sample. I feel that the source impedance of the dividing network accounts for most, if not all, of Mr. Olsher's subjective response to the tweeter.

The T90 could be tamed by using the ferrofluid-damped version of it and by using a crossover circuit that is made to accommodate the new tweeter response and to present a low source impedance.

Victor Staggs
San Diego, CA

The Focal woofer

Editor:
I enjoyed Dick Olsher's review of the Aria 5 in the October issue partly because the Aria 5 is a kit. In a high-tech audio world, kits represent one of the few remaining places where a stereophile can get his hand in something other than his wallet, so I look forward to Olsher's Black Dahlia project (featured and reviewed in November—Ed.) with great interest.

I was puzzled by Olsher's observation that the Focal woofer exhibited pronounced beaming at 2kHz. A 5¼" woofer would have a ~3dB, 90° beam-width point at about 2kHz, but the diameter of the 5KO13L measured from the midpoint of the surround is only about 4¾". Would that not allow the 2.5kHz crossover point?

The 5KO13L exhibits a gentle rise in output at 2kHz of about 1dB. I wondered if this, rather than the beaming, produced the objectionable characteristic? Perhaps the Aria 5's four 5KO13Ls combine to produce an in-your-face quality, but there can be rewards. A symphony violinist friend of mine who heard this unit as the midrange in my 3-way TL system commented that it was the first speaker he'd ever heard "unmask the violin."

In regard to the comments about the irritating "sizzle and grain" of the T90K, I wondered if the listening was done with the grilles on or off? Fabric coverings can reduce high frequencies by as much as 3dB, and some designers select system configurations with this in mind. I believe one small error occurred in Olsher's review. According to my Focal catalog, the

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2 If that is the case, and I believe it to be so, then imagine the imaging offered by a pair of SL700s that have had their time response corrected with a digital signal processor, technology that is now available.
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Xmax parameter of the 5KO13L is 5.5mm. This is the cone excursion maximum in one direction and should be doubled to give the full range of cone motion peak-to-peak. For those interested, power handling for the 5KO13L is a nominal 40W.

I find Stereophile’s speaker reviews to be very informative and thoughtful. I especially appreciate that the systems are auditioned over a long period of time so that subtle strong points can emerge and elusive weaknesses be identified.

Robert J. Spear
Accokeek, MD

Ha! Ha! yourself
Editor:
Recently I auditioned a pair of Celestion SL700s—much hyped by the so-called “audiophile” press [reviewed in Vol.11 No.9]. Though they were driven by electronics/cables costing more than my entire system, the experience left me severely underimpressed. This has led me to believe that your reviewers and fellow “golden ears” are 1) deaf below 60Hz, or 2) do not know what live music likes, or 3) have more disposable income than they can safely handle, or 4) do not have enough space to have a pair of reasonably sized speakers. Or a combination of the above.

From this experience I decided that I will hang on to my old D series Cerwin-Vegas for at least a couple of more years. These Cerwin-Vegas regularly produce sound pressure levels that will send many so-called audiophile speakers to junkyards and shake doors and rattle my windows (I can hear the doors and windows very clearly when I play The Wall by Pink Floyd). And these cost me a third of the cost of the SL700s. If, by the way, your readers are interested in what us “tin ears” use for listening to music, I have Sony CD, tuner, Proton D1200 power amp (yes, I love the power meters and DPD lights!!), Proton 1100 preamp, Rega Planar turntable with Grado/Pickering/Stanton cartridges, all connected with a combination of cheap interconnects and expensive AudioQuest cables.

K. Fonseca
Victoria, Australia

PS. I don’t think that you will dare print my letter. Ha! Ha!

I did; I didn’t
Editor:
I can’t testify about the bass characteristics of Carver Silver Seven-t monoblocks. However, they sure beat the pants off some highly regarded amplifiers when used on the mid/tweeter panels of my Magneplanar Tympani IV. A’s. Try ‘em! You may like ‘em!

Harvey Fleischman
East Patchogue, NY

Carver sounding good
Editor:
It would really be neat to see this letter in print. Who knows, maybe I will. Instead of writing a letter condemning RH’s negative review of the Carver Silver Seven-t amplifier [January 1990], I just decided to let the follow-up [October 1990] tell how good this amp is. I have enjoyed the smooth mids and tube-like transparency for about a year now, and my system has never sounded better. My stereo, featuring a Meridian Pro CD player, Ohm Walsh speakers, Monster interconnects, M-1 cable, and other Stereophile recommended components, images like none other I’ve ever listened to.

Not all the Carver products have sounded this good to me. The Carver Mi. 5 was thin-and-dry-sounding, in my opinion, and very cheaply made. I had no intention of putting another Carver product in my system after owning that amp. I looked into the SS-t after reading LA’s “The Final Word” [in Vol.12 No.12], in which he used a pair of Carvers to drive the IRS Betas’ mid/treble panels. My first impression of the Silver Seven-t was the same as Robert Harley’s. I brought them home just to see how rotten they really sounded. My dealer told me to leave them on for three days and see what happened after that. I did and, like JGH and LA, I’m impressed. I have also used other amps like NAD products and the Adcom GFA-555, and they are good, but the SS-t is better in all but the bass, and this improves with age. Some things you learn to live with; the SS-t’s bass is one of them. The tubish sound is smooth and great. I love it. Anyone who dislikes Carver equipment should hear the SS-ts, warmed up and on the right system with well-recorded music. Thanks and Good Listening.

Robert L. Buck
Greenville, MI

Is the best the best?
Editor:
While reading your latest “Recommended Components” listings (Vol.13 No.10), some-
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*All diagrams are 1½ times actual size.
thing odd struck me. Of the seven loudspeaker systems in "Class A," four are not their manufacturers' top of the line.

If I'm not mistaken, the main reason for this is the inability (or unwillingness) of the manufacturers to supply their top products (some very expensive equipment) for the extended periods reviewing would require. Since your magazine cannot afford to purchase samples for review, the best from these companies go unevaluated.

This situation is quite understandable; but your description for "Class A" products reads: "Best attainable sound, without any practical considerations; 'the state of the art'" How can you put those four systems under "Class A" when their very creators do not believe them to be "the state of the art," and you don't review their best work because of "practical considerations"?

D. Kirkpatrick
Chicago, IL

A manufacturer may well have another loudspeaker that costs more than our Class A recommendation, as is true for the Infinity IRS Beta, Sound-Lab A-3, B&W 801 Matrix, and Avalon Eclipse in our "Recommended Components" listing. But as it is by no means a given that a more expensive loudspeaker will be either more accurate or more musical—I have known loudspeaker engineers who felt that it was not their most expensive model that represented their most successful design—it would be foolhardy to automatically downgrade our existing recommendations without the appropriate experience. "Recommended Components" can only be concerned with what we have heard in familiar surroundings with familiar ancillary equipment and recordings.

—JA

The Greatest of them all

Editor:
I can never read enough articles about the Greatest of them all—Arturo Toscaneli—and appreciate the honesty of Igor and Jeremy Kipnis (August 1990) in giving the specifications of their listening equipment so as to put the reader in "the right seat," and also in informing the reader of his dulled interest in the Beethoven and Brahms Symphony editions. Interesting—perhaps in 1992, I will purchase a CD player.

Did I ever thank you for the article in Vol.12 No.9 on Brooks Smith—not only a great accompanist, but one of the finest gentlemen known.

William Matthews
No address supplied

The final word?

Editor:
Last Sunday, a large cup of newly brewed coffee in hand, I settled back into my favorite armchair to enjoy my new Cardas Golden Section Interconnects (from Audio Advisor—thank you, Cory). Running my new (used) interconnects from my Sony 508 ESD directly into my B&K ST-140 finally tamed the CD player's metallic top end and brought "bloom" to the sound of the Cowboy Junkies emerging from my speakers. (Polk SDA-2—and not a word from you, Kessler—I love them!) How a vegetative image like "bloom" could ever be applied to things wrought of metal, plastic, and wood escapes me, but bloom they did. I drifted down Margo's exquisite voice into a room of half-forgotten memories:

... but once especial,
In thin array, after a pleasant guise,
When her loose gown did from her shoulders fall,
And she me caught in her arms long and small,
And therewithal, so sweetly did me kiss
And softly said, ...

Well, never mind what she said. Some things are sacred, after all.

After a suitable period of lazy indulgence in the afterglow of these fond memories, I got a little restless and sought my usual Sunday morning religious readings: back copies of Stereophile.

Imagine my rage, indignation, and loathing when I stumbled upon one Marty Kohn's letter (September 1990) piously defending truth, motherhood, racial dignity, and, God help us, free speech. Specifically, he defended 2 Live Crew's use of "offensive... verbiage and imagery"—a wonderfully perverted use of Orwellian euphemism if ever I heard one. How many of you, dear readers, have been exposed to the actual lyrics of 2 Live Crew, as reptilian a crew as ever slid under the cover of "art"?

As it happens, I was rather inclined to think along the traditional liberal lines of leaving free speech alone when I came upon an article by George Will, dolphin-faced prig though he be, in which he quotes the lyrics: "To have her
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walkin' funny we try to abuse it / A big stinking p—y can't do it all / So we try real hard just to bust the walls."

That is, bust the walls of women's vaginas. 2 Live Crew's lyrics exult in busting women—almost always called bitches—in various ways, forcing anal sex, forcing women to lick feces. "He'll tear the p—y open cause it's satisfaction." "Suck my d—k, bitch, it makes you puke." More? "I'll break ya down and d—k ya long / Bust your p—y then break your backbone."

And more: "I won't tell your momma if you won't tell your dad / I know he'll be disgusted when he sees your p—y busted."

Enough! This is trash and offal, and no amount of guilt-tripping on racial angst is going to whitewash it.

You should know I bear solid liberal credentials. I was a graduate student at Berkeley during the Free Speech Movement (and applauded Mario Savio). I have lived in the Haight-Ashbury. I spent three years in VISTA as a volunteer organizing isolated communities in political action and led a team of volunteer teachers in opening storefront schools in four of the poorest counties in Eastern Kentucky. One glance at my name will tell you I am not your usual Reagan-infected, WASPish troglodyte.

But back to the subject of infection. Free speech stops at the edge of someone else's right not to have violence incited against them. In the context of viciously stupid teenage "macho" attitudes, in the milieu of a society suffering increasingly from crimes of sexual violence against women, in the wake of eight years of Reaganite contempt for the powerless and defenseless, in the contemptible cultural context of a minority excusing its every immoral (yes, immoral) in-your-face smashing of common rules of decency and human consideration by whining "racial prejudice," this "verbiage" is clearly an encouragement, if not an actual incitement, to breaking, tearing, and other forms of violence against women.

It has no place in a society dedicated to "life, liberty, and the pursuit of happiness." Or have we come down so far as to forget who and what we are?

The obscene spectacle of these reptilian cretins becoming millionaires by advocating the tearing of women's bodies is almost enough to make me agree with Billy Graham's prescription for rape, to be done, of course, with the finest Cardas Quadlink Speaker Wire (available from Audio Advisor for $239.95 per 2m). Upon further reflection, this strikes me as a waste of good money. How much, I wonder, for 2" of the same wire—doubtless that will be sufficient to do the job.

Luiz G. Gutierrez
Quincy, CA

More popular music reviews!
Editor:
While I've got you I would like to say that you don't have anywhere near enough popular album reviews; two obscure artists a month is pretty poor. I like all kinds of music, but I, like a lot of other people, listen to mostly popular. I'm not suggesting you start reviewing Top 40 trash or rap. But there are a lot of serious artists out there, even ones that don't play violins. I'm talking about people like Bonnie Raitt, Suzanne Vega, John Hiatt. And how about the late great Stevie Ray Vaughan, who's passing you haven't even mentioned.

Todd Reltz
Niles, MI

I agree—I'd love to review more popular and more jazz albums, and have been slowly whittling away (ouch) at the classical section to do so. Of the artists you mention, Bonnie Raitt's most recent album, Nick of Time, was reviewed in Vol. 12 No. 9, and John Hiatt's three most recent albums—Bring the Family, Slow Turning, and Stolen Moments—were reviewed in Vol. 11 No. 5, Vol. 11 No. 11, and Vol. 13 No. 10, respectively.

—RL

How to enjoy the junk
Editor:
I read with interest the interview with Tomlinson Holman [October 1990]. His work is certainly fascinating. But midway through the interview I began to wonder why anyone would spend many thousands of dollars on a system that recreates at home the experience of watching a contemporary movie in a theater. To more fully realize Die Hard? Rocky IV? Working Girl? It sounds like redecorating your dining room to more fully recreate the experience of eating at Burger King.

I don't see how the improved film technology makes for better movies. In fact, contemporary movies, with their dependence on visual special effects and dubbed audio, look and sound phonier than ever before. The salad days of the talkies, when Reed, Hawks, Sturges, Lubitsch, Renoir, Powell, Huston, and Asquith

Stereophile, January 1991
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The Speaker Engineers.
Stereophile, January 1991

(to name only a few) produced pictures that make virtually all current movies look like high-school productions, seem to be gone for good. And a hi-fi VCR is all those old movies need, because their soundtracks predate the improvements Holman described so well.

So Mr. Holman, good work, keep at it, but no thanks. I'll pay the seven bucks, enjoy the junk in public, and leave it at that.

Paul Berk
Brooklyn, NY

CD differences & different CDs

Editor:
I read with interest a letter in the June 1990 issue of Stereophile regarding "CD differences." In particular I refer to the noted differences in sound quality of Valley in the Clouds by David Arkenstone. Yes, there could be very significant differences in the two CDs. The original 1987 recording of Valley in the Clouds was very good, but in 1989 Narada took the opportunity to have Valley in the Clouds remastered with the aid of improved technology.

If the readers of Stereophile have any questions regarding Narada recordings, I would be happy to answer them. John Chase
Audio Production Manager
Narada Productions, Inc., Milwaukee, WI

Bitch, bitch, bitch!

Editor:
Bitch, bitch, bitch! Is that all the readers of this magazine do? (I ask rhetorically but not bitchily.) Just look at the letters in the October issue. Taking it from the top, the letter writers accuse Stereophile of: 1) making inaccurate statements (M. Jones); 2) losing sight of musicality (G. Westlake); 3) turning husband into hopeless packrat for back issues (B. Deutsch); 4) putting "thinly disguised double entendre" on the cover (R. Chivers); 5) not censoring foul-mouthed readers whose letters are published (W. Plumblee); 6) paling in comparison to TAS ("a former reader"); 7) tolerating readers who are "shocked" because Stereophile reviews equipment that is too esoteric, expensive, etc. (P. Hudson); etc., etc. I won't go on, but you get the idea.

Okay, I'll grant there are a few refreshing letters from readers waxing philosophic (J. Metushi: "Is there anyone out there besides me?"); L. Hepinstall: "Reality is what we each perceive it to be."). But there's still an inordinate amount of carping and whining going on.

A word of advice to you carpers and whiners out there: Don't take this stuff so seriously! Treat it for what it is—lively, entertaining discourse on a highly subjective topic. You can't expect the folks who write this rag to always tell you what you want to hear. Hell, they rarely agree among themselves, much less with the rest of us opinionated lunatics. Read the magazine, glean from it what you can, and make up your own mind. But lighten up, fer chrissake.

Incidentally, for as long as there are folks out there canceling their subscriptions because they don't agree with your observations or don't like your quoting "obscene" comments from readers' letters, I'll continue to renew mine. Unless, of course, you piss me off.

Leonard C. Eggert
Heathsville, VA

To banish error, confusion, and delusion . . .

Editor:
... wherever they rear their seductive heads, even in Stereophile, I am compelled to attack several points in the extra-thick October issue, one mentioning me by name. Dubious optical engineering practice and reportage in CD-land bother me especially because 'zines are full of it nowadays. Everyone on the outside assumes that Mr. Philips Sony must have closed the loop on optics long ago. Not so. He subcontracted it in fact, having no in-house capability, and I happen to know to whom and some nasty gossip besides. The gist is, low consultancy fees were exacted and the job was rushed and therefore badly integrated into the total system. And perhaps mechanical and electrical engineering fared no better. Hence amateurs of course stumble across improvements such as Stoplight, Finyl, and ring dampers. So what makes them work? This word may have never appeared in an audio journal before, but the common supposition is "birefringence." Yet that doesn't explain the apparently-unaffected digital datastream. What is going on?

Here's a story. I have long averred that CDs will never fetch LP's price on the open market. Then I espay an Audiomart ad for a $150 CD. Ye Gods! (And I own one! Part of my elegant collection of seven. Never say I don't keep up with modern times!) It was Dark Side of the Moon, the longest-selling LP album ever, so I rang the fellow up to ask why the big bucks. Well, this
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original Japanese edition was felt to have conspicuously better sound than anything later. "Is that all?" I asked. "Yup!" Next day at The Listening Studio, I removed my newfound gem from its jewel box and noticed for the first time that it resembled a record. Black! CD advertisements usually make a pictorial splash with garish opalescence. "What?" I shouted to myself. "Here I hold the first $150 CD because it sounds so good—and it's black like vinyl! Could this be... optical damping?"

(Parenthetically, Keith Jarrett's heartfelt testimony for Armor All in Stereo Review—did they have to print that letter?—confirms the growing dichotomy between hard-line "show-me's" and very non-disinterested "professionals" on one hand, and musicians of most every stripe on the other. The latter, in my opinion, unconditioned by the popular press, more readily identify changes wrought by such items as Armor All and Absolute Polarity.)

Next I must regretfully horsewhip the usually reliable Robert Harley, author of the otherwise excellent lead editorial, "The Cryogenic Compact Disc." His "CD tweaks," however spectacular, most assuredly do not constitute "the Rosetta Stone of audio," ordained to open at long last a dialog between "the establishment" and "us." More likely they will cause respective participants to circle more tightly into their own camps. Anyway, the true Rosetta Stone of audio was identified and named as such over a decade ago by Richard Heyser in Audio and subsequently explicated by the undersigned in The Wood Effect. I refer to the act of capturing an impulse signature in the concert hall, keyed to proper reproduction later.

Then there was L. Hepinstall with his cheeky Religion vs Science epistle berating "those who know that tubes sound better than transistors," who further "exorcise unholy devices" and "practice a form of religion, not science." A calm epistemologist begs to differ with that cynical conclusion. Etymologically the two words mean "Re-connection" and "Knowledge." So where's the conflict? Listening connects us to music, and music reproduction reconnects us. Both pursuits involve higher knowledge, although much still remains to be learned. By disparaging holy faith ("the operating arm of belief," the philosopher says) through loaded words, Mr. Hepinstall fervently denigrates both art and craft.

For similar reasons I also protest routine commandeering of the good ship "skeptic" by presumptuous scoffers and mockers. Idiots! Riffraff! Some guy says to me, "I sprinkle water and your system sounds better," I give him an intelligent response: "Oh yeah? Must be my day to learn!" Thus fools and charlatans get rope enough to hang themselves; or, even better, my day is greatly enhanced through brainpicking. Maybe I can steal an idea and make a mint for myself! Only an asshole refuses to listen, or loftily demands "double-blind testing" at someone else's expense. Anyway, isn't "blind" a euphemism in audio for "deaf"?

And I disagree vociferously with the editorial stance taken on how to play 78s, i.e., buy a 'table and do it. My own unique expertise consists in uniting those old spinners with the latest high-end gear to achieve the finest instrumental tone ever heard over loudspeakers. Any recommended shortfall from that goal constitutes bad advice, although whoever has heard the results may be forgiven. And I am not alone in my forthright admiration for 78rmp sonics. Listen to what my various correspondents say:

"Your letter in the ARSC Journal was nice reading. Your findings very much concur with my own experiences and friends of mine, about the magnificence of 78s. For years I have played 78s to an increasing number of surprised and stunned friends who have only heard old records played via bad equipment. What you have to do is play them over really good tubed equipment to realize the greatness. I believe that the attack on transients, dynamics and communicative aspect are superior to most records of the last 20 years." (Göran Söderwall, Stockholm)

"Concerning your letter to the ARSC Journal, I agree entirely that 78rmp records are worthy of playback on 'high-end' audio gear. The accurate instrumental timbres presented, when played through a good system, are an almost shocking revelation when switching from a digital recording played through that system. The same setup also reveals the pathetically bad quality of LP and CD reissues of 78 albums." (John McFadden, Philadelphia)

"Recently a friend of mine lent me a book called The Wood Effect, with a smile on his face. Now I've read it and started practicing. If there were a Nobel Prize for enlightening efforts of this magnitude, Mr. Johnsen could start packing his suitcase!... I loved the section on 78rmp:

Stereophile, January 1991
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'Once heard, 78 sonics are unforgettable.' I had that experience myself just some six months ago, and it changed my life." (Claes Liljeqvist, Uppsala)

I do not make these things up. Seventy-eights constitute the deepest, darkest secret of audio. No one in "the high end" or the AES will admit that, to the detriment of better sound forever. This bizarre situation has arisen because recording technology gradually declined over the years, while playback technology slowly improved. Together the two tracked a flat curve, the industry ideal. Serious audio enthusiasts already realize, however, that '50s LPs played on '80s systems are something else! Now consider '30s records on '90s reproducers, to comprehend the enormous error of conventional wisdom.

On the plus side of Stereophile's October, Mort Frank, whom I apparently bested last year in our friendly combat over the first recorded Set of Nine (Dr. Weissmann!), comes through loud and clear on the Beethoven Third alone. Ironically he gets far greater latitude to discuss historic monaural performances in Stereophile than in CD-oriented, Solti/Muti/von K/Ozawa-dominanted Fanfare. While that observation may be unfair to Joel Flegler's unflagging effort, his reviewers do toe the line on CD-based comparisons mostly, neglecting early LPs and all 78s. Mort Frank, a longtime Fanfare contributor, must see his former wide-open spaces increasingly fenced-in by the money power. Thus classical-music lovers are regaled in Stereophile by the long-gone names of Weingartner, Mengelberg, Busch, Scherchen, and Toscanini. These were men! Pity so few people today ever hear their original editions in full sonic glory. Instead we unknowingly endure the deprivations wrought by hugely inferior LP and CD transfers, because recording companies themselves never have learned how to play a record right. Nor do they much care. Back to the subject: what a fascinating and convoluted October tale was told about the Foley stage in the (unremunerated) letters and replies columns. Congratulations to Stereophile for another (unpaid) first!

Among audio enthusiasts of my acquaintance, only I (it seemed) had appreciated the Foley fully. Now we all know. Great stuff, guys! Praise God for Science and Religion (L. Hepinstall mercifully not withstanding).

Finally I cite "the elder Ken Nelson" and his gently chiding me for uttering that phrase. Naturally he found my behind-the-counter report of the New York High End Show "splendid," but I had painted him as "the elder" only upon advice that he had a son "Junior." Note I did not say "elderly," which would have been an insult. Anyway, the whisky-drinking story he tells about the aged aviatrix Marion Rice Hart tops the October issue, in my opinion, and definitely puts youth in its place. Clark Johnsen
Boston, MA

Playing 78s #1
Editor:
Regarding William H. Duncan's inquiry [Vol.13 No.10, p.39] concerning a turntable for his collection of irreplaceable 78rpm records, an obvious candidate is the Dual CS5000, which provides pushbutton selection among its three operating speeds (33 1/3, 45, and 78). This $500 table is commonly available at about $350, and was enthusiastically reviewed by Sam Tellig in Vol.9 No.4. Pairing it with, say, a Shure V15 Type V-MR (currently a Class C recommended component, and commonly available for under $150) should provide adequate TLC and excellent sound for about $500. Bob DiNozzi
Beverly, MA

Playing 78s #2
Editor:
Esoteric Sound of Downer's, 4813 Walbank Ave., IL 60515, makes a custom belt-driven, semiautomatic, single-play turntable for 18.26, 33, 45, 71.29, 76.59, and 80rpm at $229. They also carry the Dual CS5000 for about $375, and Ortofon and Grado cartridges with 78 stylis.
Bueno bye. Robert E. Harvey
Washington, DC

Playing 78s #3
Editor:
In response to William H. Duncan's letter regarding the availability of turntables that will play 78rpm recordings, allow me to expand on JAS's reply. We sell about four 'tables a month for the express purpose of playing 78s. Besides the dedicated Rega already mentioned, other models are: Dual CS5000, semiautomatic, belt-drive with nonadjustable speed; Thorens TD520, belt-drive, semiautomatic, pitch control, will also play transcription discs; and finally, either the VPI HW19.Jr. or HW19 Mk.III, when used with the VPI PLC, will also play 78s,
allowing an extremely wide range of pitch variation. Shure, Ortofon, Grado, and Rega all make cartridges specifically for playing 78s. If you are a vinyl junkie, do not despair; there are many turntables still available, and the quality has never been better. Vladimir
NorthCountry Audio, Redwood, NY

Playing 78s #4
Editor:
With reference to Mr. Duncan’s interest in 78rpm players, may I suggest the variable-speed Technics SP-15 with EPA-250 arm. If choosy, I suggest the VPI HW-19 Mk.III with PLC Power Line Conditioner and SME 309 arm.

In any case, a Shure V15 type V cartridge with VN478E 78rpm stylus is mandatory. José A. Fernández
Bayamón, PR

Passive preamps
Editor:
As a devotee of passive preamps, I enjoyed Robert Harley’s review of the Electronic Visionary Systems Attenuators in the July issue. My introduction to passive preamps came from your February ‘88 issue and the PAS-01 project, and when I designed my own version one of the people I consulted was Ric Schultz. There’s a lot more to these units than a pot and some switches, and Ric’s suggestions helped me tremendously.

Anyone either purchasing or building a passive preamp should definitely be aware that high-capacitance cables will roll off the highs. RH touched on this briefly, as did Ben Duncan in his PAS-01 article, but neither writer gave any concrete guidelines as to how much capacitance in the cable between the preamp and the amplifier is acceptable with various output impedances. Ben says 200pF is the maximum, but that’s referenced to the PAS-01, which has a maximum output impedance of 7k ohms. The EVS Ultimate and Stepped Attenuators measure 10k, while my own 10k pot-based unit varies between the minimum of 100 ohms and a maximum of 2.7k. It’s odd to me that none of the articles I’ve seen on passive preamps gives the formula for determining high-frequency rolloff: \( f = \frac{1}{2\pi RC} \). Without it, the reader is stuck with a lot of conflicting guidelines and no real numbers to use when choosing cables.

Let \( R \) = the passive preamp output impedance in ohms and \( C \) = the cable capacitance in farads. Using the formula \( f = \frac{1}{2\pi RC} \), you can calculate the exact frequency at which response is down 3dB, and as long as it’s at least 50kHz, response will be flat past 20kHz. For example, in my system, \( R = 2.7k \) and \( C = 400pF \), so \( f = \frac{1}{(6.28*2700*0.0000000004)} \) gives a ~3dB frequency of 147,440kHz. A higher output impedance will give a lower cutoff frequency, as will a higher-capacitance cable. The Ultimate Attenuators have a ultra-high output Z of 10k, but as they are plugged directly into the amplifier input jacks, the “cable” capacitance is merely that of the RCA connector itself.

RH further states that “A passive unit is definitely not recommended in situations where the power amplifier is near the speaker, driven by more than moderately long interconnects,” which happens to describe my system exactly! The reader should be aware that while this is true for cables with high capacitance, there are cables with low-enough capacitance to permit the long lengths needed for amp-behind-the-speaker setups. Length by and of itself is not important; total cable capacitance is.

I hope my comments will help others to better understand the unique requirements of passive preamps. Like RH, I know of no other comparably priced component that offers as much improvement in an applicable system. Corey Greenberg
Austin, TX

Walt Jung on the Philips DAC
Editor:
The following article was drafted in response to an Audiophile Network query from Corey Greenberg of KBTS, Austin, TX, regarding John Allgaier’s letter, Stereophile “Letters,” August 1990:

I think that Corey and John may be simply referring to the clocking circuit which is shown on the SAA7220 digital filter data sheet, as “System Application Circuit.” In this hookup, the 7220 drives the TDA1541 DAC as follows:

- Pin 18 to 1541 pin 1; WSBDO into LE/WS
- Pin 16 to 1541 pin 2; CLBD into BCK
- Pin 15 to 1541 pin 3; DABD into DATA
- Pin 9 to 1541 pin 4; Xsys into SCK

Also, pin 27 of the 1541 is (not OB)/TW.

3 One of the more stimulating forums around, The Audiophile Network can be accessed by anyone with a computer and a modem on (818) 988-0452. A year’s subscription costs $15.

—JA

Stereophile, January 1991
$P^3 = K^2$

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Although it isn’t shown on this diagram, this pin is tied to Vdd (+5V) for two’s complement operation. See discussion below.

Past: In all of the many factory Philips/Magnavox machines which I have seen, from models CDB650 through the current CD40/50/60/80 units, the CLBD signal is used as the clock for the DAC, with pins 2 and 4 strapped together on the printed circuit board at the DAC pins. There is no connection to the Xsys signal, despite the recommendation in the Philips/Signetics literature pertaining to the SAA7220. There is a very brief allusion to the potential advantage of separate clocking at the SCK (pin 4) input, under “Input Data Selection” on the (Feb. 12, 1987) TDA1541 data sheet (note the absence of the “A” suffix here). See also Table 1 of this data sheet.

To quote this discussion specifically: “A separate system clock input (SCK) is provided for accurate, jitter-free timing of the analog outputs A0L and A0R.”

Simply stated, the SAA7220 data sheet system application diagram shows how to make use of the (old) TDA1541 SCK input, driven by the Xsys clock. This type of use would correspond to the timing diagram of fig.3 from the Feb. 12, 1987 TDA1541 data sheet, “Time multiplexed fSCK = 2xfBCK.” It also corresponds to the bottom-row case of conditions from Table 1, “Time MUX TWC.” Note that past Philips actual practice has not used the separate pin 4 clocking feature which was integral to the TDA1541 DAC.

Current: In the current TDA1541A device (which also includes the “SI” grade selections [Crown, etc.]), pin 4 does not have an exact correspondence in function to the original TDA1541. Specifically, as noted in Table 1, “Input Data Selection” of the (Dec. 1987) Philips data sheet, pin 4 is listed as “not used” for time-multiplexed operations. And it is no longer called “SCLK,” as it was in the TDA1541. So it would appear that clocking at this pin with the 7220 Xsys signal would have no advantage with the TDA1541A.

To emphasize this conclusion a bit further, refer here to the application note on the chip, “TDA1541A Stereo 16 Bits D-A Converter for medium and high performance digital audio applications,” by H.J.E. Barten (Philips report NBAAN8904, dated 07-08-1989). Specifically, take a look at the “Application recommendations,” section 7.1, quoted below entirely:

“7.1 Connection of pin 4 in I2S mode.
“In the I2S mode, pin 4 of the TDA1541A has no function. In the previous TDA1541 version pin 4 should be connected to pin 2 (BCK) but for the A version it is advisable to connect pin 4 to ground to minimize internal digital cross-talk.”

There is no reference in this piece of literature to any “jitter-free” clocking mode, as was true for the case of the older TDA1541 device. Examining the I2S mode timing diagram of this application note (fig.3) shows that the rising edge of BCK clocks data into the TDA1541A. From this, one would infer that the timing of BCK should best be most stable, since it controls exactly when data are loaded into the TDA1541A. In the various I2S-mode, 4x-over-sampled applications hookups showing the TDA1541A driven from the SAA7200, pin 4 is shown grounded. Yes, this is not what they are doing with pcb patterns in the case of the CD40/50/60 and the CD80, but it is what the diagrams show.

Future: I have communicated the questions above to both Philips and Signetics, requesting comments from them as to just how the internal data structure of the TDA1541A DAC has changed, and whether or not there is still any simple “jitter-free” mode possible. From my standpoint, it does not appear that there is any currently available mode analogous to the old Xsys-clocked TDA1541.

In the meantime, it looks like it behooves us to try grounding pin 4 on the DAC pcb pattern . . . note this is easily done by cutting the pcb trace jumper from 2–4, and strapping pin 4 to pin 5 (which is already grounded).

Walt Jung
Jung-Childress Audio & Electronics
P.O. Box 36141, Towson, MD 21286

Stereophile, January 1991
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Christmas is only a few weeks away as I write, the shops should be packed, everyone should be too busy to think, and yet all seems quiet. It's been a pretty lousy year, and enthusiasm—despite the energy felt at September's Hi-Fi Show—appears to be lacking. Bored? Not quite, but you don't exactly get the impression that the hi-fi industry is experiencing the same kind of activity as, say, Nintendo.

Fortunately, something always pops up to remind us that hi-fi is supposed to be fun, a wild and crazy hobby. The latest is a blast from the recent past.

The hi-fi community in the UK, during the second half of the 1980s, found itself engaging in all manner of weird behavior, the activity inspired by one Peter Belt. Belt, a sweet little Yorkshireman who cooks up wacky tweaks the way McDonald's yields Big Macs, amused/annoyed everybody with his bits of foil, lengths of solder, polarized water, and umpteen other seemingly nonsensical answers to questions nobody was asking. At the very worst, the use of Belt's notions made you look very silly indeed; at best, many believed he Might Be On To Something.

(Interestingly enough, I spent yesterday afternoon with an employee of a major Japanese manufacturer, who dropped off a product for review. During our conversation, the topic of "damage to review samples" came up, and we discussed the cavalier attitude most reviewers have toward products on loan. Although most products returned to this gentleman came back
The Highest Expression of Audio Cable Art.
with only cosmetic damage, one piece—a CD player—had them baffled when it went straight from Reviewer A to Reviewer B. Reviewer B phoned to say that the player sounded so "strange" that he couldn't review it; could they collect it and test it to make certain it was working to spec? When the company got it back to the service department, they tested it and it did sound as strange as the reviewer had described it. Off came the lid, and the engineers—who weren't at the time au fait with Belt—were baffled to find that most of the components had bits of foil stuck to them, that little lengths of wire had been wrapped around other components, and that they couldn't identify a number of nuts and bolts which seemed to be non-standard.

After an absence of some months, partly due to the relaunch of the magazine which championed Belt to the greatest extent and partly due to saturation of Beltism, Peter is back with a bunch of new goodies, and it couldn't have happened at a better time. After all, the Christmas break is upon us, and that means spare time for doing all of the hi-fi housekeeping which has been put off since the last holiday. As the tweaks on hand seem harmless, are reversible (or removable), and require no major surgery to any system hardware, I figured I might have a go. The latest parcel contains:

**Rainbow Foil:** This consists of "interlocking 6mm square prismatic sections which reflect the component Rainbow [sic] colors associated with the energy of visible white light," plus 12 specially treated layers of colored lacquers, topped off by black. Use of these foils is said to counteract the adverse "energy" patterns created by the interaction of gravitational energy with every object within the modern home. Stick 'em on everything. Price: £30 ($58) for a pack of three lengths of 170 by 15mm foil.

**CD Electret Disc:** This is the latest version of the clear plastic disc which you place on top of a CD to counteract the gravitational energy field which creates an adverse energy pattern which in turn adversely affects human senses. Apparently, a spinning CD causes this; the use of the Belt disc will induce a "contra energy force." Price: £20 ($39).

**PWB Electret Cream:** This stuff, which looks like skin cream, is applied to any surface to neutralize polarity patterns, and is best used before using a PWB polarizing technique. Price: £20/jar ($39).

**Pure White Spiratube:** This is a tube of white plastic with a long spiral cut running its full length. You fit various lengths of it over the wires in your system. Apparently works better after you've applied the cream to the wire. Price: £12/meter ($24).

New versions have also been announced for the following products:

**Sol-Electret:** This is a "unique lubricating system" combining a special mixture of high-grade lubricating oils and "Billions of microscopic PTFE spheres." In addition to lubrication purposes, Sol-Electret can be used on tube pins and chassis fixing screws. Price: £25/syringe ($49).

**Electret Tweezers:** As Belt believes that adverse "energy" is present in everything, including human beings (he must be referring to a certain Middle Eastern leader), it appears that merely touching things is enough to transfer that adverse energy. The Electret Tweezers are "quickie" polarizers; after you've placed a CD in the player, for example, you touch the disc's edge with the tweezers to undo the damage your fingers caused. Price: £50 ($98).

Other items still in Peter's catalog include the "classic" Silver Electret foil (£10, $19/pack), a 29cm electret disc to place under LPs (£26, $51), Power Plug Charge Barriers (six for £25, $49), Electret Resistors with Beads (£7.50, $34), and a couple of other arcane goodies. For those who wonder about the pricing of such seemingly simple devices (eg, plastic tweezers for £98), the argument is that the high tariffs ameliorate the cost of the research. Peter Belt's dream remains that manufacturers will pick up on his ideas and pay licensing fees to incorporate the tweaks at manufacturing level.

The above prices, by the way, do not include the 15% value-added tax which plagues British consumers. You, in foreign territories, can buy the stuff from Peter without paying VAT.

Before you bust a gut laughing, you should note that the verdict still isn't in on Belt, and some very serious designers, reviewers, and hobbyists think he should be deified. The best way to find out whether or not Peter is on to something important is to try the stuff. Phone PWB Electronics at 011-44-532-682550 for copies of the literature, or—if you're brave—for one of the actual products.

Peter's return, though, isn't marked only by some new products and a bunch of revisions. His latest thoughts involve work he undertook...
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years ago, which relates directly to the tweak of painting the edges of one's CDs with something like the CD Stoplight pen. And if you think how off-the-wall that is, and how little resistance Stoplight faced when it first appeared, then maybe Peter's stuff doesn't seem so bizarre after all. It may just be that he was a bit too far ahead of his time.

Peter's contribution to the practice of CD "edge painting" also deserves mention because he's not trying to sell anyone a $10 or $15 felt-tip pen. According to Belt, "one of the important colors for the extreme edge of anything is violet, and you do not need to color the whole of the edge of a CD with a violet waterproof pen. You just have to color a section (only about 10mm in length) on the very edge of the CD."

Peter goes on to state that you can make a similar, 10mm mark with a violet waterproof pen on the extreme edge of a vinyl LP and get a similar improvement in the perceived sound. Peter also suggests painting the "end face" of the end-caps of fuses for yet another sonic gain. But the best recent show of Peter's of the absurd is that—and I quote again—"You can get this improvement by marking the edge of a vinyl record which is on the record player platter (not playing, just laid there), whilst listening to a compact disc and vice versa."

Okay, okay, I know it sounds like Peter's finally snapped, but don't judge it until you try it. The reason why I'm not throwing his letters into the rubbish bin unopened is simple: I've heard just as many weird things from other sources and nobody seems to write off the other individuals with the speed and finality which is reserved for Belt. Peter, after all, is not responsible for the craze which suggests plugging a specially treated Radio Shack digital clock into a wall outlet in your listening room for improved sound. Peter didn't cook the idea of spraying the label-side of one's CDs with black paint, or putting rubber bands around the edges.

Belt has never mentioned Armor All or Rain X. He hasn't said a word about shining flashlight beams on your speakers. He never said a word about resting one's speakers on tennis balls. No, Peter isn't the only one to cook up crackpot schemes, but he seems to be the one who receives most of the criticism. At the very least, Peter earns my thanks for making a dull late autumn somehow more entertaining.

And he really is a nice geezer.

**UK: Barry Fox**

Not so long ago, inventors and researchers in one country would burn the midnight oil on exactly the same project as their counterparts in different countries all round the world. The classic example was in the '30s, when Bell Labs in the US, and both EMI and Decca in the UK, were all independently inventing stereo sound systems.

Now, with satellite TV, cheap transatlantic phone calls, fax machines, jet travel between conferences, and airmail subscriptions for technical magazines, few secrets are kept for more than a few hours.

It is a cast-iron certainty that once a new development has been reported anywhere in the world, the story will soon be regurgitated everywhere else. So when a non-technical wire-service reporter followed up a press release about a new tape system from a Scottish inventor, and with no background knowledge of the hi-fi and tape industries wrote an enthusiastic puff story, it was inevitable that the story would reach the popular press in Britain, then the hi-fi press, and from there tickle the fancy of foreign specialist magazines.

This, then, is why we bring you the curious tale of Archie Pettigrew's claim that "The theory of magnetic recording changed overnight on 25th April 1990, and I forced that change."

The story first broke in the UK early that month, when *Today* (a Rupert Murdoch tabloid) screamed that "Hiss-free cassette will wipe out CDs" because "scientists" had developed a system which "gives near compact disc quality for only few pence more than an ordinary tape." *Today* predicted that the new cassette tape could end the CD revolution.

The new tape system had been developed by Archie Pettigrew, a lecturer at Scotland's Paisley College of Technology. He was due to talk on April 25 at the Eighth International Conference on Video, Audio, and Data recording held by the Institution of Electrical Engineers at the University of Birmingham.

Pettigrew's paper, titled "Contour Biasing and AC Biasing, a Comparison," is a highly technical document. But Paisley College had put out a lay-language press release ahead of the Conference. A local reporter from the Press
“Get out your checkbook, Michael.”

Robert Harley on his friend Michael:
"...willing to fork over a couple of kilobucks, provided the processor provides truly musical performance and isn't likely to be significantly surpassed at the price anytime soon."

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"To say I liked the Theta DS Pro Basic is an understatement. It provided a level of musicality I would never have expected at this price."

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Association had gone to Paisley, heard hiss-free tape, and put a story on the wires which ended up as the usual "could be in the shops by Christmas" promise.

Further reports followed, in trade magazines and The Times. Most were curiously similar, because they sourced from the same wire-service story. All lacked sensible technical information.

The publicity note from Paisley tells that Pettigrew has been a computer disc-drive designer with more than 18 years' experience in the magnetic recording industry, that Contour Biasing is a "fundamentally new process of making distortion-free analogue magnetic recordings" with "signal/noise ratios and bandwidth dramatically improved," and that "the innovation has evolved from a simple but radical mathematical analysis of the operation of AC bias first published in Copenhagen in 1974 (AES Conference, "A new approach to magnetic recording").

Pettigrew's paper expounds his theory that magnetic tape is extremely sensitive at low amplitudes of signal and not the converse, as has previously been thought. He also says the theory predicts it is possible to make recordings with zero-level distortion without AC bias, thereby eliminating bias erasure of high frequencies and modulation noise. If Pettigrew has got it right, then Agfa and BASF got it wrong 50 years ago, 3M got it wrong 10 years later, and they have all been getting it wrong ever since.

The inventor says he spent two years analyzing tape recording between 1972 and 1974, then gave up the work for 12 years, taking it up again in 1988 when he went to the IEE's Conference at York and was surprised at how little progress the electronics industry had made in improving analog recording.

Traditionally it has been thought essential to shake up the particles of a magnetic tape with a high-frequency AC bias signal (of between three and five times the highest music frequency, e.g., around at least 70kHz) to let them record low-frequency audio signals (up to 15kHz) more faithfully. One problem is that the high-frequency music signal also acts as bias for the lower audio frequencies, and if the sum total of bias is too great it causes distortion of the recorded signal and self-erasure of the high frequencies. Any irregularity of the bias signal arranges the particles in patterns which create hiss noise on playback. Hiss was largely cured by the well-known Dolby noise-reduction systems. Bang and Olufsen of Denmark then worked with Dolby Laboratories to develop HX Pro, which automatically varies the amount of bias in dependence on the music signal to avoid an excessive sum total.

Pettigrew now says that there should be no bias at all. According to Pettigrew, "AC biasing has long been misunderstood," and there is a cubic relationship between the amplitude level of magnetic flux applied to a tape, and the level of flux retained by the tape. As the input signal rises by 20dB, the output from the tape rises by 60dB until the tape saturates and can hold nothing more.

"From the lack of literature on this most fundamental of measurements it would appear that few researchers have measured this relationship," says Pettigrew.

To record a signal without bias, Pettigrew feeds the signal through a circuit which modifies its cubic root up to a threshold equivalent to saturation. After this threshold, the circuit becomes linear and has no effect on the signal. This, he claims, puts a signal onto tape without either distortion or the hiss caused by AC bias. Also, because there is no bias, there is no self-erasure of the high-frequency music signal. So, much more high-frequency or treble is recorded on the tape.

Contour Biasing can only be used with erased media; i.e., blank tape. With conventional tape recorders, each fresh recording erases anything already on the tape. Contour Biasing can be used to over-record an existing conventional recording. But if an attempt is made to make a Contour recording on a tape which already contains a Contour recording, mutual destruction of both recordings occurs.

Pettigrew says that a normal erase head can achieve this. But of course this means that the recorder must still have circuitry to create a HF erase signal.

Pettigrew has been offering prospective licensees the chance to see and hear a demonstration. He claims that his system not only gives compact disc quality from cassettes, but can be used to improve video, digital, and instrumentation recording.

Despite numerous requests, I have still never received a demonstration tape from Archie Pettigrew. The inventor's reasons for this vary.

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out," Pettigrew told me when I first asked. "I need to adjust the replay characteristic or the replay machine, just a resistor in the time constant circuit."

He also said rather vaguely that he would "need to adjust the system at the recording stage" to make Contoured tapes play back properly on conventional machines.

Later Pettigrew said that it was too expensive to send out tapes. He also said that he didn't want me to have a tape because I might pass it to some unspecified third party. He says that about a year ago he made one available to an unnamed company "whose senior officers were more interested in scotching the invention because their investment in the CD was assumed to be under threat."

Although Archie Pettigrew may be a clever engineer, I fear he understands little of how the audio and record industries work.

For Contour Biasing to be commercially viable, recordings must be compatible with existing players. It must also work with real-world tape, which will have production inconsistencies, not just high-quality selected batch samples.

If tapes recorded on home Contour Bias decks will only play back properly on Contour decks, the system is commercially a non-starter. What is supposedly a single-ended system becomes a double-ended system. A recording made on a recorder with modified record circuitry is played back on a recorder with modified time constant.

The public cannot be expected to pay for their tape players to be modified, or buy new ones, to play prerecorded music cassettes.

If simply turning down the treble works well enough to create backward compatibility with existing tape decks, why won't Pettigrew send out demo tapes?

And if making a simple adjustment to the Contour recording circuitry does the trick, why, after 18 years' work and the decision to "go public," has this simple adjustment not been made?

To make the system genuinely single-ended, so that demonstration recordings can be distributed for playback on existing domestic machines, Pettigrew must artificially limit the amount of high-frequency signal recorded onto the tape. And this may well remove much of the benefit offered by Contour Recording.

This in turn creates the cleft stick, a straight choice between compatibility with existing machines (and reduced benefits) or full and dramatic benefits (with compatibility sacrificed). Without compatibility, the system looks like a dead duck; with reduced benefit, the system may in practice offer no advantage over Dolby HX Pro recording with Dolby-A, -B, or -C noise reduction, or 5-type or SR signal processing.

Here Pettigrew argues that some critics are intent on finding out every inventor's Achilles' heel and killing the invention stone dead, without even hearing a demonstration. But Pettigrew will only demonstrate in his own lab.

For the record, I am not anxious to find flaws in new inventions. I spend much of my working life writing about new patents, inventions, and technology. But I have seen the hi-fi press and trade tear even the cleverest technology to shreds if there is any degradation of sound quality. Also, I have not lost sight of the fact that even the cleverest invention cannot hope to succeed commercially if its success requires people to dump or modify their existing equipment. Except where a completely new technology offers so many obvious advantages (like the convenience and size of CD) that no one can ignore them, backward compatibility is the key to progress.

"I consider the compact cassette to be incompatible with recorded musical sound since the treble is either missing or hissing, especially on all prerecorded cassettes," counters Pettigrew.

Pettigrew should perhaps talk to James Wood, of Innovonics in Santa Cruz, who had a similar plan for direct recording without AC bias back in 1978. Wood says he doubts the cubic relationship claimed by Pettigrew, but saw that there were complex nonlinearities. He used temperature-controlled diodes to build a system which sounds much like Pettigrew's.

Wood filed a patent.

"That's when I found out that Marvin Camras at the Illinois Institute of Technology had patented much the same system in the mid-1950s," says Wood. "But in my 30-plus years of magnetic recording system design I have discovered precious little within that discipline that Marvin Camras didn't invent, and patent, through the 1940s, '50s, and '60s."

Based on his own experience with biasless recording, James Wood now suggests that Archie Pettigrew's reluctance to distribute demonstration tapes is due to a couple of the system's inherent imperfections.

Stereophile, January 1991
When you listen to hi-fi do you find your feet tapping along with the music? Do you feel like humming or singing? If not, you’re listening to the wrong system. Because obviously, the best system for you is the one that makes you feel most involved with the music. If you haven’t found it yet, you should visit your Linn dealer. There, you’ll be able to compare our hi-fi with other good equipment. You’ll find it very easy to tell the difference. The best system will be the one that sounds best to you. And you can rely on your feet to tell you which one is.

Two of the most reliable hi-fi critics.
When a clean ultrasonic bias signal is applied to a record head, he notes, unweighted noise will increase by about 2dB over that of bulk-erased tape. If an audio signal is recorded without bias, by pre-distorting it in non-linear fashion the audio signal becomes self-biasing and the same 2dB noise then becomes modulation noise rather than steady-state background hiss. Hence the need for more top-end rolloff in playback to hide this artifact. Fortunately high-frequency recording sensitivity is increased in the absence of bias, and the additional de-emphasis in playback does not yield a corresponding loss in top-end headroom.

It is customary nowadays, continues Wood, to adjust a conventional recording system for slightly over-biased operation. This makes the system much less prone to dropouts, as bias tends to automatically correct itself when imperfections in the tape surface momentarily lift it away from the head. But without the bias field, no such advantage is realized.

Wood is pragmatic. There may be advantages over existing systems, he suggests, but Mr. Pettigrew’s prospective licensees should weigh their decision to embrace this new technology very carefully.

The latest news is that Pettigrew claims to be “joining forces” with a prerecorded cassette manufacturer. But he still has not taken the obvious opportunity to prove his claims and confound his critics by staging a demonstration with A/B comparisons between different tape types and cassette decks.

Although Pettigrew claims to have a confidentiality agreement with Philips, and has been in discussion with the company since December 1989, Philips tells a rather different story.

The Dutch company took the unusual step of confirming to me that it first talked with Archie Pettigrew about his Contour Biasing system two years ago. “The system did not reach our expectations,” says Philips. Philips then talked with Pettigrew again in September 1989, but “there was no change—it still did not meet our expectations.”

In fact, it seems that Archie Pettigrew is now channeling his energies into another project. He has developed a new system called “amplitude locked loop” which is “revealing a new world in FM transmission practice and theory.”

Pettigrew was due to give a paper on ALP as a way of doubling the capacity of the FM spectrum in Birmingham, England at the beginning of October. At the time of writing, he has declined to give technical details on ALP.

So far there have been no puff press reports like “new system kills FM radio.” But give it time.

**US: Robert Harley**

The 89th Audio Engineering Society Convention was held at the Los Angeles Convention Center September 21 through 25. The convention’s grandiose theme was “Creating Illusions in Sound—The Fusion of Art, Technology, and Imagination.” *Stereophile* was well represented, with Larry Archibald, John Atkinson, and myself attending. Although JA and I are AES Convention veterans (read “junkies”), this was LA’s first direct exposure to the very different attitudes the professional recording community has toward music reproduction when compared to high-end values. In the hallway after a technical session, LA summed up his surprise at the disparity between the professional and high-end worlds with the rhetorical question, “Are we in an alternate universe here?”

I felt as if I were in an alternate universe (or in Orwell’s *1984*) on the convention’s first day when a workshop disappeared from the printed schedule. Although listed in a flyer mailed to members, the session did not appear on the convention program, nor did anyone know anything about it. The workshop’s topic was particularly intriguing to me and rather out of character for the AES: “Digital Audio: Testing and Listening.” The session description read: “Digital audio is a robust medium that is relatively unaffected by transmission factors which are critical to multi-pass analog transmission and recording methods. Despite this theoretical accuracy, many critical listeners hear audible artifacts in program material. Where does the correlation between measurement and critical hearing fail? What test signals would show system deficiencies which cause these effects? What is needed to standardize the way that digital audio systems are specified and tested?”

This is a vitally important subject, especially as digital audio assumes an ever-increasing role in music recording and reproduction. I was encouraged at first that the AES would hold a meeting addressing such ideas, and then equally discouraged that the session was inex-
Listen, and let the sound be your guide.

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An Afternoon with Keith Johnson: One of the convention's highlights was a three-hour discussion with "Professor" Keith O. Johnson, moderated by Peter Sutheim, host of Los Angeles radio station KPFR's "In-Fidelity." Most audiophiles know Keith Johnson as the recording engineer of the terrific-sounding Reference Recordings projects, but his contribution to audio also extends to pioneering developments in magnetic recording, tape duplication systems, loudspeaker design, and motion-picture sound. The "An Afternoon With . . . " series was started by the Los Angeles AES chapter about 12 years ago, and has since become a tradition.

Keith discussed his early involvement in audio, including his building a crude mastering lathe when in junior high school. It consisted of a phono cartridge driven by a tube amplifier attached to a homemade turntable driven by a piece of string. The recording medium was a piece of cardboard with shellac poured on it. This began his lifelong tradition of a hands-on approach to audio, exemplified by his unique, custom-made, 3-track tape recorder, which he still uses to this day.

Of particular interest were Keith's recording techniques and commentary about what is necessary to achieve a good recording. His signal path is extraordinarily simple, with just two amplifiers in the chain. The custom passive mixer (nearly everything he uses is designed and made by him) drives the tape machine's record electronics directly. He is a big fan of ribbon microphones, especially the Coles 4038. Rather than stick to a "classic" microphone technique, he typically augments a Blumlein pair (crossed figure-8s) with two spaced omni-directional mikes farther back and another microphone pair to pick up hall reflections. The signals from these rear mikes are equalized and processed to simulate the effects of the head on a sound originating from behind the listener, creating the illusion of space. If I had to name one hallmark of all Keith Johnson recordings, it would be the remarkable sense of space, image specificity, and three-dimensional layering of the soundstage. He is truly a genius at capturing spatial nuance. I had always wondered how he achieved such soundstage depth, and was fascinated by his description of microphone technique.

In addition to making recordings in concert halls, Keith has applied purist techniques in the recording studio. Several of his studio recordings were made with techniques never before used. For example, each instrument is miked in stereo, with one mike slightly farther from the performer than the other. The relative distances and determination of which mike (left or right) is farther is chosen by its desired placement within the soundstage.

Keith also related an interesting story about the so-called "Heyser Box," designed by the late Richard Heyser. This black box had only an input and an output. One could drive it with test signals and measure absolutely no difference between the input and output. However, if one put music or voice through it, the output signal was unintelligible. The secret? If the input signal were symmetrical, like a test tone or even tone bursts, a straight wire connected input to output. When an asymmetrical signal was detected (music or speech), a relay shorted the output to ground intermittently, creating a chattering effect. This brilliantly simple device demonstrates the fallacy of believing traditional steady-state measurements can tell us everything about a music-reproduction device.

The discussion format invited audience participation and resulted in some interesting dialogue. Keith described the differences he hears when comparing the analog and digital playbacks to the microphone feeds. He feels that digital degrades low-level resolution, removing some of the spatial cues he has worked so hard to capture in the recording. He also described what he feels is wrong with digital, as well as some tests he devised to evaluate digital audio hardware performance.

An audio cassette of "An Afternoon With Keith Johnson" (and cassettes of all the other convention papers and workshops) is available from MobilTape Company, Inc., 25061 W. Ave. Stanford, Suite 70, Valencia, CA 91355, (805) 295-0504. It was a most interesting and stimulating discussion.

New products: The main exhibit hall bristled with manufacturers showing their wares, with microphones, multi-track tape machines (ana-
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Capture it.
log machines are selling very well), huge recording consoles (one had 80 inputs), and signal-processing devices on display. Computer-based editing systems were also well represented, reflecting the rapid changes in editing technology as the mouse and computer display replace the razor blade. In fact, the number of computers in exhibit booths has risen astronomically in recent years. Interestingly, most professional audio products are sold on the basis of features, reliability, and the ability to offer the buyer a return on his investment rather than sonic performance.

The most exciting new products shown at this AES were recordable CDs, both the "Write-Once" variety (CD-WO) and erasable optical formats. These technologies are being pursued vigorously by both professional and consumer product manufacturers. The erasable discs are primarily "MO" (magneto-optical) and not compatible with conventional CD players. The primary audio market for MO recorders is in digital audio workstations to replace hard-disk drives.

Kenwood demonstrated their write-once CD system for professional applications that produces a "Red Book"-compatible disc, meaning it will play on all conventional CD players. It consists of two units, the CD encoder and a CD writer, and has the advantage of allowing the user to record part of the disc, then add additional data or music later. Although the system will cost $30,000 initially, I saw an indication that this type of technology will become relatively inexpensive fairly quickly, perhaps approaching consumer levels ($1000). What led me to suspect that CD recorder prices will drop dramatically was a chip inside the Kenwood encoder. When writing data to a CD, it is necessary to convert the data with Eight-to-Fourteen Modulation (EFM) encoding. A typical EFM encoder costs over $50,000 and consists of about 10 printed circuit boards, each the size of an LP cover, stuffed with chips.

However, looking inside the Kenwood encoder, it had no more circuitry than some outboard digital processors. When I asked Mr. Takai, one of the developers of the Kenwood CD writer, where the EFM encoder was, he pointed to a single, tiny chip. The fact that they have gone to the great expense of making an EFM encoder on a chip is a strong indication that they intend to sell lots of recordable CD systems in the future.1

There is growing interest among the professional recording community in outboard A/D converters to replace the converters in the Sony PCM-1630 (used to make virtually all CD master tapes) and professional digital tape recorders. Some companies showed complete A/D converters, while many semiconductor manufacturers introduced new A/D chips for high-quality audio applications. This is vitally important to music lovers and audiophiles: the weak link in the entire digital chain is the conversion to digital when a CD master tape is made. The A/D converters typically used have far lower resolution and introduce much more degradation than some of the new high-end D/A converters. The adoption of outboard A/D converters by the professional community is great news for everyone and long overdue.

VTL's David Manley introduced his new A/D and D/A converters, both based on the UltraAnalog converter modules. I described these remarkable DAC modules in my review of the Stax DAC-Xit in Vol.13 No.8. The A/D converter is particularly promising since it uses the 128x-oversampling technique found in the excellent-sounding Chesky Records/Bob Katz converter. This technology was originally developed by Bob Adams at dbx corporation, which sold the rights to UltraAnalog. Of course, both the VTL A/D and the D/A (the latter reviewed last month) units use vacuum tubes.

VTL's booth was also filled with their recording products, including a tube mixing console, tube microphone, tube equalizer, tube compressor, and tube replacement electronics for many popular solid-state 2-track mastering machines. There is a huge demand in the professional world for tube equipment, reflected in the astronomical prices paid for vintage tube gear. For example, a Teletronix LA-2A tubed compressor retailed for $300 15 years ago and you couldn't give them away after the solid-state version, the LA-3A, replaced it. LA-2As now go for $3000, if you can find them. VTL hopes to fill this void with a complete line of newly designed and manufactured tubed recording equipment.

1 See my article "CD: Jitter, Errors, and Magic" in Vol.13 No.5 for a description of EFM encoding. An EFM encoder is a remarkable device: in a CD mastering system, the EFM encoder takes raw serial digital audio data from the Sony PCM-1630, gets subcode from a subcode encoder, formats the data into frame and block structures, calculates and adds the Reed-Solomon error-correction codes, performs EFM encoding (with a look-up table), and outputs a single 4.328 MHz datastream that is written on the CD master. All this is done on the fly as the disc is cut!
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You'll surely rediscover
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UltraAnalog itself had a booth displaying their products. I was intrigued by their Demo 1 evaluation board, which consists of a two-channel A/D converter and a two-channel D/A converter. The board makes it possible to compare a live microphone feed or master tape machine output to the signal after A/D and D/A conversion. I'm on their list to get one for this type of comparison when it becomes available.

Both the quantity and kinds of degradation introduced by these digital conversion steps will be immediately audible next to the undigitized signal. What exactly does state-of-the-art digital conversion do to music? Does tape storage degrade the signal? Watch for a full report.

The professional community is snapping up DAT machines at a rapid pace, and this convention had no shortage of the technological wonders. The format has achieved overwhelming success among smaller studios, artists, and film/video production engineers. In fact, an entire workshop was dedicated to addressing the issues of DAT in a professional application. A major new development is the inclusion of SMPTE time code in the DAT format (in the sub-code), allowing synchronization between DAT machines and to other hardware. Sony showed a new generation of SMPTE-based DAT machines and an editor, which looked like a scaled-down version of their ⅜" U-Matic editing system used for making CD master tapes. Even if DAT never makes it as a mass-market consumer format, its future is assured in the professional world.

It's ironic that the monitor loudspeakers used to record and mix records are vastly different from the loudspeakers that will play back these recordings. This is especially true of audiophile speakers, where ability to deliver extremely high sound pressure levels, ruggedness, and high sensitivity are secondary in importance to smooth tonal balance, spatial presentation, and resolution of detail. Consequently, the audiophile hears something very different from the recording engineer. However, a new line of professional loudspeakers was introduced at the AES that addresses this problem. Called KRK Monitoring Systems (KRK are the designer's initials), they bridge the gap between professional and audiophile demands. Rather than use the ubiquitous horns, KRK monitors are built more like audiophile speakers with Kevlar drivers, polypropylene caps, and 1"-thick MDF-braced enclosures.

The idea is to provide the ruggedness of professional loudspeakers with the sonic presentation available from high-end consumer designs. Consequently, the recording engineer and the audiophile will be listening from the same reference, rather than from widely divergent presentations as is now the case. I strongly believe this is much-needed step in the right direction. I was very impressed with the KRK model 15A-3 during a brief demonstration. KRK monitors are distributed by Los Angeles-based Audio Intervisual Design.

Many audiophiles will remember John Bedini as the designer of power amplifiers that bear his name. Although no longer in the amplifier business, he has designed a product that is receiving wide attention in the recording community. The device is called "B.A.S.E.," or Bedini Audio Spatial Environment. The box separates a stereo input signal into its stereo and mono components, allowing the engineer to place stereo elements at the extreme left/right boundaries of the soundstage. The process reportedly increases soundstage width, creating a greater feeling of size and space. In the demonstration I heard (under very poor conditions), B.A.S.E. did widen the soundstage, but also changed the timbre of many instruments.² This type of signal processing will become much more common in the coming years.

On the integrated circuit front, Analog Devices showed a new 20-bit monolithic DAC chip that claims 119dB signal/noise ratio and linearity error of <1dB at -90dB. The AD1862 is the first monolithic 20-bit DAC, and is packaged in a standard-sized 16-pin DIP. (The UltraAnalog 20-bit units are a combination of monolithic and discrete devices in an encapsulated module.) Look for designers who have previously used Analog Devices' AD1860 DAC (Theta, Kinergetics, Meitner) to upgrade to the AD1862. Analog Devices also showed a dual 18-bit DAC that runs on a single power supply for portable and automobile sound applications. Finally, they showed a Dolby Pro Logic decoder on a single chip, a device that is likely to bring down the cost of Dolby decoders while making Pro Logic decoding a function more easily incorporated into preamps and receivers.

² Interested in the Bedini process, I sat through a comparison between it and stereo. I have to say that to these ears it seemed to consist of nothing more than an increase in the level of the difference between the two channels, the L-R signal. At the extreme, the channels were simply out of phase, hence explaining the timbral differences noted by RH.

—JA

Stereofile, January 1991

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Technical papers: The papers presented at this convention ran the gamut from arcane topics comprehensible only by PhDs working in a related field, to some understandable by the lay person. I have included only a few of the dozens of papers presented. The technical papers reflect the research directions of the scientific audio community and are thus a harbinger of future trends in audio reproduction. Judging from the papers, Digital Signal Processing (DSP) is a hot topic likely to find its way into more and more consumer products in the future.

Another area of intense research is in enhancing the spatial perception of reproduced music. One paper, “Spaciousness Enhancement of Stereo Reproduction using Spectral Stereo Techniques,” described a system called “Spectral Stereo Filtering” which adds early lateral reflections with variable delay and amplitudes to a normal stereo signal. The result reportedly increases the sense of spaciousness without additional playback hardware.

“Electroacoustic Simulation of Listening Room Acoustics: Psychoacoustic Design Criteria” described the design of experiments in which various acoustic environments are simulated in an anechoic chamber by sending delayed and processed signals to distributed loudspeakers that mimic reflections in a real room. This work is part of the Eureka research project Archimedes, a psychoacoustic study funded by the Technical University of Denmark, Bang & Olufsen, and KEF Electronics.

Another paper described a crosstalk-canceling system for reproduction of binaural material over loudspeakers. Binaural reproduction requires complete channel isolation on playback, meaning the listener traditionally had to wear headphones. The crosstalk-canceling system described in “Digital Binaural/Stereo Conversion and Crosstalk Canceling” employs digital filters to create “virtual headphones” through loudspeakers, resulting in a binaural experience in open space. The crosstalk-canceling algorithm would be encoded on the stereo master, obviating the need for playback hardware. However, it is noted that the sweet spot where accurate binaural reproduction occurs is fairly small.


Dolby Labs presented a paper on an encoder/decoder system, called the AC-2, that reduces the data rate of digital audio signals for transmission via satellite. The work is motivated by the desire to reduce satellite time and bandwidth, which equates to lower satellite-time expense. Raw stereo digital audio (without formatting, encoding, error correction, or auxiliary data) with a sampling rate of 44.1kHz and 16-bit quantization produces a 1,410,000 bits per second datastream. To reduce the data rate and thus satellite bandwidth and cost, Dolby’s system encodes stereo digital audio at 256 kilobits per second, less than one-fifth the data rate of CD-quality digital audio. This is accomplished by reducing the bandwidth from 20kHz to 15kHz and removing some information that is considered less than critical to human auditory perception. In fact, development of the encoder algorithm was based on new research into artifact audibility under different signal conditions. The frequency spectrum is divided into 30 bands, and bits are allocated based on characteristics of human perception such as masking, and the system relies on signal-dependent adaptive quantization.

At a time when many are calling for more data to represent an analog audio signal (the Mitsubishi professional digital recorder with a sampling rate of 96kHz, for example), it is disturbing to see a trend toward encoding audio with less. Remember, the current standards (44.1kHz sampling rate and 16-bit word length) were a tradeoff chosen ten years ago for ease of implementation with existing hardware, not because they provided optimum audio quality.

During the paper’s presentation, the author suggested that the AC-2 encoder could also be used for archival purposes. Archival? At the mention of this word, JA and I turned toward each other, the expressions on our faces mirroring the other’s disbelief that anyone would store critical material with a method that puts economy ahead of sonic performance. Come on, storage media aren’t that expensive.

One entire paper’s session was dedicated to oversampling A/D converters, called “Delta-

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3 This number is obtained by multiplying 44,100 (sampling rate) by 16 (word length) by 2 (for two channels).
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Sigma" converters. The session was opened by a lively presentation that provided an overview of these leading-edge converters. This paper, by Max Hauser of the School of Electrical Engineering, Cornell University, is an excellent introduction to the technology and is available as a preprint (#2973, Session Paper #G-1) from the Audio Engineering Society (as are all other papers). It is highly recommended as an introduction to these types of converters which, I believe, will become the standard method of A/D conversion. Other papers in the session dealt with esoteric aspects of delta-sigma converter design and tended to be quite advanced and mathematically oriented.

An interesting paper was presented by Fred Highton of Burr-Brown describing their new 20-bit D/A converter, the PCM63. This device addresses the linearity and glitching problems inherent in conventional DACs at the zero crossing point. Rather than have the MSB transition (with its attendant error and glitch) occur at very low signal levels, a code conversion shifts low-level signals away from where the DAC is least linear. The non-linearity still occurs, but at higher signal levels where it is less audible. In addition, it is unnecessary to trim the MSB for best low-level linearity. The technique appeared to be quite similar to Ed Meitner’s "Class A DAC Scheme" used in the Melior Digital Control Center, which is realized with dual DACs and external components rather than a single IC. Measurements shown of the PCM-63’s low-level performance were quite impressive. It may be some time, however, before these chips find their way into commercially available products.

Listening tests & workshops: During the convention, attendees were invited to take part in a blind listening test of surround-sound decoders, the test designed and run by David Clark. During the 30-minute test, participants were asked to rank five different presentations in order of best to worst in three different categories (soundstage, ambient presentation, overall presentation). In addition, the participants were asked to do this with audio only and when shown with film (Indiana Jones and the Last Crusade). The results will be published in an AES Journal article. Although the differences between decoders were readily apparent, I felt that it was asking far too much of listeners to rank the five presentations in order of preference according to three different criteria. Listening tests are far more meaningful when the subject is asked to perform as little intellectual activity as possible so that he/she can concentrate on musical discrimination instead.5

I was particularly interested in a three-hour workshop entitled "Restoration of Audio Recordings." It consisted primarily of a panel discussion among audio archivists, with questions and comments from the audience. Various techniques were discussed for finding and preserving priceless recordings, many of them on formats extinct for 70 years. The archivist's job is to transfer the material on these fragile and rare media to a format suitable for mass production and release, or just to get the information to a form less subject to degradation. This often requires finding not only the recording medium with the information on it, but also the playback technology to recover the music. Interestingly, all the panel participants unanimously avoid digital media for preserving these recordings, preferring instead the proven reliability of analog tape. They tend to look at storage in terms of many decades, and feel that digital has not proved itself either sonically or for long-term reliability.

It was fascinating to hear the extraordinary lengths to which these engineers go to preserve our precious musical heritage. The process is often painstaking and prolonged, driven by the knowledge that the transfers they make today are likely to be the masters for all future generations. It is a responsibility they don't take lightly. The archivists also expressed a philosophy of imposing as little change as possible on the signal during the transfer, rather than trying to "clean up" the recording. As I sat through the discussion, I couldn't help thinking about what might be said at an AES Convention in 75 years about "Restoration of Audio Recordings," but with today's recordings (and

5 After acting as one of the listeners, I was surprised by how poorly this test had been organized, particularly as David Clark is regarded by many engineers as one of the leading experts in listening test methodology. After this experience, however, I am no longer surprised that so many of his published tests have produced null results. Mr. Clark also committed what I felt to be a major faux-pas in the analysis of the results in that he grouped together the results for the two Dolby Pro-Logic decoders featured in the tests, a Fosgate and a Lexicon. His apparent reasoning was that as they are supposed to work identically, they therefore must sound identical. Unfortunately, those who took part in the listening test overwhelmingly felt these two decoders to sound nothing like one another!—JA
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especially digital transfers of analog material) the subject of discussion. What would they tell us if they could speak to the past?

Other workshops of interest included a three-hour "Tutorial on Phase" given by Dr. Stanley Lipshitz, and a loudspeaker evaluation workshop on both subjective and measurement aspects of assessing loudspeaker performance.

Overall, I found this AES Convention particularly educational, with a veritable smorgasbord of information available to the participants. Unfortunately, I see very few people from the high-end community at AES conventions. We should encourage greater interaction between audiophiles and the AES, a move that would foster a better understanding of each others' positions. Exchange and dialog could have only beneficial effects on our mutual goal of better music reproduction. In fact, high-end manufacturers should get together and rent a room at the next AES to demonstrate what a carefully chosen system of premium components can sound like. Many engineers have never heard a truly top-quality audiophile system. Who knows, maybe they'll even start attending our Hi-Fi Shows!

The next US AES Convention is in New York in October 1991. Mark your calendars.

Canada: Robert Deutsch

"Your CE-EX report," quoth Ye Editor, "should make the reader feel as if he or she had actually been there."

Well, then, picture this: Toronto, a bright Saturday morning in early September. On this first day of the Canadian Consumer Electronics Exposition (the correct acronym should be C-CE-EX, shouldn't it?), the show is open to consumers as well as to the trade, and, unlike last year, they even advertised this fact. A coup for the audiophile! Perhaps I should have delayed going until the second day, but I can't wait to see all the neat stuff. (Oops, shouldn't have mentioned that; now Ye Ed. will think that I find doing a show report enjoyable rather than a horribly tedious chore for which I should be paid at least double the going rate.) The venue is the Airport Hilton again, free parking and all. In the lobby, right by the entrance, there's a booth selling audiophile LPs and CDs at "show special" prices. They seem to be doing good business. As I look around, I see about an even mix of consumers and trade visitors. (It's easy to spot the consumers; they're the ones with the kid-in-the-candy-store grin. The trade visitors have more of a go-ahead-make-my-day look.)

Main Floor Ballroom. Car audio, CD storage, DJ equipment. Not much of interest here. Try next door. Now this is more like it. May Audio, the Canadian importers of Quad, Castle, Spica, and a host of other brands. "What's new?" I ask rep Ian MacArthur. Top-of-the-line floor-standing speakers from Castle. A major styling change from their traditional quirky-English appearance; could be taken for Meridians. JDI electronics from Britain; first preamp I've seen with a dedicated stand. The stand is low enough to put off those who, like me, hate bending over. Sound of the big Castles is okay but not exceptional. Model One minimonitors (approx. $1600; all prices quoted are in CDN$ unless stated otherwise) from a new company called Totem. Within their range, they sound better than the Castles, with unexpectedly strong dynamics. No real bass, of course.

On to the Evolution Audio room: Polk, Carver, Monster. The latest Carver Platinum Edition Amazing Speakers are being driven by a pair of Silver Sevens (the real tubed thing, not the solid-state t-mod), through the top Carver tube-hybrid preamp, with a Carver CD player as the source. Carver rep Steve Rice cautions that the system has not been tweaked yet; even so, the Amazings impress me more than on previous occasions. I feel the bass to be not ideally damped, and tonal accuracy may leave something to be desired, but there's an exciting "presence" about the sound. I'm told that a "Mark II" version is imminent. If the revisions solve the remaining problems, these speakers may yet live up to their potential.

Conference Floor. Bryston, a company that typically refines its existing products rather than coming up with new models, has a new amp, now at the advanced prototype stage. The model 7B monoblocks ($5000/pair) put out 800W into 1 ohm, able to drive Apogees and the like.

In the Response Audio room, Jim Richards, manufacturer of the Clements ribbon hybrids, importer of Spectral, Dunitech, and those nifty Navcom silencers, has a new "entry-level" ($995) speaker called the Response Series One (not to be confused with the Response One
"Kinergetic's KCD-20... the first CD player to crack the Class 1 Sound barrier"
Peter Montcriafi
"International Audio Review", Hotline #43-45.

"...Kinergetics KCD-40 has become an integral part of my playback system. I recommend it very highly, especially to those who have had monumental difficulty coming to any terms with the CD format."
Neil Levenson
Fanfare, Jan/Feb 1990.

"...Kinergetics offers its purchaser more than a glimpse of what the best CD sound is all about."
John Atkinson
Stereophile Vol. 13, No. 1.

"A generation later, transistor designs by such companies as Levinson, Krell, and Threshold have gained my respect as being eminently musical despite their silicon hearts. To this list I can now add Kinergetics Research."
Dick Olsher
Stereophile Vol. 13, No. 1.

"Kinergetics pulled off what I considered to be a near miracle. They successfully integrated a subwoofer with the twitchy Martin-Logan CLSes... the tonal balance through the lower octaves was just right. The deep bass and midbass were tight and well-detailed"
Dick Olsher
Stereophile Vol. 13, No. 3.

We will continue to create improvements in areas of psychoacoustic that others have yet to discover.
from ProAc). A floor-standing box with a dome tweeter and the same woofer as in the Clements RT-7, the Response Series One is sounding very pleasant and spacious; come to think of it, the sound is too spacious, as if the channels were out of phase. “It’s the room,” says Jim. Still sounds out of phase to me. I check the speaker-cable connections; sure enough, they’re out of phase. Jim has a look. “Oh, no, you’re right,” says he, reversing one of the leads. I try not to gloat. Imaging is much better now, and, overall, the sound is quite smooth and wide-ranging than one normally expects at this price level. (Of course, the fact that he’s using multi-kilobuck Spectral CD player and electronics helps.) The design features a minimalist crossover with high-quality polypropylene capacitors and a modified transmission line for the bass driver. A variant, called Response Series Two, has the same drivers and crossover, but an MDF rather than a particleboard cabinet. He has only one prototype unit now; a brief listen reveals significantly improved freedom from box resonances. At $1295 a pair, the Response Series Two should be a winner.

Audio Path (née Interconnect) represents some heavyweight contenders (eg. Jadis, Rowland, Threshold, Wilson, CAL, Theta, Wadia); their room is packed with all sorts of delectable goodies. The system playing now has a pair of Avalon Eclipses driven by big Rowlands, with Basis Gold Standard turntable, Airtangent arm, and one of the Koetsu Rosewood series cartridges serving as the front end. The combination sounds tidy and coherent, yet somehow less impressive than expected given the pedigree of the individual components. And why are they playing an LP with a 3” layer of dust on it? The irrepressible

Jim Richards hooking up the Response Series Two. Now, the wire with the red band is connected to the black binding post . . .

Angie (like Cher, she prefers not to use her last name) tells me that I should come back in the evening, when the system will have been properly warmed up and tweaked. No time, I’m afraid, but I’ll take a picture of Basis designer A.J. Conti cueing a record (your standard turntable-designer picture). Conti bemoans the fact that although he’s convinced of the superiority of analog, he’s currently working on a digital project. On that gloomy note, I take my leave.

Anything else of interest on this floor? A quick visit to the Sansui display; I’m told the company is now owned by Polly Peck, a British conglomerate, and has more of an audiophile orientation. Yamaha has a non-playing display of a vast collection of CD players, receivers, etc. There are also some Yamaha-label CDs, including a recording of Strauss waltzes conducted by one Peter Falk. Not the Peter Falk?

On to the third floor. The newly revised Wharfedale Diamond IVs sport a metal tweeter with a low-diffraction mounting; they now sound like they’d give the Celestion Model 3s (my reference in this price range) some real competition.

**Oracle.** Four superbly finished turntables here to warm the cockles of the vinyl-lover’s heart. President/designer Marcel Riendeau says these ’tables represent his final refinements of the technology of LP reproduction; he and his company are now turning their energies to other products, including a CD transport and player. Et tu, Marcel?

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Stereophile, SSA/504 intriguing own standing, call ucts. while current 100), and impressed remarkable something sweepstakes. Monolith should "pinched" fortunately, Audiomeca,ing A "background music" level. Unfortunately, the room is too small to demo the Monolith III's, in my view one of the most underrated products in the high-end speaker sweepstakes.

In Planar Audio Marketing's room, the Rega ELAs are playing. While having a somewhat "pinched" quality (possibly a function of something else in the chain), these slim, floor-standing speakers have a bass response of remarkable speed and surprising extension.

The Pierre Etienne Léon intégrales that impressed me at last year's show are being demoed again, with Nexus electronics, this time with the Micromega Trio (CD transport, converter, power supply; at $7950, one of the hottest digital front ends) as the source. A very civilized sound, no single aspect calling undue attention to itself.

The Krell room has two new products: the KSL line-level preamp (optional phono stage) and KST-100 amp. While still with tremendous current capability (100W into 8 ohms, 800W into 1 ohm), the KST-100 departs from traditional Krell design in that it's class-A/B. Prices, while not exactly in the cheapskate category (US$1800 for the KSL, US$2500 for the KSR-100), are lower than those of other Krell products. Perhaps not quite "Krell for the masses"; call it "Aragon for the moderately rich."

Harold Morishita has Stax, Accuphase, his own Makoto speakers ($5000/pair, floor-standing, beautiful piano-black finish; sound quality hard to judge from the Japanese pop CD they're playing), and, in a different room, the intriguing Dynavector "Super Stereo" SSA/504 ambience synthesizer/4-channel amplifier ($4990). Although the price seems rather steep, this is a serious and well-built product that employs full-range digital delay to simulate the early reflections and frequency-dependent analog delay (longer delays at lower frequencies) to handle the "hall" reverberation. The demo features Haflers as the main speakers and tiny ambience speakers that look as if they cost $99/pair at Radio Shack, but is still convincing enough to make me wonder what this product would sound like with better associated equipment. Bill Sommerwerck, are you reading this?

Mustn't leave this floor until I've seen the new SME "ultimate" turntable. The Model 30 (were there 29 previous versions, or does the model number indicate the fact that design on it started in 1950?) has a UK price of £10,000 (no North American pricing yet), without arm, of course. Designer Alastair Robertson Aikman demonstrates the 'table's immunity to knocks of all sorts, including lateral, and points out that the suspension obviates the need for a special dedicated stand. Undoubtedly, this is one superbly made piece of equipment, but is any turntable worth that much money? Is it 15 times as good as the Linn? Five times as good as the SOTA Cosmos? What would my bank manager say if I made an application to borrow $25,000 and, under "purpose of loan," put "purchase of analog turntable?"

Better ascend to the fourth floor before reason abandons me completely. In fact, better get in touch with reality by looking in on Rotel. Wouldn't you know, this budget favorite is going upmarket too! There's the new RHC line-level preamp ($1200), RHQ-10 phono stage ($1700), and the RHB 200Wpc amp ($3000). Construction quality at least commensurate with price. Driving Monitor Audio Studio 10s, with the Rotel RCD 865BX bitstream player as a source, the sound is decidedly non-budget-ish.

As I'm making my way out of the Rotel room, three audiophile visitors notice the badge that identifies me as representing Stereophile. "Great magazine!" "Tell Sam Tellig we love Armor All!" We discuss the possible long-term detrimental effects of Armor All and chat about various and sundry CD tweaks. A pleasant interlude in what is turning out to be a horribly tedious chore. (Did you note that, Your Editorship?)

Interlinear, importer of Siefert, Tice, and Aural Symphonics, is next on my journey. Brian
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Stereophile, January 1991
Papenteau, with his radio announcer's voice and genial manner, tells me that he's taken on some exciting products: **Coda Technologies** FET-01 preamp (US$2500) and System 100 amp (US$6000, 100Wpc, class-A), shown here for the first time in North America. Coda was founded by four ex-Threshold employees, the cosmetics/build quality certainly showing the Threshold influence. With a Micromega CD F1 as the source, the speakers hooked up to the amp (electronics plugged into a Tice Power Block, and all cables by Aural Symphonics, of course) are the new **Unity Audio Signature Ones** (US$2750). Exceptional imaging and detail, good tonal balance, and very open-sounding. Robert and Kathy Grost, designer and marketing manager, respectively, are hovering around them like anxious parents. I compliment Robert on the speakers and tell him that the sound in some ways reminds me of my old Quad ESLs. He smiles, "the Quads are my midrange reference, but they won't play as loud or go as low as these." He's right. (That's why I use subwoofers as well.) I ask Brian to put on one of my CDs, a harp recital by Susann McDonald (Klavier KCD-I1004). We listen to a seven-minute Fauré impromptu without wanting to switch to anything else—a testimonial to the attractiveness of the sound (and the music). No doubt about it, these are very fine speakers, perhaps only a touch of boxiness at high levels keeping them from being at the top of their class. Robert tells me he's about to release a new "super" version called the PARM Pyramid, with the cabinet made of the Fountain Head material used in the Wilson Watt. Look out, Avalon and Hales!

Speaking of Hales, better check out their display. Even in a small room, the System Two Signatures sound great driven by a pair of VTL 300s, with the Maplenoll Ariadne Signature (Was it Stax, with their latest Lambda headphones, that started this "signature" fetish?) and Sumiko Oyster Blue Point front end. In another room, the (Unsigned?) Hales System Twos, with Brasfield CD player and MFA electronics, don't fare as well, the sound being very quick but too bright.

What else is there for me to see and hear? **Kinergetics** has revamped the cosmetics of their line; now the appearance of the KDC-40 CD player and KBA-202 amp matches their excellent sonics. The combination of these components with the Spica TC-50s and Kinergetics subs sounds as if they were made for each other—which, as I understand it, they more or less were.

**B&W** has the new 803 Matrix, looking, with its tweeter stuck on top of the box, like a big brother of the old DM7. Sounds pretty good with Classe electronics.

Have I missed anything important? Well,

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No, this is not a picture of your *Stereophile* correspondent having a good time, but part of a display advertising Pioneer's Laser Karaoke.

Designer Robert Grost with the Unity Audio Signature Ones. Look at that woodwork!

---

6 I found out later that Guy Lemcoe was similarly impressed with the Unity Audio Signature Ones at CES. Great ears hear alike, I guess.
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PSB Stratus Gold
there's Pioneer's demo of Laser Karaoke, but I doubt if this will ever be a category in "Recommended Components."

The Smyth Sound room has some good stuff: just now, they're playing KEF R105/3s, with Perreaux amp and Meridian bistream CD player. I had been quite disappointed with early examples of KEF's Uni-Q technology (a step backward, I thought), but it sounds like they've gotten the kinks out.

And now it's really time to wrap up the visit (and the show report). But not before I go back to the Response Audio room, to hear the Dun-tech Black Knights. Da/pos is being played at a window-rattling level. Okay for those who like that sort of thing. Julianne Baird played at a level that makes her sound as if she has the combined vocal power of Birgit Nilsson and Ethel Merman. I leave while my hearing is relatively intact.

Show organizer Shirley Trotter spots me as I get off the elevator in the lobby.

"How did you like the show?"

"I had a great time. There seems to be quite a bit more to see and hear than last year."

"There's a lot more; we have about 60 rooms, almost twice as many as last year."

I ponder this fact as I make my way to the parking lot. Let's see, 30 rooms last year, 60 this year, that'll make it 120 next year...yes, by 1999, CE-EX will be occupying 30,720 hotel rooms.

UK/US: John Atkinson

Still the business of start-ups, mergers, and acquisitions—see Larry Archibald's "Final Word" column in the November 1990 issue—continues. Late-breaking news in November was that the English loudspeaker company Wharfedale, themselves the subject of a reverse takeover of pro-audio drive-unit manufacturer Fane Acoustics, has acquired Cambridge Audio, the English amplifier and CD-player manufacturer. US distribution of Cambridge products has passed from Celestion USA to Vector Research (1230 Calle Suerte, Camarillo, CA 93010. Tel: (805) 987-1312), who currently import Wharfedale speakers. The history of Cambridge Audio has been checkered: formed in the early '70s, the company achieved considerable success with a range of Stan Curtis-designed, good-sounding, slim-profile integrated amplifiers. Plagued initially by poor product reliability and then by what I understand to have been undercapitalization, the company changed hands several times, the most recent and somewhat ill-fated owners being the UK distributors and retail chain Hi-Fi Markets, who themselves went into receivership last summer.

Additional UK news concerned Polly Peck International, the conglomerate that recently acquired 72% of Sansui, who then in turn acquired 100% of Mission Electronics. Due to a number of reasons, most of which concerned matters of international finance and which passed over my head, in late October PPI applied to the UK High Court for "administration" (what I understand to be the UK equivalent of the US's "Chapter 11" protection from creditors). A spokesman for Mission stated in December that Sansui's and Mission's activities would not be affected by PPI's troubles.

Here in the US, San Luis Obispo amplifier manufacturer PS Audio has been sold to a partnership of Steve Jeffreys and Randy Patton, the latter instrumental in the distribution of first Sumo, then Museaex. Designers Paul McGowan and Bob O'Dell will continue as minority partners in PS; my understanding is that they will continue to act as the company's creative force, ensuring a continuity between the old PS Audio and the new.

However, it was announced in November that Paul—the "P" in PS (the "S" was Stan Warren, now of Superphon)—will also be Executive Vice President of a new loudspeaker company formed by ex-Infinity main man Arnie Nudell, to be called Genesis Technologies Inc. Based in Vail, CO, Genesis will produce three speaker models priced from $800 to $1600/pair; two servo-feedback subwoofers, and an "unusual" stand. According to a discussion LA had with Arnie and Paul, Canadian firm API (Mirage, Image, Energy) is a partner in the firm, and speakers will be manufactured in both Toronto and Los Angeles. To judge from a MLSSA waterfall plot that Arnie sent me a few months back, the Genesis speakers should be serious high-end contenders. Genesis can be reached at (303) 476-3012.

Sad news in October was the announcement that Philip Greenspun's Isosonics company has ceased trading due to a major backer pulling...
It's not just the technology; it's the application of the technology.

Denon's "Design Integrity" philosophy has always held that the way a technology is employed is as important as the technology itself.

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Case in point: The DCD-2560 employs four separate DACs utilizing Denon's Lambda System Super Linear Converter technology to eliminate the zero-cross distortion and non-linearity that plagues conventional CD players, especially at low signal levels. Each Denon Super Linear Converter is factory hand-tuned for maximum resolution. In addition, Denon's unique half-sample interpolation system produces an effective 16x oversampling rate to eliminate phase shift for a more accurate sound stage with true three-dimensional imaging.

20-bit SLCs enable Denon to offer Variable Pitch, which lets you compress recordings, tune your CD player to musical instruments, adjust tempo for dancing, create perfect segues while mixing, etc. Peak Search finds the point in a disc with the highest level to set recording levels most accurately. Auto Space inserts four second pauses between tracks to help locate selections. A Digital Fader fades recordings in and out while dubbing. Time Edit allows you to input the tape length you are using. Pick enhances this function by letting you rearrange the order of tracks for the best fit on the tape. Link extends the process over 2 CDs for longer tape lengths.

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out. Isosonics made a digital recording system that stored the data on videocassettes.

Finally, KEF's David Inman pointed out to me that LA's use of the word "acquisition" in November's "Final Word" was incorrect when applied to what was actually a complex merging of stock between Polk Audio and AGI Electronics, which owns KEF and Meridian. Our apologies to all concerned.

**US: Peter W. Mitchell**

After months of rumors about a new cassette tape format that would contain both analog and digital versions of the same program, Philips has finally unveiled a few specific details about its digital compact cassette (DCC). Surprisingly, Tandy Corp. (owner of the Radio Shack chain and developer of the THOR recordable-CD system) has signed up to manufacture DCC recorders and tapes—an indication that the DCC, unlike the DAT, is squarely aimed at the mass market. Even if DCC never becomes a reality, the anticipation surrounding it is likely to be a DAT killer, reducing the already low probability that the present DAT format could ever become a low-priced mass-market medium. The R-DAT (rotary-head DAT system) will remain as it began, a marvelous semi-pro recording tool and an inexpensive PCM backup machine for professional recordists.

R-DAT decks use a miniature VCR mechanism, with record/play heads mounted on the periphery of a tilted spinning cylinder, to record a string of several million bits per second along a series of diagonal tracks. The DCC uses an S-DAT (stationary-head) mechanism, which in principle is a simpler and cheaper affair resembling an analog cassette deck. But this simplicity is an illusion. An S-DAT recorder distributes the bits in each digital word across the width of the tape, so that as the tape moves many narrow tracks are recorded in parallel along the length of the tape. Thus the essential complexity of an S-DAT deck lies in the construction of its multi-track record/play heads and in the extreme mechanical precision needed to keep the narrow tracks on the tape aligned with the corresponding head gaps.

Analog stereo cassette recorders use four-track heads (two tracks in each direction). Ideally an S-DAT recorder would use a 32-track head in order to record each sample of digital audio as two channels of 16-bit data across the width of the tape. Actually, to accommodate the extra bits required for error correction, the machine would need about 24 tracks per channel; i.e., a 48-track head. Since the tape is only 0.1" wide, and each track must be separated from its neighbors by a narrow unrecorded space, each S-DAT track would be no more than a thousandth of an inch wide.

Not surprisingly, Japanese manufacturers concluded that the R-DAT format would be more practical for consumer use; they reserved the S-DAT approach for a possible future generation of studio recorders where the cost of thin-film heads and high-precision mechanisms won't be an obstacle. This doesn't mean that R-DAT uses wider tracks than S-DAT; in fact, the R-DAT track is even narrow than the S-DAT track, barely a half-thou (13 μm) wide. But its alignment with the head doesn't depend on costly mechanical precision.

Since the recorded track runs diagonally across the tape, a simple trick enables R-DAT tracks to be aligned exactly with the spinning head: the linear motion of the tape past the head drum is slightly sped up or slowed down until the head picks up the strongest magnetic signal (and therefore is centered on the track). Every DAT machine and 8mm VCR contains an automatic track-finding (ATF) servo that does this job—illustrating once more a basic rule of high-volume manufacturing: silicon is cheap. Whenever electronic control circuits can be substituted for high-precision mechanical parts, a product can be designed to deliver consistent performance despite being mass-produced at relatively low cost.

Since Philips wants the retail price of a DCC deck to be under $500, they had to devise an S-DAT format with fewer (and wider) tracks in order to reduce the cost of the head and the need for ultra-precise head/tape alignment. According to industry newsletter Audio Week, DCC machines will employ a 16-track head. They will record eight tracks (an average rate of only four bits per sample for each channel) across half the tape, then reverse direction to record on the other half of the tape. This suggests that the average bit rate along each track

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may be the same as the system's 44.1kHz sampling frequency. Indeed, if the system uses an RLL (run-length limited) modulation scheme like that used in many of today's high-density computer disks, the maximum bit rate per track could be only half the sampling rate, or 22kHz—well within the capacity of today's heads. The system will use CrO₂ tape running at the same speed as ordinary analog cassettes (13/4 ips).

The low bit rate was made possible by the development of a sophisticated digital encoding method, Precision Adaptive Sub-band Coding (PASC). It samples the incoming audio signal at 44.1kHz, continually analyzes its content, and encodes it with just enough bits to prevent audible noise or distortion. Encoding decisions are made by a microprocessor programmed with information about the psychoacoustic limits of human hearing. (For example, it takes advantage of "masking"—the fact that when a strong tone is present at one frequency, low-level noise and distortion components at nearby frequencies can't be heard.) The idea is to provide accurate coding of audible signals but not to waste any bits encoding things we can't hear.

Of course audiophiles hear (and care about) differences that most people don't; high-end audio exists because of those differences. Reportedly PASC accommodates the same dynamic range as an 18-bit PCM encoder but requires only a fraction of the bits. When the DCC arrives, about a year from now, we'll learn whether its sound is obviously compromised or whether PASC provides, as claimed, substantially the same sound quality as the CD and R-DAT.

One aspect of the DCC story is extremely puzzling. The early rumors indicated that a DCC tape would be a standard Philips-type compact cassette containing both analog and digital versions of the same program. It held out the attractive prospect of a single-inventory product that, with Dolby-S encoding of the analog tracks, would play with satisfactory compatibility on virtually any consumer tape machine, offering four different levels of playback quality according to the user's equipment (digital, Dolby-S, Dolby-B, or basic boombox). Record companies, distributors, and retail stores love this concept; they hate having to market multiple versions of every recording, which is why they killed off the LP quickly rather than letting its market decline gradually.

According to Audio Week, DCC machines will record either analog or digital tracks but not both at the same time. Worse yet, while the DCC has the same dimensions as a normal audio cassette, the plastic shell would be different, resembling an 8mm video cassette. If either of these reports is correct, digital DCC tapes won't play in the existing universe of analog cassette machines. In that case, who needs it? Basically, if the DCC isn't a single-inventory multiple-use product, there's no reason for it to exist. Without universal compatibility, the DCC would be either a specialized high-performance analog cassette or a second-rate S-DAT. In either case its sound probably can't match a good R-DAT.

I don't believe that Philips and Tandy are foolish enough to launch a product with poor market prospects. That suggests two possibilities: 1) The report about an incompatible cassette shell may be wrong; or 2) Philips may be gambling that enough new DCC recorders can be sold to support the new format. In fact, Philips has attempted, without success, to interest Japanese companies in manufacturing DCC decks. The initial Japanese response was that they developed both S-DAT and R-DAT back in 1983 and concluded that R-DAT is the more practical format for the consumer market.

The bottom line: If DCC cassettes will play in existing analog decks, the format could be a mass-market success even if its PASC digital encoding is audibly inferior to CD and R-DAT. But if consumers have to buy new hardware, the DCC won't survive without broad Japanese support. Philips (in Europe) and Radio Shack (in North America) have a lot of marketing clout, but they can't create a market by themselves for an incompatible tape format. Remember the Elcoset?
The Electromagnetic and Acoustic (EMA) Isolation Plate provides both mechanical and magnetic benefits to any audio or video system. The plates are constructed using a low Steinmetz Coefficient material to reduce hysteresis losses and with alternating layers to increase magnetic permeability and minimize eddy current losses. The plate is critically damped and the considerable mass is supported by engineered feet with a damping factor of 0.6.

This novel embodiment of vibration and magnetic damping results in dramatically improved clarity, focus and sound staging when used with any mid-to high-end components, such as amplifiers, preamps, CD players, satellites and turntables. Available in a range of sizes, priced up to US $495, at these fine stores:
I’m back!

I don’t know how often. I’m still nervous about seeing my name featured as “Senior Contributing Editor.” It implies that I’ll be writing regularly, and I’m not sure about that. I’ll be covering the Winter CES, though—even as we speak.

No sooner had I announced my retirement than I received the B&K Sonata Series M200 Monoblocks. Boy, I wish I was still writing the column so I could tell you all how good these amps are. Well... why not? I felt almost an obligation after reading AHC’s latest raves about Adcom products in the October *Audio*. Why is it that Tony raves only about Adcom? Has AHC ever met an Adcom he didn’t like? You see the situation. Reviewers are not exactly falling over themselves to review B&K equipment. They’d rather review Air Tight, Jadis, Audio Research, Mark Levinson, Krell—all the “good stuff.” So it’s very easy for them to miss the fact that B&K now is the “good stuff.” That’s the big news with the Sonata Series M200 Monoblocks: they are real high-end amps, not very far short of the best solid-state amps available. And like I was telling Apogee’s Jason Bloom the other day, “What a bargain!”

I’m getting ahead of myself, as usual.

Several years ago, I heard a certain manufacturer of high-end gear say that he could sell his products for 40% less if he didn’t spend so much on the cosmetics—bulletproof faceplates, etc. I believe it. You look at the typical product from Threshold, Levinson, Jeff Rowland, Krell, and you know you’re paying not just for all the nifty parts inside but also for the superb exterior cosmetics.

Until now, I would never have classified B&K products with the aforementioned brands. I remember listening to a pair of B&K ST-140 monoblocks vs a pair of Jeff Rowland Model 5s. The Jeff Rowland amps sold for roughly ten times the price. The B&Ks didn’t fare badly, but

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1 In fairness to Adcom, I haven’t met an Adcom I didn’t like, either. At least I try to review both Adcom and B&K. I’ve also tried to review various other budget brands, but the wretched sound usually has me packing up the boxes within hours, if not minutes. There’s a good reason why Adcom and B&K own the low end of the high end.

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B&K Sonata Series M-200 monoblock power amplifier

the Rowland amps easily outclassed them in terms of transparency. (I’ll explain what I mean by transparency in a moment.) With the B&Ks, there was something of a veil—or a whale, as my Swedish friend would say.

I’ve not heard a recent production of the ST-140 (either the standard stereo ST-140 or the mono version), but I understand they have been upgraded by the addition of another pair of output transistors. This should make the amp better suited to 4-ohm loads. It may also mean that the amp loses some of its slightly warm, fuzzy, phasey, a-little-grainy-in-the-treble sound. The classic ST-140—particularly the very early ones, which were rated at 70Wpc rather than 105Wpc—sounded like classic tube amps.

The B&K Sonata Series M200s sound nothing at all like the ST-140s I remember. (I repeat: I have not heard the current version.) They have the same smoothness and sweetness, but they’re much more transparent. They sound like high-end amps. This may be very bad news for certain high-end manufacturers. The M200s offer potentially very stiff competition for single-chassis stereo amps in the $2000–$3000 price range.

I’ll put this in the starkest possible terms: for less money than you would pay for a stereo amp from “expensive” brands like Classé Audio, Mark Levinson, and Krell, you can have a pair of very powerful mono amps from B&K—two
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Stereophile, January 1991
totally separate chassis, the ultimate dual-mono amps. Mono amps can offer significant advantages, particularly in soundstaging: the image doesn’t collapse during tough-sledding passages. You know, like Tchaikovsky’s Fourth Symphony, or almost any work by Mahler, Bruckner, or Shostakovich. A pair of B&K Sonata Series M200 monoblocks will set you back only $1800/pair unbalanced. For an additional $200 each, you can get them balanced—with the same XLR inputs you find on the expensive brands.

Now let me explain what I mean by transparency, because the B&K Sonata Series M200s have it—in spades. By transparency, I mean a certain see-through quality: clarity combined with a wide, deep soundstage plus precise imaging. Some amps will give you clarity, lots of detail, but no air—that ain’t transparency, in my book. Other amps will give you air—spacious spaciousness, perhaps caused by some funny, fuzzy phase effects—but will lack the ability to precisely locate vocal and instrumental soloists, who may sound like they are singing or playing surrounded by a fog. That’s not transparency, either.

The B&Ks have this see-through quality. If they are lean—and I believe that’s their main fault—they are also clean. And lean, by the way, does not mean mean. There is nothing nasty about the sound of the M200s—nothing metallic or shrill or clinical. The sound is smooth and sweet. There is a total absence of grain in the treble.

The bass is tight, too—something else that differentiates the M200s from the ST-140. The B&Ks have what the Britics like to call slam—good timing, tightness, rhythm in the bass. To put it another way, the B&Ks “let go of the notes” (a useful phrase borrowed from Alvin Gold). There’s a refreshing, bracing crispness to these amps: they’re quick. Quickness is one reason I usually become dissatisfied with tube amps, like Quicksilvers: most tube amps don’t have it. The B&Ks are quick—almost to the point of being lean. On the whole, this is a sound I like because it is quick and does not obscure detail.

The B&K M200s have excellent clarity and definition in part because there isn’t any mudiness in the bass. The clarity and definition extend across the frequency range. No trace of the infamous MOSFET mist. The treble is astonishingly good—again, not very far short of the best I have heard. Brass, in particular, can have the same thrilling bite it has in the concert hall, live. And yet the treble doesn’t go over the edge. This is a very hard thing to get right, and these amps do get it right.

Are these the best solid-state amps I’ve heard? Not quite. The M200s do not have the same balls-to-the-wall quality I hear, for instance, from the Krell KSA-250. Nor do they have the same dynamic authority I’ve heard from the Krell KSA-80, now superseded by the KSA-150. Along with this slight lack of authority goes a soundstage which is not quite the widest and deepest I have heard. But you have to put this in perspective. Look at the price of the B&Ks!

After years of complaining that the B&K ST-140 is a little bit fat—overly warm with a flabby bass—it’s ironic that I now complain, mildly, that the M200s sound a little lean.2 I wonder if this has to do with the way they’re biased. As supplied by the factory, these amps run very, very cool. Perhaps I’m conditioned to believe that amps which run cool will sound a little cool, but this is how I feel about the M200s. I talked with Ed Mutka of B&K, and he tells me the bias can be set higher so the amps run hotter. As supplied, the amps are biased to run to about 60W class-A. Ed says this can be juiced up to about 100W, and as I write this column, the amps are back at B&K for rebiasing—going up the juice. I’ll let you know what happens, by way of a postscript to this column. It’s hardly an academic question, since any dealer can order you these amps from the factory with the bias set higher; or you can return them to the factory for heating up if the amps leave you feeling a little cold. Incidentally, if you don’t own a preamp with balanced outputs, you can order the B&K M200s unbalanced, save $200, and then have balanced outputs added later on by the factory. If you buy them balanced, you can go from balanced to unbalanced at the flick of a switch on the back of each amp—no internal adjustments needed.

Is balanced better? I can’t say for sure, since I do not have comparable-quality cables in both balanced and unbalanced modes. But my listening points to a tentative conclusion. Bal-

2 As supplied with the standard factory biasing, the M200s lack what I call the psychobutt quality—that is, they’re somewhat deficient in flesh and you can’t get great satisfaction out of pinching their behinds. I’m sure I’ll get howls of protest over this one, but there’s no saying that a woman can’t pinch a man’s butt.

Stereophile, January 1991
It's fair to say that the Rotel RCD-855 is the steal of the century. If it were priced at $800 or so I'd consider it a good value. But for $400 it's practically a giveaway. This machine competes favorably against rivals costing up to three times as much and is quite happy in the company of a $20,000+ ancillary system...

Musically the RCD-855 is very refined, with a degree of transparency and harmonic neutrality usually found only with the real expensive stuff...

One of the 855's most impressive qualities was its amazing ability to throw a very deep and wide soundstage, extending well beyond and above the speaker boundaries. The soundstaging was natural, not overblown or frequency-dependent, dimensionally changing with each recording. In this respect, the Rotel exceeded several more expensive digital audio products...

The Rotel is one of the few CD players, at any price, that appears to adequately resolve the resonant envelopes surrounding instruments and voices, as well as the natural resonance present in the recording venue...

As an integrated unit, the 855 is truly extraordinary. And it does function credibly as a digital source...

If you're looking for a digital front end that gives great sound for a peanuts price, the RCD-855 is the best deal around.

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

It clearly delivered the best CD sound for the money. The lab performance was fine, the sound quality exemplary, and indeed players costing £800 get recommended if they show performance like this one!

Martin Colloms
Hi Fi News & Record Review, Nov. 1989

WANT MORE?
Even the most expensive CD players do not offer a five year warranty. ROTEL DOES.
ancing, for some reason or other, appears to improve dynamics, at least subjectively. There is less noise, less hash. The sound is more immediate, more direct. Much of this, though, might be ascribed to the excellent AudioQuest Hyperlitz cable I've been using in the balanced mode. It's certainly worthwhile having balanced XLR connectors as opposed to RCA jacks!

As for the leaness, or slightly cold quality of the B&K M200s, you can mitigate this with a moderately priced tube preamp—from Audible Illusions, MFA, RAM/Music Reference, or Conrad-Johnson. I tried an Audible Illusions Modulus 2D and found that its tubelike qualities came through, giving the B&K amps a welcome touch of warmth...a little more body. None of these tube preamps is presently available with balanced outputs.

I'm waiting, though, to see what an increase in the bias current will do for the sound of these amps, because I have to tell you: the new B&K Sonata Series Pro 10 preamp is a fabulous unit, easily the best solid-state preamp I have heard for under $1000. This new version of the Pro 10 is available unbalanced for $698, balanced for $898. Among its features are one of the finest moving-coil stages I've encountered in any preamp, regardless of price, and a defeatable line stage. Again, this is exactly the sort of thing that should give B&K's competitors fits.

By the way, the B&K M200s are said (by B&K's John Beyer) to drive just about any speakers in existence, including all Apogees, Avalons, Martin-Logans, Wilson WATT/Puppies, B&W 801s—you name it. The amps are certainly up to driving my reference Spendor S100s. I have the Spendors tri-wired with Kimber Kable (4TC to the midrange and treble drivers, 8TC to the woofers).

These amps are an amazing value. Before purchasing any amps in the $2000–$3000 range—particularly a single-chassis stereo amp—I would carefully audition the B&K Sonata Series M200 Monoblocks. I believe these set a new standard for value and performance in a price range which, until recently, has not had very much competition.

One problem, from a dealer's point of view, is that these amps are so embarrassingly good that you may be persuaded to part with less money! (You can see how I love to rub this in.) But it's true. Dealer enthusiasm tends to grow as the price gets higher. Don't let a dealer talk you out of auditioning these amps with a very, very expensive pair of speakers. If your B&K dealer sells Martin-Logans or Apogees or Avalons, ask him to hook them up. Tell him John Beyer says they'll work fine. Tell your dealer that the Devil—ah, I mean Sam—is making you do it.

I can just see you walking into the dealer. "Hello, I want to hear the Wilson WATT/Puppies with the B&K Sonata M200 Monoblocks." "No way. You need a real amp to drive those speakers." (The dealer wants to make a $20,000 sale.) "Sam says I can drive them with a pair of B&Ks." "You believe Sam?" "Yes." "The B&Ks are in the other room, with the cheaper equipment. You can't hear them with the WATT/Puppies." "I'll help you bring them in. The amps aren't that heavy." Good luck.

By the way, B&K has a history of protecting the consumer's investment by not changing its model numbers every 18 months, the way some high-end manufacturers do, taking a cue from the way professors revise their textbooks to wreck the resale value. Not that you'd be likely to trade in these B&K amps.

The M200s won't sound their best until they've been left on, preferably all the time, for at least a couple of weeks and perhaps up to a month. Out of the box, new, they can sound a little raw. Once burned in, they take about half an hour to an hour to start sounding real good. Leaving them on all the time (after they've burned in) does not seem to offer much sonic advantage. Cheers!

3 My friend, Silent John, recently traded in his VTL 300s for an expensive solid-state amp. He's not so sure he prefers the solid-state. Yes, there's better control—tighter bass, better dynamics, quicker response. But he misses something of the musicality and warmth. I mention this because coldness seems to be characteristic of almost all solid-state amps. Having an amp run class-A, or be heavily biased into class-A, helps alleviate this coldness, in my experience. This is why I've asked Ed Mutka to try turning up the juice. (Richer biasing into class-A may be one reason some of the newer Adcom amps have been getting such favorable press.)

4 This is as good a place as any to tell you that B&K and Adcom are two of the best companies in the business when it comes to customer service. Neither company seems to regard repairs and updates as an additional profit center, the way many high-end companies do. Some companies aggressively promote updates by direct mail to registered owners, which I'm sure helps fatten company coffers. I don't particularly care for this. Dealers, too, might get upset since they make nothing on such direct-from-the-factory transactions.
Soundwave baffleless loudspeakers have the open, seamless, and transparent sound of the best "panel" (electrostatic, ribbon, and planar) speakers, while offering the superior dynamic range and extended bass response of the best "dynamic" designs. And they offer a stereo image critics say is second to none.

"The Soliloquy speakers are the most accurate I have ever heard. The clarity and focus are superb. . . . I have never heard the human voice so accurately reproduced. . . . members of the New York Audio Society were in awe of the sound reproduced by your great design." Robert Kreisler, President, New York Audio Society, April 1990

". . . the analyzer curve is astoundingly smooth. Subjectively, this speaker's most outstanding characteristic was its superb clarity and resolution of inner detail in complex textures, achieved without excess brightness or exaggeration of sibilance. String sound was smooth and rosy, imaging was excellent and choir voices could be identified individually. I've heard few speakers that are as satisfying with both pop and classical music." Peter W. Mitchell, Stereophile, Vol. 13 No. 4, April 1990

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TDK Digital Noise Absorbers
Just when I thought it was safe to open the mail, someone else sends me a tweak. This time, it's TDK. That's right, the tape people—the last company from whom you might expect to receive an audiophile tweak. The world is no longer safe for Len Feldman, Hans Fantel, and Julian Hirsch!

The product is TDK Digital Noise Absorbers and should be in stores by the time you read this—$10/pair. If the product were distributed by one of the wire bandits, perhaps a pair might cost you three to five times as much. And if they were distributed by the lady in Iowa who sells the $500 alarm clock—more in a moment—who knows what they would cost?

I thought these TDKs were pretty reasonably priced, but some of my computer-wise cronies, like Lou and Silent John, don't agree. Silent John says that similar devices are available for computer applications, where they're used on modern cables, among other things. Silent John even says some computer companies have supplied the things free.

What are TDK Digital Noise Absorbers? First things second, as usual in this column. These things are little ferrite clamps. You put them around the outside of interconnects, speaker cables, power cords, and snap them shut. Instant installation—no disassembly, no soldering needed.

Technical literature was sparse, not that I would have waded through it anyway. According to the PR poop sheet, the product is designed to deal with "electromagnetic interference caused by a CD player's digital circuits."

Maybe there's more to it than that. Perhaps these ferrite clamps help to filter out electromagnetic interference caused by things other than your player's or processor's digital circuits.

Start small before you go nuts.

Buy a couple of boxes—that's two pair. Put one pair on the interconnects coming into your preamp from your CD player or processor—install the clamps near the player or processor: the source component. Then put another pair on the interconnects coming out of your preamp, close to the preamp. If you have a long run from your preamp to power amp, you might put a pair of clamps on each end, as I did—that'll mean three boxes, 30 bucks.

What do you hear?

Nothin'. Well, you're out 30 bucks, my friend, unless you have a dealer who'll take

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Stereophile, January 1991
ANNOUNCING THE BRYSTON TWENTY YEAR WARRANTY

For over a quarter-century Bryston has been committed to designing and producing audio products with musical accuracy, reliability and value as our primary focus. It is widely known the Bryston’s policy on the warranty of our products has always been extremely generous if ever required. To further enhance our long term commitment Bryston is instituting a 20 year warranty program as of January 1, 1990. This, as far as we know, is a first in our industry and as such will further demonstrate our continuing dedication to our products and customers.

This new twenty year warranty is also retroactive. It includes all audio products previously manufactured and sold under the Bryston name. This warranty is also fully transferable from first owner to any subsequent owners. Bryston has always been dedicated to designing and producing audio power amplifiers, crossovers and pre-amplifiers that deliver uncompromised performance, outstanding reliability and exceptional value. We believe our new 20 year warranty is one more example of our continuing commitment to this ideal.

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them back or you can sell them to a friend. But I think you may hear some difference.

What might you hear?

I'm not trying to put ideas in your ears, but what I hear is greater smoothness—less grain, less grit, less hash. The sound is cleaner, clearer—less fatigueing. For me, anyway. You, Len, Hans, and Julian may hear nothing... as usual.

Now, you've invested $20, $30. If you hear the differences I hear—and it may take a few minutes or even hours before you notice how the sound has become less fatigueing (if it does become less fatigueing, that is)—you can then go ape. Put the clamps on your speaker wires first—this may make the biggest difference of all, actually. If you bi- or tri-wire you'll need two or three pair. Then, put them on your power cords—close to the component—starting with your power amp(s), then your preamp, processor, etc. Even if you go totally bananas with these things, you're not likely to spend even a hundred bucks... and the improvement may be greater than an upgrade of interconnects, speaker cables, and power cords.

Who knows? The TDK Digital Noise Absorbers may be the great equalizers—they might make cheap interconnects and speaker cables sound more like expensive ones! (Yes, I do hear a difference using junk cable with these ferrite clamps.)

If you find a source for something similar—ie, from a computer parts supplier—let me know. Write me direct at my Russia Tour post office box below.

FLASH!!!

I've just put one of the TDK Digital Noise Absorbers around a very cheap run of RG-59U coax used as a "digital link" between my Philips CD40 CD player and Meridian 203 processor. Holy moley! It's like upgrading to an expensive cable—cleaner, less grit, better dynamics, less noise. If you have a "digital link," this is the place to start using the TDK Digital Noise Absorbers. Is it possible these things could put the wire bandits out of business?

Alarm clocks

Mention, a moment ago, of the $500 alarm clock (and its $24.95 Radio Shack look-alike) brings to mind an incident that happened at Definitive Hi Fi a few months ago. The Brass Ear was there. So was Lou... and Miles Asteroid. You haven't met him yet.

Miles blazed in with this alarm clock from another manufacturer—it wasn't The Electro-Tec, the clock being sold by Amanda, a lady from Iowa. I shouldn't reveal the manufacturer, as the clock was, ah, experimental. The Asteroid called it a prototype, but it looked like an ordinary alarm clock to me—something the "manufacturer" might have purchased for $20 in K-Mart.

Anyway, Miles suggested this test. I would listen to the Wilson WATT/Puppies while he plugged and unplugged the new clock. I would close my eyes so I couldn't tell whether the clock was in or out—no cheating (I didn't). But Miles Asteroid would tell me when he had made a change.

Well, I listened, and wouldn't you know, I could hear a difference. One way was "better" than another—the system had less grain, less grit, more air, more focus, greater clarity... all that stuff I've just been talking about with the TDK ferrite clamps (I didn't have the clamps at the time).

Only problem was, the "better" sound was with this new, prototype clock out of the system, not in. The Brass Ear thought so, too? True, there were already two Iowa clocks plugged into the wall elsewhere in the store—so maybe the clocks started fighting each other... on a subatomic level, of course.

No, I have not succumbed to alternative physics. But I'm very pleased with my $24.95 Radio Shack Micronta Jumbo LED Alarm Clock (Catalog #63-766)—particularly when I think of a certain Swede having purchased the look-alike Iowa clock! In the words of my grandmother, the lady in Iowa may have seen Lars coming. The day after my collision with Miles Asteroid, I met Michael Goldfield, of Euphonic Technology, in line at the bank. He's into power-line conditioners these days—actually, something he's been interested in for a long time. I told Michael about all this business with the alarm clocks and the Asteroid, and Michael said that almost anything you plug into your house wiring could have a sonic effect. Kind of mind-boggling when you think about it—enough, in fact, to drive a person insane.

Pro Sona CD Sound Enhancer

Oh, no, be's at it again!

Okay, it's true—I can't keep my hands off the surface of a CD. It's not because I'm a wiper,
The OC9 Cartridge
Meets The Critical Test

"It is an excellent pickup, the best ever from Audio-Technica and one of the best from any source."
- Thomas J. Norton Stereophile Vol. 12 No. 2 February '89

Recommended Components B

"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."
- Stereophile Vol. 13 No. 4 April '90

"Detailed, involving sound. Simply the best value low-output MC cartridge in America."
- Kent Bransford Hi-Fi Heretic No. 13 '90

"This cartridge draws from well-recorded grooves an almost hypnotic ambiance and stereo image. I heard details and nuances from my records that I had never noticed before."
- Rich Warren Chicago Tribune March '90

"I think that the Signet OC9 cartridge is an excellent value...If you have been using a run-of-the-mill moving-magnet cartridge, the Signet OC9 will introduce you to the wonderful world of moving-coil cartridges without breaking the bank."
- Edward M. Long Audio Magazine September '90

"...the truth is you could easily spend twice the OC-9's asking price and still not equal -- let alone surpass -- its level of musical involvement, accuracy, or sonic purity."
- Art Dudley Sounds Like... Issue No. 9, Oct '90

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as Mario suggests, it's because I can't stand the sound of an untreated CD.

I've received what is the best product I've used so far—Pro Sona CD Sound Enhancer, from Pro Sona, Inc. of Van Nuys, California. A 4oz spray-bottle container retails for $14.95 and is said to treat upward of 200 CDs, maybe more.

Improvements (over a naked CD)? Better dynamics, more detail, cleaner, clearer highs, more solid bass—just about all the things the manufacturer claims on the box! This stuff is CD-specific, so you can probably rest assured that it's relatively harmless (to your CD, that is: the stuff is "harmful if swallowed"). Of course, you get no guarantees from me.

Best of all, this stuff is relatively greaseless—not like some concoctions—so you don't have to keep on wiping, wiping, wiping. It's anti-static, so you can apply with cotton balls (Pro Sona's recommended method). Of all things, I've used to apply stuff to CD surfaces, cotton balls seem the least likely to cause scratches. But you should be forewarned: scratches do occur...there seems to be no way around that. Also, I would scrupulously avoid getting any Pro Sona on the lightly varnished label side. Do be careful. Be stingy, too: a little goes a long way.

Be aware, too, that a poorly recorded CD—inhertently shrill—can sound even more crummy when the poor recording quality is mercilessly revealed thanks to Pro Sona.

**Last call, Comrades!**

This is it—your last chance to sign up for Sam Tellig's Second Annual Tour of the Soviet Union—while there is a Soviet Union. Tour leaves March 28, returns April 10. Price is probably $2895 double occupancy—it will certainly be firmed up by the time you read this. (I've spent the last three months haggling with Finnair and Intourist.) We visit Moscow, Leningrad, Odessa, Tashkent, Samarkand. The Soviet Union is relatively safe, although US tourism to the Motherland is down, since Americans appear afraid to travel in other countries when there's a slightest hint of unrest. (The unrest actually makes things more interesting, in a perverse sort of way.)

You can move or less move around Moscow, Leningrad, Odessa without fear of being mugged—which is a lot more than I can say for New York, Washington, or Chicago. Do not be scared off. As for food shortages, well, the hotels have food—they earn hard currency. You won't starve. (If you really get hungry, there are now quite a few restaurants in Moscow and Leningrad which take hard currency. And believe it or not, one of the best meals I ever had was at a Moscow restaurant, Kropotkinskaya 38—a cooperative that takes...rubles! I have the maitre d's card.)

This is not a tour for audio nerds—since there is no audio in the worker's paradise—so please bring your wife/husband/significant other. We are not going to tour The People's record factories—the Odessa Music Conservatory, maybe, but record factories, no. We are going to museums, concerts, historic sites. Some of us will undoubtedly hit the record shops in each city we visit, but that will be on our own time.

I also promise you a personal audience with Lenin himself! True, he's been dead since 1924, but he's been mummified! As the saying goes in the Soviet Union, Lenin lives. But who knows how much longer—better to pay your respects now, at the Lenin Mausoleum, on Red Square. People from all over the Soviet Union visit the Mausoleum to spend a little "quality time" with Illych.

Most tours to the Soviet Union take you in summer. That's lousy. The Bolshoi, the Kirov, the Leningrad Philharmonia (Shostakovich Hall)—all are closed. Air conditioning is either spotty or nonexistent. Tourist attractions, including museums, are mobbed. Better to go with Sam in the early spring, when it's cheaper, less crowded, and when just about everything is open. Don't worry about winter—even in Moscow and Leningrad, it's usually over by the end of March. And it stays light until about 8pm, which means early spring beats fall!

For information, write: Russia Tour, P.O. Box 1198, Ridgefield, CT 06877. Cynics should note that I don't earn a penny, not even a kopeck, taking these tours (not does Stereophile).
"A wonderfully congenial place to listen and shop, with all sorts of superb equipment. The salesmen, a bright and friendly group, are eager to talk audio all day—they don't hold anything back. A big plus: They love and know music as well as sound." New York Magazine—February 19, 1990
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Audio, Precision,

Audio Precision's Richard Cabot talks with Robert Harley
Dr. Richard Cabot is one of today's foremost authorities on audio measurement and testing. Formerly an instrumentation designer at Tektronix, Dr. Cabot is now Vice President and Principal Engineer at Audio Precision. The company's System One, a computerized audio test set (used by Stereophile), has revolutionized the way the world measures audio equipment.

Dr. Cabot holds B.S.E.E., M.Eng., M.S. Mech, and Ph.D. E.E. degrees, all earned by the age of 23. His dissertation was a study of sound localization in multi-channel reproduction systems. In addition, Dr. Cabot has served many posts within the Audio Engineering Society and is currently Vice President, International Region of that organization. In addition to designing test equipment, Dr. Cabot is a member of several panels that set audio measurement standards, including the IEEE and ASA. He is the author of Audio Engineering Society papers on audio measurement, including one on measuring the AES/EBU digital interface, the professional version of the consumer S/PDIF interface that connects CD transports to digital processors.

Because Dr. Cabot has dedicated his career to audio measurement, I felt his views might
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shed some light on the debate between those who judge audio-equipment performance by measurement and those who judge it by listening. During a recent trip to Oregon, I visited Audio Precision’s headquarters and asked Dr. Cabot how far measurements go toward describing the sound of an audio component:

Richard Cabot: I certainly believe that if something can be reliably heard—if the person really is hearing it—you can measure it if you know what to measure. But I would not swear that I could, with a simple set of measurements, automatically measure the right things. I would try to do a broad spectrum of measurements. There are a lot of measurements that we haven’t figured out how to make yet. We aren’t really measuring the right things.

Measurements are often made around what is convenient to measure or what is useful in a design viewpoint to assess tradeoffs in the design. If you are looking at designing some equipment, you go back many years to when people first started doing audio measurements in the hi-fi business. They were battling amplifiers that had several percent harmonic distortion. Harmonic distortion was a measurement that related very well to bias tradeoffs in vacuum tubes and output characteristics of output transformers. Measurements in widespread use today were developed because they were useful in assessing characteristics of what you were designing, not necessarily because they were useful in assessing the characteristics of what you heard. It’s extremely rare for anyone to address measurements from the viewpoint of what we hear and work backwards to what it is we need to measure in a device.

Robert Harley: Do you believe that every audible phenomenon can be measured with existing instruments?

RG: No, I wouldn’t say that. I think an awful lot of it can be, but just isn’t measured. But I have no doubt that measurements will be found in the future that we don’t know how to do today. I’m sure they will be found. If you can identify the problem, I can figure out a way to measure it. The problem is identifying the problem. If you tell me the physical effect that is causing what you hear, then I know I can find a way to measure that physical effect. But if you don’t know what the physical effect is, only that you hear something, I can’t necessarily find a way to measure that.

RH: After listening to and reviewing digital audio processors, I measure them. When looking at the data and graphs generated, I don’t see anything that describes the sonic qualities that I heard. They measure nearly identically, yet sound very different.

RG: Well, I’m not sure that they have nearly identical measurements. I have certainly found CD players that I can hear the difference between. Somebody here bought a new portable CD player, one of the Discman-style ones, and its distortion was clearly audible. It was not something you would have to make an effort to find. And that was supposedly a better model from the same company that made the previous one that he already owned. He promptly took the new one back to the store, got another unit of the same model, and it sounded the same. He went back to his older one, which sounded better than the newer one. So I don’t believe there are no differences between CD players. But I personally believe that virtually

**Measurements in widespread use today were developed because they were useful in assessing characteristics of what you were designing, not necessarily because they were useful in assessing the characteristics of what you heard.**

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I see “As We See It” in the July issue (Vol. 13 No. 7) for discussion of this topic.

Stereophile, January 1991

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all differences are attributable to the converters, the digital filtering, analog filtering, and other analog circuitry.

A good friend of mine is the person who developed CD Stoplight.

**RH: Bill Rasnake?**

**RC:** [Nods] He keeps telling me that one of these days he’s going to come down and prove to me that [CD Stoplight] is audible. I haven’t ever listened to it. I have doubts based on my conviction that when the data coming off the disc is right, it’s right. But turning it into audio is a whole different story.

**RH:** It’s generally believed that CD transports and interconnects between transports and digital processors have different sonic qualities. In theory, all transports should sound the same. What’s your reaction to this?

**RC:** I have not seen any evidence of differences between transports myself. I admit I’ve not spent a lot of time looking. I’ve seen rather dramatic differences in converters themselves— I’m a firm believer that different converters have different sounds. My gut tells me that the data coming off the transport—if it’s correct, if it’s what’s on the disc—should not be a limitation. It really is a data-recording medium, and you should treat it like that. It’s when you get to reconstructing that data that a lot of differences are introduced.

My gut tells me that the data coming off the transport—if it’s correct, if it’s what’s on the disc—should not be a limitation.

It really is a data-recording medium, and you should treat it like that.

One of the most amazing experiments I ever did was with the Magnavox [CD player] chip set—the Philips SAA72220 and TDA1541 DACs. One of our customers told me they were using that chip set in a professional piece of gear they were making. I had measured the Magnavox CD players and they had horrendous linearity errors. I said, “How can you be using this chip set? I’ve measured them and they don’t work very well.” And he told me that you just have to know how to hook them up. They work real well if you know what to do. They are really sensitive to ground-noise problems, and to glitching on the waveforms coming in. I said, “Do you mean the D/A [converter chip?]” He said, “No, the interface between the signal coming in [to the DAC] and the oversampling filter.” I was pretty amazed that the logic signals coming into the converter from the oversampling filter could make a difference.

But evidently it does. You have to buffer the lines, trim them up, make them nice and clean without any large amounts of ringing or overshoot or undershoot. They have to be nice, firm, well-controlled squarewaves coming into the D/A converter or you’ll get bad linearity errors. This was a guy I had a fair degree of faith in, who would have some reason for saying what he said. When I got back home I took a friend’s CD player, measured it, opened it up, got out the Philips data books, and looked at the interfacing. I cut the lines and put in a CMOS buffer and some RC networks that shaped the waveforms so they were nice and clean, and they looked real good on the ‘scope. I measured the player again. The linearity improved by something like 6dB. Instead of being 9dB out low levels, it was now out 3dB. I was amazed. I am not a golden ear—I wouldn’t swear to you that I heard a difference before and after, but I could swear to you that I measured a difference before and after. But when I tell people that there were differences in the logic lines—all I did was shape the waveforms on the logic lines before the D/A converter—they were amazed.

I knew another person who had a Magnavox CD player and did the same thing. It’s real. It’s repeatable. So there could easily be differences between two players, at least between converter interfaces—how to hook them up or the care in power supplies or grounding. Because the converter was obviously latching bad data based on what it saw previously with glitches or overshoots. These two chips were designed and made by the same manufacturer and designed to hook to each other, but if you just hooked them to each other they didn’t work very well.

**RH:** Based on your extensive knowledge of the S/PDIF digital interface, what factors could cause a digital data stream from a CD trans-
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port to sound different from another, assuming that the transmitted data is error-free? This is an area that many designers are starting to pay attention to—jitter in the transmitted signal creating jitter in the recovered clock.

**RC:** That would depend on how good the phase-lock circuitry is. You can certainly get a lot of jitter in the received signal; if it’s not filtered out by a well-designed phase-lock loop [PLL], then it will result in jitter at the D/A converter. I don’t know at what point you can hear the difference. We can create jitter pretty easily on a digital waveform to see what the reaction of the PLL is, but I don’t know what the state of commercial converters is.

**RH:** The figure most often discussed as being audible is 100 picoseconds of clock jitter at the DAC; for 16-bit DACs and somewhat less for 18- and 20-bit units.

**RC:** That would give you an error at high frequencies that would be down around the LSB [Least Significant Bit] region. I guess I have a hard time believing that an LSB error will be audible at high frequencies. I haven’t tried to define where that threshold is. There has been work done that has shown that there are non-linearity thresholds in converters that are audible at the 14- to 15-bit level. But you really need a good 16-bit system to get around those. I’m sure that when you start using the full dynamic range of a converter, as in a professional application, you would need potentially more than 16 bits of range to accurately capture that music without a lot of gain riding, without your system clipping from overload from a loud transient. As to how that relates to how much of an error you’ll hear at the bottom end of that range of a few bits of distortion, I haven’t done the experiments I would let me know that.

And I’m also admittedly not as critical a listener as some people are. I have a friend here in town who does live location recording, and he can consistently hear things that I don’t hear at first pass. But the more I listen to them with him, I can find those things later that he heard the first time through. But I just didn’t notice it. I guess that’s maybe a lack of training at hearing those differences. Most of the experimental psychoacoustic work I’ve done has related to sound localization. I tend to be pretty good at picking out things related to imaging and localization.

**RH:** How much research is going on in correlating measurements with human musical perception?

**RC:** The most promising work I’ve seen related to that has been done by Louis Fielder at Dolby Labs. There’s also some stuff that’s been done by people in Germany relating to low-bit-rate digital coding. They’re trying to squash more and more audio into a lower and lower bit rate. It’s clear that you’re abusing the audio: you’re butchering the signal something fierce when you chop down the data rate, and you’re definitely losing information. But they take the approach that, to make this still sound good, you have to assess what it is that the ear is going to hear and figure out from that how to measure this circuit and optimize its tradeoffs in terms of what information it throws away.

So when Louis Fielder at Dolby Labs is trying to build a Direct Broadcast Satellite [DBS] digital audio system and the guys in Germany are trying to build a digital audio system for direct broadcast of telephone communications or whatever, they know they’re going to have to throw away large amounts of information in the audio signal to make it fit. They’re going to have to do some very ugly things to the signal. You just can’t say, “We’re going to measure this so it looks OK on our equipment on the bench.” You have to say what things can we throw away that the ear won’t notice us throwing away. What do you have to keep? They’ve approached it from the “What can you hear?” viewpoint because they have no choice.

That kind of work will result in new approaches to measure equipment that give us a handle on what to look for. The problem is that those kinds of things don’t have a lot of funding. Specific cases like Louis Fielder and the German bit-rate compression schemes have funding because they’re going after extremely large dollar markets. If you can save a few kilohertz of bandwidth on a satellite, you’re talking about a lot of money saved in satellite costs.

They’ve got the money to pay for the research that they need to solve their specific problems. But there’s not the same budget for people who want to assess the audio quality of a piece of equipment for generic home use. You market it on numbers and things the consumer already understands. The common denominator among most consumers is power output; if you’re lucky, they can understand the concepts of distortion and frequency response. But the first thing they ask is how many watts it is. If you talk about anything more esoteric—the mask-
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ing effects of the ear or the sidebands due to jitter of some signal or dropouts due to missing samples—you'll lose 99% of the people out there. You don't find companies like Sony or Matsushita funding research into better ways to look at that stuff. If they did, they'd have to spend hundreds of millions of dollars trying to teach people that it's important in the first place. They would much rather just make something on a mass scale.

**RH:** They'd rather leave it to the American high-end manufacturers to address the more sophisticated segment of the market.

**RC:** They're interested in making money. That's all. They know that money is made with truckloads or boatloads of stuff. I'm not sure where you find the resources to investigate that stuff. It's just a labor of love when people try to find measurements to correlate with what they hear.

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**It's just a labor of love when people try to find measurements to correlate with what they hear.**

**Surprisingly little has been done that tries to analyze what you can hear.**

I did a literature survey for the last AES conference in Washington, DC on the perception of distortion—both linear and non-linear—in audio and what had been written about it and what experiments had been done. Surprisingly little has been done that tries to analyze what you can hear. The more interesting material in the literature that is yet to be understood is material on delayed resonances and their audibility, especially in how it relates to digital audio.

There's a paper done by Roger Lagadec of Studer, in a preprint for an AES Convention about five years ago, on the audibility of ringing in filters used in digital audio applications. They had devised a noise-reduction system that took the audio signal and chopped it up into 512 bands. Their system measured the level in each of those 512 bands and put a compressor on each band trying to filter out the noise to improve the sound quality of the signal to resurrect old, noisy recordings.

They listened to it and found it sounded terrible. They started doing things like turning off the compression and just putting the signal through their system and back out again with no compression. It still sounded terrible. They ultimately determined that the problem was all these filters that broke the signal apart and put it back together again. They were all linear-phase filters, and when you plotted the frequency response, it was ruler-flat from DC to Nyquist.

But the problem was that those tiny ripples in the frequency response, just fractions of a dB peak to peak, really represented the pre-shoot and ringing of the filters. They had very sharp filters to get the 40Hz-wide bands. Those involved ringing not only in the frequency domain that involved 0.01dB, but also were visible in the time domain. The narrower you make your filter, the longer it rings in the time domain. These very small ripples in the frequency domain translated into a pre-echo on the signal that was 50dB down that had happened many milliseconds before the signal. Fifty milliseconds before a loud transient came along, you heard this thing 40–50dB down. It was not a hard effect to hear.

A similar thing was found by Floyd Toole when he was studying the audibility of resonances in speakers, very high Q, very sharp resonances. If you made a very-high-Q resonance, you could adjust its amplitude. He set up an experiment where he took a signal and delayed it through a very-high-Q filter, then added it back into the audio. He adjusted the amplitude of the signal before it got added back into the audio to find out at what level you could hear this delayed reflection and how sharp was the filter. He changed the width, the amplitude, and the delay. He could create delayed resonances that were clearly audible on some types of program material. But when you looked at the frequency response, you saw 0.1dB to 0.5dB of ripple, a very small amount that would be visible when you did a simple amplitude vs frequency plot. But if you looked at the impulse response, you would see the ripples delayed in time. The ear picked up that ring that trailed along in time very well. And with digital audio, you have not only the post-

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is all about: once you get it into bits, you’re not supposed to screw it up. Here is somebody screwing it up.

That’s what digital is all about: once you get it into bits, you’re not supposed to screw it up. Here is somebody screwing it up.

A fellow that I know in Britain who has played around with digital audio quite a bit did some experiments measuring the digital data coming off the disc and looked for signs of poor quality A/Ds. He developed some ways of spotting them which I found interesting. He wrote a program that produced histograms of the digital audio data, how often each digital word had occurred. When you look at the histogram plots for discs that were made with poor A/D converters, you can find bins that are either too long or too short. Look at a long piece of music—an entire song or a movement in a symphonic work—you’re dealing with an awful lot of data and the distribution of that data ought to be some sort of smooth curve when it’s averaged over a whole song. If you look at neighboring bins and one of them is significantly higher or significantly lower than those next to it, it means that this sample happened a lot more often than it should have done, which in turn means that the converter had a non-linearity there. The bit level was off or discontinuous. He also found that if you look at groups of bins from codes that are near each other, you can spot other patterns having to do with limited slew rate in the sample-and-hold circuits. He figured out ways of analyzing this that were really quite interesting. By looking at several commercial discs, the histograms indicate the quality, the rough performance, of the A/D converter.

I’ve got a CD at home that when I play it, I can hear low-level distortion plain as day. There are a lot of low-level problems in digital audio. I think it’s all stuff that people know how to improve but haven’t felt the need to give it their attention.

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Sterephile, January 1991
Highlights of the review:

Over the years, B & K Components, Ltd. has become one of America’s leading manufacturers of affordable, high-quality audio electronics. B & K has done an admirable job of providing musical, reliable preamplifiers and power amplifiers within the budget of virtually any music lover.

"I was floored by the M-200's sense of pace and drive."

Impressed as I am by the MC-101, I find the Sonata M-200 monoblock power amplifiers on test here even more remarkable. The M-200 is John Beyer's effort to build a power amp that can drive virtually any loudspeaker load in existence. Rated at 200 watts into 8 ohms and 400 watts into 4 ohms, the M-200 can drive loads as low as .75 ohms and still pump out its rated 200 watts! Rated peak current output of the M-200 is an incredible 150 amperes. This might come in handy should you need to jump-start your Peterbilt on a frosty morning.

Internal construction is most impressive, with a massive, shielded toroidal transformer centrally sited within the steel chassis. Four filter capacitors, each roughly the size of the oil filter on my Honda, combine to offer nearly 70,000 mfd of storage capacitance. The input and driver circuits are carried on a single glassfibre board that sits atop the power supply caps. A plastic panel bearing a silkscreened schematic of the amp covers this board. As with B & K's other power amps, the M-200 utilizes MOSFET output transistors. In keeping with the M-200's beefy design, no less than twenty of these devices are fastened to the amp's external heatsink. Quality (Corning or Dale) 1% metal film resistors and premium film caps are used throughout the active circuitry. A gold-plated premium input jack is included, with gold-plated five-way binding posts handling speaker cable connection.

A good power amplifier will let you appreciate the rhythmic drive of Tommy Shannon's bass guitar, but it takes an outstanding amp to make the pitch of the instrument clear. The M-200 is such an amp.

"I was bowled over by its combination of smoothness (a B & K hallmark) and detail."

All too often extremely powerful amps excel on bombastic symphony works, but fall down when it comes to conveying the subtlety and nuance of "smaller" music. The M-200 proved to be a glorious exception. Yes, the massed brass and great whomping bass drum shots in "Uranus, the Magician" were appropriately startling, but equally satisfying were the quiet flute and
violin passages that weave through this performance. Delicate instrumental shadings and nuances that are so important in communicating the emotion of the music were never glossed over or homogenized. The M-200 had that essential ability to draw me further and further into the music, rather than hurling it in my face. Equally impressive was the M-200’s soundstage width and depth, as the size and power of the orchestra were communicated to great effect.

The M-200 was superb in its capacity to capture the (real and artificial) reverb on this track [Iggy Pop’s New Values], helping to convincingly communicate the mood and tension of the composition. Pop’s vocals were rich and resonant, while the synthesizer lacked the slightly harsh, piercing character imparted it by lesser-quality amps.

Obviously, I was extremely impressed by the B & K M-200. While offering the tonal naturalness that characterizes all B & K products, the M-200 goes far beyond previous B & K amps in its outstanding bass quickness and definition, as well as its excellent retrieval of low-level detail and recording acoustic. There is a fundamental quickness and alacrity to the M-200 that makes music more immediate, more compelling.

John Beyer tells me one of his competitors pays three times as much as B & K for the same Noble volume pot. These additional costs are passed on to the consumer in the form of higher retail prices. Of course, those small-volume manufacturers committed to meeting a specific price point may have to employ inferior-quality parts to stay within budget; their inability to make large parts purchases means they may actually pay more for parts inferior to those used by high-volume manufacturers like B & K, Vandersteen, etc.

B & K has undertaken the ... daunting task of manufacturing and marketing affordable equipment in numbers sufficient to ensure a reasonable return on investment. B & K’s profit per unit may be modest compared to that of the typical “High End” component, but the company has achieved unit sales (and consequent profits) that are quite astounding for a specialist manufacturer. Equally impressive is the fact that Beyer hasn’t compromised his products’ integrity to achieve commercial success.

The above is a roundabout way of explaining the significance of B & K’s new Sonata series. Beyer has now committed B & K’s manufacturing efficiency and economies of scale to producing audio components that challenge the best “High End” marques.

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This is a somewhat different twist on other “Recommended Recordings” lists you may have read. Rather than a selection of all-time (or year’s) best recorded performances—which are common enough—or a list of audiophile reference recordings—common enough in the audiophile press, at any rate, and a good thing, too—this is a list of stereo recordings that are both musically and sonically impeccable—in other words, the best, the tops, to die for—each item briefly described in a hundred or so words (except for JA, LA, and JGH, whose couplets runneth over).

Needless to say, such strictures considerably narrowed the field. But it also set Stereophile’s staff a stiff challenge. Kicking and screaming all the way to the deadline (and past it), they complained that: five choices were not nearly enough; they couldn’t come up with a single recording that fit all criteria; this list was a dumb idea anyway.

Such a list also makes for some strange procrustean bedfellows—obscure recordings that would never make the proverbial “desert island” list snuggling up next to towering classics of the concert hall and control room. My own choice of Yoel Levi’s Telarc recording of Copland’s Symphony 3 is a case in point; as much as I respect and enjoy Copland’s music, no one would think of comparing his symphonies with those of Beethoven, Mahler, or Brahms. Still, that recording fit, as did few others, the criteria JA and I had laid down: remarkably good stereo recordings of remarkably good performances.

But all the hair-tearing and category-fudging turned out to be worth it, as you’ll soon discover—there are lots of surprises here. Equipment and music reviewers are lumped together here and listed alphabetically; composers/performers are listed alphabetically under each writer. Those recordings that have been reviewed in Stereophile since the birth of the monthly music section in Vol.10 No.7 (October 1987) are so noted; ie, a listing ending in “(XI-5)” was reviewed in Vol.11 No.5.

Have fun—we did. —Richard Lehnert

30 Stereophile writers each list five recommended recordings.
to Die For

Take 'em with you if you can!
Larry Archibald

The five favorite? Out of hundreds? Even worse, superb performance and superb recordings, in clear contradiction of Holt's First Law! Worse still, no mono records? Why? What an outrage! I decided, in my choices, to modify the criteria somewhat: superb performances where the recording is good enough to not detract from the overall experience. Only one of my choices could serve as a textbook example of excellent recording, but in none will the recording keep you away from the music—which is what matters. After all, if stranded with five records on a desert island, the technical (and, to some extent, artistic) achievement of an excellent recording by itself will thrill for maybe two days; the nourishment of a great performance will continue, even over AM radio, for years—until your ship vitally comes in.

All favorites are LPs, but not for any ideological reason—that just happens to be where the best performances are.

JOAN BAEZ: Joan Baez
Joan Baez, vocal, guitar; Fred Hellerman, guitar
Vanguard VSD 2077 (LP). Maynard Solomon, prod. AAA. TT: 44:28

This is the original, the one better than which she never made (though her second album, Joan Baez, Vol. 2, was released only a couple of years later and clearly presents her voice and artistic sensibility in much the same light as Vol. 1). The first time is the best time—which gravely disappointed me, as I followed Ms. Baez's career over the years. The amazing thing is that you can still buy this LP (the copy I'm currently listening to was purchased in Central Square, Cambridge at El Cheapo Records, just a few months ago)!

This is a simple record of an extraordinarily pure, dramatic voice that's never since sounded quite as amazing and unconscious. The songs are mostly ballads, mostly English, in a program right out of the folk revival of the late '50s/early '60s. (My original copy was a birthday present from my sister in 1959 or '60; the record was released right around then.)

Certainly, this choice is influenced by nostalgia, but also by my intense appreciation of the aforementioned folk revival and the idealistic values it represented (which values were a not insignificant contributor to the civil rights and anti-war movements of the '60s). It's also an example of the Nadia Comaneci phenomenon (whose gymnastic performance In the 1976(? Olympics has yet to be surpassed): you see it early, you can't believe how good how it is—and you never see it again (certainly from Comaneci).

The recording, like the performance, is simple and exposed. Whatever acoustic existed in the studio has not been preserved, but the most intimate details of voice and guitars are faithfully captured. Buy it now, before it's out of print and expensive. Unless you hate folk music or the female voice, you won't be disappointed.

BRAHMS: Ein deutsches Requiem
Elisabeth Schwarzkopf, Dietrich Fischer-Dieskau, Otto Klemperer, Philharmonia Orchestra & Chorus
French EMI 167-012956 (2 LPs). (Also available on Angel CDC-47238, 2 CDs only). Walter Legge, prod. AAA
(I have the French EMI; I'm sure it was available on English and other EMI, as well as Angel—but the EMI is much better than the Angel version.)

The German Requiem is arguably the greatest piece of choral music the world has known, only Bach's Mass in B Minor and St. Matthew Passion are competitors for me (but who cares? You can fall in love with whatever choral music you want!). No piece by Brahms better combines his Dostoyevskian appreciation of tragedy with his inherent helpfulness. In this work, that combination is made explicit in Brahms's own choice of scriptural texts—in that sense, it couldn't be more different from a traditional Roman Catholic Requiem mass.

Klemperer's performance is unbelievably slow (many versions include a filler on side 4, but not this one!), just as you would expect. The effect, as with Klemperer at his best, is extraordinarily powerful. Given the inherent strength of both the music and the scriptural selections, you won't sit through this unmoved. Other conductors have also done well; an early-'60s version by von Karajan on DG has even more vitality than Klemperer. However, no one else has had Klemperer's soloists, and that is what makes this version literally indispensable for someone attached to this music. Not only do Schwarzkopf and Fischer-Dieskau excel (as you would expect, this being the time their voices were at their best), they literally define the roles. I would be happy with another version where one of the soloists matched one from this German pair; I don't expect to ever hear a version where both are even in the same ballpark.

The orchestra and chorus are unexceptionable, the best I've ever heard. The recording is spacious and appropriately reverential, but is marred by serious breakup on high female voices. As this characteristic exists on both American and French versions, I conclude that the mikes or mike preamps overloaded, which is a great pity. The American pressing on Angel, however, combines this flaw with an all-pervasive muddiness; it should be avoided. Overall, the recording barely skims under my criterion announced in my first paragraph; the performances are so excellent, though, and the piece of music so great, that I must include it.

JUNIOR WELLS: Hoodoo Man Blues
Delmark D5-612 (LP). Stu Black, eng.; Robert G. Koester, prod. AAA. TT: 44:40

I've mentioned this in numerous reviews as a favorite, and it is. There are hundreds of great blues records, and, because most of the companies producing them remain undercapitalized, many are still available on LP (though not on CD), including this one (also available on an ADD Delmark CD, DD-612, with two bonus tracks). But this is something special. I just bought three brand-new copies, again at El Cheapo. I haven't noticed any sonic differences other than a lower level of ticks and pops on the new one, but the album has one amusing change: the original had Buddy Guy listed as "Friendly Chap," presumably to avoid some recording-label conflict, but later albums credit him by his real name.

1 "The better the performance, the worse the recording," and vice versa.
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**Recommended Recordings**

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The recording is surprisingly open and revealing, though a little raw. I make no apologies, however, for Stu Black, of Sound Studios, who recorded this for Delmark; he lets the music through. The ability of a system to draw you in to this (almost) Chicago nightclub atmosphere is most revealing. Even more revealing: everyone who's heard this album loves it. Blues fans drool. If you can find it, you will too.

MAHLER: Symphony 3
Jascha Horenstein, London Symphony Orchestra, Ambrosian Singers, Wandsworth School Boys Choir
Unicorn UNZ-75004X (2 LPS). Bob Auger, eng.: Harold Lawrence. prod. AAA. TT: 98:17

Here, as a complete nonexpert on Mahler's symphonies, I feel on thin ice, particularly when I witness the kind of expertise that goes into our "Building a Library" features. I have auditioned only a couple of Mahler Thirds, and this Horenstein version is far superior, but that hardly makes my range encyclopaedic. Nevertheless, as I read our reviews I see that Horenstein is a notable Mahler interpreter, frequently one of the best.

Frankly, I bought this album because of the lovely cover (an area where no one questions the LP's superiority); for a reason I don't understand, I've found this an extraordinarily reliable indicator of great recordings. All the records listed above, for instance, have great covers. Maybe it's just that there are lots of great records, and some have great covers. I also bought this because it's a Unicorn: Unicorn has always made recordings with excellent values, at least back when they were analog. (The few digital's I've tried don't live up to this standard; in truth, I never buy digital LP's—it's the worst of both worlds.)

So, what do you get? An inspired, vigorous, yet ethereal recording, where Horenstein appears to be in some kind of distant, yet direct, communication with Mahler; tremendous sonics, with great brass and drums; impeccable playing; an immense, almost cathedral-like, recorded acoustic, which works particularly well with this music, especially the horn solos; a spiritual, satisfying record. Unfortunately, you'll have a difficult time finding the original Unicorn, which was sparsely distributed when new, and the reissues I've heard are a pale version of the real thing. When it comes out on CD, which it should, I'll report back.2

THOMAS TALLIS: The Lamentations of Jeremiah
WILLIAM BYRD: Motets
The King's Singers
EMI CSD 3779 (LP). Christopher Parker, eng.: Christopher Bishop. prod. AAA.

This is the only concession in this selection to my (occasional) job as reviewer: I never fail to examine a system's soundstage with this record. It provides a wide panorama of the King's Singers, with great specific-

ity and interesting positioning of various voices—when correctly reproduced. It's an EMI by the two Christophers (Bishop and Parker), and superbly done, with most satisfying a capella male voices.

I also love The Lamentations of jeremia(h/the Byrd motets are interesting, but not my favorites; this is pretty much a one-side record). In spite of its status as a reviewing tool, I find myself playing this record even when I'm not being critical (something I'd never say of Sheffield's Drum Record); its spiritual and hopeful acceptance of sadness is both relaxing and enlightening.

I see that I've run out of numbers. Just two brief notes: Rossini Overtures on RCA Living Stereo, with Reiner and the Chicago (LSC-2318)(XIV-1, CD). Never-to-be-equalled performances in an excellent acoustic, though I don't love the sound found on old RCAs as much as some do. Guy Lemcoe found a copy at a garage sale for $1.88, and I saw one at an east-coast audio boutique for $175; Guy's was in better sonic condition, so if you find one in that circumstance, it's definitely worth a try. Also, if you follow others' recommendations in this feature and buy the Philips CD of Misa Criollia, don't cheat yourself out of the definitive performance of this work on the old Philips LP. They're common at garage sales, and make José Carreras, et al, sound like Kiri Te Kanawa singing West Side Story—if you know what I mean!

John Atkinson

The more I thought about it, the more I felt that Richard Lehrnert's instruction, to select just five recordings that represented the best sound and the best performance, was an impossible task. Why, I could easily choose five such recordings in just one recorded music genre, live rock or solo harpsichord, for example. Obviously, a different approach was called for. In true beauty-contest fashion, therefore, I've listed a number of finalists in each of five broad categories, orchestral, chamber/instrumental, vocal/orchestral, rock, and jazz (for interest's sake I've included the original release date in parentheses), and will announce the winner at the end of each section.

First, classical orchestral music is said by many pundits to be the hardest kind of music for a hi-fi system to resolve/reproduce; which is perhaps why I had the hardest time of all reaching a decision here. I find the excesses of modern engineers and the unnatural perspectives engendered by the thoughtless use of multimiking to be only all too audible with too many records. But there are a few which have survived the test of time to be frequent visitors to my turntable or CD player: Sir Adrian Boult's final recording of Holst's Planets, HMV LP ASD 3649 and CD CDM 7 69045 2 (1979), as well as his album of Elgar works—The Sanguine Fan, Falstaff, and the arrangement of Bach's Fantasia and Fugue in c—Mobile Fidelity LP MFSL 200-Cl, and EMI CD CDM 7 63313 2 (1974); Jacqueline du Pré's first (1965) recording of the Elgar Cello Concerto, EMI LP ASD 2764 (coupled with the Delius concerto) and EMI CD CDC 7 47329 2 (with the Janet Baker recording of Elgar's Sea Pictures); the Sheffield Lab recording of Stravinsky's Firebird Suite (1986); and Chuck Gerhardt conducting the National Philharmonic Orchestra in orchestrations of works by Ravel, Satie, and Fauré, RCA RL 25094 (1978—produced and engineered direct to stereo by Kenneth Wilkinson).
Other recordings may have a more lush string tone, deeper bass, more cavernous acoustics, more "exciting" balances, more vivid imaging. No matter. This simply miked direct-disc recording (a Blumlein pair of Coles/BBC ribbons was used) is simply the most real recorded orchestral sound I have ever experienced.

Listen to the clarinet playing with the tune a minute or so into "The Princess's Game"—it is uncannily and exactly how a solo clarinet really sounds positioned in the middle of an orchestra. In fact, all the solo instruments have that sense of verisimilitude, every one in its place, its tonal color true. It is only with the string sound that some listeners may find fault, Sheffield's ex-MGM soundstage Los Angeles studio appearing to have too low a ceiling for the sound to fully bloom. But again, the strings sound real. The CD gets quite close to the LP, particularly in dynamics—the bass drum slaps in the "Infernal Dance" are perhaps the scariest on disc—and as for the performance, it is little on the positive side, Leinsdorf perhaps forgetting the fact that this music is for the dance, but it is none the less enjoyable for that.

My vocal/hedral category overlaps orchestral somewhat, as I have included songs and vocal works with orchestral accompaniment. Again, I want purity of tonal colors and believability of the recorded space to add to what must be definitive performances. Heading off my list of finalists is The Tony Bennett/Bill Evans Album, Fantasy LP F-9489 (1975); followed by the Wilfred Brown performance of Gerald Finzi's Dies Natalis, EMI LP HQS 1260 (1964); Rob Wasserman's bass-and-voice Duets album, MCA CD MCACD 42151 (1988) (XII-4); 'tA Mahal's Recycling the Blues, Columbia LP 31605 (1975); a Proprius Bach cantata recording released on the English Meridan label, LP E77016 (1979); the Telarc coupling of the Fauré and Durufle Requiems, Telarc CD-80155 (1987, X-7); and a 1977 collection of unaccompanied English and French partsongs from the vocal group Swingle II. And it is... Lumping chamber and instrumental recordings in one category is a writer's trick to get just five overall "winners." And it results in you having to compare apples with kumquats. If I could, therefore, I would nominate everyone of the finalists in this category, analog recordings all, for the ultimate accolade. You try to choose from: Arturo Delmoni's solo violin recital, Water Lily LP and CD WLA-WSK-37CD (1989, XIII-10); Michael Newman's solo guitar recital, Sheffield Lab LP LAB 10 (1979); David Abel's and Julie Steinberg's Beethoven and Enescu recital, Wilson Audio LP W 8315 (1983); Earl Wild's display of live pianistic virtuosity on The Art of the Transcription, Audiofon LP 2008-2 and CD (1981); James Boyk's premier recording, and I think his best in that it is the most lyrical, of the Beethoven Op.111 piano sonata, Performance Recordings LP PR-1 (1978); the Käbi Laremei Mozart, Chopin, Handel, and Scarlatti piano recital The Film Music of Ingmar Bergman, Proprius LP PROP '7829 (1978); and the only organ recording I have heard that reflects reality in that it is a recording of an acoustic space in which an organ happens to be playing, Ian Tracey plays the Henry Willis III Organ of Liverpool Cathedral, Michael Woodward LP MW931 (1982).

Sorry Richard, I can't choose between them—they all sound about as true to the sound of reality as it is possible to get with current technology!

I am not a big jazz record collector, though I know what I like—Miles Davis. Accordingly, I reached for his Kind of Blue, Columbia LP 62066 (1960), which is the quintessential, perfectly recorded small-group jazz recording. But then shouldn't at least one Andreas Vollenweider recording be included? Caverna Magica from 1983 has the best combination of natural sound quality but an exhaustively produced sense of space. And how about Quincy Jones? Shouldn't some of his immaculately produced, recorded, and played big-band arrangements—the Smackwater Jack album, A&M AMLS 63037 (1971), for example—get a look in? And Weather Report's Heavy Weather, CBS LP 81775 (1977), typifies the best of fusion in that it revivifies jazz's intellectual meat with the power of live electric rock. Ultimately...

ANDREAS VOLLENWEIDER: Caverna Magica
CBS 25265 (LP), MK 37827 (CD). Eric Merz, Roger Bonnot, engs.; Andreas Vollenweider, prod. AAD. TT: 53:20

... gets my nomination by a nose for the sheer elegance of its production values. Some may dismiss the Swiss harpist's musical musings as New Age sewage; others may find the sound too rich, like a piano played with the sustain pedal permanently depressed. But for me, the opening soundscapes as two aural adventurers enter the cave to find dripping water setting up the opening riff, to the album's conclusion as they dive into the pool they find there, I am impressed by the sense of majesty to the soundstage, the music driven along by the restrained, fuzzed purr of the bass strings of Vollenweider's electric harp and accentuated by almost fetishist sonic seasonings. (The height of sensuality, I feel, would be to listen to this album while a musically aware Housebrush your naked arm with a fur glove.) If the "best" music depends on the manner in which the musicians play the spaces between the notes, then Vollenweider's arrangements and performances qualify for that adjective.

Stereophile, January 1991
Having had an active career in rock music before jumping tracks to become a hi-fi writer, I perhaps have a slightly different perspective from many audiophiles on what makes a rock recording stand out from the crowd. Musically, such recordings must have evidence of the artist having a unique voice—no "me too" music please. Philosophically I have no aversion to signal processing of any kind (though I find sampled and sequenced drums to resemble shaped and textured noise), but I do like unexaggerated vocal textures, with all the dynamics of live rock preserved intact. Personally, my tastes run toward the big sound rather than the intimately balanced—Phillip Spector was, not surprisingly, the producer who lured me away from my classical upbringing—which is why, most of all, I want the mind behind a rock record's production to have intelligently, tastefully, and cleverly created a tangible sense of space between, behind, and beyond the loudspeakers, enveloping the listener in sound and feeling. Many albums achieve this goal with one or two tracks, but only a few sustain the sense of invention for a whole two sides. After much headscratching, my finalists in this category are: Joan Armatrading's "Show Some Emotion," A&M LP AMLH 68433 (1977) and Joan Armatrading, A&M LP AMLH 64588 (1976); the Beach Boys' "Surf's Up," Brother Records LP RS 6453 (1971); Clannad's "Magic Ring," RCA LP ALP6072 and CD ND71473 (1983); David Crosby's If Only I Could Remember My Name, Atlantic LP SD-7203 (1971); Dire Straits' Love Over Gold, Vertigo UK CD 080 888-2 (1982), and Brothers in Arms, Vertigo UK CD 824 499-2 (1985); Donny Hathaway's Donny Hathaway Live, Atlantic LP K40369 (1971); Pink Floyd's The Wall, EMI Harvest UK LP SHDW 411 (1980), and Wish You Were Here, EMI Harvest UK LP SHVL 814 (1975); and Steely Dan's Aja, MCA LP MCA-1688 and CD MCAD-37214, and Mobile Fidelity LP MFSL 033 (1977; XII-10), and Gaucho, MCA LP 6102 and CD MCAD-37220 (1980). And the winner is: None of the above, but...

JIMI HENDRIX: Electric Ladyland
Polydor 2657 012 (UK LP), Repise 6307-2 (CD). Gary Kellgren, Eddie Kramer, etc.; Jimi Hendrix, prod. AAA. TT: 75:27

What am I thinking of? There was one artist who more than any other defined the tracks down which recorded rock in the '70s and '80s would travel. And with one double album, three sides of which took advantage of multitrack recording in a way no one else had before, changed the world of recorded rock music for all time. No, Virginia, not the Beatles, but a black guitarist/songwriter from Seattle. With his 1968 Electric Ladyland album, 26-year-old James Marshall Hendrix used every aspect of the newly introduced 16-track recorder to create whirling mindscapes of sound that overflowed both the stereo stage and the listener's musical preconceptions.

Though Chris Welch says in his 1972 biography (Hendrix, Ocean Books), many critics found Electric Ladyland at the time of its release to be a "messy kind of self-indulgence, lacking the compact brilliance and fire of the first two albums," those critics were listening with ears thirsting for anglicized shuffle-rhythm blues riffs. What they heard instead was a mature artist stripping black rock of its white paraphernalia to then synthesize a whole new music tied together with virtuosic handling of a guitar that in the hands of others—the English group The Shadows comes to mind—had come to almost typify white boys' music: a Fender Stratocaster. I mean, Eric Clapton, Peter Green, Mike Bloomfield, all played the blues on Gibson Les Pauls, and Chuck Berry and B.B. King slim-bodied Gibson 335s and 355s, real men's guitars all of them. Could King's Lucille be a Strat? Not in a 12-million-bar blues—the Stratocaster was more at home in a beach party movie.

Yet the black Hendrix made his white Strat masterfully moan—listen to "House Burning Down" on Ladyland, as he uses the guitar's intrinsic low-distortion, heavily strung tone to underpin the tango rhythm while the phased, comb-filtered sound of it overriding the amplifier soars free. (Only Dire Straits' Mark Knopfler has used the Strat to such godly diverse effect since then.) And this without the anal sterility that so often typifies '60s multitrack rock, the don't-give-a-dam intro to both "Rainy Day Dream Away" and "Voodoo Chile" casually capturing the innocent power of live rock.

Sonically, the entire album's mix, with its innovative use of panpotting, stereo staging, flanging, phasing, distortion, fuzz and wah-wah pedals, overdubbing, backward tape, reverb, and repeat echo is a primer for the art of imaginative electric guitar recording. And the drum sound, though not particularly spread across the soundstage, is refreshingly natural compared with most modern recorded drums. Check out also the flanged snare kick drum in "Gypsy Eyes," the trick being that the instrument's inter-channel phasing changes throughout the track, something that I have not heard since. (It must have been a pig to cut on to disc.) There are also some amazing surround-sound effects, the second guitar in "Still Raining, Still Dreaming" floating well to the right of my right speaker, even venturing forward to the listening position at times. Overall, the sound does show its age a little, primarily through the master tape squashing somewhat at climaxses and lacking the ultimate extension at the frequency extremes. But so what? There is an integrity to the sound that allows the music to leap at you from your speakers. The recorded soundstage, however, is split between sides one, three and four and two, much of which is primitive. "Long Hot Summer Night" is basically recorded in triple mono rather than stereo: mono drums on the far left, rhythm guitar on the far right, and the voice and bass in the center. Only three sides qualify for my recommendation, therefore. The

3 The first album recording I was ever involved in as a session musician was back in 1972 at EMI Abbey Road Studios in London. (Talk about starting at the top.) Our producer was—how to be polite?—pretty uninspired, and the mixdowns were blandly disappointing. One lunchtime, however, this fresh-faced kid, the tape operator assigned to us, asked if he could have a go at a mix one lunchtime. A few times through the 16-track master and the result was overpowering—a big sound, a big space hanging between the Quad-driven JBLs, we could have been a different band entirely! Upon his return from lunch, the regular producer was not impressed, took back the board, and our blandified album disappeared without trace. That junior tape op, however, became recognized as one of the most talented producers to emerge from the '70s. His name was Alan Parsons.

4 Only the Fender Jaguar, the Ventures' Mosrite, and Stephen Stills' and Nell Young's Gretsch White Falcons could be more white.

5 Yes, I know that 20 years later Robert Cray plays and Stevie Ray Vaughan played a Stratocaster. Perhaps this wouldn't have been so without the influence of JH.

Stereophile, January 1991
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Tired of commercial recordings that stubbornly refused to deliver accurate sound quality and soundstaging, Stereophile’s editors commissioned Water Lily Acoustics’ Kavi Alexander to capture the sound of flute and piano with accuracy, honesty, and integrity. (See Stereophile, September 1989, Vol.12 No.9, p.66, for the full story.)

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NoNoise-processed single-CD release seems to have survived both the years and the processing relatively well, offering more highs than my antique, well-played LP (though it has dropped the nude cover of the original).

Finally, although singles, of course, aren't eligible for inclusion in this listing, I have to mention one that had a formative effect on my evolution as a hi-fi nerd: It was 1969 and I had just set up the first pair of loudspeakers that I had bought rather than built (Wharfedale Super Lintons); I put on a single that someone, I forget who, had recommended. Eyes and ears open, I heard Pete Townsend—type power chords—a slight variation on "I Can't Explain"—a soaring vocal line, woof-of-busting bass, all brought to the boil with flanging à l'excès. The group was The Nazz, the song "Open My Eyes," written by the group's lead guitarist, the young Todd Rundgren, who I don't think has recorded anything since to offer the same level of energy. In fact, the only recording to equal "Open My Eyes" in this respect was Joe Walsh's "Rocky Mountain Way," the 45rpm 12" single of which has probably the most-dynamic-recorded drum sound ever... But as I could fill the rest of this issue with such instances, I'd better stop now before Richard reaches for his red pencil...

Arnis Balgalvis

I feel that only five recordings are not enough to give the reader a fair shot at the reviewer's choices. It would have been better to list more selections, say ten, and cut the comments in half. Just in case, here are my other five recommendations: The Power of the Orchestra, Chesky LP RC50; Ahmad Jamal's Rossiller Road, Atlantic 7 81645-2 (CD); Dick Hyman Plays Fats Waller; RR-33DCD (CD); Trio, by Dolly Parton, Linda Ronstadt, and Emmylou Harris, Warner Bros. 9 25491-2 (CD); and John Pizzarelli's My Blue Heaven, Chesky JD38 (CD).

Laurindo Almeida/Charlie Byrd: Tango
Concord Picante CDD 4290 (LP). Ron Davis, eng.; Carl E. Jefferson, prod. AAA. TT: 38:93

Here's a CD I seek out whenever I want to get a quick bearing on the system sonically. The very demanding dynamics, excellent spectral balance, great inner detailing, and a setting ever so natural, are all balanced beautifully. This is one of the best CDs I have ever heard.

And don't be fooled by the title. This seemingly sedate CD is musically seductive. While an accordion never makes an appearance, Messers. Almeida and Byrd deliver a most remarkable guitar recital and manage to draw the listener into tango after tango. For me the end always comes too soon. Tango is available on LP, but I haven't auditioned it.

Corelli: Concerto Grossi, Op.6 Nos.1–6
Nicholas McGegan, Philadelphia Baroque Orchestra
Harmonia Mundi HMU 7014 (LP), HMU 907014 (CD). Robina G. Young, prod.; Peter McGrath, eng. AAA/AAD. TT: 60:02

HM deserves recognition for their consistently good recordings whenever Robina Young and Peter McGrath are involved. Being very certain that Bob Harley will praise Handel's Water Music, I decided to put up this beauty for my HM choice. If the stage was alive with the sound of music in capturing the Handel work, this time around Peter McGrath goes one better. The stage lights up with a most delightful array of sonicic details. The soundspace is very vast and very busy. The sounds reaching your ears are sure to please. The instruments have been captured having a most vivid time with the music. Pinpoint placements, spontaneous attacks, and exquisite decays make for a longer-than-life presentation, especially so on LP. It's smooth and sumptuous, yet poignant and commanding. (XIII-6)

Debussy: Sonata for Violin and Piano
Bartók: Rumanian Folk Dances
Brahms: Sonata No.1 in G, Op.78
Satie: Birds in Warpied Time II
Julie Steinberg, piano; David Abel, violin
Wilson Audiophile W-8722 (LP), WCD-8722 (CD). David A. Wilson, Sheryl Lee Wilson, prod.; David A. Wilson, eng. AAA/AAD. TT: 58:29

Ever since I observed Dave Wilson use this recording to get a feel for the tonal balance of his WAMMs, I have held this CD in high regard. I feel it is one of the most realistic recordings of the violin in existence. The difficult-to-capture woody resonance of the violin's body is wonderfully balanced with the vibrant richness of the string tone. Brightness is avoided, and at the same time details and transients are in ample evidence. While this is not a tour de force for the piano, the power of this instrument nevertheless comes across unmistakably.

Thanks, Dave!

Stan Kenton and His Orchestra: Birthday in Britain
Creative World 1065 (LP), GNP Crescendo STD-1065 (CD).
Wally Heider, eng.; Stan Kenton, Dick Shearer, Wally Heider, prod. AAA/AAD. TT: 51:28

My initial inclination was to submit the Harry James recordings on Sheffield, but the direct-to-discs may be too difficult to come by. The CDs are good, but pale when compared to the LPs.

I therefore decided to include this selection because the performance is far more spontaneous and dynamic, and it is finally available on CD. Play it again, Stan! I can't think of a better way to get the feel of what this type of music is all about.

This is big-band virtuosity personified. Driving rhythms, thrilling brass choirs, and adorable solos combine for an inspirational performance. It sure helps to be in front of a live audience.

The LP has more apparent air and better depth, but the CD is every bit as clean and smooth. It wins by being more coherent and effortless. You might be interested to know that a Nagra tape machine was used to create this wonderful recording.

Ronnie McFarlane: The Scottish Lute
Ronnie McFarlane, lute and mandora
Dorian DOR-90129 (CD only). Douglas Brown, Ronnie McFarlane, prod.; Douglas Brown, eng. DDD. TT: 69:46

Talk about palpable presence! Seldom is heard a discouraging note on this naturally focused, airy, and marvelously detailed recording. This is one of those rarities—and on CD, no less—that serves as a reminder that "real" is not a pipe dream.
Speakers are the most important part of your stereo system. It is the speaker that turns amplifier signal into sound and so ultimately determines what you hear. If your speakers do not perform well, your stereo system will simply not sound like music.

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John Atkinson / Stereophile Vol. 11 No.1 January, 1988
Don’t consider the prospect of listening to 69 minutes of lute music a chore. Ronn won me over very quickly, and presented the music in a manner involving enough that I found myself wanting still more. The music is soothing and fascinating at the same time. One of the best recordings to come along for quite some time.

Les Berkley

JONI MITCHELL: Blue
Reprise MS 2038 (LP). Henry Lewy, eng. AAA. TT: 36:14

When RL first told me about the “Recommended Recordings” project, I knew there was going to be a Joni Mitchell album among my choices. The only problem was: which one? Most audiophiles like either Court and Spark or Wild Things Run Fast; both of these latter have places in Harry Pearson’s List. But for me, Blue represents a simpler and more unvarnishedly real kind of music-making. Write it off to my folkie sensibilities if you will, but I’ll bet you that ten years from now, this is still on my Best list.

Incidentally, my fairly recent pressing, mastered by a house I cannot identify, sounds as good as the original issue.

STAN ROGERS: Between the Breaks . . . Live
Foggy’s Cove FCM 002 (LP). Bill Garrett, prod.; Steve Vaughan, eng. AAA.

You’ve probably never heard Stan Rogers, and I don’t have space here to convince you that he was the best folksinger to come out of Canada since the Real Gordon Lightfoot (d.1970). Just take it on faith—Stan was the real thing, and this is about the best live folk album you’ll ever hear. The recording quality will remind you of the famous Weavers’ Reunion at Carnegie, which is about the highest praise I can muster. Stan’s guitars (six- and twelve-string) were custom-made for him by luthier Grit Laskin; they sound like no others in the world. On a good system (hint: tubes) you’ll be able to hear that unique quality.

VARIOUS: Italian Violin Music, 1600–1750
Chiara Banchini, baroque violin; Gerhart Darmstadt, baroque cello; Alfred Gross, harpsichord
Edition Open Window OW 002 (LP only). Dusan Klimo, prod.; Wilfried Zahn, eng. AAA.

I have already raved about this record in these pages (Vol. 11 No. 7). The spate of audiophile-oriented recordings which has crossed my desk since then has not changed my opinion. This remains one of the finest collaborations between performers and engineers I have heard; it is a genuine labor of love. Chiara Banchini has (deservedly) moved on to bigger labels, but this may stand as her most compelling performance. It may also contain the best cello sound on record. (XI-7)

VARIOUS: La Mantovana
Italian Music of the Late Renaissance
The London Early Music Group, James Tyler, dir.
Nonesuch H-71392 (LP). Charles Gerhardt, prod.; Kenneth Wilkinson, eng. AAA.

Yes, you have read the headnote correctly. This is an early-music record produced by no less than Gerhardt/ Wilkinson. In view of this, my comments on sound quality may be superfluous, but I will remark anyway that this LP has the most accurate instrumental timbre of any Renaissance recording I have ever heard. The London Early Music Group plays brilliantly on a bewildering variety of instruments, all of whose essential textures are preserved intact. Of all my choices for “Recommended Recordings,” this is the one I most hope you will seek out.

VARIOUS: Music for a Viol
Wieland Kuijken, viola da gamba; Sigiswald Kuijken, gamba; violin; Robert Kohlen, harpsichord
Accent ACC 68014 D (CD only). ADD. TT: 49:04

So I’m at Nathan Muchnik’s record department in downtown Philadelphia and the lovely lady puts this CD in the Sony. “Ecol!” I exclaim. “That’s digital!” “Of course,” replies the fascinating—but-digiphilic Miriam (herself a Baroque cellist). She sells me the disc, but declines my invitation to dinner. I am perhaps a little less upset when I hear this recording on my own system: glorious playing by the Kuijkens, the best string tone yet from a CD, and superlative harpsichord sound. This was the CD that convinced me that the digital future might be OK after all. But alas, Miriam was lost forever. . . . (X-8)

Martin Colloms

BRITTEN: Noye’s Fludde
Norman Del Mar, English Opera Group Orchestra
Argo ZRG 2339 (LP only). Colin Graham, prod. AAA.

Dating from Argo’s golden years, this performance elicits an inspiring degree of spontaneity, which makes it an enduring pleasure. Recorded with the Suffolk Children’s Choir and Orchestra, conducted by Norman Del Mar at the Maltings, Snape, there is a magical atmosphere of amateur music making at its very best, in a natural acoustic. Technically, the sound of Snape is captured marvelously; one has no difficulty imagining the whole dimension of the place, clear to the back wall. Remarkably, the stereo focus and localization are most convincing, and better and better systems have consistently shown that there is more and more to be wrung from this recording.

The sound is natural and airy, with clarity maintained even over complex sections.

MILES DAVIS: This

I’m not qualified to say much about Miles’s musicmaking, except that this work is readily accessible, particularly to rock fans. It shows a superb sense of rhythm and powerful drive, qualities which may be sufficient to impress when heard on an average system, but are only felt in their full force on an exceptional one. Technically, this is a rock studio production with attendant processing “hardness” and artificialities. Yet the idiom is exploited for Miles’s own ends, and thus succeeds.

Stereophile, January 1991
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DAVE GRUSIN: Discovered Again
Sheffield Lab ST-500 (LP, CD-5 (CD). Bill Schnee, eng.; Lincoln Mayorga, Doug Sax, prods. Direct-to-disc LP, now tape-transfer CD. AAA/AAD. TT: 32:19

Dare I call this popular music? This record has remained a reference in its class on the grounds of music-making and performance. All the players are first-rate and work effortlessly together, making it all sound so easy.

Technically this direct-to-disc recording has survived the passage of time, justifying the exceptional effort which was put into its production technology. It is so helpful to have a record featuring a small band with percussion which is so well-balanced and -recorded.

There is no exaggeration here—the instrument sounds are as remote from the canned noises emanating from modern synthesizers as you could wish for. Low distortion, high definition, sweetness, and good stereo staging are the trademarks here.

RACHMANINOFF: Isle of the dead. Symphonic Dances
Vladimir Ashkenazy, Concertgebouw Orchestra

Ashkenazy does wonderful things with Rachmaninoff, and this performance of the Symphonic Dances has astonishing impact. Somehow the full potential dynamic range of the CD medium is exploited with electrifying climaxes. The Concertgebouw orchestra plays very well in their superb home venue.

Technically, this is a big orchestra giving a big performance presented on a suitably massive scale. The hall acoustic is captured well, and the soundstage is vast yet controlled.

Front rows of the orchestra are rather brilliant in the Decca mold, amply balanced by the excellent clarity and fine perspectives heard beyond the violin desks—a showpiece for bandwidth and dynamics.

VARIOUS: Poem
Works by Griffes, Reinecke, Prokofiev, Schumann
Gary Woodward, flute; Brooks Smith, piano
Stereophile STPH001-1 (LP), 2 (CD)*. Kavi Alexander, eng.; John Atkinson, Richard Lehnert, prods. AAD. TT: 52:46, 63:46*

Quality such as this is rarely available on CD. From the start, there is an atmosphere of live music-making, of great commitment and palpable drive. Many audiophile records sound rather tame and safe, but Poem is exciting and involving. There are real musical performances here which withstand repeated listening. What’s more, I liked all the pieces, a rare find indeed.

Technically, the CD shows a finely judged balance for the two instruments, with a most natural sense of space and perspective. The flute’s tonal quality is exquisite, very true to life. The sound is pure, with negligible hardness, audible distortion, or false edge. While the nominal instrumental frequency range is not that wide, this recording turns out to be adept at finding system faults in the bass, mid, and treble when so required.

In my system, it shows that vital relationship with real life. (XIII-5)

Kevin Conklin

BEETHOVEN: Symphony 3
Lovro von Matacic
Quintessence PMC-7089 (LP). Miloslav Kulhan, eng.; Miloslav Kuba, prod. AAA.

Not at all an eccentric performance, just an excellent one, which a Gramophone reviewer rightly compared to Weingartner’s. Playing is fleet and graceful. Center-piece of the performance is a lacerating funeral march, as concentrated a stretch of music as the underrated Matacic ever recorded.

Recording is a model of naturalness, recovering hall ambience, subtle dynamic shading, and a ravishing midrange. Easy to find in the used-LP bins, but beware of the warps that cursed Quintessence LPs. The current Urania CD is of a lesser sonic class.

BRUCKNER: Symphony 9
Bruno Walter, Columbia 50
CBS/Sony 20AC 1829 (LP). John McClure, prod. ADA.

This choice stands for the best of Walter’s late recordings, made in California by Columbia when that label still produced rich, vivid orchestral sounds. Criticism has been leveled at these recordings, alleging a lack of the ample spirituality that imbues Walter’s European recordings. The Bruckner nullifies this criticism: here is devotional intensity rarely heard since Knappertsbusch and Furtwängler, reflecting Walter’s conviction that music has moral force. The conductor, approaching his own death, encounters anew Bruckner’s last testament.

The CBS/Sony LP is deleted. The various CD masterings have acceptable sound, the best being the early discs from Japan.

JOHN COLTRANE: A Love Supreme
John Coltrane, tenor sax; McCoy Tyner, piano; Elvin Jones, drums; Jimmy Garrison, bass
MCA/Impulse 29017 (LP). Bob Thiele, prod. AAA.

A performance of ecstatic devotion, this revolutionary Black classical music is Coltrane’s grand statement of faith, reflecting his Christian roots and influence by Eastern cultures. Despite its reputation for being so much noise, A Love Supreme speaks surprisingly directly to the listener who allows the music to penetrate. Later records, made after Coltrane completely abandoned A-B song-form, are vastly more difficult.

This record will sound merely good through a top stereo system. It appears here because I cannot omit it from any list of greatest recorded performances.

IVES: Three Places in New England. Symphony 3
Howard Hanson, Eastman-Rochester Orchestra
Mercury SR90149 (LP). C. R. Fine, eng.; Wilma Coeart, Recording Director; Harold Lawrence, Musical Supervisor. AAA.

Two great performances of American symphonic music. The up-close Mercury sound, which sometimes renders orchestral music strident and hi-fi-ish, works here because of Hanson’s attention to line, and his relatively small ensemble. More distant-perspective recordings of Three Places, made with virtuoso orchestras, tend to ‘civilize’ the music, as Aunt Polly tried to do with Huck Finn.

Stereophile, January 1991
Last year we introduced the new version of the Aragon 24k preamplifier. It’s musicality, engineering, component and construction quality clearly places it with preamplifiers costing over $4000.

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Robert Deutsch

PINK FLOYD: Dark Side of the Moon
Mobile Fidelity UDCC S17 (CD only). Alan Parsons, eng. AAD.
TT: 4:2:58

Much '70s rock music was greater, but none so decisively made its statement with sound. Of course this has nothing to do with any natural aural phenomenon. The audacity of the record is its imaginative construction of a sound-world ex nihilo, and imagination is a quality so lacking nowadays that, where found, it deserves reward.

This gold-plated CD is expensive, but, absent an old import LP from the U.K. or Canada, this is the best-sounding Dark Side you'll find. (XI-9)

MAN OF LA MANCHA: Original Broadway Cast
Neil Wager, cond.; Mitch Leigh, music; Joe Darlin, lyrics
Kapp KRS 4505 (LP), MCA MCAD 1672 (CD). Michael Kapp, prod. AAAAAAD. TT: 45:51

"I shall impersonate...a man. Come, enter into my imagination and see him." With these words, and the ensuing "I, Don Quixote," Richard Kiley draws us into the quintessential musical within-a-musical about Cervantes and his literary creation, the estimable Don Q. Kiley gives one of the musical theater's great performances, and the recording fully captures its extravagant theatricality. Joan Diener is right up there (perhaps even over the top) as Aldonza, and Robert Ronseville contributes a beautifully sung Padre. The CD, while very good, is not quite a sonic match for the original Kapp LP, but is superior to the MCA LP reissue.

LES MISERABLES: Original London Cast
Martin Koch, cond.; Claude-Michel Schönberg, music; Herbert Kretzmer, Alain Boublil, Jean-Marc Natel, Trevor Nunn, John Caird, lyrics
REL 88561-8140-2 (2 CDs only). David Hunt, eng.; Alain Boublil, Claude-Michel Schönberg, prods. AAD. TT: 97:24

If I may quote from my review in Vol.11 No.9—and if I can't, who can?—"what we have here is the genuine article: music that is tuneful and theatrically appropriate, lyrics that are at least serviceable, and deeply felt, committed performances." This first English-language recording of Les Miz remains the best of all available versions, both in performance and sonically. Colm Wilkinson is the definitive Valjean, Patti LuPone is heartbreaking as Fantine, and there are fine contributions from Rebecca Caine and Michael Ball. Recording balance tends to favor the voices, but not excessively so. (XI-9)

PUCCINI: La Bohème
Mirella Freni, Mimi; Luciano Pavarotti, Rodolfo; Elizabeth Harwood, Musetta; Rolando Panerai, Marcello; Nicolai Ghiaurov, Colline; Gianni Maffeo, Schaunard; others; chorus of the Deutsche Oper, Berlin; Berlin Philharmonic Orchestra. Herbert von Karajan London 421 049-1 (2 LPs), 2 (2 CDs). AAAAAAD. TT: 110:00

The tempi are a trifle eccentric, and the analytical tendency borders on fussiness, but von Karajan's approach to this opera does illuminate aspects of the score that remain unexplored in other recordings. The cast is generally first-rate, with Freni a touchingly vulnerable Mimi, and Pavarotti's Rodolfo possibly the best thing in the tenor's extensive recording career. Then there's the sound: glorious '70s analog, featuring realistic vocal/instrumental timbres, a soundstage that's wide and deep, and powerful dynamics.

STRAUSS: Die Fledermaus
Nicola Gedda, Eisenstein, Anneliese Rothenberger, Rosalinde, Renate Holm, Adele; Adul Dellaquozza, Alfred, Dietrich Fischer-Deckau, Dr. Falke; Brigitta Faassbendar, Prince Orlofsky; Walter Berry, Frank, others; Vienna State (opera) Chorus, Vienna Symphony Orchestra, Willi Boskovsky Angel SBLX-3790 (2 LPs), CDIMB-69534 (2 CDs). Chrisfridtin Bickenbach, eng.; Helmut Storjohann, prod. AAAAAAD. TT: 1:54:40

This 1972 recording of the world's most popular operetta has a topnotch cast and wonderfully idiomatic playing/conducting from the Vienna Symphony and Willi Boskovsky. The sound is warm, spacious, with excellent depth (listen to the "offstage" voice of Alfred in the first scene). There is one sonic anomaly: the spoken passages seem to be in a completely different acoustic, as if the performers recorded the dialogue in sound booths. Somewhat annoying, but when the music starts, all is forgiven.

Gordon Emerson

DAVID DIAMOND: Symphonies 2 and 4, Concerto for Small Orchestra
Gerard Schwarz, Seattle Symphony, New York Chamber Symphony
Delos DE 3093 (CD only). John Earlge, eng.; Amelia S. Haygood, prod. DDD. TT: 73:01

Although much closer in spirit to the romantic than Varèse's brave new sonic explorations, Diamond's two symphonies and concerto (all composed in the early 1940s) are no less of their time. Each overflows with soaring melody, brilliant orchestral colors, and imaginative thematic development. There is also plenty of rhythmic fire, potentially realized by Schwarz and his colleagues in performances that radiate stylistic understanding. This is the first recording ever of Symphony 2, a forgotten treasure written in 1942-43 which poignantly reflects its era. Sensitive engineering provides a large window into the concert hall, though a slight harshness of brass and wind sonority may bother some. (XIV-1)

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Herbie Hancock and Chick Corea

Herbie Hancock, Chick Corea, pianos
Columbia 35664 (2 LPs only). Bernie Knuth, eng.; Herbie Hancock, David Robinson, prods. AAA. TT: 81:17

I still remember the exhilaration I felt 12 years ago when I first played "Someday My Prince Will Come," the opening track on this brilliant collaboration between Herbie Hancock and Chick Corea recorded live (and transferred to disc with no editing) during their concert tour that year. That exhilaration has only deepened with time. The quality of the recorded sound varies depending on the four different locations and sets of instruments in use, but overall the reproduction of a pair of 9' concert grinds in live settings—no simple task—is very good. More important, you'll find two major artists interacting with a degree of empathy that borders on the telepathic. And on "Someday My Prince Will Come"—take my word for it, it just doesn't get any better than this.

THE SINGERS UNLIMITED: Try to Remember


In the pop-jazz choral genre, this 1975 a cappella album by The Singers Unlimited is an unalloyed gem, the result of repeated and practically seamless overdubbing of four voices. All arrangements are by Gene Puerling, the guiding spirit of the Hi-Lo's in the 1950s. His settings here of such memorable fare as "London by Night," "Both Sides Now," "The Fool on the Hill," and "Try to Remember" are as close to sublime as you're apt to encounter in this medium. Enhanced by just the right amount of reverb, the Singers sound like a mini celestial choir.

VARÉSE: Arcana

MARTIN: Concerto for Seven Wind Instruments

Jean Martinon, Chicago Symphony Orchestra
RCA LSC-2914 (LP only). Bernard Keville, eng.; Howard Scott, prod. AAA. TT: 37:23

Martinon and the Chicago recorded this Arcana in 1966, long before many of the technological goobies we now take for granted. No matter; this pressing sounds as virile and absorbing as it did when it was made. Musically, Martinon achieves an irresistible sense of spontaneity throughout and the musicians respond to the thorny complexities of this 20th-century masterwork with cracking intensity and seeming ardor (seeming, because I would guess that many of the string players hated the music's brazenly dissonant sonorities). Particularly notable is the pivotal contribution of the percussion section, captured here with breathtaking—almost palpable—fidelity. A must for any serious lover of modern music.

VERDI: Requiem, Operatic Choruses

Susan Dunf, soprano, Diane Curry, mezzo; Jerry Hadley, tenor; Paul Plishka, bass, Atlanta Symphony Orchestra & Chorus, Robert Shaw

I seldom listen to recordings of works requiring a regiment of performers because the impact invariably falls so short of a live performance. This Requiem is an exception, however, and if you won't feel like you're seated midway in Atlanta's Symphony Hall, the illusion is as close as today's recording technology allows. The soloists and assembled forces are first-rate, and Shaw molds a re-creation of this operatic yet deeply spiritual masterpiece that is wonderful in ways both obvious and subtle. Old Giuseppe must be smiling somewhere. (XI-7)

Mortimer H. Frank

BACH: Cantata BWV 79, "Gott der Herr, Ist Sonn und Schild"

with Cantatas BWV 76–78

Paul Esswood, countertenor, Max van Egmond, bass; Gustav Leonhardt
Teldec 35362 EX (2 CDs only). ADD. TT: 16:32

Composed to celebrate the Protestant Reformation, this cantata stands as one of the peaks of the Bach canon. Its opening chorus is grandly festive and features virtuoso writing for horns and a richly textured fugue. Its chorales, with their accompanying timpani and horns, echo this spirit and serve as apt foils for two gorgeous arias. Directing period instruments, Leonhardt produces a reading that is colorful, transparent, joyous, and musical without any of the affections that afflict some of the other performances in this Teldec series. And the recording captures the intimacy of the small ensemble without mitigating the music's jubilant extraversion. Among Bach-cantata recordings, this is a model of its kind.

BARTÓK: Concerto for Orchestra; Music for Strings, Percussion and Celeste

Fritz Reiner, Chicago Symphony
RCA 5604-2 RC (CD only). Lewis Layton, eng.; Richard Mohr, prod. ADD. TT: 65:05

Although Koussevitzky led the premiere of the Concerto, Reiner made the first recording of the score (with the Pittsburgh Symphony). This remake is a photogenic classic: lean, vibrant, and—in the early-stereo engineering—wonderfully musical in its clarification of pointed antiphonal effects. MSFC is, if anything, even better. The slightly acidic string tone Reiner favored suits the work perfectly, and he projects its cracking energy and eerie gloom with a controlled intensity that remains all too uncommon. Despite some tape hiss (more noticeable in the Concerto), the sound retains a natural ambience and impact remarkable for 30-year-old recordings.

BEETHOVEN: String Quartet 10, Op. 74

with String Quartet 9, Op. 59 No. 3

Smetana Quartet
Denon C37-7125 (CD only). Václav Roubal, eng.; Eduard Herzog, prod. DDD. TT: 62:05

The elegance, aristocratic poise, impeccable balance, and tonal opulence that stamp this performance make it unique among the recordings of this undervalued masterpiece. Especially compelling are the unsentimentalized lyricism of the slow movement, the attention to harmonic motion that defines the structure of the finale, and the almost breathtaking virtuosity in the coda of the first movement—one of the miraculous passages in Beethoven where an оргastic joy is made all the more communicative by the composers—and the Smetana's—firm artistic control. Denon's close engineering is free of harshness, and if the performers'
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breathing were not occasionally audible, this recording might well have achieved the impossible-to-attain sonic ideal.

**MOZART: Symphony 41**
*with Symphony 40*
George Szell, Cleveland Orchestra
CBS MS-6969 (LP). Paul Myers, prod. AAA. TT: 70:33

Perfection may never be reached, but this performance of Mozart's "Jupiter" Symphony comes very, very close. Szell's tempos are judicious, his sense of style is flawless, and the vibrant vigor he brings to the finale in no way compromises the clarity of its rich contrapuntal writing, the coda, in particular, being revealed in all its polyphonic complexity with a resulting clarification of structure that I have never encountered in any other recording. As heard in its original LP release, the sound was close, a trifle bright and astringent, yet absolutely right for the music, suggesting (without duplicating) the sonority of period instruments. Unfortunately, subsequent reissues have falsified the original engineering, the CD (CBS MK 42418) having an added resonance that veils the clarity Szell and his extraordinary orchestra produced. If you find a clean copy of the original LP release, grab it.

**SCHUMANN: The Four Symphonies**
Herbert von Karajan, Berlin Philharmonic

Anyone who doubts Karajan's greatness should hear these performances. Without resorting to retouchings, the conductor (unlike such eminences as Toscanini, Bernstein, and Szell) makes a compelling case for Schumann's original orchestrations, and his grasp of the music's spirit goes right to the core of each work. Among the highlights of these readings are the gemütlich grace in the outer movements of I, the singing legato line of the slow movement of 2, the noble grandeur of 3, and a firmly disciplined rhythmic flexibility throughout 4, where the Florentine/Eusebius duality of Schumann's writing is especially well-defined. DG's sound is rich and natural, with great impact at climaxes.

**DVORÁK: Symphony 9, "From the New World"**
*WAGNER: Overture to The Flying Dutchman, Siegfried-Idyll*
Jascha Horenstein, Royal Philharmonic Orchestra
Chesky CD-31 (CD only). Kenneth E. Wilkinson, eng.; Charles Gerhardt, prod. ADD. TT: 67:30

Horenstein's "New World" is one of the finest in stereo, holding its own with Kubelik and Kertész. His is a flexible yet unmanipulated performance, with tremendous intensity in the outer movements and a beautiful lyricism in the Largo. The Royal Philharmonic's playing is first-rate. The superb analog original has been well-served by this 20-bit, 128x-oversampled transfer, and the textures of the massed strings are amazingly realistic. The recording has excellent clarity complemented by a warm acoustic. (XII-4)

**MAHLER: Symphony 5**
Eliahu Inbal, Frankfurt Radio Symphony Orchestra
Denon 33CO-1088 (CD only). Peter Willemoes, Detlev Kit-tler, engs.; Yoshiharu Kawaguchi, Richard Hauck, prod.
DD: TT: 72:22

Denon's complete Mahler cycle established Eliahu Inbal as one of the foremost Mahler interpreters of the past 30 years. Inbal makes structural sense out of these difficult works, a refreshing contrast to Bernstein's "climax every five minutes" approach. The two-spaced-omi recording does not have the pinpoint localization and detail heard on London's Respighi disc, the perspective being mid-hall, orchestra section rather than balcony. But the sound is spacious and natural, with excellent accuracy of individual instrumental timbres. Probably the best recorded Mahler Fifth. (X-8)

**RESPIGHI: The Pines of Rome, Roman Festivals, The Fountains of Rome**
Charles Dutoit, Montreal Symphony Orchestra

Of all the stereo recordings, Dutoit's come the closest to Toscanini's rhythmic vitality and delineation of orchestral color and detail. The Montreal Symphony's playing is world-class, captured in a reference-quality recording. The tremendous high-frequency energy of Respighi's orchestrations, realistically recorded, will tax many CD players and systems. The soundstage is large and three-dimensional, with pinpoint localization of instruments and incredible inner detail complemented by natural hall ambience. The organ pedal in Pines of the Appian Way will rattle your floors.

**VERDI: Aida**
Renata Tebaldi, Alda: Carlo Bergonzi, Rhadames; Giulietta Simionato, Amneris; Corneli Macnott, Amonasro; Arnold van Mill, Ramphis; others. Vienna Philharmonic Orchestra, Herbert von Karajan
London 414 087-2 (3 CDs only). James Brown, eng.; John Culshaw, prod. ADD. TT: 2:50:08

Herbert von Karajan's Grand Opera approach to this score is notable for its incredible sweep and forward momentum. Renata Tebaldi is captured in one of her best roles, and Carlo Bergonzi sings Rhadames with a velvety tone and impeccable legato that eludes any of today's tenors. Giulietta Simionato is, vocally and dramatically, simply the finest Amneris on record. The recording is opulent and spacious, with realistic depth, flattering Karajan's approach to the score. The massed choral passages are particularly impressive. Tape hiss is barely noticeable.

**WAGNER: Der Ring des Nibelungen**
Birgit Nilsson, Hans Horter, Wolfgang Windgassen. George London, Regine Crespin, James King, Gottlob Frick, Kirsten Flagstad, Dietrich Fischer-Dieskau, Gerhard Stolze; many others; Vienna State Opera Chorus, Vienna Philharmonic Orchestra, Sir Georg Solti
London 414 100-2 (15 CDs only). Gordon Parry, eng.; John Culshaw, prod. ADD. TT: 14:37:42

Also available individually: Das Rheingold, 414 101-2; Die Walküre, 414 105-2; Siegfried, 414 110-2; Götterdämmerung, 414 115-2

Twenty-five years after its completion, Decca/London's Ring remains one of recorded music's greatest achievements. The last of the great Wagner singers were captured in their prime, and Solti's high-energy approach is complemented by impeccable playing from the Vienna Philharmonic. Overall, no stereo performance
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comes even close. The recordings remain sonically stunning, particularly Donner's hammerblow and thunderclap in Das Rheingold, the Forging Scene in Act I of Siegfried, and Siegfried's Funeral Music and the Immolation Scene in Act III of Götterdämmerung. Transfers from original master tapes result in less tape hiss than my German LPs. Extremely low bass is a bit thin by today's standards, but the full power and weight of a symphony orchestra is still delivered with tremendous impact. A single CD excerpts disc (421 313-2) appears to be from analog copies of the originals and is not recommended.

Larry Greenhill

BILLY JOEL: Songs in the Attic
Columbia TC 37461 (LP only recommended). Phil Ramone, Brian Ruggles, prods. D.A.A. TT: 47:58

This LP has become my favorite live concert recording. Joel's chemistry with his band and audience comes across with remarkable ferocity. Ramone and Joel set up the 15-city tour to capture the performer's stage presence. Eleven ambience-charged songs taken from eight different performances give different sonic effects.

Take the big, splashy, Liza Minelli-style production of "Miami 2017 (See the lights go out on Broadway)." Joel mixes apocalyptic, nuclear-holocaust cynicism with Big Apple geography. He pumps the audience, then the band, and the resulting emotional escalation and big stage sound really make it happen. Madison Square Garden's grandeur and cavernous depth make "Miami 2017" bigger than life. On "Captain Jack," a disturbing and eerie song about drug involvement, he slides the other way, dissolving in slurred phrases, references to masturbation, and a finish in death.

THE L.A. FOUR: Going Home
Lauroindo Almeida, guitar; Ray Brown, bass; Shelley Mann, drums
East Wind 32JD-10043 (CD only). AAD. TT: 32:30

This is my favorite jazz CD. I can't recommend it too highly. The title cut combines superb imaging, highly localized instruments,terrific instrumental timbres, and a minimum of reverberation. The flute and guitar, placed contrapuntally at opposite ends of the stage, deliver wonderful solos. The other cuts, "Django," "Recipe of Love," "Greensleeves," "Softly as in a Morning Sunrise," and "Romance de Amor" are polished, dynamic, and prove what fine musicians each of the performers are. This CD has less edginess, harshness, and abrasiveness than most of my vinyl recordings, and can be played time and again without listener fatigue.

WILLIE NELSON: Always on My Mind
CBS CK 37951. Chips Moman, prod.; Chips Moman, David Cherry, Larry Greenhill, engs. A.A.A.

Since 1983, I've adopted this CD as a special test of small-group dynamics, vocal tonal quality, vocal resonance, and midrange naturalness. (Of course, the fact that one of the recording engineers has my name did not influence my choice at all) Nelson's voice has to appear focused between the speakers, dense, raspy, three-dimensional, and not diffuse. Listen to "Bridge Over Troubled Waters"—the close miking, tight, focused backup, and slow buildup make it my favorite version of the Simon & Garfunkel classic. Unlike many other one-song albums, this one's full of vintage Willie at his very, very best: "Last Thing I Needed First Thing This Morning," "Do Right Woman, Do Right Man," "Always on My Mind," "Permanently Lonely," "Staring Each Other Down." In short, this is a great performer on one of the only 1982–84 CDs with decent sonic; it still sounds great today.

WAGNER: Selections
Ride of the Valkyries: Tristan Prelude, Act I; Siegfried's Funeral Music; Forest Murmurs
Erich Leinsdorf, Los Angeles Philharmonic
Sheffield Lab 7 (LP only recommended). Lincoln Mayorga, Doug Sax, prods. A.A. TT: 35:50

This album represents my favorite orchestral piece recorded by Sheffield, and was one of their first direct-to-disc, "unedited" orchestral recordings. I prefer the limited-edition, now-unavailable direct-to-disc LP to the current CD release. Leinsdorf gives a very emotional, operatic, and stormy reading—which I think is appropriate—without being overblown. The string tone captured here has a full-bodied quality, with great resonance. The bite of the trombones and brass is unusually vibrant, and I have never heard the resonance of the cellos reproduced better. On the best systems, the flute seems to float above the orchestra. "Siegfried's Funeral Music" is rendered with an astonishing dynamic range. Such unusual dynamics preceded the digital era, and constitute much more "natural" dynamic peak than cannon shots or bass drums falling on stages. Wagner's variegated tonal color plus the sonic transparency, the utter naturalness of the instruments, and the phenomenal dynamic range, combine to make this record unique.

THE WEATHER: Reunion at Carnegie Hall
Vanguard VSD 2150 (LP only recommended). AAA. TT: 33:55

It's hard to believe that the Weathers had been famous for 15 years when they reunited to sing at Carnegie Hall in 1963. The performances are first-rate. Pete Seeger was at the top of his form; his tenor voice has never sounded clearer. It's here on this record. Ronnie Gilbert's soprano voice has a warmth and color that adds fire to my favorite cut, "Guantanamera."

"Guantanamera" is my acid test for reviewing. It's all there—natural vocal resonances; imaging, both in terms of soundstage width and soundstage depth; deep but subtle bass in the form of Bernie Krause tapping his foot; Ronnie Gilbert's tragic, chilling soprano; and the hall ambience. With outstanding components—and total quiet in my listening room—this record produces the most natural approximation of live music I know of. This naturalness becomes a benchmark for what I love in audio.

Robert Harley

CHICK COREA: Akoustic Band
Chick Corea, piano; John Patitucci, bass; Dave Weckl, drums

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![Before and After Transient Distortion](image)

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Chick Corea returns to acoustic instruments and jazz standards for this outing with bassist John Patitucci and drummer Dave Weckl. The trio works out on such standards as Cole Porter’s “So in Love,” Duke Ellington’s “Sophisticated Lady,” and Corea’s own “Spain,” now itself a standard. These classic tunes are infused with new life and vitality by the sensitive interpretation and technical virtuosity of these outstanding musicians. Dave Weckl, with his fusion background and youth, brings a fresh rhythmic perspective to these works yet remains true to their intent, while Corea and Patitucci display their considerable improvisational skills.

The sound quality is exceptional. The piano isn’t overly bright, and it has a full bottom end (I suspect very little EQ). The acoustic bass is presented with space around it, and more toward the back of the soundstage than is typical for trio recordings. The recording’s rhythmic intensity is heightened by the drums’ razor-sharp transients and tight, punchy bass drum. Overall, the presentation is involving and complements the music.

DIXIE DREGS: Dregs of the Earth
Steve Morse, acoustic & electric guitar, banjo, pedal steel; Andy West, fretted & fretless bass; Alan Sloan (Sloanov), acoustic & electric violin, viola; Rod Morgenstein, drums & percussion; T. Lavitz, acoustic & electric piano, organ, synthesizer, clarinet

Arista AL 9528 (LP), ARCD 8116 (CD); Steve Morse, prod.; George Papas, eng. AAA/AA, TT: 56:38

Dregs of the Earth is a showcase for this relatively unknown band’s unique amalgam of rock, country, jazz, and classical influences, and is easily the best engineered of their six LPs and two EPs. The instrumental compositions range from the driving rock “Road Expense” to the renaissance-inspired acoustic guitar and violin duet “Old World.” Between those first and last tunes in this eight-piece collection, the Dregs explore an astonishing array of musical styles, exemplified by the playful bluegrass permutation “Pride of the Farm.” The album’s high point, however, is “Hereafter,” a bittersweet piece featuring some beautiful and evocative violin work and climaxing with one of my favorite recorded guitar solos.

Although I wouldn’t characterize the album’s sound as audiophile-grade, it does have a tight, punchy bottom end, well-recorded drums, and enough transparency to hear subtleties in the arrangements.

HANDEL: Water Music
Nicholas McGegan, Philharmonia Baroque Orchestra
Harmonia Mundi HMU 907010 (CD only). Robina G. Young, prod.; Peter McGrath, eng. AAD, TT: 56:38

This performance and recording convey the essence of Handel’s Water Music: a lively, festive feeling, with a rhythmic flow that suggests the dances that in part inspired it. Moreover, it is perhaps the truest to Handel’s intentions, both in arrangement and the Philharmonia Baroque Orchestra’s use of period instruments.

What really makes this particular version stand out (apart from the wonderful performance) is the gorgeous recording. Engineered by Peter McGrath, this recording captures the subtle textures and feel of the period instruments. The violins are smooth and delicate, without the bright, steely edge one hears from many recordings. The soundstage is spacious, but with a less-than-robust center image. This Harmonia Mundi recording is the definitive Water Music. (XII-7)

SCOTT KREITZER: Kick’n Off
Scott Kreitzer, tenor sax; Dave Samuels, vibes; Marc Cohen, piano; Harvey Schwartz, bass; Bill Stuart, drums


This debut album by 23-year-old composer and tenor player Scott Kreitzer is a tour de force of spontaneous, free-flowing, straight-ahead jazz. Despite his youth, Kreitzer plays with a maturity and conviction that evoke shades of the great tenor men, notably Dexter Gordon.

Recorded live to two-track with no overdubs, Kick’n Off bristles with an enthusiasm and energy rarely heard from multi-tracked recordings. This band really stretches out, both in supporting the lyrical compositions and during the amply improvised solos. The album is beautifully recorded, with excellent instrumental balance (not easy when mixing on the fly), a nice sense of air and space around the instruments, and smooth textures.

FLORA PURIM/AIITO MOREIRAJOE FARRELL: Three-Way Mirror
Flora Purim, vocal; Aitto Moreira, drums, percussion; Joe Farrell, sax; Kei Akagi, piano; José Nino, guitar; Mark Egan, bass; Randy Ticó, acoustic fretless bass guitar


This stunning recording captures perfectly the unique and beautiful performances of these musicians. Three-Way Mirror is a paradigm of how a recording can serve the music’s intent. Engineer Keith Johnson has created an aural landscape of lush textures and a feeling of spatial envelopment that bring the listener closer to the music.

The Brazilian-jazz compositions range from the sensitive “São Francisco River,” which features Flora’s ethereal vocals, to the high-energy “Plane to the Trans,” with cooking percussion and Joe Farrell’s inspired flute and sax work. Three-Way Mirror’s beautiful compositions, unusual blend of acoustic instrumentation, and expressive performances combine synergistically with the remarkable recording quality to create a thoroughly involving musical experience. (XII-2)

Robert Hsson

BEETHOVEN: String Quartet No.14 in C#., Op.131

Vlach Quartet
Parliament PLPS 625 (LP only). AAA.

This is the music of the spheres played as if by the gods. The performance brings to mind John Barth’s idea that no one is more free than he who most fully assimilates the rules. The Vlach Quartet gives a literal reading but injects it with a sincerity and resignation to the beauty of the score that are breathtaking. The recording was probably made 20 or more years ago and is fairly close-up, which I do not find at all detrimental to chamber music. The sound is exceptional by today’s standards.

COPLAND: Appalachian Spring

Complete ballet for 13 instruments

Stereophile, January 1991
Once you hear the honest simplicity and rough-hewn textures of this original version of *Appalachian Spring* for 13 instruments, you will never accept the orchestral suite as representative of the enormous beauty and power of this music. This is one of the most powerfully moving musical performances I have ever heard. The 1973 sound is closely miked and leans toward the bright side, but it has exceptional detail and clarity that add to the immediacy of the performance. The remixed CD version is duller and less involving all around than the LP.

**DVORÁK; Symphony 9, “From the New World”**

Jascha Horenstein, Royal Philharmonic Orchestra


You will hear few performances of any work that are as passionate as this one. The quality of lamentation in the second movement has never been more yearningly bittersweet. Throughout are searing emotions that simply put this interpretation in a category by itself. This is also the best modern-instrument orchestral recording I have heard, and I don't know of many that really come close. Besides an immense soundstage, the intensely accurate rendering of instrumental tone colors is remarkable. This is a rich and, often, thrilling experience. (XIII-4)

**HANDEL: Water Music**

Nicholas McGegan, Philharmonia Baroque Orchestra

Harmonia Mundi, HMU 7010 (LP), HMU 907010 (CD). Peter McGrath, eng.; Robina G. Young, prod. AAAAA. TT: 56:58

Nicholas McGegan and Peter McGrath are two of the most exciting people in recorded music today. McGegan's *Water Music* is alive with spirit. Totally absent is the often dull, scholarly cast of the original-instrument movement. The players here are superb—and obviously thrilled to be playing the music. McGrath presents all this in a lively acoustic that captures all the brilliance of the period-style violins with none of the piercing shrillness so often served up. It is perhaps the most natural-sounding recording I have heard and is absolutely stunning in every respect. (XII-7)

**STRAVINSKY: L'Histoire du Soldat**

John Gielgud, Narrator; Ron Courtenay, Soldier; Ron Moody, Devil; Boston Symphony Chamber Players (dramatic supervision by Douglas Cleverdon)

DG 2530 609 (LP only). Günter Hermanns, eng.; Thomas W. Mowery, Franz-Cristian Wulf, prods. AAA.

This recording far exceeds even the lofty pre-'70s reputations of DG and engineer Günter Hermanns. The performances by both actors and musicians are superb. If you want to know what the Devil really sounds like, listen to Ron Moody, with his craggy vocal athleticism. Gielgud and Courtenay are also excellent. The musicians give the score all the playfulness and poignantness that are reflected in the story; and the instruments are recorded with astonishing realism. That this recording hasn't yet made it to CD is shameful.
J. Gordon Holt

My selections were based on three criteria: First, that the music illustrate the gorgeous (and system-challenging) sounds that can be created by a full symphony orchestra; second, that the performance be one that I have not heard bettered on records; and third, that the recording be good enough that it doesn't get in the way of the music.

Except in very rare cases, I do not believe a composer is the best interpreter of his own work. He may know better than anyone else what he had in mind, but a conductor will nearly always do a better job of getting those intentions across to an audience. I also feel that it is safe to say that, if any symphonic recording is available in both a domestic and a European LP release, the latter will always be better. This is not a matter of reverse patriotism, but of simple truth: European record companies have always taken "serious" music more seriously than have American firms.

Third, I admit shamelessly that I prefer CDs to analog discs, because the digital medium better reproduces, without irksome ticks and pops, the dynamic range and power of the kind of music I enjoy most, and because recent CDs of old recordings are less gimmicked than any LP releases of those performances, American or European. I will put up with the limitations of analog only if the CD is either not available or is a dreadful botch.

I should also add that, about 40 years ago, I committed myself to a listening rule that I have never since violated: Never to play any recording more than twice in one month. Repetition takes the joy out of anything, and experience had shown me that there is nothing like playing a new record 16 times consecutively to earn it a high place on one’s shitlist. I realize that this listening habit of mine smacks of self-discipline, which ranks in the minds of most people with root-canal work and being seen in the wrong brand of sneaker, but what the Hell, I’m old-fashioned.

Herewith, and with relatively little more ado, are my top 10:

**BEETHOVEN: Symphony 6 ("Pastorale")**
Bruno Walter, Columbia Symphony
CBS MYK 36720 (CD only, previously released as LP MS 6012, LP Y 33924). John McClure, prod. TT 40:53

"Columbia Symphony orchestra" was the name Columbia Records used for any pickup orchestra assembled for the purpose of making a recording and disbanded immediately afterwards. Because ColSym was not a bankable Name, like the Philadelphia or New York ensembles, the record company brass didn’t much care what its recordings sounded like, so it would be assigned a no-name recording engineer who did not see himself as a towering creative genius. He tended just to put up a few microphones, adjust their balances, then sit back and relax while the orchestra played. The result was the best symphonic recordings Columbia ever released, then or since. Bruno Walter, too, was more of a musician’s conductor than a recording star, and the reasons are obvious from this completely captivating performance. There is less of a feeling of "interpretation" in this reading than in any other recorded "Pastorale"; the music speaks for itself. If you think you’re fed up with hearing this symphony, give this recording a try.

![Image of a bust of Beethoven](image-url)
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BERLIOZ: Symphonie Fantastique
Sir Thomas Beecham, Orchestre Radio-Diffusion Français
EMI LP or Angel CD

One of the symphonic “blockbusters” of our time, this is usually played as loudly as possible and much too fast. Beecham’s way with it is much slower than we are accustomed to, but it creates an atmosphere of dreamlike fantasy and nightmarish dread that none of the other recorded performances has ever matched. The recording is no Telarc, but it’s more than adequate for doing justice to the performance.

CHADWICK: Symphonic Sketches
Howard Hanson, Eastman Rochester Orchestra
Mercury Living Presence LP

This is unabashed symphonic trivia, written to exploit the variety of color that a large orchestra is capable of. It’s fun, and the recording is justifiably legendary. If the already-released Living Presence CDs are typical, the CD of this will be better than any of the LPs ever were, because all the cutterheads in those days had a fierce HF peak right where the mikes did.

MAHLER: Symphony 1
Bruno Walter, Columbia Symphony Orchestra
CBS MK 42031 (CD only). AAD. TT 52:05

Everything I said about the Beethoven Symphony 6 applies to this. Both belong in every record collection.

RACHMANINOFF: Rhapsody on a Theme by Paganini
DOHNÁNYI: Variations on a Nursery Tune
Julius Katchen, piano; Sir Adrian Boult, London Philharmonic Orchestra
Decca/London LP, or London CD. (Not the Treasury LP re-release)

An unlikely pairing of titles, but a perfect one. Messrs Katchen and Boult and the orchestra members are so obviously having a rollicking good time with these very different works that the performances carry you along like a raft in the rapids. Heard both at one sitting, with the Dohnányi first, the effect is like having attended a triumphant concert. The recording, multi-miked of course, is excellent nonetheless, with a bass drum that may bottom-out the woofers on some very good systems.

A hint: The Dohnányi is supposed to be funny, so you don’t have to suppress your mirth. The intro is a great test for how seriously your friends take “serious” music. If they don’t crack a smile when the main theme first appears, they’re phonys. (Insist that they listen to at least one Vanguard P.D.Q. Bach record.)

RESPIGHI: The Pines and Fountains of Rome
Fritz Reiner, Chicago Symphony Orchestra
Chesky RC-5 (AAA LP only). RCA RCDI-5407 (AAD CD only).

There are nuances in these performances that I do not hear in any others, and if they tend to make Respighi’s bombastic music sound more “significant” than many critics claim it to be, who cares? These are great performances, with some of the best sound RCA ever captured from an orchestra. Sonically, the Chesky is the best of the bunch; the RCA is dynamically compressed (unless you’re fortunate enough to find a very early “overcut” pressing), and the CD sounds a bit steely. (XI-I)

RESPIGHI: Ancient Airs and Dances
Anatol Dorati, Philharmonia Hungarica
Mercury Living Presence LP

What, another Respighi in my top 10? Yep, and deservedly so. These are charming works, played to a delightful fillip and recorded so well that you’re hardly aware that they’re canned. Again, the CD has better sound than the LP, and it has two LPs’ worth of material on it. Incidentally, if you’re one of those who worship the old Mercury LP sound, you ought to try to find a copy of a white-jacket demo disc called, if memory serves me, The Sound of Bose. All the cuts were culled from Mercury Living Presence masters, with no attempt to brighten-up the highs (as was apparently done with the Golden Treasury reissues). But the cutting was done on a later and obviously much smoother cutterhead. That was the best LP sound ever achieved from Mercury’s tapes.

RIMSKY-KORSAKOFF: Scheherazade
Sir Thomas Beecham, Royal Philharmonic Orchestra

Although no one has ever equaled the sensuousness and atmosphere of Stokowsky’s mono performances of this, Beecham’s only stereo recording comes the closest. The sound is hardly demo caliber, but it is good enough that it never gets between the listener and the music.

SAINT-SAÉNS: Piano Concerto 4
Artur Rubinstein, piano
RCA LP or CD.

Not exactly a towering musical work, but this is a recording I have found myself dragging out every six months so ever since I bought it, which was at least 15 years ago. Even though it was obviously done at recording sessions, the performance has the buoyancy and spontaneity of a live event, conveying much of the excitement of a memorable concert even without benefit of final applause.

VAUGHAN WILLIAMS: Symphony 2 (“London”)
Sir Adrian Boult, LPO
Angel CDC-47213 (CD only).

It is probable that no other conductor will ever understand the music of Ralph Vaughan Williams as well as did Sir Adrian Boult. A contemporary and close personal friend of the composer, Boult made three recordings of VW’s most popular and accessible symphony, spanning the history of analog recording: one on 78rpm discs, one on mono LP, and one in stereo. As a performance, I somewhat favor the middle one, which was released recently on a London CD, but the stereo EMI, on LP or CD, is a close second. (I do not care for the Previn.) The discreetly multi-miked recording is very, very good, but hardly superb.

Beth Jacques

MARIANNE FAITHFULL: Broken English

Produced by then-contemporary punker Mark Mundy.

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Broken English exemplifies what simple analog production, acoustic instruments, and committed, no-frills vocal interpretation can deliver. Anyone who's been around can identify with Faithfull's stark interpretation of material from Shel Silverstein ("The Ballad of Lucy Jordan") and John Lennon ("Working Class Hero") to her own bitter pills arguing for better communication between classes, countries, sexes, and various facets of the self. An adult album, and at one end of the bell curve of broken understandings, there's a track with lyrics from writer Heathcote Williams so vicious and so true that if the MoralisticMinority paid attention to music rather than the color of a rapper's skin, "Why D'Ya Do It" would have been pulled before "Tipper Stickers" were a gleam in Zappa's eye.

Michael Jackson: Thriller
Epic QE-58112 (LP), EK-58112 (CD). Quincy Jones, prod., Bruce Swedien, Matt Forger, engs. DDA/DDD. TT: 42:24

"Michael's not 'black,' Michael's just...Michael," blurted an activist recently pressed to choose an art or politics. No one disrespects genius, apple pie, or Captain Eo. His social conscience may echo Spike Lee, but the soul provides the sugar that makes the medicine go down. Here the Gloved One does more for harmony, self-respect, and the terminally uncoordinated on the dance floor than Aretha, Freud, and the United Colors of Benetton. "Billie Jean," for instance, is the perfect pop single: the most flawless examination of personal responsibility since Dosaneyovsky set to a dance beat and composition as exquisite as Lakmé's "Bell Song." Orchestrated by production's Grand Master Flash Quincy Jones, every instrument is where it should be and the sound as recorded (and reproduced) is more pure than the top of a mountain (listen for the separation in "Thriller"). With guests ranging from metal guitarist Eddie Van Halen through pop icons like Paul McCartney, each track is infused with love, craft, a sly sense of humor, and Michael's perfect, perfectly versatile vocal control. Best bonus: He may testify, but he don't preach.

Pink Floyd: The Dark Side of the Moon
Harvest CDP 7 466012 (CD only). Pink Floyd, prod. Alan Parsons, eng. AAD. TT: 42:48

An artistic reconstruction of the dark night of the bad trip that haunted MIA founder-member Syd Barrett and reverberated down the corridors of every track subsequently laid down by Britain's pioneers of acid rock. Floyd's early grasp of synthesized techniques, use of a 360° "azimuth co-ordinated" sound system live, and equivalently obsessive attention to the niceties of studio recording make manifest the conflict between the worlds of nature and artifice (the album's opening heartbeat rising from an audible region we're not supposed to be able to "hear" is as eerie an intro as you'll ever experience). A true tribute from four artists to another, Floyd turns biography into something more like metaphysics. (XI-9)

Rolling Stones: Get Yer Ya-Ya's Out!

Live is live, and recorded sound is something else. But this combination of terrific performance plus live-in-concert recording made the 1969 Get Yer Ya Ya's Out! the only rock LP an audiophile professional jazz drummer pal could ever stomach. It's the perfect combination of originals like "Midnight Rambler," teenage braggadocio, and a stylistic wash of R&B. Best of all, material like "Sympathy for the Devil" is free from the overproduction or contempt for mix technology with which most Stones LPs are infected. Jagger & Co. connect with concert snap, the selection of material is definitive, and producer emeritus Glyn Johns, who recorded and mixed in the Wally Heider mobile (complete with dirty Ampex amps), caught it clean and like it was.

Steely Dan: Aja
MCAD-57214 (CD only). Gary Katz, prod. ADD. TT: 39:59

More a concept than a band, Steely Dan's quintessential work is its penultimate album. An expression of an economical, mysterious, and original voice, Steely Dan began to exit stage left in 1977 with an LP whose technical sound matched its creative sense. Aja won a Grammy for Best-Engineered Album of 1978. It's a flawless recording, featuring peerless capture of instrumental tone and incomparable stereo separation. Sidermen include jazz-ish guitarists Larry Carlton and Lee Ritenour, and tenor sax Tom Scott. Not really accessible to criticism or analysis, Aja embodies the sensibility and feel of a foreign film. Sensical tracks like "Deacon Blues" provide material with depth that rewards each revisit, like a poem. Or a prayer.

Barbara Jahn

Benjamin: Antara
Boulez: Dérive, Memoriale
Harvey: Song Offerings
Penelope Walsmey-Clarke, soprano; Sebastian Bell, flute; George Benjamin. London Sinfonietta
Nimbus NI 5167 (CD only). DDD. TT: 49:48

At 30, George Benjamin is already one of England's most respected composers. Antara was written in answer to a commission from Boulez to commemorate the tenth anniversary of his Institut pour la Recherche et la Coordination Acoustique-Musique (IRCAM), at which both Benjamin and Jonathan Harvey have worked. It is a beautiful work, synthesizing "a whole world of panpipe sonorities through the agency of IRCAM's pride and joy, the 4X computer." Boulez's own short pieces make an apt coupling, and the disc is rounded off, by complete contrast, with Harvey's 'conventional" song cycle for soprano and eight instruments in an exquisite account of Rabindranath Tagore's sensuous poetry. Acoustics vary with venue, but results are equally superb.

Mozart: Sonata for 2 pianos, K. 448
Schubert: Fantasia for Piano Duet, Op. 103
Radu Lupu, Murray Perahia, pianos
CBS IM-39511 (LP), MK-39511 (CD). Bob Auger, eng.; Andrew Kazdin, prod. DDA/DDD. TT: 42:08

This disc takes my breath away every time I hear it. As individual artists, Lupu and Perahia are impeccable; together they are ineffable. I cannot think of any other pianists who consistently have the same range and delicacy of touch or a more intuitive grasp of dynamic structure; here they imbue these miniature masterpieces with a degree of passion that commands con-

Stereophile, January 1991
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Ken Kessler

Richard Lehnhart said it, not I: "Each recommended recording should be tops in both performance and sound"—which creates something of a dilemma for me. It also points out a fundamental difference between classical and the various "nonclassical" forms, a difference which has nothing whatsoever to do with "one being superior to the other."

It's like this: I cannot, no matter how hard I try, find even five recordings which are unreservedly recommendable using both criteria. There are plenty of great-sounding recordings with negligible musical worth, and just as many brilliant performances with severely flawed sonics. With classical, you get a choice; with nonclassical, you don't.

Let's say you're looking for a flawless LP or CD of Mozart's whatever. You could have dozens or even hundreds of releases from which to choose. You just keep looking until you find one in which the performance and the recording are five-star. With nonclassical, you're buggered. You want Howard Tate's musically perfect debut LP, Get It While You Can? Then be prepared for noise, break-up, and the kind of stereo which made EMI release the Beatles' first four in mono. You fancy some late-1970s title on WEA? Then expect an Aphex Aural Exciter. Nonclassical releases are one-offs, with remarks few and far between and rarely worth considering; you're stuck without options. With classical, they're allowed to do it again and again until they get it right.

Unfortunately, none of the music which I consider to be the stuff I'd take to a desert island has sound quality worthy of inclusion in Stereophile's list, while those which do have state-of-the-art sound quality are musically flawed. Sure, I could rattle off a list of titles like the Persuasions' We Came to Play or Billy Cotton's Wacky Wakesy, but they're so "genre specific" that it would seem almost presumptuous to recommend them. Never have I suggested that my tastes should be forced upon others, however much I hate classical and adore soul; for a list such as this, I would assume that the breadth of the appeal of the titles should be greater than that of Boys' Boy Slim & The Sex Change Band's eponymous debut or Kevin Ayers' Bananamour.

Neither do I want to recommend specific tracks, and singles are deleted faster than a new model from Japan Inc.; I am not going to incite riots in secondhand shops by telling you to look for the 12" version of Willy de Ville's 'Assassin of Love,' or Eddy Grant's 'Can't Get Enough' [Yeah!—Ed.]. Some LPs, such as Lou Rawls's At Last, may seem to make the grade, but then I have to admit that maybe there's a touch too much close miking. I can tear apart any LP I adore if I listen closely enough. And that raises another point.

The mere concept of a list of recommended recordings bothers me in myriad ways when it's applied to nonclassical because it automatically precludes some of the greatest music of all time. By default, it means that much of limited worth qualifies for this listing because of hot sonics, and I shudder to think how many people own Supertramp and Dire Straits LPs just because of the sound quality. Worse, I find it odious that anyone could place sonics on the same plane as the music itself. That's for hi-fi nuts, not music lovers. So, to torment all of you, I'm going to recite my personal choices of the five greatest nonclassical stereo LPs of all time: Howard Tate's Get It While You Can, Buffalo Springfield's Again, Sam & Dave's I Thank You, the Rolling Stones' Let It Bleed, and Mel & Tim's Starting All Over Again. And you know what? In sonic terms, they're all dogshit.

Igor Kipnis

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Wing Commander Eric Banks, Central Band of the Royal Air Force
EMI CDC 7 49608 2 (CD only). Brian B. Culverhouse, eng. & prod. DDD. TT: 71:31

This thoroughly rousing compilation of British Music for Concert Band (the album title) contains some extremely popular pieces, notably the Vaughan Williams English Folk Song Suite and the majority of the exuberant Grainger works, of which the latter take about half of the playing time. Planets aficionados will without doubt be delighted to meet Holst back on earth but in an equally sophisticated manner that quite gorgeously reveals his expert knowledge of band scoring. The full-bodied reproduction, reveling in low brasses and tangible percussion, is a worthy demonstration disc; and the performances could easily make Angiophiles out of most listeners.

Horowitz: The Last Recording
Piano works by Haydn, Chopin, Liszt, Wagner-Liszt
Vladimir Horowitz, piano
Sony Classical SK 45818 (CD only). Tom Lazarus, eng.; Thomas Frost, prod. DDD. TT: 57:51

The pianist’s many years of recording activity (1926-89) have not always produced a gratifying piano sound; in general, the live performances of recent years have often tended to sound clattery, while some of the important early Horowitz 78s have suffered in CD transfers from misguided processing (especially EMI’s Cedar system). These warm, natural-sounding final tapeings are not only among the absolute best that Horowitz ever received, but the playing itself, autumnal in mood, is remarkably free overall from many of the interpretive mannerisms of his later years. The Liszt and the Liebestod arrangement are especially to be treasured. (XIII-9)

The Los Angeles Guitar Quartet
Works for guitars by de Falla, Sciammarella, Copland, Brunweer, Koussevitzky
The Los Angeles Guitar Quartet: William Kanengiser, Anaïs Angarola, Scott Tennant, John Dearman
GHA CD 126.001 (CD only). André Démocore, eng.; Françoise-Emmanuelle Denis, prod. DDD. TT: 53:24

Although I’m not overly undisposed to transcriptions, the original orchestral (and vocal) version of Manuel de Falla’s El Amor Brujo would ordinarily have been my listening preference, as would the Copland. Such fabulous playing by these four guitarists, passionately intense, often darkly atmospheric, and above all rhythmically vital, as heard here has enabled me to enjoy to the fullest both the music and the splendid ensemble, nowhere more so than in the de Falla. In contrast to most record companies’ predilections for tunnel acoustics through distant miking, this showcase stand-out is quite dry, intimately but not oppressively close-up, and well separated.

Ravel: Orchestrations
Ravel: Ma Mere l’Oye; Debussy: Sarabande; Danse (Tritonelle styrienne); Schumann: Carnaval; Prélude; Valse allemande—Paganini; Marche des “Davidsbündler contre les Philistins”; Chabrier: Menus pompeux
Julian Reynolds, European Chamber Orchestra Per Musica
Exetera KTC 1040 (CD only). Klaas A. Posthumus, prod. DDD. TT: 56:54

As a longstanding Ravelian, I was intrigued by this disc’s promise of the rare orchestration of several movements from Schumann’s Carnaval. Actually, the latter was not more than an interesting curiosity, but the standout is an unusually tender, beautifully shaped, and atmospheric Mother Goose in its complete ballet form. It is a performance that I have turned to innumerable times and, most especially, whose Laidameronne, Impératrice des Pagodes section, with its delectable far-eastern sounds, continues to serve as an eye-opening system demonstration. Especially admirable are the bright instrumental colors and unusual clarity, wide dynamic range, plus a superior stage.

Weite-Philharmonie-Orgie
Organ music by Dupré, Bonnet, Gigout, Reger
Marcel Dupré, Joseph Bonnet, Eugène Gigout, Max Reger
(Weite-Philharmonie organ and Weite organ rolls)
Intercom INT 860.857 (CD only). Urs Metzger, eng.; Andreas Speer, prod. DDD. TT: 53:23

The startling facet: these performances date from between 1911 and 1928, the earliest of them six Reger organ works, played by none other than their composers. The medium, of course, is the organ roll, here played back on a 21-stop, 1000-pipe chamber instrument housed in a museum at Linz Rhein but originally built in 1925 for a French villa (the sound, with its many reeds, is very French). Piano rolls more often than not dissatisfy in their mechanical reproduction, but these organ rolls are astonishingly natural. The sonics, with excellent imaging in a small auditorium, are exceptionally realistic.

Richard Lehnhert
Of course, my first choice is Solti’s recording of Wagner’s Der Ring des Nibelungen (London 414 100-2), all 14:37:42 of it, but as both Gary Grau and Robert Levine have placed that recording at the top of their lists, I’ll let it go. All I can say is, when listening to recordings made since Solti’s—and with the strong exception of Karl Böhm’s—I can never help thinking, “Why did they even bother?” Multi-miking at its best.

As for my other alarms: Joni Mitchell’s eponymous first album (Reprise 6293, LP; the CD is worse), which, even though virtually the entire top end was simply peeled off due to serious equipment malfunctions during taping, is still a delicious sonic, vocal, musical, and emotional experience, not to mention that great rarity: a tastefully distantly miked pop recording (thanks, producer David Crosby). Jesse Colin Young’s very first record, the pre-Youngbloods Soul of a City Boy, Capitol SN-16129 (1964, LP only, out of print, abridged), is a minimally miked recording of acoustic guitar and voice, this young kid singing with astounding maturity, artistry, and passion. And last but not least, the record I play more than any other, German Christmas Music of the High Renaissance, Musical Heritage Society OR 320 (LP only, out of print) (XI-12): incredibly moving performances by Elly Ameling, among other vocalists, and a small baroque combo including Hans-Martin Linde and Walter Gerwig. The recording is lusciously warm and intimately distant.

Brahms: Symphony I
Jascha Horenstein, London Symphony

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Stereophile, January 1991
Probably the finest interpretation of this symphony ever recorded, and in such remarkable sound! Horenstein's passion infuses that of Brahms, and the combination is staggering. His control of crescendo and rhythm are godlike, the overall architecture monumental and intimate at once, the emotions evoked so powerful that I haven't always felt myself able to finish listening to the complete symphony. Sound is rife, rich, and resonant to the point of dropping off the vine. One of the Chesks' (and Wilkinson/Gerhardt's) greatest sonic achievements. (XII-7)

COPLAND: Symphony 3, Music for the Theatre
Yoel Levi, Atlanta Symphony

This most popular of Copland’s symphonies—from whose final movement Fanfare for the Common Man was later excerpted—is represented by only four recordings, of which Yoel Levi’s is by far the best: meditative, earnest, sumptuous, and overwhelming by turns, this is a definitive performance.

As is Telarc’s recording, not nearly as too-much-of-a-good-thing as usual: the bass drum in the Fanfare section is accurately stupendous. Squarely in the “stellar” category. (XII-3)

BOBBY KING & TERRY EVANS: Live and Let Live!
Rounder 2089 (LP), CD 2089 (CD). Larry Hirsch, eng.; Ry Cooder, prod. AAA/ADD. TT: 44:40

This one was almost beat out by the Persuasions’ Live in the Whispering Gallery (Hammer n’ Nails HNCD 1988), but I finally chose King & Evans because not only the voices but the band as well are so gorgeously recorded, live in the studio. This is a record of big, openhearted gospel blues from a couple of vibrantly alive, large-scaled men. Producer Ry Cooder plays his uniquely soulful slide guitar on every cut, and, what can I say? Music you can live with the rest of your life. (XII-1)

ARVO PART: Arbo
The Hilliard Ensemble; brass ensemble; Gidon Kremer, violin; others
ECM 1325 (831 959-2, CD only). Peter Laenger, Andreas Neubronner, eng.; Manfred Eicher, prod. DDD. TT: 59:19

Virtually everything that Bob Levine has said about Pärt’s Passio is even more true of his Stabat Mater; my primary reason for recommending this disc. Pärt’s medieval sensibilities in both theology and music are anything but affectations or throwbacks: the man is capable of a depth of musical profundity that is both harrowing and comforting. I simply cannot imagine a better performance of the work than The Hilliard Ensemble’s, and Manfred Eicher’s much-maligned ECM recording style is here taken to the sublimity of its supra-rational conclusion: a very “wet,” sumptuously reverberant (if multi-miked) recording in which the venue’s acoustic (St. John’s, London) is nearly as important as the written notes. Let this one into your heart and you’ll be a different person. (X-8)

WAGNER: Lohengrin
Ives Thomas, Lohengrin; Elisabeth Grümmer, Elsa; Dietrich Fischer-Dieskau, Telramund; Christa Ludwig, Ortrud; Gottlob Frick, Heinrich; Otto Wiener, Herald; Vienna State Opera Chorus, Vienna Philharmonic, Rudolf Kempe
EMI CDCG 49017 (3 CDs only). Francis Dillingham, eng.; Victor Olof, prod. ADD. TT: 3:38:36

This 1962–63 Lohengrin is one of the finest operatic recordings ever made. If Solti’s Ring cast was nearly perfect, Kempe’s Lohengrin roster is perfect: Thomas is a stately, impassioned Lohengrin, Grümmer the purest and most womanly Elsa we will probably ever hear, Fischer-Dieskau a tortured Macheth of a Telramund, Ludwig at the peak of her art, and Frick a vital, involved Heinrich. And all are in excellent voice. The VPO and Chorus are impeccable in force and discipline, and Kempe’s direction is ethereal and impassioned at once—you’ll know why this opera induced Ludwig II to virtually abandon his throne and devote his life to Wagner. EMI’s studio recording—refreshingly hiss-free on the CD—is spacious, accurate, entirely believable, with a minimum of spot-miking. One of the timeless great ones.

Guy Lemcoe

BACH: Sonatas & Partitas for Solo Violin, BWV 1001–1006
Gidon Kremer, violin
Phillips 6769 053 (3 LPs), 416 651-2 (2 CDs). AAA/ADD. TT: 93:18

Partita No.2 in a, BWV 1003, is as close as one can get to musical nirvana. I have rarely heard music with more spirituality in it—its as if I am bonding to a greater reality. True “space music,” it takes the listener on a celestial voyage not soon forgotten. How anyone can sit through the Ciaccona and not be visibly moved escapes me. Gidon Kremer brings this music to life. In his hands, the notes sing, dance, reach for the sky. I marvel at Kremer’s artistry, sensitivity, and technical skills. He is aggressive in his approach, yet not flamboyant. He can back off and settle into a calm space when necessary. The recording is close, yet retains a sense of ambience so notes can be heard bouncing off nearby walls. Details of the performance are outstanding, especially the visceral impact of the gut on the strings. The resonating cavity of the violin is clearly heard. The Sarabanda is especially sweet—the broken chords shimmering, like a kaleidoscope, with tonal colors.

BOB MARLEY & THE WAILERS: Exodus (side 2)
Island Records ILPS 9498 (LP), ISL 90034–2 (CD). Bob Marley & the Wailers, prod. AAA/ADD. TT: 58:15

No politics here, just good old love songs. Bob Marley did it better than anyone. The beat is mesmerizing, captivating you after just a few bars. (If you can remain still while this music plays, there's something wrong with either you or your system!) That voice! Even my rough Tuff Gong pressing cannot obscure the beauty in that voice and the soul of the man attached to it. In true reggae fashion, the mix places the bass, drum, and percussion up front, sharing space with the vocals. The guitars and keyboard are mixed way down. The soundstage is wide and deep, instrumental and vocal forces precisely focused therein.

RADKA TONEFF/STEVE DOBROGONZ: Fairytales
Radka Toneff, vocals; Steve Dobrogoncz, piano

Stereophile, January 1991

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A light-year distant from the gloom of Raincoat (see below)—a disc to play when you want to relax and feel good. The recording is as intimate as any I have ever heard—the inner harmonics of the piano, in particular, ring out and sparkle like aural snowflakes. On several cuts the sound of the hammersticks striking the strings can be heard—a level of detail rarely captured. The rendering of Radake Toneff's voice is exquisite—perfectly focused in space, the image never wandering. Each detail of the singing process is revealed: intakes of breath, the parting of lips to form a word, etc. If you feel female vocals with piano accompaniment are boring, prepare to be surprised. I guarantee you'll sit spellbound by the intensity and beauty of this recording.

URUBAMBA: Urubamba (side 1)
Warner Bros. BSK 3555 (LP only). Paul Simon, prod.; Phil Ramone, eng. AAA. TT: 27:34

This quartet of Peruvian musicians performs on a variety of folk instruments. The music is glorious—a celebration of life. The recording captures the unique timbres of the instruments perfectly. Soundstaging is three-dimensional, with an almost uncanny palpability in places. Soft voices emerge from the background—you turn your head to locate them. When the drum is struck, you feel its resonance. The moisture in the pipes of the various flutes and panpipes is sensed. The charango sounds its size. A rare blend of a realistic recording of small-scale music with large-scale emotional and sonic rewards.

JENNIFER WARNES: Famous Blue Raincoat

Leonard Cohen's songs cut deep into the soul, leaving behind shards of emotions—the listener is left in a blue funk. Jennifer Warnes's voice is the perfect instrument for communicating the messages in this music—its purity and control are captured in a recording which reveals new musical nuances with each improvement in your system. The bass, on certain cuts, seems to extend through the floor of my listening room into my neighbor's apartment. Jennifer's presence is palpable, the voice attached to a flesh-and-blood human. There are moments when you feel compelled to get up and give her a great big bear-hug. A dynamic recording deserving of the praise it received.

JOHN WILLIAMS: The Missouri Breaks (soundtrack)
United Artists UAS 29971 (LP only). Robert M. Sherman, prod.; John Norman, eng. AAA. TT: 35:10

Unsurpassed at conveying, musically, the dark side of the human psyche (portrayed, on the screen, with chilling sinistrality by Marlon Brando). In stark contrast, Williams pens a love theme which he hasn't matched since. The arrangements are studies in tonal color. Timbres of instruments, especially the harpsichord and harmonica, are utilized in unique ways. Soundstaging is wide and deep, instruments having an uncanny three-dimensionality. You are drawn into this music and the emotions it evokes through a combination of creative composition, skillful arranging, imaginative use of instrumental forces, and pristine sound. It beats Casino Royale, in my book.

Robert Levine

BARTÓK: Bluebeard's Castle
Walter Berry, Bluebeard; Christa Ludwig, Judith; London Symphony Orchestra, Istvan Kertész
London 414 167-2 (CD only). Erik Smith, prod. ADD. TT: 59:30

This fills the bill. The recording has such depth that it actually scares the listener—there are groans and sighs which come from somewhere evil, and the terrifying and majestic C-major pull-out-the-stops chord with organ at the opening of the fifth door will blow you away. The singing by the two leads is unparalleled; I doubt whether they've ever sounded better. Ludwig's Judith has everything—power, bite, ultimate fear—and Berry makes us cry for Bluebeard. Kertész is a whiz with the strange subtleties and not-so-subtleties of this wonderful score.

MAHLER: Symphony 8
Soloists, Tiffin School Boys' Choir London Philharmonic Chorus & Orchestra, Klaus Tennstedt
Angel CDCB-47625 (2 CDs only). John Kurlander, Tony Faulkner, engs.; James Mallinson, prod. DDD. TT: 82:39

If it is possible at all to capture this work on discs, EMI's engineers have done so. Tennstedt leads the best all-around reading of this mammoth work available, bringing out every nuance, from the hushed, otherworldly opening of the second part to the gorgeous hymn which closes the work. The overall approach is grand and sweeping rather than pointed and intense (like Solti's—a close second, by the way, except when it comes to the recording itself), but this helps to bring out the work's more lyrical pages. The choirs have to be heard to be believed—they'll knock your socks off. Too often one is merely overwhelmed by the power of Mahler's 8th; here one is overwhelmed by its beauty as well. (XI-1)

MASCAGNI: L'Amico Fritz
Mirella Freni, Suzel; Luciano Pavarotti, Fritz; Vincenzo Sardinero, David; others: Royal Opera Chorus, Orchestra of the Royal Opera House, Covent Garden, Gianandrea Gavazzeni
EMI CDs 7 47905 8 (2 CDs only). Christopher Bishop, prod.; Christopher Parker, eng. ADD. TT: 92:43

I realize that this is a rather lightweight choice, what with all those Flying Dutchmans (if you don't like Klemperer's), La Bohèmes (I'd pick von Karajan's with Pavarotti and Freni), Beethoven Ninths (Böhm's, probably), and Monteverdi's Vespers (Herrweghe's or Parrott's) out there, but here it is. I'll count it as a half, to make up for the one I'm missing in the Ring evaluation below. This is Mascagni's only lovely opera; it catches Freni and Pavarotti in the first bloom of their sardon, and leaves the listener with a really good feeling. I've tried, but I can never find anything wrong with either the performance or its aural presentation—it's analog, with great presence. And basking in the sunshine of the voices of the two leads is a real delight.
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Stereophile, January 1991
This is a staggeringly beautiful and reverential work—stark, rich, sensitive, brutal, simple, and complicated. Its sound is both ancient and modern—timeless. Pärt's writing, unlike any of the other so-called minimalists, is handcrafted and never loses the personal element. Passio is a perfect matching of form and content, and ECM has given it a recording that is ample and intimate at once, with a bass resonance which touches the soul. The 71 minutes have no index or cueing points; the recording becomes part of the fabric of the piece. This is a backrub for the spirit—not to be missed. (XII-2)

WAGNER: Der Ring des Nibelungen

Birgit Nilsson, Hans Hotter, Wolfgang Windgassen, George London, Regina Crespin, James King, Giorio Frick, Kirsten Flagstad, Dietrich Fischer-Dieskau, Gerhard Siegmann; many others; Vienna State Opera Chorus, Vienna Philharmonic Orchestra, Sir Georg Solti.

London 414 100-2 (15 CDs only), Gordon Parry, eng.; John Culshaw, prod. ADD. TT: 14:37:42

Also available individually: Das Rheingold, 414 101-2; Die Walküre, 414 105-2; Siegfried, 414 110-2; Götterdämmerung, 414 115-2.

I'm going to beg the question and count this as one-and-a-half of the five all-time best recordings, only because it wouldn't be fair to count it as one and if I count it, correctly; as four, I would lose a turn and go directly to jail. This ground-breaking project remains epic in scope, execution, and quality. It is, by the way, the loudest Ring on discs, which alone will please many, but this is not to say that it's longer on bombast than on understanding, nuance, or integral complexity. Waves of orchestral sound occasionally threaten to (and even more occasionally, do) overwhelm the singers, but it's a perfect opera-house balance of a really big performance and I can not argue with it.

The casting is the strongest on discs, with Nilsson and Windgassen the best in their roles, ditto Neidlinger as Alberich and Hotter and London as Wotan. The weakest of the three is the Walküre (James King's Siegmund sounds a bit matter-of-fact; he drags Regina Crespin down with him), but it's still splendid, even if it doesn't make it to Böhm's Phillips level, let alone the level Solti sets for the rest of the cycle. But the other three are tops in a tough competition: The Rheingold has never been bettered, either sonically or dramatically (the forging of the rainbow bridge and entry of the gods used to have quite an effect in college when we were "in the mood," and it's held up, in the mood or not, since then). Siegfried comes across as a great yarn filled with many multifaceted folk, and sounds beautiful, too. And the Götterdämmerung remains one of the great opera-on-disc experiences, with Nilsson and Windgassen on fire (literally) and Gottlob Frick's Hagen so evil he makes you want to run and hide. In general, this Ring is so rich, and the recording is so brilliant, that I sometimes forget that I've only heard it, never seen it. The Böhm is a close second, but its intensity is very personal; this, the Solti/Culshaw Ring, is the Ring for life.

Lewis Lipnick

BAX: Symphony 3, Dance of Wild Irruvel, Paean

Bryden Thomson, London Philharmonic Orchestra.

Chandos ABRD 1165 (LP), CHAN 8454 (CD*), Ralph Couzens, eng.; Brian Couzens, prod. ADD. TT: 58:32

You'll either love or hate this music of Arnold Bax; I happen to fall into the former category. Bax's music is very English, leaning in a direction between Elgar and Delius, but with a definite orchestral sound of Richard Strauss (with whom Bax studied). Although the two short pieces (Dance of Wild Irruvel and Paean) are interesting, the real meat here is Symphony 3 (he wrote seven, and numerous orchestral tonepoems). Thomson's performance is superb, with obvious attention to detail (a careful reading of the full score shows that this over-orchestrated piece could easily fall into a murky morass of sonic slop without an excellent ear for balance). Sonically, the recording suffers a bit from an overbright sense of acoustic, but with excellent soundstage, ambience, and without any uninvited editorializing on the part of the recording team.

FAURE: Requiem

DURUFLÉ: Requiem

Judith Blegen, soprano; James Morris, bass; Atlanta Symphony Orchestra & Chorus, Robert Shaw.


If there is one musician alive who exemplifies the total mastery of choral performance, it would have to be Robert Shaw. These performances of two great requiem masses have yet, in my opinion, to be equaled on recording. Both works are presented with extraordinary attention to the composers' written intentions, with the less-well-known Durufle enjoying about the finest interpretation this musician has ever heard. Although the Atlanta Symphony plays with a high level of competence (with a few intonation problems in the woodwinds and brass), the real jewel is the choral performance, due, no doubt, to Mr. Shaw's remarkable ability to draw the best from massed voices. Sonics are excellent, with natural depth and width, and no highlighting (as with all Telarc releases). On a phase-coherent system, the chorus is clearly set behind the orchestra, and the layering of instruments and voices is stunning. (X-7)

RACHMANINOFF: Symphonies 1-3

Andrew Litton, Royal Philharmonic Orchestra

Symphony 1, Isle of the Dead

Virgin Classics VC 7 90830-2. TT: 66:54

Symphony 2, Vocalise

Virgin Classics VC 7 90831-2. TT: 70:05

Symphony 3, Symphonic Dances

Virgin Classics VC 7 90832-2. TT: 77:44

All three: CD only. Mark Vigers, Mike Hatch, Simon Rhodes, engs.; Andrew Keener, prod. DDD.

With these performances, Andrew Litton has established himself as "the" interpreter of Sergei Rachmaninoff's orchestral music. I've performed Symphony 2, Symphonic Dances, and Vocalise under this conductor, and can categorically state that this is the first time since Eugene Ormandy that these pieces have come to life. The level of performance on all three discs is remarkably high, especially considering that few English orchestras have the ability to create that special dark, wooly tonal quality so necessary to effectively present Rachmaninoff's orchestral works. While other excellent performances of these pieces are available from Vladimir Ashkenazy on London/Decca, Litton's
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Stereophile, January 1991
intuitive sense of musical flow, as well as his ability to draw the most exquisite emotional playing from an orchestra, make the competition pale in comparison. The sonics are excellent, with all but the Symphonic Dances (recorded in Walthamstow Assembly Hall) produced in Abbey Road Studio 1. These three discs are a must for anyone serious about orchestral music.

RAMIREZ: Misa Criolla, Navidad en Verano, Navidad Nuestra
José Carreras, tenor; Coral Salvé de Laredo & Sociedad Coral de Bilbao choruses; José Luis Ocejo, Damión Sanchez, conductors
Philips 420 955-2 (CD only), John Newton, eng.; Job Maarse, prod. DDD. TT: 40:17

I know nothing of composer Ariel Ramirez other than that he creates beautiful music. I first heard this recording in Jason Bloom's Apogee suite in Chicago at CES, and have been hooked ever since. Apparently this is not the first recording of the Creole Mass, the first (recommended by Larry Archibald) being produced in Buenos Aires in 1964. This July 1987 performance, recorded in the Santuario de la Bien Aparecida, Cantabria, Spain, has got to stand as one of the outstanding artistic and sonic achievements of the past ten years. José Carreras is a truly great musician, and sings here as if he were creating the music, not merely interpreting the written note. The chorus and band of Latin-American folk instruments are excellent, except for a few intonation problems with the chorus (but this helps give the performance its charm). Sonically, this recording is a knockout, especially if you're a soundstage freak, and the recreation of ambience within the recording venue is about as good as I've ever heard.

VAUGHAN WILLIAMS: Job (A Masque for Dancing)
Vernon Handley, London Philharmonic Orchestra
EMI Eminent CD-EMX 9506 (CD only); Mr. Bear, eng.; Martin Compton, prod. DDD. TT: 47:41

It's a pity this piece is seldom performed nowadays. I remember playing Job as a student and marveling at the composer's uncanny ability to create music both harmonically complex and easy for the listener to assimilate. Originally composed for accompaniment to a ballet, based on William Blake's illustrations to the Book of Job, this work received its first staged performance in London in 1931. Job offers an ideal look into Vaughan Williams's mastery of orchestration, requiring a rather large orchestra, with the addition of bass flute, solo tenor saxophone, and organ (noted as ad lib in the score). This is undeniably a programmatic piece, with a similar sonic palette to the same composer's Symphonía Antártica, is a work gleaned from the score for the film Scott of the Antarctic. If you like Vaughan Williams's symphonies, you'll love Job. Handley's performance is a significant improvement, both musically and sonically, over Sir Adrian Boult's earlier recording. Although Boult was (and is still considered by many) the ultimate interpreter of Vaughan Williams's orchestral works, his rather light and reticent overview of Job is shattered by Handley's more robust, better-paced (Boult is much too slow), and colorful rendition. The engineering by Mr. Bear (aka Michael Clements) is remarkable, with natural soundstaging and awesome dynamic range, without any unnatural spotlighting of instruments. This piece requires the transparency of an English orchestra, and the London Philharmonic doesn't disappoint. Once you've heard this performance, you'll probably wonder why no one ever plays the piece. Damn good question. (XI-3)

Peter W. Mitchell

What a procrustean task this is! On one hand, I must forgo most of my favorite system-busters because they feature trivial music or mediocre performances. On the other hand, I can't include most of my favorite desert-island treasuries because they were recorded badly or too long ago. Ah well, one of the most interesting challenges in life is to find a really good compromise, something that satisfies in every way. Here goes:

ELGAR: Cello Concerto, Sea Pictures
Jacqueline du Pré, cello; Janet Baker, mezzo-soprano; London Symphony Orchestra, Sir John Barbirolli
EMI CDC 7 47329-2 (CD only); Christopher Parker, eng.; Ronald Kinloch Anderson, prod. AAD. TT: 54:04

Elgar wrote the greatest of all cello concertos, and this performance is one of the most life-affirming musical events ever committed to disc, thanks to a pairing of the old master Barbirolli with the sparkling young du Pré in her prime. Even the LSO seems energized by the occasion, exchanging phrases with the soloist in chamber-music fashion and moving from youthful heart-on-sleeves ardor to deeply somber introspection. Crossed-pair Blumlein miking delivers a seamless soundstage with the solo cello obviously in front of the orchestra, nearer the mikes. The loudest passages saturated the pre-Dolby 1965 master tape, producing moments of congestion; otherwise the sound is fine. Solo cello encores in the original LP were replaced in the 1986 CD release by splendid performances of five sea-related songs.

HANDEL: Water Music
Trevor Pinnock, The English Concert
Archiv 410 525-2 (CD only); Hans-Peter Schweigmann, eng.; Dr. Anders Holzschneider, Charlotte Kriesch, prods. DDD. TT: 54:15

Of the two dozen competing recordings of the Water Music suites, several have considerable music or sonic merit (McGegan on Harmonia Mundi, for example). What's so satisfying about Pinnock's early-instruments group is this: they play with such freshness, variety, and toe-tapping rhythmic swing that every time I put on this disc I feel I am hearing this wonderful music for the first time. The sound is crisp, clear, full-bodied, spacious, and (happily) does not suffer from the hardness that afflicts many other Archiv digitals.

LISZT: Nojima Plays Liszt
Sonata in b, Mephisto Waltz No 1, La Campanella, Harmonies de Soir, Feux Follets
Minoru Nojima, piano
Reference Recordings RR-25 (LP), RR-25CD (CD); Keith O. Johnson, eng.; J. Tamblin Henderson Jr., prod. AAA/DDD. TT: 59:18

Nojima won the Van Cliburn competition fully two decades ago; yet this triumphant 1986 recording was his debut for most American listeners. While his flying fingers admirably execute Liszt's pyrotechnics, he also brings out structural logic and emotional content that are often overlooked. The Sonata, a masterpiece dedi-
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Stereophile, January 1991
cated to Schumann, becomes a titanic struggle among multiple personalities (perhaps prefiguring Schumann's own insanity). The recording blends close and distant miking, combining a frame of ambience with a detailed perspective in which the piano spans the full width between the speakers. Some low-frequency rumble can be heard on a wide-range system. (XI-4)

MUSSORGSKY: Pictures at an Exhibition

STRAVINSKY: Three Dances from Petroushka

Jean Guillou, pipe organ.
Dorian DO-90117 (CD only). Craig D. Dory, Brian C. Peters, engs.; Randall Festvedt, prod. DDD. T: 53:03

Of these popular orchestral showpieces, the first was composed originally for solo piano while the composer of the second also created a widely played piano version. So a transcription for the tonal resources of a huge pipe organ, while unorthodox, is as legitimate a way to hear these pieces as any—especially since in Dorian's spectacularly wide-ranging recording they are even more challenging to reproduce than the familiar orchestral arrangements. Clear and spacious highs, shuddering infrabass that goes lower than most subwoofers, and spirited performances add up to a recording that is far more than a stunt. (XIII-3)

PROKOFIEV: Alexander Nevsky, Lieutenant Kije

Christine Cairns, mezzo-soprano; Los Angeles Master Chorus; Los Angeles Philharmonic Orchestra, André Previn

Previn can be dull in mainstream repertoire, but his sobriety serves as a wonderful clarifier when the music is as complex and exotic as it is here. Prokofiev's marvelously varied sonic palette, with pseudo-oriental combinations of bass drum, tam-tam, tuba, cymbals, bells, tambourines, and large chorus, will give your system a real workout. Telarc's recording is superbly clear and naturally balanced, has a huge dynamic range, and produces a soundstage both wide and deep, thanks in part to the Colossus digital processor and the fine acoustics of UCLA's Royce Hall. (XI-4)

Thomas J. Norton

"Five top recordings, no more than 100 words each, must be impeccable both sonically and musically."

"The words jumped off the page. A great idea, I thought, as I perused Richard Lehnert's letter. But RL couldn't be serious about the length.

He was. This wasn't going to be easy. And the more I thought about it, the more difficult it became. I suspect my consternation was shared by most of the writers. Not only were they restricted to an unconsiderable length—100 words is, after all, cruel and unusual punishment for writers who love to ruminate at the keyboard about their favorite subject; the selections themselves would be difficult. We all have our favorite recordings, of course. Our "desert island" selections. But I knew that the selections which I made here would not be the same ones I would choose for life among the coconuts. There, performance would of necessity take top—not equal—priority. Sound quality would still be of importance, of course, assuming that my desert island "system" was up to snuff and South Pacific Edison provided a reliable power source!"

Furthermore, how to choose recordings impeccable in both sound and performance? There really is no such thing. Nor is there likely to be agreement among a broad cross-section of listeners as to what satisfies these requirements. And what about musical taste? Now there's a wrenching subject. How often have you played a recording for friends that stops you in your tracks every time, only to have them start a conversation halfway through? We all respond differently to a given piece of music and to a given performance.

And there's another difficulty—LP vs. CD. Here each reviewer waxes with his or her own feelings on matters analog and digital, tempered by real-world considerations. I can only speak for myself. In a different world, most—perhaps all—of my choices would be analog LP. But I have no desire to send the reader off on an endless search. Nor do I wish to add to the already relentless price pressures on the remaining stocks of sought-after LPs. I have therefore, with some reluctance, limited my recommendations to CDs—which should be more or less readily available. Others will weigh their priorities differently.

Of course, there is no "solution" to these problems. The choices of each reviewer are based on his or her own "best guess" at the time. Such choices are also limited—usually—to what is in our own collections at a given moment; tomorrow that magic recording may be found which renders everything else irrelevant. But for now, I think that you will at least find our recommendations interesting. And, we hope, rewarding as well. May the Christmas Dog leave lots of good listening under your tree.

BERLIOZ: Symphonie Fantastique

Varujan Kojian, Utah Symphony Orchestra

The "Fantastique" is a warhorse for a good reason—it's explosive, atmospheric, vulgar, visceral, chilling, and leaves the listener drained at the finish. A real crowd-pleaser. Which is why, I suppose, that it's so seldom performed live by major orchestras. Kojian's forces perform in a manner which would do justice to a "major" orchestra, and, while the Soli/Chicago Symphony recording on London—with its absolutely hair-raising final movement—remains my favorite (recorded) performance, its CD sound is raw and hard.

This version, in its (still available) LP guise, has long been an audiophile favorite. The CD is also superb, with one of the most astounding low-ends in existence. When you want to see what your system will really do, this will fill the bill nicely.

LEO KOTKKE: A Shout Toward Noon

Private Music 2007-2-P (CD only). Dan Wallin, eng.; Buehl Neldinger, prod. DDD. T: 38:50

This album is likely to be found under "New Age"—whatever that means; to me it is simply an excellent album showcasing Kottke's outstanding virtuosity on guitar (accompanied by cello and discreet synthesizer). It is all very laid-back and atmospheric. The recording is warm yet detailed, and serves the music and performance superbly. There are plenty of good guitar recordings around; for the past couple of years, this has been the one I reach for first.

ESTHER OFARIIM: Esther
A collection of modern folk-songs—in Hebrew, French, Spanish, German, and Italian—performed by a little-known (in the US) Israeli singer with a lovely voice and appealing style. Virtually all of the songs are gems. ATR is a German audiophile label; you may have to hunt for this one from audiophile sources, not your local Tower outlet. English translations are not provided, but are little missed.

The sound—from an analog master—ranges from good to superb (the mix varies somewhat from cut to cut). My early-'80s LP version is airier, but often edgy and overmodulated and generally less listenable than the CD. The latter, played at the right playback level, is magical.

GREGORIO PANIAGUA: La Folla de la Spagna
Gregorio Paniagua, Atrium Musicae de Madrid
Harmonia Mundi 90.1050 (CD only). AAD. TT: 44:30

A folla is apparently some sort of mad dance, a perfect description of this recording. On the surface, it’s a sprightly work for a small period-instrument group. Initially, all very refined and courtly—but punctuated throughout in a fashion that honours the tradition of PDQ Bach and Spike Jones. I won’t say more; it would spoil the fun. The performance is excellent—but then there’s nothing with which to compare it.

I’ve often used this as a CD reference for soundstaging, transients, and dynamics (watch the playback level)—there are some surprises here. The LP is better in the expected ways, but sounds decidedly squashed in the more explosive portions of the work.

RAMIREZ: Misa Criolla, Navidad en Verano, Navidad Nuestra
José Carreras, tenor, Coral Salvé de Laredo & Sociedad Coral de Bilbao choruses; José Luis Ocejo, Damian Sanchez, conductors
Philips 420 955-2 (CD only). John Newton, eng.; Job Maarse, prod. DDD. TT: 40:17

A superb sense of openness, spaciousness, and three-dimensional soundstage here is flawed only by occasional overloading on Carreras’s crescendos. The work is moving, and the performance could hardly be bettered. The forces involve small instrumental group, chorus, and soloist. The generally restrained vocal dynamics demonstrate Carreras’s strengths far better than his recent participation in the “big three” tenor shootout. For operaphiles, this is not an “operatic” work in the usual sense. It is, incidentally, also a fine Christmas album, while its lack of familiarity makes it listenable year-round.

Dick Olsher

PEDRO ALEDO: Cantos Antiguos y Cantos Nuevos
Spanish folksongs sung by Pedro Aledo, with guitar, lute, and percussion accompaniment
Pierre Verany PV 12793 (LP). Pierre Verany, prod. AAA. TT: 35:57

Folksongs have always been dear to me, no matter of what national origin. Most of the space here is devoted to traditional chants, which is just fine because it is these Cantos Antiguos that I find most charming. There’s a germ of universal truth in any music that endures, and that is precisely the case with songs that have filtered through many generations. “La Rosa Enflorece” and “Tres Hermanicas” are but two examples of the old Spanish traditions that this recording serves so well. Pedro Aledo’s bittersweet voice seems to communicate the essence of these songs with verve. The recording is executed with great skill. Image outlines are portrayed with excellent focus and palpability.

BRUCH: Collected Works for Cello & Orchestra
Julius Berger, cello; Antoni Wit, Polish National Radio Symphony Orchestra
cbs 6060 (CD only). DDD. TT: 57:04

A relatively recent discovery, this is the only CD to make my short list; it’s that good. Of the four works, Ave Maria and the Adagio based on Celtic Melodies are premiere recordings and represent significant additions to the cello repertoire. The star attraction is still the well-known Kol Nidrei. This is one of those rare moments where evocative musical expression is well-served sonically. Although this is not a pure recording, the cello is highlighted, and the lush textures of the orchestra and the cello’s rich timbre are very enjoyable. A spacious and organic soundstage of dramatic transparency enhances a sensitive and moving reading.

LAUDATE: Sacred vocal music
Anders Eby, Uppsala Akademiska Choir, Drottninghols Baroque Ensemble
Proprius PROP-7800 (LP). Bertil Alvig, eng. AAA. TT: 39:40

A total of seven Baroque choral compositions are featured, from the Duben collection at the University of Uppsala in Sweden. All of the composers are little known, but their music still touches my heart. Stefan Fabri’s ”Laudate pueri Dominum” and Simon Vesi’s ”De profundis clamavi” are especially noteworthy. The acoustic of the recording venue is very naturally captured. The chorus, which is dominated by female voices, is convincingly localized within the soundstage with excellent width and depth and with just the right blend of intimacy and spaciousness.

MOZART: The Magic Flute
Pilar Lorengar, Pamina; Cristina Deutekom, Queen of the Night; Renate Holm, Papagena; Hermann Prey, Papageno; Dietrich Fischer-Dieskau, Speaker; Stuart Burrows, Tamino; Martti Talvela, Sarastro; Vienna State Opera Chorus, Vienna Philharmonic Orchestra, Georg Solti
London OSA-1397 (3 LPS. op). AAA. TT: 2:54:30

Solti’s energetic and dramatic reading has continued to appeal to me over the years. What to my mind is an allegorical accounting of good vs evil benefits from a de-emphasis of Mozartian charm in favor of dramatic contrasts. The male voices are in superb form. Talvela as Sarastro and Fischer-Dieskau as the Speaker are particularly effective in adding a mystical dimension to their roles. Prey’s Papageno is delightful, with a fine ear for dialog intonation. Overall, the female cast is not quite as strong. However, Holm as Papagena mates well with Prey. And Lorengar (Princess Pamina) infuses her sweet and pure timbre with a captivating innocence that provides a rare glimpse of what I believe Mozart wished to portray: universal love as an instrument for good. Also available on 3 CDs (London 414 568-2).
This powerful masterpiece is tightly controlled by Previn, who coaxes a dynamic and committed performance from the LSO. The choral climaxes are particularly challenging and demand the most from a phone cartridge. I have returned to this recording again and again as a paradigm of how a large chorus and orchestra should be recorded.

**Jon W. Poses**

I’ve never been comfortable with “Best Of” compilations, which in effect is what Stereophile asked its contributing editors to demarcate for readers who requested the magazine present an “All-Time Recommended Recordings.”

“All-time?” I asked RL. He confirmed the assignment, reiterating that performance and sound must be equal partners in judgment. I found it impossible to pick—with clear conscience and unwavering self-assuredness, five—and only five—“greatest hits.” Despite finger- ing my entire LP and CD collections and several friends’ counterparts, I could never say to myself, “Yes, these five babies belong in everyone’s collection.”

Limitations notwithstanding, I did, I’m delighted to report, arrive at a compromise solution. Here’s my budget reduction process: three recordings, one label, and an engineer. Each has had dramatic, if not irrefut able, impact.

**DEREK AND THE DOMINOS: Layla**

Ernest Clapton, guitar; lead vocals; Duane Allman, guitar; Bobby Whitlock, organ, piano, vocals; acoustic guitar; Carl Radle, bass; percussion; Jim Gordon, drums, percussion; piano Atox SD 2-704 (2 LPS); Ron Albert, Chuck Kirkpatrick, Howie Albert, Carl Richardson, Mac Emmerman, engs.; Dominos, arrs., prods.; Tom Dowd, exec. prod. AAA. TT: 73:00

**ALBERT COLLINS, ROBERT CRAY, JOHNNY COLPANLD: Showdown**

Albert Collins, guitar, harmonica, vocals; Robert Cray, Johnny Copeland, guitar, vocals; Allen Batts, organ; Johnny B. Gay den, bass; Casey Jones, drums Alligator A/ALCD 4743 (LP/CD); Justin Niebanck, eng.; Bruce Iglauer, Jimi Shurman, prods.; Bruce Bromberg, co prod. AAA/AAD. TT: 43:18

Both blues sessions are equally powerful. Both represent my guitar-slinging (but skip the athleticism, please) bias. Layla arrived in 1970, at a time when the recording industry and pop musicians began to display real maturity. Indeed, Layla—jointly showcasing Eric Clapton at his post-Cream, post-Blind Faith, pre- schluch best, and the late Duane Allman, still in his early 20s but well on his way to leaving an indelible mark—remains any guitar-player’s dream. In a rare (and probably lucky) stroke of perfection, producer Tom Dowd bonded classic blues and R&B with the utmost instrumental clarity (“Nobody Knows You When You’re Down and Out,” “Key to the Highway,” “It’s Too Late,” “Have You Ever Loved a Woman”). There’s a successful reading of Jimi Hendrix’s “Little Wing,” and a handful of originals, now classics, the most notable being the title track and “Why Does Love Have To Be So Sad?” Layla marks that rare moment when all the forces meet at the right intersection.

Alligator Records’ creator Bruce Iglauer duplicated the feat some 15 years later when he assembled Showdown!, a consortium comprised of the most important blues artists in modern history: Albert Collins, young upstart Robert Cray, and the persistent Johnny Copeland. Iglauer & Co. proceeded to unleash a nine-piece summit epitomized by the likes of “Black Cat Bone.” Showdown! overshadows every blues session that has followed since, as well as any that preceded it, dating back to Layla. Collins’ “The Moon Is Full,” a funk-filled and spacious adventure, epitomizes up-to-the-minute but authentic blues. Remember, this record arrived in 1985, just before Cray hit the big time. He’s humble, honored to perform with two of his lifelong idols. Forget “Smoking Gun”—Cray’s never come close to this again. Showdown! stands as the blues document of the ‘80s.

**THELONIOUS MONK & JOHN COLTRANE: Monk/Trane**

Thelonious Monk, piano; John Coltrane, Coleman Hawkins, tenor sax; Gigi Gryce, alto sax; Ray Copeland, trumpet; Wilbur Ware, bass; Shadow Wilson, Art Blakey, drums Milestone MS-1011 (2 LPS); Jack Higgins, eng. (‘57); re-mastered by Brian Gardner (‘85); Orrin Keepnews, prod. TT: 80:22

For much of the ‘70s, Fantasy Records, which acquired the Prestige, Milestone, and Riverside catalogs, combined single LPs to create its valuable “Two-Fer” reissue series. Content-wise, there’s never been a question; sometimes the sound missed, what with fadeouts, dropouts, etc. Monk/Trane may be the most all-around achievement of a very good batch—and that’s saying a lot. Capturing and melding two giants—Trane and Monk—in addition to providing them with accompanists that include Coleman Hawkins’ sax and the late Art Blakey’s skins on the front and back lines, respectively, is genius. To have Orrin Keepnews as producer only adds to the historical exactitude and aural delight of such explorations as Monk’s “Epistrophy,” “Ruby My Dear,” “Trinkle, Trinkle,” “Nuttty,” and “Monk’s Mood.” I get chills every time I hear Monk yell, “Coltrane, Coltrane” amid “Well You Needn’t.”

As for my final two choices: one’s a label, the other’s an engineer—and they’re inseparable. The label: Blue Note Records. Despite the ups and downs, flirtations with commercialization, and its current subsidiary status, “The Finest In Jazz Since 1939” still sets the standard. Its reissue program deserves just recognition; it’s jazz history itself. The label entered what many consider its zenith during the 1950s and 1960s, when bebop turned to hard bop and straight-ahead was king. Soundwise, every instrument could not only be heard, but also was heard clearly, the ever-shifting emphasis coming and going at just the right moment.

The label’s many great staff artists were made to sound even better at the hands of one person: engineer Rudy Van Gelder. His name remains synonymous with Blue Note, synonymous with jazz. To this day, the somewhat paranoid European is reticent to allow anyone—save producers—near his now-famous Englewood Cliffs, New Jersey, studios. Maybe that’s a good thing.

**Michael Ross**

There’s a quote on a King Crimson album that says...

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"Discipline is never an end in itself, only a means to an end." In drawing up a list such as this (arbitrary at best), it should be remembered that neither are 'great highs,' 'tight low end,' or "virtually no distortion" ends in themselves—they exist only to serve the music and the vision of the artist. There are probably many albums that make the ones that I have chosen sound primitive by comparison—hiss-free, distortionless, broad-banded marvels of digital technology. But, as we all know, in many cases they are more reflective of an artist's budget than of inherent talent.

On the other hand, there are records from my past that surpass some of the following in vision, performance, and historical importance. Unfortunately many of them are in mono or lacked the knowledge, technology, or interest to match the sound quality of my picks. These would be records that are important in spite of the way they sound and not because of it.

**BRYAN FERRY: Boys and Girls**
Warner Brothers/EG 9 25082-1 (LP), -2 (CD). Rhett Davies, eng.; Rhett Davies, Brian Ferry, prod. AAAAAD. TT: 38:28

Ennui as art. Ferry and mixmaster Bob Clearmountain construct soundscapes of swirling guitars and percussion that take you into a new world. New, that is, to those of us who are not already jaded aristocrats with a not-so-hidden vulnerable side.

Ferry's singing voice, like caviar, is an acquired taste. Few artists, however, make records as consistently true to their artistic voice, and none make any that sound better. LP and CD sound virtually identical.

**BILL FRISELL: Is That You?**
Elektra Musician 9 60956-2 (CD only). Jay Follitte, eng.; Wayne Horvitz, prod. ADD. TT: 51:53

For over ten years Bill Frisell has quietly been the most brilliant and unique voice to come along in jazz guitar since Wes Montgomery. (Imagine Jim Hall meets Jeff Beck.) In light of this, it may be easy to overlook the fact that he may also be one of the most promising composers of modern American music on the current scene (are you listening, Kronos?). Is That You? provides what Frisell's previous solo album attempted—an overview of his guitar and compositional genius. In Wayne Horvitz he has found a producer who provides a setting in which this jewel of an artist can shine. Frisell's guitars (and banjo) have never sounded better, and the recording overall is one of the best I have ever heard.

**GRACE JONES: Nightclubbing**
Island 7 90093-1 (LP), -2 (CD). Alex Sadkin, eng.; Chris Blackwell, Alex Sadkin, prod. AAAAAD. TT: 38:09

Attitude as art. This is not disco. This funk meets rock meets cabaret meets reggae meets tango. More world music from the days before anyone talked about world music. Songs by Bill Withers, Iggy Pop, Sting, and Astor Piazzolla stand beside Jones's originals without overshadowing them. A perfect marriage of singer and musicians. Thanks to Chris Blackwell for the concept, but garlands to the late Alex Sadkin for defining stereo placement on this and the other two albums that he co-produced for Grace. Under headphones, at times you would swear sound is coming from behind you. CD and LP reveal no discernible difference.

**KING CRIMSON: Discipline**
Warner Brothers/EG 3629-1 (LP), -2 (CD). Rhett Davies, eng.; King Crimson, Rhett Davies, prod. AAAAAD. TT: 38:06

If the Beatles did nothing else, they showed us that in rock bands the whole is definitely more than the sum of its parts. The banding together of Adrian Belew, Bill Fruford, Robert Fripp, and Tony Levin in 1981, for three glorious albums, proved it anew. Belew's humor counterbalanced Fripp's, well yes, discipline, and bassist Tony Levin's New York funk added the grease to Bruford's polyrhythms. An all-too-rare example of four virtuosos paying homage to music, not technique. The minimalist production removes any last possibility of pomposity. At first I thought the LP might be deficient in highs, but in the end I find this a plus, as it softens some of the industrial sounds that can be a bit too much on the CD. That is to say, Adrian's elephant guitars sound more like elephants and less like guitars on the LP.

**JONI MITCHELL: Hissing of Summer Lawns**

A critical whipping boy (girl?) when it was released, this remains my favorite Joni album. It was here that she pushed her songwriting to its natural limits (later attempts sound forced). On this record she meets jazz on her own turf and comes out on top, as opposed to later experiments where her ambitions seemed to overwhelm her. Hissing is less confessional, more cinematic, supported by a cast of musicians who did many of the soundtracks of that time. And "The Jungle Line," using a "found" recording of Burundi drums, predates the ethnic experiments of Peter Gabriel, Brian Eno, et al., by almost ten years.

The LP is 1975 state-of-the-art. L.A. sound but may suffer from a long running time for vinyl. The CD solves this and brings out some parts that are all but lost on the LP.

**BEETHOVEN: The Nine Symphonies**
Herbert von Karajan, Berlin Philharmonic, in Symphony 9: Gundula Janowitz, soprano; Hilde Rossel-Majdan, contralto; Waldemar Kmentt, tenor; Walter Berry, baritone; Wiener Singverein

I hope the CDphobes have the vinyl original of this 1963 cycle in good shape. For the rest of us, DG has done an excellent transfer of naturally produced analog recordings before DG and Karajan went mad at the mixing consoles. The productions match the consistent approach of the performances. Karajan's classical, mostly-faithful-to-the-letter view of the cycle bears his distinctive imprint, while sparring us his more overbearing mannerisms. The playing of the Berlin Philharmonic epitomizes the sound of Beethoven in a way that period instruments never will. This set remains the post-WWII Beethoven Symphony statement on recording.

**RAVEL: Daphnis et Chloe**
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Digiphobes rejoice. Choose the Chesky and it's a current all-analog vinyl treasure. Chesky or original RCA, this remains the Daughters for all reasons. Monteverdi/LSO on Decca/London CD is almost too close to call, and the new Haitink/BSO on Philips is practically the only recent recording that can look Munch in the eye— but Haitink will blink first. Munch/BSO has it all down. The manic, the erotic, the obsessed, all with the unique individual colorations of an orchestra of eccentric, sometimes even weird stylists, all well prior to Ozawa gentrification. And the sound to match. (XII-18)

**SHOSTAKOVICH: Symphonies 1 & 7**

Leonard Bernstein, Chicago Symphony

A recording that sounds more like the real Chicago Symphony really sounds than almost any recording since the Martinson/CZO Varése Arcana/Martin Concento for 7 Winds of 1966 in pre-renovation Orchestra Hall for RCA. For preserving the live performances of Leonard Bernstein's first CSO appearances in more than 30 years, and for doing so in a totally honest audio production in the dry, unforgiving acoustics of today's Orchestra Hall, all's forgiven, DG. (XII-4)

**R. STRAUSS: Scenes from Elektra and Salome**

Inge Borkh, soprano; Frances Veed, soprano; Paul Schoeffler, baritone; Chicago Lyric Theatre Chorus, Chicago Symphony, Fritz Reiner

If RCA had recorded Elektra complete with these forces, it could have joined the Callas/Da Sabata Tosca as the "other" most perfect opera recording ever made. As it is, these excerpts offer a compelling reminder of what dramatic singing, potent conducting, great orchestral playing, and natural stereo miking could produce during the 1950s. All contents on this CD derive from two-channel 30ips masters. Channels are reversed in the Recognition Scene. Otherwise the CD version is a technical triumph. Salome's Dance, which derives from RCA's first stereo sessions in 1954, has never had the present degrees of clarity or dynamic range on previous stereo vinyl issues. This CD is absolutely guaranteed to leave you limp and exhausted, but not from listening fatigue.

**VAUGHAN WILLIAMS: A Sea Symphony**

Joan Rogers, soprano; William Schmell, baritone; Liverpool Philharmonic Choir, Ian Tracey, dir.; Royal Liverpool Philharmonic, Vernon Handley
EMI CDC 7 49687 2 (CD only). Andrew Keenan, prod.; Mike Clements, Mike Hatch, engs. DDD. TT: 69:47

An incredible mid-price sleeper, practically an afterthought in the EMI catalog, this is one of the finest audio productions of a large-scale work to come out of digital technology. The identical production team give themselves a genuine run for their money in the same work for Virgin Classics, with the advantage of better soloists and a keener, more incisive pickup on the chorus. For me, however, the EMI wins for Handley's incredible architectonic mastery of the score, and, by the closest call, a more convincing illusion of overall reality in the production. (XIII-1)

**Bill Sommerwerck**

I really ought to boycott this feature. I care more about the music and the performance than the sound. Case in point: about 12 years ago, when I lived down the road from JGH, he and Polly came for dinner. I played several of my favorite pieces. (Yes, I had surround-sound even then.) After one piece, Gordon looked me straight in the eye.

"You're not an audiophile."
"Howzat?"

"You're playing the selections all the way through!" Well, Gordon said it, I didn't. But it's the nicest insult I ever received.

I'd rather this was a list of my 25 favorite unknown works (and/or performances), such as Schumann's Konzertstück for Four Horns (Erato ECD 88212). It's funny how the most fanatic audiophiles are always talking about "musicality" and "musical communication," but won't listen to great performances in mediocre sound. High-fidelity reproduction is supposed to enhance musical pleasure; it's not an end in itself.

I've done enough live recording to conclude that even the best audiophile recordings are a travesty of live sound. As fine as Gordon's recordings on the Stereophile test disc are, they pale before the majesty and grandeur of "the real thing."

The following recordings were selected because, more than most recordings, they sound literally realistic, not because they are euphonically pleasing, or even appropriate for the music. Their sound is no more or less "musical" than live sound is "musical."

There are many outstanding direct-discs. I leave them to those who are indissolubly wed to LP. (I'm not anti-analog, just anti-LP.) Besides, they're rarely available except as used discs at high prices.

**EQUELE BRASS: Barcarolles**

Works by Warlock, Paulenc, Arnold, Couperin, Bartók
Nimbus NI 5004 (CD only). DDD. TT: 50:26

How many recordings in your collection sound like you're actually standing in front of a group of real musicians performing in a real hall? This is one of those one-in-a-thousand. The instruments are almost palpably there—and that's in stereo. With Ambientic decoding, you get an excellent sense of the hall and the performers' positions in it.

These pieces were arranged for brass; none were originally written for this combination of instruments. The arrangements sound idiomatic, and the performances are light, crisp, and engaging. A fun recording. (X-4)

**MUSSORGSKY/RAVEL: Pictures at an Exhibition**

Stravinsky: The Firebird Suite
Riccardo Muti, Philadelphia Orchestra
EMI CDC 7 47099 2 (CD only). Christopher Bishop, producer; Michael Gray, engineer. ADD. TT: 51:07

Before I acquired "taste," Pictures was one of my favorite pieces. My first recording was the classic Toscanini! Not only did Mr. T. Imaginatively characterize each section, but he communicated the architecture of the work, with each section evolving logically from the next. Until the Muti performance, I had heard no stereo

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Stereophile, January 1991
recording that so clearly conveyed the structure and movement of the work. Muti’s Firebird Suite is equally entertaining.

The recording is life-like in its transparency and realism. You’re 20’ off the floor, with the orchestra spread in front of you. There is little sense of any intermediary between listener and performance.

KODÁLY: Concerto for Orchestra, Summer Evening, Hary János Suite
Zoltán Kodály, Budapest Philharmonic Orchestra (Concerto, Summer), Ferenc Fricsay, Berlin Radio Symphony Orchestra (Hary János)
DG 427 408-2 (CD only). ADD. TT: 67:13

VICTOR YOUNG: Around the World in 80 Days (soundtrack)
Victor Young (?), London Movie Pickup Orchestra (?)
Warner Home Video 11321 (videodisc). AA/D. TT: 2:59:00

The late ’50s and very early ’60s are arguably the golden age of hi-fi recording. Although microphones of that era were rather more colored than the best modern mikes, tape decks had vacuum-tube electronics and rarely two- or three-track tape at 15ips (sometimes 30ips). The introduction of solid-state electronics and multi-track recording were a step (perhaps many steps) back.

The Kodály performance of his own works (which has to be considered definitive) is almost startling in the focus and “roundness” of its images. Each instrument has a clear shape and position (both laterally and front-to-back). The stage width is not as expansive as in other recordings of this era, and the sound gets a bit congested in the loudest passages. But how often does one hear a recording with such a lifelike image?

The soundtrack of Around the World in 80 Days dates from 1956! It’s closely miked, probably to suppress the reverberation that a large theater would add. (This was a roadshow presentation for large theaters. Modern films are generally shown in smaller theaters with a shorter reverber time, and usually have a more natural ambient balance.) It has life, fire, and immediacy—comparable to the best direct-discs I’ve heard. Running it through a surround decoder that doesn’t muck up the sound (such as one of the Shures) adds an incredible sense of air and presence.

Allen St. John

COWBOY JUNKIES: The Trinity Session
RCA 8568-1-R (LP), -2-R (CD ’). Peter Moore, Perren Baker, engs.; Peter Moore, prod. DAA/DDD. TT: 44:35, 52:54

A bleak and beautiful album that stakes out the crossroads where Lou Reed, Hank Williams, and Robert Johnson meet. Between the a cappella opening cut and the final studio piece, the Junkies spend every note wisely. But the real star here is lead singer Margo Timmins, who’s sexy in a way that Madonna can only dream about. Peter Moore’s reference-quality recording—single-miked, live, in a church, direct to DAT—proves that digital per se isn’t the problem. The punch line? Capturing this spacious, seductive sound cost all of $250. Both LP and CD are excellent, but the CD includes two extra tracks.

MICHAEL HURLEY/THE UNHOLY MODAL ROUNDERSTHE CLAMTONES: Have Moicy!

Rounder 3010 (LP only). John Nagy, Thom Foley, engs.; John Nagy, prod. AAA. TT: 44:42

This transcendently silly record gathers some of folk’s true originals for a home-cooked batch of comic relief. If you can listen to “Hoodoo Bash” without cracking a smile, you won’t get an invitation to my next party. The playing is appropriately convivial, and if Peter Stampfel has the worst singing voice on the planet, that’s only part of the fun. Comparing the upfront recording perspective to The Trinity Session proves there’s more than one way to skin a cat. Still in print and soon to be released on CD, says Rounder.

KATE AND ANNA McGARRIGLE: Kate and Anna McGarrigle
Carthag CGLP 4401 (LP only), John Wood, eng.; Joe Boyd, Greg Prestopino, prod. AAA. TT: 34:57

Songs of disarming charm and insight by Canada’s answer to the Brontë sisters. On their debut, the McGarrigles giggle about love and wax poetic about learning to swim. If you think there’s justice in this world, compare their original version of “Heart Like a Wheel” to Linda Ronstadt’s famous cover. The musicianship more than matches the songwriting, with heavy hitters like Lowell George, Tony Levin, and Steve Gadd pitching in. I’ve never found the original Warners pressing, but my Carthage reissue is reference quality. Want palpable presence? Listen to Kate on “Go Leave.” In print, LP only.

SLY AND THE FAMILY STONE: There’s a Riot Goin On

Before there was rap, there was Sly. Hailed upon its release and forgotten just as quickly, his masterpiece about being Black in America still sounds like tomorrow’s headlines. Riot is as frightening as any album ever made, and as hard to listen to. Even more frightening is hearing groups like Public Enemy speak out about how little things have changed in 20 years. The sound is part of the story, with purposeful manipulation of the vocals and the stereo separation. The instrumental tracks pack a wallop. Note the Incredible Shrinking Soundstage which mirrors Sly’s growing alienation. Find the original Stars n’ Stripes gatefold pressing; the Nice Price reissue doesn’t cut it.

TALKING HEADS: 77

Its Rhode Island School of Design cum Sex Pistols album cover tells the story: this landmark album channels the energy of punk into building up instead of tearing down. While they ain’t exactly the Captain and Tennille, David Byrne and Friends avoid nihilism’s dead end and prove that you can be angry and whimsical at the same time. The eclectic arrangements foreshadow the remarkable musical growth of later Heads albums. Aspiring rock engineers should be required to listen to these pristine pre-Eno tracks before being allowed near a studio. The CD reissue even botches the artwork.

Stereophile, January 1991
Solid-state class-A stereo amplifier. Rated minimum continuous output power: 250Wpc into 8 ohms, with no more than 0.1% THD; 500Wpc into 4 ohms, with no more than 0.1% THD; 1kWpc into 2 ohms; 2kWpc into 1 ohm; 4kWpc into 0.5 ohm. Frequency response: 0Hz–250kHz. Input impedance: 47k ohms, non-inverting and inverting inputs. Input sensitivity: 2.3V. Slew rate: >100V/μs. S/N ratio: 120dB, "A" weighted. Power consumption: 12A continuous. Dimensions: 19" W by 8.5" H by 24" D (including front and rear handles). Weight: 140 lbs. Price: $5700. Approximate number of dealers: 50. Manufacturer: Krell Industries, 35 Higgins Drive, Milford, CT 06460. Tel: (203) 874-3139.

I still have fond memories of my first Krell amplifier, a KSA-50. Back in those days (date purposely omitted), my principal source of audio equipment reviews, aside from Stereophile and TAS, was Hi-Fi News & Record Review, which I read voraciously from cover to cover every month. One fateful day while sitting by our community swimming pool, I happened upon an enlightening review of the KSA-50 written by none other than our own John Atkinson, editor of HFN/RR at the time. His words describing "the steamroller-like inevitability of the bass with this amplifier" haunted me for weeks, until I got up the nerve to audition, and ultimately purchase, my first Krell product. He was right. That amp, in defiance of its diminutive power rating, drove my KEF 105 speakers like no other had before. It was indeed a musical gem which I foolishly sold a few years later in order to move into the tube domain and further feed my nearly terminal case of audiophilia nervosa. I recently heard through the local audio grapevine that the lucky person who bought my old KSA-50 amp is still very happy with it. At least it has a good home... So much for nostalgia. That was then, this is now. And have I got an amp to tell you about!
The mother lode of Krell amplifiers has arrived, and its name is the KSA-250. If the KSA-50 had the weight of a steamroller, this one has the impact of an atomic bomb. Krell amplifiers have always been known for their superb stability and bass control, but have been, in my opinion, somewhat short in the department of musical finesse. Of course the KSA-100 and -200 and the KMA-80 and -160 were superb amplifiers, but there were competitors who gave up very little in the bass region and offered much more harmonic and musical honesty. In this respect, the KSA-250 is a landmark product for Krell; unquestionably their most refined amplifier to date, and possibly the most successful blend of solid-state and vacuum-tube virtues to come down the pike. No, it doesn't do everything perfectly, but in terms of overall sonics, and especially price/performance ratio, it's a winner.

**Technical highlights**

The KSA-250 is, without a doubt, the most visually appealing amplifier that Krell has yet marketed. Though large and very heavy, the presentation is one of stoic grace rather than imposing high-tech visual intrusion. The amplifier body is finished in flat black, with heatsinks externally lining both sides from front to back. The rear panel is neatly laid out, with single-ended phono sockets and balanced female XLR connectors on either side. Additionally, there are two sets of five-way binding posts for loudspeaker cable connections, which makes speaker bi-wiring a breeze. The front panel is finished in an elegant brushed-gray finish with large, black, attractive, downward-facing handles. The feather-touch power switch is located in the center of the front panel, just above the ubiquitous Krell logo. A blue LED power tally light is positioned just above the switch. All in all, a very nicely designed package.

Internally, the KSA-250 is a study in simplicity as well as a technological tour de force. The 4.5kVA transformer, which by itself weighs 85 pounds (!), is located just behind the front panel, and is in turn followed by four 47,000μF capacitors covered by a printed circuit board. It is important to note that there is no wiring in the signal path, all connections being made via the pcb in the front end, and gold-plated copper-beryllium busbars in the output stage. There are 24 output devices per channel, all operating in class-A mode down to 3 ohms, where the amplifier reverts to class-AB. The KSA-250 utilizes class-A circuitry throughout the audio and power-supply regulation stages, and can actually generate 320Wpc into 8 ohms. It is DC-coupled throughout, without any capacitors in the signal path, and is a fully modular design employing gas-tight pressure connections between all subassemblies, allowing quick and easy servicing in the field. According to Dan D'Agostino—the driving force behind every Krell product—the deletion of wiring within the signal path yields several benefits, including lack of coloration, long-term stability over many years (no possible oxidation or other internal wiring degradation), and reduced interaction between the output stage and external speaker wiring. Additionally, according to Dan, modular design and wireless direct internal connections produce far greater sample-to-sample consistency than was previously attainable.

The KSA-250 automatically corrects for DC offset, and also has an auto biasing circuit that keeps the amplifier within proper operating parameters even if the AC mains voltage fluctuations as much as 20% (100-130V). This important feature will no doubt benefit those who live with the common problems of urban AC mains-line fluctuation. With this much stored energy it is imperative to have bulletproof protection; if something does go wrong, you won't find your woofer cones blown into orbit. A series of opto-coupled circuits, out of the signal path, constantly evaluate the amplifier's operation, and will shut the unit down if they see excessive DC offset, short circuit, oscillation, AC power anomalies, high ground resistance, and out-of-phase ground. The manufacturer further claims that this protection will prevent damage caused by other defective components, faulty wiring, mishandling of the system, or amplifier failure. In other words, you'd have to try damn hard to blow up this amp.

One very nice feature of the KSA-250, as with all other current Krell amplifiers, is that it can be converted to mono-differential operation with balanced signal from input to output. Conversion into mono-differential form (designated as the MDA-500) will be done for no charge by the Krell factory, and returned to the purchaser with a new second amplifier (which does cost) already configured for mono operation. This is indeed clever marketing on Krell's part, as a KSA-250 owner can upgrade without

*Stereophile, January 1991*
having to pay for modifications or trade-in existing equipment. This amp draws an enormous amount of current (12A continuous, a not so pleasant side-effect of class-A operation), and should be, according to Krell, placed on its own dedicated 20A AC circuit. I would have to say, after listening to the KSA-250 in several AC mains modes (dedicated 15A and 20A lines, and non-dedicated lines) that their suggestion should be taken seriously.

Something else you might take into consideration before purchasing and installing a KSA-250 is the amount of heat produced. All class-A amps run hot, and this one is no exception. Even with the cool fall weather outside, our listening/family room turns into an inferno within 45 minutes after powering up. The addition of a KSA-250 to the family could foreseeably cause significant domestic social strife (unless, of course, you’re lucky enough to have a dedicated listening room barred to all parties but the most hard-core audiophiles).

Setup & listening results
In order to control the listening experiment as tightly as possible, only one component in my reference system was changed at a time. Initially it was the amplifier. The KSA-250 was substituted for the Mark Levinson No.23, with the rest of my reference system intact: a Theta Pro (balanced) Generation Two digital processor and Mark Levinson No.26 line-stage preamplifier, all operating in balanced mode, using Madrigal HPC interconnect. My 801 Matrix Monitors were bi-wired with the same AudioQuest Clear speaker cable I’ve had for about a year (not the latest generation).

Other components used during the course of this review (approximately 16 weeks) was as follows: Esoteric P-500, P-10, P-2, and Krell MD-1 digital transports; Proceed, Meridian 208, and Rotel RCD-855 CD players; Theta DS Pro (generation two) balanced, Proceed PDP; Krell SBP-32X and SBP64X digital processors (although the Krell Digital equipment is excellent, and should be on your list of digital components to audition, I used the Esoteric P-2 and Theta Pro for most listening so as not to confuse the issue with too many sources); Mark Levinson No.26 line-stage (balanced and single-ended output) and Krell KBL line-stage (balanced and single-ended output) preamplifiers.

Both the Krell KBL and Mark Levinson No.26 line-stage preamplifiers were used extensively during this review. They are drastically different in their overall musical presentations, the Krell having a notably less forward perspective. At this time I can’t say one is better than the other, simply because they’re so different, yet musical. After returning from an upcoming European tour with the National Symphony (which leaves tomorrow!), I’ll be working on the KBL review. Stay tuned.

Following an initial period of listening, I began auditioning different interconnect and speaker cables in order to find the best all-around combination. Of all the interconnect cables used during this review, the Magnan Type VI comes out the clear winner. It is the most neutral interconnect I’ve yet auditioned, with the best balance of soundstaging and harmonic accuracy. Perceived bandwidth of the Magnan VI appears to be more extended, at both frequency extremes, than the Madrigal HPC, Straight Wire Maestro, or Cogelco Yellow. Needless to say, I used this cable for the bulk of my listening during this review, and hope to be able to adopt it as my reference. So far, of all the speaker cable I have on hand, Straight Wire Maestro wins the prize; it’s much more open, transparent, and dynamic than either the OCOS or AudioQuest Clear. I just received a set of the latest Clear, but haven’t had time to break it in to its full potential.

My B&W 801 Matrix Monitors were used for the first several weeks of this amplifier review, until the arrival of the phenomenal 800 Matrix Monitors. I have officially adopted these speakers as my new reference, and have written the bulk of this review with them on-line.

Murphy’s Law strikes again: One hundred and forty pounds is a hell of a lot of amplifier to haul around, especially when it arrives at the front door 30 minutes before I have to be at a symphony rehearsal. What makes the situation even more maddening is when the darn thing doesn’t work. That’s exactly what happened with the first review sample. The first thing I noticed was that both positive five-way binding posts at the left channel output were defective, and would slip upon tightening, therefore preventing a solid connection. Perhaps that’s why the sound was so covered, and the amplifier soundstaged so poorly. Even after six hours of warmup time, the situation had not changed, so I called Dan at Krell, and was instructed to immediately return the unit. That evening I was
admitted to the hospital, since I could not walk, sit, or stand up. Don't carry this amplifier by yourself.

About four weeks later, the second review sample arrived. This time around, I paid the air freight driver to wreck his back, so that I could listen pain-free. From the first moment after startup, I could tell that this was a beast of another color. It worked.

**Apples to apples:** Perhaps the best way to describe the KSA-250's overall sound would be a comparison with previous amplifiers from this manufacturer. Historically, all Krell amplifiers have shared a common sonic signature: very prominent, tight, deep bass, a notably more laid-back midrange, and a slightly more forward high end. In other words, a rather sectionalized sonic palette that, while not necessarily unpleasant (quite the opposite, in fact), was not entirely musically honest. While I appreciated the ability of all Krell amplifiers to drive hideously difficult loads, and effectively "throw the speakers across the room" with their rock-solid, tightfisted control, the strong colorations that came with these audio powerhouses left me a bit cold.

Now comes the KSA-250, and a whole new ballgame. I am a musician, not an engineer, so I can't tell you in technical terms what Dan D'Agostino has done to design such an incredible amplifier. What I can tell you, however, is that it is the most musically convincing product of its type to hit my ears, either tube or solid-state. While the Jadis tube amplifiers surpass this product (or any others, for that matter) in harmonic honesty, I don't know of anything else, for any price, that offers such a natural musical presentation. Gone is the sectionalized bass/midrange/high-frequency Krell trademark. Total integration from top to bottom has now been accomplished, but not at the expense of that wonderful Krell clarity and impact. One might describe the overall sonic signature as almost tubelike, while retaining the attributes of the finest solid-state designs.

In direct comparison with my reference Mark Levinson No.23 amplifier, the KSA-250 wins in all categories, except possibly for the 23's uncanny ability to specify the leading edges of instrumental and vocal attacks. While the KSA-250 dynamically eats the No.23 for lunch and spits out the bones, it does not give me as much "you are there" feeling with the performers on stage. In this respect, the No.23 offers a more hands-on perspective (which some members of the Stereophile staff call "forward"), but, at the same time, is not nearly as dynamically realistic. While soundstaging with the ML No.23 is excellent, it is totally outclassed by the KSA-250. In fact, with the recent arrival of the spectacular B&W 800 Matrix Monitors, I can hear the vertical and horizontal edges of the No.23's soundstage, in comparison with the much more open and realistic three-dimensional image projected by the KSA-250. The No.23 sounds almost "small" (it isn't) in comparison, compressing the outer edges of the orchestra into a more constricted frame than the KSA-250. The immediacy of the No.23 still appeals to me, but the Krell is definitely more neutral, harmonically accurate, naturally spacious, more extended on top and bottom (the legendary Krell bass), and, last but certainly not least, more dynamic. The No.23 is certainly no wimp, but it does appear to run out of gas on full orchestral transients when compared to the KSA-250.

I've encountered one problem with the Krell that is not an issue with the Mark Levinson: hum. The No.23 is dead quiet, either with the three-conductor grounded power cord or the two-conductor Distech Power Bridge II cord I use. The KSA-250 always produces some hum (audible only with the ears an inch or two away from the speakers), regardless of three- or two-conductor power cords (floating the ground with two-conductor seems to help). There's no way I'm getting a ground-loop problem from somewhere else in the system, since the hum is present even without any input connection. Dan at Krell has suggested that I'm a victim of very dirty and RF-contaminated AC mains. He's probably right, as I've experienced significant improvement to some front-end components through use of an Adcom ACE-515 AC Enhancer. Krell has suggested I try power stabilizers from Tice and Titan to eliminate the power-amplifier hum problem. If and when this occurs (depending on the status of my bank account, as well as available floor space), I'll be sure to let you know.

**A matter of perspective:** When it comes to audio, musicians are an enigma. We listen to live music just about every day of our lives, and are probably among the most qualified critics of audio equipment. On the other hand, we often
listen to music from a perspective not necessarily suited to honest judgment. As a bassoonist, I sit in the middle of the orchestra; not quite the ideal place for evaluating soundstage. On the other hand, I often listen to the orchestra from the audience in order to gain insights into "what I need to do on stage to make it sound right out in the hall." I don't want my system to sound as if I'm in the middle of the orchestra, but I do want to be able to feel the human kinetic energy being projected from that stage. Too many pieces of audio equipment launder this energy from the music, giving the listener a washed-out skeleton of the original performance. That is exactly what the old Krell amplifiers did, and is the antithesis of the KSA-250. This amplifier conveys the life of the music, not just the sonics. But it accomplishes this without a forward perspective, something that some of my National Symphony fellow audiophiles cannot swallow.

During one particularly heated listening session, we had a vividly divided camp as to which amplifier best represented the musical performance. Bob Kraft, bass trombonist, and Ken Harbison, percussionist, both felt that while the KSA-250 was more "dynamically impressive," it didn't have enough "meat on the bone," and lacked the immediacy and warmth of the ML No.23. Their priorities, and desired perspective, leaned more to "I want to hear it from the stage." They both felt that while the Krell had more impact, along with broader, higher, and deeper soundstaging, its leaner harmonic character and more distant perspective produced a less involving experience than the 23.

Al Merz, another NSO percussionist, and I felt differently. While we both loved the sound of the No.23—it represented more of what we heard while on stage—the KSA-250 gave a much more honest picture of what music sounds like from the audience. As I mentioned a long time ago in another amplifier review (Rowland Model 7, Vol.11 No.7), the further away from the stage one gets, the leaner and more transparent the sound. In purely sonic terms, one could say that the No.23 has more lower midrange and midbass energy per unit of sound than did the KSA-250. After hearing the new Krell every day for the past several weeks, it has become apparent to me that this amplifier is indeed more honest, though possibly less satisfying for the listener who wants to be in the middle of it all.

I strongly recommend operating the KSA-250 in balanced mode, if at all possible. Listening tests in both single-ended and balanced configurations using double sets of identical interconnects (Madrigal HPC and Straight Wire Maestro) indicate that soundstaging and dynamics are significantly improved in balanced configuration. Even though signal/noise ratio is only improved by 6dB in balanced mode, the far greater dynamic extensions on either end of the scale indicate that there are many more benefits to balanced operation than simply a lower noise floor. I have had similar experiences with amplifiers from Mark Levinson, Rowland, and Burmester, which lead me to believe that, in general, one should try to utilize balanced operation, if given the option.

Dan D'Agostino made it perfectly clear that the KSA-250 needs only 15 minutes to reach full operating potential. It just ain't so. There is a definite "brown," thick, nasal coloration during the first 30 minutes after power-up, which totally disappears after a minimum of 45 minutes to an hour. By that time, the sound opens up, all colorations disappear, and the amplifier comes to life. In fact, best results appear to come after two to three hours of playing time. I'm not suggesting that you leave this amplifier on all the time (unless you need a space heater), but any serious listening should not be done with less than 1½ to 2 hours' warmup.

The term "awesome" is definitely overused nowadays. But I can't think of another way to describe the KSA-250's sound: a huge soundstage, far exceeding the lateral and vertical speaker boundaries, with a breathtakingly natural sense of depth. So clear, so open, so transparent, so powerful, yet so refined. The sense of reserve power is immediately obvious to the listener, but not in the same way one would normally associate with such an enormous amount of stored energy. This amplifier does the best job, so far, of reproducing the realistic size and dynamics of a live symphony orchestra in my listening room. Yes, the No.23 is excellent, but until you've heard the KSA-250, you haven't heard real dynamics. A perfect example is the beginning of Eliahu Inbal's performance of Mahler's Symphony 5 (Denon CD CO-1088). The visceral weight coming out of the 800 monitors at that first orchestral climax was closer to the real thing than I ever

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thought possible. Compared to this, the No.23 came off sounding like a peashooter.

Dynamics are just part of the story. Musical transparency is just as important, although it is something usually only found in the finest tube amplifiers and a few solid-state designs. In this area, the Krell and Levinson 20.5 are surprisingly similar, even though they are class-A designs from different manufacturers. They are both very transparent, allowing the listener to follow each musical line, even within the most complex passages. The principal difference, in this case, is the amount of power and spectral balance. The Levinson is a bit sweeter and more transparent than the Krell, but can't handle full orchestral tutti without some sonic congestion. Two good examples here would be Arnold Bax's Symphony 3 (Bryden Thomson/LPO, Chandos CD 8454) and Handel's Water Music (Nicholas McGegan/Philharmonia Baroque Orchestra, Harmania Mundi CD 907010). Both the KSA-250 and No.20.5 do an excellent job of unraveling the complex woodwind passage in the beginning of the Bax, but when the orchestration becomes more heavy and thick, the Levinson becomes congested, while the Krell retains its clarity and overall musical integrity. On the other hand, the tables are turned with the Water Music, which sounds much more convincing with the No.20.5, mainly because it can delineate the leading edges of all instrumental attacks more clearly than the Krell (as can also the No.23). Which amp is better? Do you prefer chocolate or vanilla? For baroque, chamber music, solo piano, and solo voice, I'll take the Levinson 20.5. But pull out the big orchestral guns, like Mahler and Shostakovich, organ music, full chorus, or just about any pop, from rock to big band, and I'll go for the Krell KSA-250. In other words, the Krell is the more versatile of the two, giving up a little musical delicacy to its more expensive competition.

Another area in which the KSA-250 excels is the accurate recreation of acoustic envelopes surrounding instruments and voices. Up until this amp came along, the only way to get this right was with tubes. Even then, they often can't adequately deal with spatial information at the frequency extremes. The No.20.5 gets it 90% correct, but can't quite resolve that last bit of resonant information surrounding instruments and voices. The No.23 does a little better, but only at the front of the soundstage. The KSA-250 gets it absolutely right, allowing the listener to hear how the instrument or voice interacts with the surrounding space, anywhere in the soundstage, just as in live music. For example, in the fourth selection of Antiphone Blues (Arne Domnerus, saxophone; Gustaf Sjokvist, organ; Proprius CD 7744), the acoustical environment of the recording creates standing waves with the saxophone that are clearly audible with the Krell but almost nonexistent with the Levinson No.23 and 20.5 amplifiers. With the Krell, you not only hear the saxophone in space, but the "ring" of the church acoustic as well. This recreation of ambient information draws the listener into the recording acoustic, not in a forward sense, but almost as if in a surround-sound environment. If you like to be inside the ambient soundfield, rather than outside looking in, the KSA-250 may be for you.

Which brings us back to the question of perspective and soundstaging. Many musicians, including myself, take a rather dim view of the unnatural, bigger-than-life soundstage record producers like to create, often at the expense of our artistic efforts. This is not to say that live music sounds as flat as a pancake. It doesn't. There are those few wonderful recordings in which "more real than life" soundstaging is effective. We all know that tubes are considered the best at this, giving the listener lots of depth and space. But overly exaggerated depth in amplifier design is as much a sin as midrange glare, and has no place in accurate musical reproduction. This is where the KSA-250 weaves its magic—a soundstage so real one can reach out and touch the performers; palpable realism that beats the tube guys at their own game, without creating a false sense of depth. The KSA-250 is better than the Levinson 20.5, which gives good frontal soundstage but becomes somewhat indistinct and truncated toward the rear. The 250 doesn't just offer dimensionality, but clear focus of each individual voice in the choir or orchestra, as it is heard in the concert hall.

Sonic honesty: Some amplifiers tolerate a certain number of sins upstream without becoming upset. Not the KSA-250. It scrutinizes everything, good and bad. It didn't like the upper-midrange glare with the Madrigal HPC interconnect, nor the nasality of the plastic fiber-optic digital cables I tried with the Esoteric and Krell.
Digital products. Small differences (good and bad) I heard with cables, digital drives, and preamps with my reference No.23 amplifier were greatly magnified by the KSA-250, often to the point of distraction. In this respect, the Krell is very similar to the very honest and transparent B&W 801 and 800 Matrix Monitors; with garbage in, you get garbage out.

**Shortcomings**
The KSA-250 is not perfect. It is harmonically bettered by the Jadis tube electronics, and does not resolve leading edges of instrumental and vocal attacks as well as the Mark Levinson No.23. It produces a constant low-level hum through the speakers, which could probably drive some people nuts. It runs extremely hot, and sucks juice out of the wall like a sponge. So what? Audiophiles are supposed to suffer a little, aren't they?

**Conclusion**
The Krell KSA-250 is a truly extraordinary piece of audio equipment. It is ruthlessly revealing of everything upstream and is, in this respect, the finest reference amplifier currently available. It will drive virtually any load, and is the first amplifier this listener has heard that successfully combines ultimate musical finesse with sheer dynamic brawn without sacrificing much along the way. While the KSA-250 does not quite measure up to the finest tube electronics in the area of harmonic accuracy, and falls somewhat short of the best solid-state in the ability to resolve vocal and instrumental attacks, it wins the prize in overall musical and sonic honesty. But if you're thinking about buying one of these, be darn sure that your front-end electronics are the very best, or else you may be disappointed.

If you're in the market for a great amplifier (or even if you're not), you owe it to yourself to audition the KSA-250. It doesn't get much better than this, folks, so find your checkbook, put off painting the house until next year, and get to your local Krell dealer. Now, how am I going to explain to my wife that we need to buy a new amplifier...?

**Robert Harley offers a postlude**
It's somewhat unusual for two reviews of a product, by different reviewers, to appear in the same issue. However, JA asked me to relate my impressions of the Krell KSA-250 for several reasons: I'd been listening to the KSA-250 as a basis for comparison with the comparably priced Threshold S/550e amplifier (see review this issue), and I'd spent some time with the KSA-250's predecessor, the KSA-200, in the same system and room. The KSA-250's performance could thus be put in perspective with the older unit, as well as with a similarly priced competitor. In addition, this second review could include measurements of the KSA-250's bench performance. Since Lew Lipnick has already described the amplifier's technical details, let's get right to my impressions of the KSA-250's sonic character.

**Listening:** I auditioned the KSA-250 over the course of several weeks in my usual reference system, as well as driving the two pairs of inexpensive loudspeakers reviewed this issue. The KSA-250 was compared with the Threshold S/550e and to my long-term reference amplifiers, VTL 225W Deluxe monoblocks. The primary loudspeakers were Hales System Two Signatures, connected with 3' bi-wired runs of AudioQuest Clear cable. CDs were played on an Esoteric P-2 transport and decoded by the VTL Digital to Analogue Converter through an Aural Symphonics Digital Standard coaxial cable. LP playback was via a Well-Tempered turntable with a Lary Pederson-modified Well-Tempered arm (see footnote in the S/550e review for the address and phone number). Phono cartridges included a Sumiko Virtuoso Boron and an Audio-Technica AT-OC9, stepped up with an Expressive Technologies SU-1 transformer, driving an Audio Research SP11 Mk II, used for its phono section. An Electronic Visionary Systems Stepped Attenuator provided level control. Interconnects were Expressive Technologies IC-1 and AudioQuest Lapis. AC power to the system was conditioned by a Tice Power Block and Titan, except to the power amplifiers, which were fed directly from the wall socket. The dedicated listening room has optimum dimensional ratios for room-mode distribution.

Immediately upon hearing the KSA-250 for the first time, one knows that this is an extraordinary power amplifier. The sheer power in the bass, effortless delivery, and unaggressive presentation all indicated that the KSA-250 is something special.

Starting with the bass, the KSA-250 had the
The deepest, tightest, most effortless low-frequency presentation of any amplifier I’ve heard. The only other amplifier that could compare in bass performance was the Threshold S/550e. I had been used to the VTLs, which have outstanding bass for a tube amplifier, but they were far outperformed by the KSA-250’s depth and control. The KSA-250 seemed to add an octave of LF extension to the somewhat lean Hales System Two Signatures. The sense of weight and authority in the low end was stunning. LF dynamics were effortless, punchy, and quick. The lowermost component of bass drum, the rhythmic foundation of much music, had a dynamic impact that greatly enhanced the music’s rhythmic drive. Bass lines were easily resolvable, with precise articulation and pitch definition. The entire low-frequency presentation—dynamics, pitch definition, control, weight, effortless—was unparalleled. I felt as though the KSA-250 had an inexhaustible power reserve that was barely tapped, even at high levels. Although the Threshold S/550e had very similar qualities in the bass, the KSA-250 had just a bit more punch and impact, especially in the lowermost frequencies. Both amplifiers, however, are exceptional in this regard. I think there can be no debate as to the KSA-250’s extraordinary abilities in reproducing music’s low frequencies.

Moving to the mids, I found the KSA-250 to be remarkably smooth and liquid. The amplifier had a laid-back quality through the midrange I found particularly musical and inviting. There was not that dry, up-front aggressiveness I dislike in some solid-state amplifiers. In terms of natural textures, lack of grain, and general sense of ease to the music, the KSA-250 easily surpassed the KSA-200. In comparison with the Threshold S/550e, the KSA-250’s more laid-back and less vivid rendering was more to my taste and perhaps associated components. Some may prefer the S/550’s more palpable, immediate presentation, however; I advise potential purchasers of either amplifier to audition both, preferably with their own loudspeakers.

I generally prefer good tube amplifiers for their more realistic instrumental textures and subtler rendering, but the KSA-250 went a long way toward achieving tube liquidity and musicality through the midrange. Instruments and voices had a round, rich character, the antithesis of cardboard sterility. Textures were finely woven, accurately conveying the essence of an instrument’s character. I never felt the KSA-250 imposed an artificiality to tonal shadings that can be a constant reminder of the playback system intervening between music and listener. In this regard, the KSA-250 is vastly superior to the KSA-200, which I felt to be a bit dry and less than thoroughly involving. Despite the KSA-250’s extraordinary portrayal of natural textures, I still consider the VTLs to be the last word in timbral accuracy and harmonic rightness.

The KSA-250’s treble presentation was similarly smooth and laid-back, inviting the listener into the music. I never felt like my ears had been through a threshing machine after a long session with the KSA. The treble was relaxed and unfatiguing, yet still conveyed the transient detail and liveliness that creates a big, open, “up” feeling. I was able to listen at fairly high levels without wanting to turn down the volume, unusual for a solid-state amplifier. Detail was not hyped or overblown in a way that assaulted the listener. Musical subtleties were naturally portrayed, without being etched or aggressive. Again, the KSA-250 is far superior to the KSA-200 in this regard. The older amplifier tended to be a bit dry and sterile through the treble, rather than warm and involving. This is, in my opinion, the biggest improvement in the newer model.

The KSA-250 had a nice spatial presentation, with good soundstage depth, feeling of air around instruments, and ability to convey hall size. On Dorian’s The English Lute Song CD (DOR-90109), Juliianne Baird’s voice was enveloped by the superb acoustics of the Troy Savings Bank Music Hall, yet was palpable and immediate. The hall’s depth and acoustic character were clearly resolved by the KSA-250. Instruments never assumed a too-prominent position in the presentation. Instead, the amplifier presented images in their correct spatial contexts. There was a distinct feeling of three-dimensionality that I find important if the playback system is to transport the listener outside the confines of his relatively tiny room. In this respect, the KSA-250 was superb, yet did not quite convey the hall depth and a sense of distance that I hear through the VTLs. Lew raised the point that some amplifiers add an unnatural sense of depth at the expense of musical accuracy. This is an unresolved question in my mind, but I still preferred the VTLs, especially with a digital source which tends to truncate the recorded acoustic and present a drier,
smaller rendering. The ability to portray depth and space, as well as the listener's apparent distance from the presentation, are perhaps the biggest differences between the S/550e and KSA-250: the S/550e puts you in row 5, the KSA-250 in row 25.

The KSA-250's soundstage had excellent transparency, allowing the listener to see into the very back of the presentation. Instrumental outlines were clearly defined and precise. However, in these areas, the KSA-250 was surpassed by the S/550e. By comparison, the KSA-250 didn't have the utter soundstage transparency, complete lack of veiling, or precise focus of instrumental outlines that characterize the S/550e. This is not to say the KSA-250 was poor in these areas. On the contrary, it was exceptional, but nevertheless came in second to the S/550e. The KSA-250 tended to have a softer focus and less palpable image rendering than the S/550e. The Krell's soundstage also had a bit of congestion that made individual instrumental lines less distinct. This made for a more relaxed presentation through the Krell, yet it lacked the vivid clarity, image tangibility, and pinpoint localization of the S/550e. These impressions perhaps go hand-in-hand with the KSA-250's less immediate and vivid rendering in relation to the S/550e. On this matter, which interpretation one prefers is largely a matter of personal preference and associated equipment.

All things considered, I felt its relatively laid-back perspective, more subtle rendering of detail, greater illusion of soundstage depth and three-dimensional layering, as well as its feeling of ease, make the KSA-250 my first choice in solid-state amplification.

Measurements: There is some diversity of opinion over whether an amplifier under bench testing should be supplied with whatever AC power comes from the wall (as it would see during normal use), or if the voltage drop should be compensated for by a Variac. The former argument asserts that the amplifier's measured performance with raw AC power is more indicative of its behavior under the conditions in which it will be used: the customer's home. The latter position holds that since AC power quality varies from location to location, one should measure the amplifier's intrinsic performance, not the amplifier's performance when supplied by an arbitrary power source. This question is particularly relevant to the Krell KSA-250 and Threshold S/550e because of their respective abilities to drive huge amounts of current into the load, current that ultimately comes from the AC power line via the mains transformer.

It's possible to maintain 120V AC to the amplifier under test, even during full-power tests into low impedances, with a Variac. A Variac is a power transformer with a variable turns ratio, adjusted by a large knob, that steps up or steps down an AC voltage. As the amplifier under test draws current and pulls down the AC line voltage, the Variac can be adjusted to maintain 120V AC to the amplifier. However, one must use a Variac with a current capability that exceeds the amplifier's maximum current draw. In the case of the KSA-250 or S/550e, this means a very large Variac, one that can handle at least 35 amperes.

After some discussion, JA and I decided that power amplifiers should be measured when supplied with the raw AC outlets since this condition reflects real-world conditions. Consequently, it should be kept in mind that maximum output power will vary slightly depending on the ability of the AC supply to maintain its voltage during heavy current draw. The AC available in Stereophile's test lab, I've found, tends to be pulled down more easily than at other locations, though JA points out that any resultant reduction in clipping power seldom amounts to more than an inconsequential fraction of a dB.

With that caveat, here are the measurements. The KSA-250's frequency response (fig.1) was flat to within 0.3dB from 10Hz to 25kHz, measured at 100W into 8 ohms. There was a slight droop in the bass below 100Hz and a 0.2dB rolloff at 20kHz. The audibility of a 0.2dB rolloff at 20kHz is open to debate. Frequency response was identical regardless of output power or load impedance.

THD+Noise at moderate to high output powers was typically 0.1% through most of the band, rising to 0.2% at 20kHz. When driving low impedances, and at low output levels, distortion varied considerably with frequency. Fig.2 shows THD+Noise measured at 100W into 8 ohms (top trace at 100Hz), at 1W into 8 ohms (bottom trace at 100Hz), at 2W into 4 ohms (next trace up), and at 4W into 2 ohms (third trace up at 100Hz). These distortion figures are generally low, but higher than those of the Threshold S/550e. Note also that at the
low levels, the distortion rises in the treble above the distortion at 100W.

The Audio Precision System One's "Reading" monitor output removes the fundamental frequency from the signal, leaving only the distortion products and noise for viewing on an oscilloscope. Fig. 3 shows the KSA-250's output at 1W into 8 ohms when driven by a 1kHz signal as captured with an 8-bit Heath digital storage 'scope. The top trace shows the 1kHz fundamental, while the lower trace shows the harmonic products. Note the nearly perfect sinewave nature of the distortion and its 2kHz periodicity, indicating that it is almost pure second harmonic, which could well correlate with the Krell's sweet sound. (The distortion component's amplitude scale has been expanded for clarity.) Fig. 4 shows a 10kHz signal (top trace) at 1W into 8 ohms with its attendant distortion products (bottom trace). Again the distortion waveform has had its amplitude increased for clarity, but compared with fig.3, note the increased content of harmonics higher than the second (though with a 10kHz signal, none of these will be audible, of course, unless they contribute to downband cross-modulation products).

Looking at the KSA-250's maximum output power into varying impedances with one channel driven with a 1kHz probe signal (fig. 5, which plots THD+Noise vs output power), we can see it clips (1% THD) at 325W into 8 ohms (25.1dBW), at 635W into 4 ohms (25dBW), and

\[1 \text{ A contentious subject here is exactly how much of the amplifier's power delivery is in pure class-A, which is when both "upper" and "lower" sets of output transistors are turned on all the time. By contrast, class-B is when the upper transistors are turned on only during the time the output waveform lies on the positive side of ground potential and the lower transistors only during the time it lies on the negative side of ground. Class-A/B, which applies to the vast majority of solid-state amplifier designs, involves a small standing bias current to ensure that neither upper nor lower output transistors turn off for small signals, thus minimizing crossover distortion. With amplifiers like the Krell and Threshold models reviewed this} \]
at over 1000W into 2 ohms (actually 1066W at 0.97% THD, or 24.3 dBW). When driving 1 ohm, the KSA clipped at 1548W (22.9 dBW). This is approaching perfect voltage-source behavior, and could be expected to be closer to the ideal of a doubling of power with each halving of impedance if the AC line voltage were held constant. The AC line voltage sagged during these tests to 116V (8 ohm testing), 114V (4 ohm testing), 112V (2 ohm testing), and 106V (1 ohm testing), from 117V at idle. All maximum power output measurements exceeded Krell’s specifications except the 1 ohm measurement, which is a result of the line voltage dropping so low. With a regulated AC voltage, the KSA-250 could probably be expected to put out 2kW into 1 ohm. Although Krell specifies a 4kW output rating in 0.5 ohms, I didn’t have a half-ohm resistor that would handle such power.

Output impedance was a constant 0.13 ohm measured at 20Hz, 1kHz, and 20kHz, slightly higher than the S/550e’s 0.08 ohm, and fairly typical of a solid-state amplifier. This figure may be slightly higher than the KSA-250’s actual output impedance due to the lengths of cable between the amplifier (which was on the floor) and the test load, and between the load and the System One. (Ideally, the load and measuring device should be attached directly to the output terminals, with no intervening cable.) Cross-talk was quite good at greater than 70dB through most of the band, but decreased to 56dB at 20kHz.

**Build Quality:** Finally, I would like to comment on the KSA-250’s extraordinary build. While it is not as visually striking as the Threshold S/550e, it appears to have beefy construction. This is reflected in the two amplifiers’ respective weights: 97 lbs for the S/550, 140 lbs for the KSA-250. Most of the KSA-250’s additional weight is in the massive 4.5kVA transformer, which in itself weighs 85 lbs. One cannot appreciate just how heavy this amplifier is until required to carry it. (*Stereophile’s* test lab is up a flight of stairs!)

I had an opportunity to visit the Krell factory and see KSA-250s being built. The assembly process has been remarkably streamlined by the removal of point-to-point wiring, allowing amplifier sections to be bolted together in modular fashion. This perhaps explains Krell’s ability to offer the higher-power KSA-250 for the same price as the more labor-intensive KSA-200.

During the measurements of the KSA-250 and S/550e, JA tried to make a photocopy on the copy machine, only to find he had to wait 30 seconds for its “energy miser” feature to warm up the machine. Five feet away, these two current-hungry amplifiers had been turned on all day!

**Conclusion:** The Krell KSA-250 sets a new level of performance among the solid-state amplifiers I’ve heard. Bass reproduction is unparalleled: the KSA-250 imbues music with a solidity and effortlessness that provide a very satisfying musical foundation. In addition to sheer LF quantity, extension, and dynamics, the quality of the low-frequency reproduction was remarkable. It was tight, fast, articulate, yet never dry or sterile. The KSA-250’s bass must be heard to be believed. Although the Threshold S/550e had a similarly stunning bass presentation, the KSA-250 had slightly more punch in the lowermost frequencies.

The KSA-250’s midrange and treble presentation was surprisingly smooth and liquid. Instrumental textures were finely woven, clean, and free from glare. The treble was remarkably delicate, yet detailed. Musical nuance was presented in a natural way, without becoming etched. The entire presentation had a laid-back, relaxed quality that I found particularly inviting. In comparison with the KSA-200, the newer amplifier clearly surpassed its predecessor in warmth, treble smoothness, and ability to involve the listener in the musical performance. However, I still preferred my reference VTL 225W Deluxe monoblocks for sheer midrange and treble liquidity.

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Soundstage depth was equally impressive. The KSA-250 painted a broad and deep sonic landscape, with an exceptional sense of three-dimensional layering. In addition, the KSA-250 could resolve low-level spatial cues that presented a convincing illusion of hall size. I found the KSA-250 portrayed depth and space better than the Threshold S/550e. Instrumental outlines were clearly resolved within the soundstage, yet not to the extent heard through the Threshold S/550e. In addition, the S/550e had a more transparent, less congested rendering. The KSA-250 had a more distant, less focused interpretation.

Beyond these descriptions, I enjoyed music immensely through the KSA-250. It was unfailingly musical, inviting, and intimately involved the listener in the performance rather than the sound. This is the essence of what music-reproduction components should do, and the highest compliment one can bestow on any product. In addition, the KSA-250 is solidly made and exhibits excellent bench performance, especially in its near-perfect voltage source behavior. Considering the KSA-250's superb sonics and bench performance, I can unhesitatingly recommend it for even the most demanding high-end systems. It is hard to imagine anyone not liking this amplifier.

I suspect that Larry Archibald is eagerly awaiting the return of the KSA-250 (Stereophile bought this sample) to his listening room to drive his Thiel CS5s. All I have to do now is think of an excuse to keep the KSA-250 at my house for a while longer.

### THRESHOLD S/550e POWER AMPLIFIER

Robert Harley

Threshold S/550e power amplifier

Specifications: Stasis class-A/AB stereo power amplifier. Power output: 250Wpc continuous (24dBW), 500Wpc peak into 8 ohms (resistive or reactive), both channels driven, 20Hz–20kHz, with less than 0.1% THD. Bandwidth: flat at DC, –3dB at 100kHz. Slew rate: 50V/μs. Output current capability: 30 amperes continuous, 130 amperes peak. Output transistor complement: 26 transistors per channel. Input impedance: 50k ohms (unbalanced), 600 ohms (balanced). Output impedance: Less than 0.05 ohm, 20Hz–20kHz. Gain: 26.6dB. Noise: less than –100dB unweighted, referenced to rated output. Warranty: 10 years. Dimensions: 19" W by 8.72" H by 23.75" D. S/N tested: 05932. Weight: 97 lbs. Price: $6300. Approximate number of dealers: 75. Manufacturer:
I'm reviewing nothing but phono cartridges for the next few months.

Such was my inclination after lugging the Threshold S/550e power amplifier, a 97-lb solid-state behemoth, from Santa Fe to my listening room. Adding injury to injury, I had to simultaneously transport the Krell KSA-250(140 lbs) for review and comparison with the S/550e. The problem isn't so much ferrying these amplifiers, or even getting them into my truck (with the help of Stereophile's Danny Sandvol); it's getting them from the truck to the listening room. One has the option of trying to move them oneself (unwise), or of explaining to a helping, struggling, incredulous wife why an audio component must weigh more than she does (equally unwise). Every individual is faced with personal dilemmas in life; this happens to be mine.

However, all crises have a positive side, perhaps to maintain the cosmos's conservation of energy—a kind of yin and yang. Just after getting these amplifiers into the listening room, an unseasonably early snowstorm hit New Mexico. Did I get cold? Not a chance. While neighbors turned on their heaters or built fires, I let these two pinnacles of late-20th-century solid-state amplifier design warm up in preparation for listening, as I basked in their radiant glow.

Fortunately, the effort expended in getting the S/550e and KSA-250 to the listening room had a far more important benefit: each was superbly musical and provided hours of thoroughly enjoyable listening.

Maybe I won't stick to reviewing only phono cartridges after all.

Description

The S/550e is a beautifully designed and built product, with an elegant rather than an industrial look and feel. The front panel's handles are softly sculpted, adding to the luxurious impression while making this heavyweight amplifier more comfortable to carry. The unit is finished in a silver color, with eight gold-plated hex-head bolts visible on the front panel. Not counting the handles, the front panel has three depths: the bottom-most layer contains a large power-on/off rocker switch, power-on LED, Threshold logo plate and model number; the next level is a beautifully machined piece of metal with cutouts for the power switch and model number; and the top level is comprised of two sculpted silver-colored panels that cover a portion of the front panel, one on either side of the amplifier. The components that make up the front panel are machined from aluminum and anodized for color consistency and resistance to fading. The S/550e is striking in visual design and lavish in execution. The extraordinary metalwork must add considerably to the amplifier's $6300 price tag.

Behind the front panel, large vertical-fin heatsinks run the length of the unit on both sides. Incidentally, all Threshold "e"-series amplifiers share the same front panel, cosmetics, and heatsinks. They are distinguished by their depths, which result from a greater number of output transistors and bigger power supplies in the more powerful units.

The rear panel is dominated by two very large pairs of custom-made loudspeaker terminals. These binding posts are easily the beefiest I've seen, with a large plastic nut that screws down over a gold-plated bolt. This threaded bolt is very large in diameter, larger in fact that the spade lugs on AudioQuest cable. Since the gold-plated nut and base surfaces are so big, however, nearly the entire spade lug made contact with the platform without the lug actually fitting completely over the bolt. Generally, I liked these terminations, but would like to have had larger spade lugs to take full advantage of them. Incidentally, the power-on/off switch performs double duty as an AC line breaker in series with the AC line fuse. The fuse is designed to blow first; tripping the on/off switch breaker indicates amplifier malfunction.

Balanced inputs are provided on XLR connectors, and unbalanced inputs on RCA jacks. A small toggle switch selects between the two operational modes. Input impedance is specified at 50k ohms (unbalanced) and 600 ohms (balanced). The XLR jack is wired according to the North American standard, with pin 3 "hot." Four rail fuses are located on the rear.

1 The IEC standard is actually pin 2 hot, but most equipment made in America is wired pin 3 hot. This causes problems in the recording studio when outboard gear or microphones of one standard are brought in to a studio that is wired to the other standard. Aren't standards great? You can pick any one you want.
panel, one each for left and right negative and positive output-stage power-supply rails. An IEC AC line cord jack and mains fuse are also located on the rear panel. Finally, an additional pair of handles is provided for two-person transportation. At 97 lbs, moving an S/550e definitely requires the assistance of another person.

Looking inside the S/550e, one's attention is immediately drawn to the long rows of output transistors. Twenty-six bipolar devices are bolted to a large aluminum block that runs the length of the amplifier, with 26 more on an identical block on the opposite side. The two aluminum blocks are attached to the large black heatsinks that dominate the exterior side panels. This is an extraordinary output section, especially considering the S/550e's 250Wpc output rating. For comparison, the B&K ST-140, rated at 105W into 8 ohms, used to use a single pair of output devices per channel, while the Muse Model 150 Monoblocks (150Wpc into 8 ohms) are more generous with three pairs per channel. While these amplifiers sell for a fraction of the S/550e's price (less than a tenth as much, in the B&K ST-140's case), this comparison nevertheless illustrates Threshold's design approach. The S/550e's 26 output devices per channel is rated at 200V, 250W, and 20A, with peak wattage and amperage capability at nearly twice this level. This overkill philosophy results in each output transistor being driven at about 5% of its rated power. Advantages of this approach are greater stability when driving low or reactive loads, long-term reliability, and lack of need for output protection circuits or devices that could affect the amplifier's sonic qualities. Another benefit of this configuration is the exceptionally low source impedance and high damping factor. Because the S/550e can deliver large amounts of current and has no current-limiting protection, one is advised to be very careful when connecting or disconnecting components. Moreover, because the amplifier is direct-coupled, any DC at the output of a preamplifier will be amplified by the S/550e, driving high levels of DC into the loudspeakers.

The S/550e is said to operate in pure class-A up to 20% of its instantaneous power when driving an 8 ohm load. Above this value, the amplifier operates in class-A/B. This is in contrast to the SA series of Threshold amplifiers, which operate in pure class-A up to twice their continuous rated power into 8 ohms.

The output stage is unique in that it is based on Threshold's patented Stasis circuitry. I'll give a brief explanation here: for a full discussion, see TJN's review of the Threshold SA/12e monoblocks in the previous issue. The Stasis principle is based on the idea that voltage provides the signal purity, while current delivers the brute-force output. The S/550e's output stage is a tandem topology in which a pure class-A voltage amplifier section works in parallel with high-power current mirrors to drive the loudspeaker. Both voltage amplifier and current mirror are connected to the load. The voltage amplifier controls the output voltage, while the current mirrors provide controlled current to the load. This isolates the voltage amplifier from current fluctuations, greatly increasing its linearity and stability while preventing its output voltage from being "pulled down" by large current draw. In effect, the voltage amplifier sees unvarying conditions—a stasis—so it is unaffected by changing conditions within the amplifier.2

In each of the S/550e's two output stages, one of the pairs of output transistors is slightly offset physically from the other 12 pairs. These are the so-called Stasis transistors that provide the voltage gain, while the other 12 pairs form the current mirror that supplies the output current. The inherent linearity and stability of this circuit obviates the need for global feedback, itself a source of problems.

A temperature-sensing circuit in the output stage shuts down one or both channels if the amplifier gets too hot. Operation is resumed automatically when the temperature drops to a safe level. Considering the S/550e's massive and conservative output section, I suspect that thermal shutdown would occur only if the amplifier didn't get proper ventilation. The heatsinks became fairly warm during normal use; good ventilation is a must. Each of the rear heatsinks has a temperature sensor, allowing the user to monitor the S/550e's running temperature. Interestingly, I found the transistors themselves, the aluminum mounting block, and the external heatsinks to be remarkably similar in temperature. This indicates an extraordinary ability to transfer heat from the semiconductor chip in the transistor to the outside air. Many amplifiers with lower heat-dissipation

2 Webster's dictionary defines "stasis" as "a state of static balance or equilibrium."

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ability have transistors hot to the touch and heatsinks that barely get warm. Getting rid of transistor heat—clearly a key factor in the S/550e's design—results in greater operating stability, longer transistor life, and more predictable performance under a variety of conditions.3

The power supply is equally massive, with dual 800VA toroidal transformers, two 35A bridge rectifiers, and six 27,000µF filter capacitors. Additional filtering and regulation for the front-end supplies is performed on the dual front-end boards. The unregulated ±78V output-supply rails for each channel come right off the filter caps, with only a thermistor between the rectifier and filter caps. The on/off switch works in conjunction with a circuit that draws current slowly during power-up to protect internal components from the huge inrush of current (said to be over 200 amperes). I suspect that this circuit also prevents the house's breakers from tripping every time the amplifier is turned on.

The front-end boards are mounted vertically between the filter caps and the output section. All Threshold amplifiers use the same input and driver cards and circuits, made from glass epoxy with gold-over-nickel plating. The circuit is completely discrete, pure class-A in operation, and is direct-coupled. The input stage is a pair of high-impedance (one trillion ohms) J-FETs, with very little local feedback. FETs have intrinsically high input impedance because they are voltage-driven rather than current-driven devices like bipolar transistors. The driving voltage sees a reverse-biased PN junction. All resistors are metal-film or wire-wound types. No capacitors are in the signal path, and those in peripheral circuits are high-quality film and silver mica types. DC supplies are doubly regulated on the front-end board.

Another Threshold innovation found in the S/550e's front end is a proprietary optical-bias control system to reduce interaction between the output stage and the bias circuitry. In addition, optical biasing is said to reduce temperature fluctuations in the circuit, thus increasing stability. The optical-bias circuit consists of three opto-isolators per channel, devices that electrically isolate one circuit from another. Opto-isolators are photo-transistors that are turned on by light rather than by direct connection to a source of base current. The light is provided by an LED mounted in the same package, which produces light proportional to current flow through it. Consequently, current still turns on the transistor, but indirectly through the LED, with no electrical connection between the transistor and the circuit driving it.

Unusually, the S/550e's balanced inputs require no additional active circuitry. Balanced inputs (or outputs) typically subject the signal to more componentry (and thus degradation) than their unbalanced counterparts. There is an argument that balanced lines should be used only with inherently balanced signals such as phono cartridge or dynamic microphone outputs. The exception is in professional applications where very long cable lengths and noise rejection are required. The degradation introduced by balanced circuitry was graphically demonstrated to me during a recording project. I engineered a live-to-DAT session with the console's stereo outputs simultaneously driving a consumer Sony DTC-1000 via its unbalanced inputs and, through the balanced inputs, the DTC-1000's professional counterpart, the Sony PCM-2500. These two machines are virtually identical, but the professional model has digital inputs/outputs and balanced circuitry. The consumer machine made a far better recording (more transparent, smoother and more liquid treble) because it was not subjected to the additional circuitry required to unbalance the incoming signal in the professional model. Threshold appears to have overcome this limitation of balanced inputs with a proprietary circuit that imposes no additional active devices in the signal path.

Finally, I would like to comment on the S/550e's instruction and service manuals: they are exceptional. All too often, high-end products are accompanied by poorly written, shoddy-looking manuals that offer very little information on the component. This demeans the product, in turn making the high-end industry appear less than professional. It was thus a joy to read through the well-written, nicely presented, and very informative S/550e manuals. It may seem like a small aspect of the product—even an afterthought—but a good manual inspires a sense of confidence in both the product and the company.

1 I used to work in a power-semiconductor R&D lab where getting the heat away from the silicon was often a very high design priority. Lowering the thermal resistance between the silicon junctions and the case surface (a parameter called "theta J-C") results in less temperature differential between the inside and outside of the device, indicating better ability to dissipate heat.
The Threshold S/550e is beautiful in appearance, with excellent fit and finish. Moreover, it incorporates some interesting design philosophies: the Stasis output section, optical bias, and the overkill approach to the output section.

Listening
I auditioned the Threshold S/550e in my usual reference system over a three-week period. The S/550e displaced the VTL 225W Deluxe monoblocks, amplifiers which I fell in love with during my review of them exactly one year ago, and which have become my reference. The S/550e drove Hales System Two Signature Loudspeakers via 10' pairs of bi-wired AudioQuest Green HyperLitz. I usually use 3' runs of AudioQuest Clear with the VTLs, but the single-chassis construction of the S/550e necessitated the longer-length cable. Incidentally, I listened to the VTLs driving the System Two Signatures through both pairs of speaker cable before hooking up the Threshold. The difference between 10' of Green and 3' of Clear was quite apparent. The Clear was smoother, more transparent, had tighter bass, and greater detail.

Also on hand for comparison was a Krell KSA-250. With a similar output-power rating, price ($5700), and sheer weight, the KSA-250 competes directly with the S/550e. Because I had both these current-hungry amplifiers turned on and warm during the comparisons (along with the VTLs), I was concerned about the AC line voltage dropping and affecting the amplifiers’ performance. With none of the amplifiers turned on, I measured 115.8V at the AC outlets, 115.3V with just the S/550e turned on, and 114.8V with both the S/550e and the KSA-250 powered up. These insignificant drops allayed any concerns over the powerline voltage. All AC to the rest of the system was conditioned by a Tice Power Block and Titan, which maintain the correct output AC voltage.

Twenty-foot runs of Expressive Technologies IC-1 interconnect linked an Electronic Visionary Systems Stepped Attenuator, a passive control unit, to the amplifiers under audition. The digital front end consisted of an Esoteric P-2 transport driving the VTL D/A Converter through an Aural Symphonics Digital Standard interconnect. AudioQuest Lapis connected the VTL D/A to the Stepped Attenuator. A Well-Tempered Turntable, just fitted with a Well-Tempered arm (modified by Larry Pederson) and a Sumiko Boron cartridge, provided LP playback. The cartridge output was stepped up with the extraordinary Expressive Technologies SU-1 step-up transformer before driving the phono input of an Audio Research SPII Mk.II. The SPII's tape output feeds one input of the EVS Stepped Attenuator. All cables in the phono system were Expressive Technologies IC-1. Levels were matched between amplifiers with a voltmeter and the EVS Stepped Attenuator. The VTLs have a much higher input impedance (137k ohms) and sensitivity (0.775V) than the S/550e and the Krell KSA-250.

The dedicated listening room has optimum dimensional ratios for room-mode distribution. A pair of Phantom Acoustics Shadows, an active low-frequency control system (also designed, coincidentally, by Threshold's Nelson Pass), was turned off during the auditioning due to the System Two Signature's somewhat lean bass rendering.

Over the past year, I've grown accustomed to the VTL monoblocks. Transistor amplifiers I've tried in my system have left me cold, making me yearn for the natural timbres and liquid textures that characterize the VTLs. This is perhaps in part due to my choice of loudspeakers. The Hales System Two Signatures are very revealing of any changes in the signal path before them, and tend to be highly detailed. I therefore approached the review of the Threshold S/550e with a combination of trepidation and eagerness to hear what an ambitious solid-state design like the S/550e would sound like in my system.

It was immediately obvious that the S/550e's presentation was very different from the VTLs': Where the VTLs were subtle, laid-back, and liquid, the S/550e was vivid, forward, immediate, and with an abundance of detail. In addition, the S/550e's rendering was crystal-clear, vivid, and had a complete lack of congestion or confusion. Listening to familiar music through the S/550e after spending so much time with the VTLs was like looking at the world from a different perspective. But did I like the S/550e's interpretation? In some ways, it was involving musically, grabbing me and riveting my attention on the performance. A world of detail was brought to life, infusing music with a fresh vitality and immediacy. Simultaneously, I felt that the VTLs offered a presentation that in some ways was more akin to that heard from live instruments.

Further listening confirmed these first impres-
sions. The S/550e's presentation was big, full, robust, and had a sense of effortlessness. Bass reproduction in particular was extraordinary: deep, tight, dynamic, and articulate. In fact, the S/550e gave the impression of extending the Hales System Two Signatures' low-frequency cutoff an octave lower. In addition, the entire low-frequency range had a greater sense of weight and body that was certainly welcome with the Hales' lean LF presentation. Bass guitar had more visceral impact and palpability, imbuing music with a rhythmic urgency. LF definition was superb, with every nuance and detail clearly resolvable. On the track "Light as a Feather," from Return to Forever's Light as a Feather (Polydor 847 148-2), Stanley Clarke's bass was fuller, much more audible, and better defined through the S/550e. Besides reducing the leaniness in the presentation, the S/550e created a feeling of drive and energy in the performance. Although the S/550e's LF rendering was tight and articulate, I wouldn't call it dry. Instead, it had the often mutually exclusive qualities of round, weighty richness and resolution of detail and precise pitch articulation.

In addition, LF dynamics were superb. Bass drum (Jeff Porcaro's kit on James Newton Howard and Friends, Sheffield Lab 23) was punchy, tight, and had a sense of effortlessness, even at high playback levels. Music took on a new rhythmic drive through the S/550e that I enjoyed immensely. In comparison with the VTLs, which have excellent bass depth and control for tubed amplifiers, the S/550 was clearly in a different league. In fact, it is no coincidence that I began the description of the S/550's sound with the bass: it's the S/550e's strong suit. The S/550e's LF reproduction was flawless. In a side-by-side comparison with the Krell KSA-250 I felt the Krell had a little more depth and dynamic impact, especially in the deep bass. However, the difference was not musically significant in light of the fact that both these solid-state powerhouses are overachievers in low-frequency reproduction.

The S/550e's treble presentation was exceptionally clean and devoid of grain, but tended to be a bit forward for my taste. I wouldn't call the S/550e bright, but it did exhibit a liveliness and sparkle in the upper octaves. Treble textures tended to be harder than those heard through the VTLs, lacking the latter's lush liquidity. Cymbals moved forward in the presentation, giving music an "up-front" feeling. Treble transients were razor-sharp and immediate, further reinforcing the lively rendering. I should stress that the S/550e's treble reproduction was extraordinarily clean, precise, and utterly free from the bright, hashy sound often heard from solid-state amplifiers. I felt, however, that the treble was overly etched, bordering on the analytical with most recordings. This was especially true of acoustic guitar, and probably exacerbated by the fact that most acoustic guitar recordings are intrinsically bright, etched, and hyper-detailed in comparison to the live instrument (Larry Carlton, Alone, but Never Alone, MCAD-5689; Kevin Eubanks, Sundance, GRP GRD-9506; and Sabatiano Tapajós, Lado A Lado, Visom CDV2). The sharp attack of the strings tended to be exaggerated.

My guitar and acoustic bass recording on the Stereophile Test CD benefited from the S/550e's presentation, adding a little life and air to the recording. The soft and gentle sound of the guitar is actually how the instrument sounded in the 140-year-old stone chapel. Most acoustic guitar is recorded with bright microphones put right on the strings, then given a high-frequency boost at the console to make it "cut through." At any rate, the S/550e's forward and lively treble was not a synergistic match with most acoustic guitar recordings. Compared with the Krell KSA-250, the S/550e had a cleaner, more transparent treble reproduction, but the KSA-250 had a sweeter, softer, and more gentle rendering.

I should make the point that passive control units like the EVS Stepped Attenuator are very revealing of the source signal. Many active preamps tend to "round off the edges," which is sometimes more euphonic than listening through the passive unit's unforgiving resistor-to-ground.

The S/550e's crystal-clear, immediate presentation seemed to exaggerate the sense of presence and detail. Next to the S/550e's LF reproduction, the amplifier's most readily apparent sonic trait is its presentation of detail. The S/550e brought every musical nuance right to the surface. I heard things in my music collection I wasn't aware of, including detail in recordings I'd made. At the beginning of Steely Dan's "Babylon Sister," from Gaucho, a very thin-sounding guitar appears at the far left-front of the soundstage. Through the S/550e, every nuance of the guitar, including the sound of fingers on strings, jumped to life. The distinction between prominent and subtle musical elements was lessened as everything assumed.

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an up-front position in the presentation. In a way, this presentation was intriguing; I felt I was hearing the music with more resolution, suddenly privy to previously unheard information. It was like wearing glasses that snap everything into sharp focus. For my taste, however, I felt that detail was exaggerated and tended to be thrust at the listener, often at the expense of contrast between the subtle and the salient. I can imagine some listeners preferring this rendering, however, and encourage prospective buyers to audition the S/550e themselves. In addition, the System Two Signatures are themselves highly detailed and tend to reveal everything in the signal fed them.

Another aspect of the S/550e's presentation that contributed to the sense of hyperawareness was the crystal-clear, transparent soundstage utterly free from congestion or confusion. There was absolutely no veiling or obstruction between the music and listener. Midrange instruments were tightly woven and complexly textured, completely devoid of blurring or smearing of information. Instruments and voices assumed a believable palpability between the loudspeakers, with an almost tangible quality. Female vocal, in particular, was rich, coherent, and prominent in the presentation, creating the feeling of the vocalist existing in the listening room. The S/550e's feeling of presence was startling.

Soundstage width was impressive, with a sense of huge lateral size. The soundstage was the antithesis of closed-in and cloudy. In addition, image specificity and resolution of instrumental outlines were extraordinary. In fact, the S/550e had the greatest sense of focus and lateral spatial distinction of any amplifier I've heard. Images were tight and sharp, without any trace of blurring or diffusion around the edges. It was easy to pick out a single instrument from the multitude. However, I felt the S/550e didn't resolve depth as well as some other amplifiers. The soundstage tended to extend just behind the loudspeakers, rather than giving the impression of great distance. In addition, there wasn't the sense of three-dimensional layering that gives the impression of depth. This was especially apparent on recordings with natural reverberation. For example, Julianne Baird's voice on The English Lute Song (Dorian DOR-90109) moved forward, became drier, and had less feeling of the Troy Savings Bank Music Hall's acoustic surrounding her. There was not the impression of a warm bloom surrounding her voice, but the lute was clearly more distinct, coherent, and easier to resolve within the soundstage. The S/550e's uncanny ability to resolve disparate images without homogenizing them was graphically demonstrated by this recording.

I had similar impressions of reduced soundstage depth with my guitar and acoustic bass recording on the Stereophile Test CD and the Dorian Pictures at an Exhibition (Dorian DOR-90117). The ratio of direct to reverberant sound seemed to increase, making it appear as though the listener were seated closer to the stage. The VTLs didn't have the precise focus of instrumental outlines, utter lack of congestion, or great soundstage width of the S/550e, but were far better at resolving depth and conveying the feeling of hall space and size. The Krell KSA-250, by comparison, was not as precisely focused as the S/550e and had less ability to resolve individual instrumental outlines. However, the Krell had a more laid-back perspective (in relation to the S/550e) and was better at portraying depth and revealing spatial nuances in the recording.

To explore the possibility that my impressions of the S/550e were partially influenced by the associated equipment used in the auditioning, I spent some time listening with different digital processors (the laid-back Melior Digital Control Center reviewed last November, and the very detailed and vivid Theta DSPRO Basic) and various interconnects (AudioQuest Lapis, Music Metre, Expressive Technologies IC-1, and MIT CVT 330). In addition, I used the S/550e, Krell KSA-250, and VTL 225W Deluxe monoblocks to drive the Phase Technology PC-80 and Snell Type K/II loudspeakers reviewed elsewhere in this issue.

First, the Melior DGC was a much better match with the S/550e than the Theta DSPRO Basic. The Melior was less transparent than the Basic, but its laid-back and smooth rendering was more welcome. The Basic's presentation exacerbated the S/550e's forward, vivid, and detailed character, while the Melior tended to give music a more relaxed, involving feeling.

Interconnects also affected the presentation. Transparent cables like the AudioQuest Lapis and Expressive Technologies IC-1 allowed the S/550e's intrinsic character to emerge, while MIT CVT 330 softened the presentation. I normally prefer neutral interconnects, but with the
S/550e, the MITs were a welcome addition.

Similarly, I preferred the Phase Technology PC-80's presentation when driven by the VTL 225W monoblocks rather than by the S/550e. The PC-80's tendency toward midrange presence was exacerbated by the S/550e. This combination, however, did highlight the PC-80's remarkable imaging qualities.

Despite the S/550e's far superior LF performance, wider soundstage, and greater resolution of instrumental outlines, I ultimately preferred the VTL 225W Deluxe monoblocks' presentation in the context of the associated equipment in my system (especially the Hales Signatures). Similarly, I preferred the Krell KSA-250 in this system. I should stress that the S/550e is a superb amplifier, and a different conclusion may have been reached in a different playback system or by someone with different sonic tastes.

**Measurements**

Because a huge power amplifier like the S/550e draws so much current from the wall socket, the line voltage droops during high-output testing. Consequently, the amplifier's maximum output capability is affected by the stiffness of the AC line voltage. In addition, it is the peak AC voltage the amplifier is concerned with, not the average as read with a standard voltmeter. The amplifier's power supply draws current with a short-duty cycle at the positive and negative peaks of the 60Hz wave. A 120V AC line has a peak voltage of 170V. Each 1% reduction in peak voltage results in a 2% reduction in the amplifier's output power.

This means that amplifiers under test will not produce their maximum output power unless the AC power line is compensated for with a Variac. (See the "Measurements" section of the Krell KSA-250 in this issue for further discussion.) However, since Stereophile doesn't have a huge Variac (one with at least a 55-amp rating) and, more important, consumers don't regulate their AC line voltages, we performed all testing with the raw AC power from the wall. Threshold specifically recommends against using Variacs or other line-voltage adjusting devices when their amplifiers are auditioned.

During full-power output testing with both channels driven into 2 ohms, the S/550e experienced a failure. After blowing the AC line, the amplifier returned to normal at low power, but the negative-going portion of the signal appeared to be clipped at output powers over a few watts, indicating an internal fault in the amplifier. I found it difficult to believe that this massive output section would have any difficulty at all with 2 ohm loads. Threshold indicates that it is possible to drive the S/550e into 0.1 ohm with current peaks of 130 amperes. I therefore believe that the problem experienced is not indicative of the amplifier's intrinsic behavior and that the fault was due to either a bad component or an anomaly in the test setup. Fortunately, Threshold's customer-service representative was able to suggest a repair over the phone and sent me two replacement power-supply resistors (1 ohm, 2W). When I started to remove one of the suspect resistors in the amplifier, I knew immediately that this was the fault: it had a burn mark and it broke apart under the slight force of needle-nose pliers. At any rate, the replacement fixed the amplifier and I proceeded with the tests.

The S/550e's frequency response, shown in fig.1, was ruler-flat, with less than a tenth of a dB rolloff at 20kHz. Frequency response was identical at 1W, 100W, and 225W into 8 ohms. THD and Noise as a function of frequency is plotted in fig.2. The curves are, from top trace to bottom trace, 8W into 1 ohm, 100W into 8 ohms, 4W into 2 ohms, 2W into 4 ohms, and 1W into 8 ohms. These are excellent figures.

The THD vs output level in watts for 8, 4, 2, and 1 ohm loads is shown in fig.3. I measured a maximum output level of 256W into 8 ohms (24.2dBW), 432W into 4 ohms (23.4dBW), 644W into 2 ohms (22.1dBW), and 880W into 1 ohm (20.4dBW), at 1kHz with one channel driven. (Maximum power output is indicated by the total harmonic distortion reaching 1%.) The AC line voltage dropped from 118V to 117V (8 ohm power testing), to 114V (4 ohm testing), and down to 112V (2 ohm testing). (These AC power-supply voltages were the average values, not the peak voltage, which is more meaningful.) Threshold's measurements indicate the S/550e will put out approximately 300W into 8 ohms, 500W into 4 ohms, nearly 800W into 2 ohms, and over 1100W into 1 ohm. With the AC supply maintained at 120V, these figures are certainly possible.

Output impedance was a low 0.08 ohms across the band, slightly higher than the specified 0.05 ohms. However, the difference can be accounted for by the fact that several feet of cable connected the amplifier to the test load.
and System One, which would increase the measured output impedance. Nevertheless, this is a very low value, and not surprising in light of the S/550e's extraordinary bass control.

Interchannel crosstalk was excellent, maintaining more than 70dB of separation up to 10kHz. Common-mode rejection ratio (CMRR) was also very good, measuring greater than 70dB across the band. Finally, I replaced one of the channel rail-supply fuses with a milliammeter to measure the amplifier’s idling current. This was 1.5A with the amplifier warmed up and 117V AC line voltage, indicating the S/550e will stay in class-A operation when driving 8 ohms until 36W RMS (15.6dBW), above which it will go into class-A/B.

**Conclusion**

In many ways, the Threshold S/550e is an extraordinary power amplifier. It has superb low-frequency reproduction, with precise articulation and pitch definition, plenty of dynamic impact, and an effortlessness that infused music with a very satisfying rhythmic drive. The soundstage was the most vivid and free from veiling or congestion of any amplifier I've heard, with a remarkable focus and resolution of instrumental outlines. The overall presentation was huge, open, and had an immediate, palpable presence. The midband, in particular, had a tangible immediacy I've heard from no other amplifier. Finally, the entire presentation, most notably the treble, was exceptionally clean, quick, and free from hash or grain.

I felt, however, that the S/550e's highly detailed and forward rendering was less suited to my taste (or possibly my system). Detail tended to be immediate and omnipresent, overwhelming the listener rather than allowing him to discover musical nuances on his own. Some people may prefer this rendering, however, and it may be welcome with loudspeakers less detailed and revealing than the Hales System Two Signatures through which I performed most of the auditioning. In addition, I felt that the soundstage tended to be somewhat foreshortened, the result being a less credible feeling of depth. This trait, combined with the forward, immediate character, gave the impression of the listener sitting more toward the front of the hall than in the middle. The result was less feeling of envelopment in hall reverberation.

With all this discussion of various aspects of the S/550e's presentation, the ultimate question is begged: Did I enjoy listening to music through the S/550e? In a word, yes. I found myself listening to familiar recordings in a new way, always eager to hear another and another. The desire to continue listening, and anticipation of hearing specific music, are perhaps the best indicators of a product's ability to convey the music.

In comparison with the Krell KSA-250, I found the two amplifiers to have different enough sonic characters that I advise potential purchasers to audition both of them. They are both superb amplifiers, and one's presentation may suit one's taste or system more than the other's. In a nutshell, the S/550e is immediate and vivid, while the KSA-250 provides a more
distant and relaxed perspective.

Careful system matching is required to avoid combinations that add to the S/550e's forward and lively rendering. In a system with synergistic components, I suspect the S/550e can be a stunning performer. In addition, it is visually arresting, and the build quality is beyond reproach. If one is shopping for an amplifier in this price range, the Threshold S/550e is a "must audition" product.

ATTACK OF THE KILLER CD PLAYERS

Directed by Thomas J. Norton, and Starring (in alphabetical order):

California Audio Laboratories Aria Mk.III: Frequency response: 10Hz–20kHz, +0dB, –1.8dB. THD: 0.005%. S/N: 96dB (A-weighted). D/A converter: 18-bit with 8x-oversampling digital filter. Weight: 25 lbs. Dimensions: 19" (483mm) W by 12.4" (315mm) D by 5.5" (140mm) H. Price: $2395. Approximate number of dealers: 95. Manufacturer: California Audio Labs, 16812 Gothard Street, Huntington Beach, CA 92641. Tel: (714) 841-1140.

The Mod Squad Prism II: Frequency response: 0.1Hz–20kHz ±0.5dB. THD: 0.0005%. S/N: 100dB (A-Weighted). D/A converter: 16-bit with 4x-oversampling digital filter. Weight: 12 lbs. Dimensions: 17.7" (450mm) W by 11.8" (298mm) D by 4.9" (124mm) H. Price: $1895. Approximate number of dealers: 90. Manufacturer: The Mod Squad, 542 N. Highway 101, Leucadia, CA 92024. Tel: (619) 436-7666.

NAD 5000: Frequency response: 5Hz–20kHz ±0.2dB. THD: 0.002%. S/N: 106dB (A-weighted, de-emphasis off). D/A converter: MASH (1-bit, Pulse Width Modulation). Weight: 9.5 lbs. Dimensions: 17.2" (435mm) W by 11.8" (300mm) D by 33" (84mm) H. Price: $499. Approximate number of dealers: 350. Manufacturer (Importer): NAD (USA) Lincolnwood, Ltd., 575 University Avenue, PO. Box 9124, Norwood, MA 02062. Tel: (617) 762-0202.


It was a dark and stormy night. There I sat, CD players to the right of me, CD players to the left of me. Their maws opened and closed in a monotonous, rhythmic clatter, a fugue of metal and plastic, awaiting their fill of silver discs. Without which they refused to perform; without which they threatened to stare me into merciless submission. Their threat was not to the human race, but to each other. But did I dare to give them their fill? With it, their challenge threatened to engulf the known universe. Was a mere reviewer ever tortured by such an apocalyptic quandary? Would the world survive the onslaught of the growing digital terror? Could it be contained? Was it already too late? Would the readers swallow this scenario? Would Spielberg option it?

It all had begun weeks earlier, on a dark and stormy early autumn day. John Atkinson, editor-about-town, entered the elegant, leathered and wood-paneled editorial offices of Stereophile magazine.

"So what would you like to review for the January issue?" he asked, just as I was polishing off my review of the Threshold SA/12e amplifier.

January? That was months away. Then it hit me. Still have to learn to think in magazine; lead-times and all that.
"How about some of those loudspeakers queued up outside the door of the listening room?" John suggested.

Thinking that it would be nice if DO and I, who both do our evaluations in Stereophile's listening room—though not simultaneously, of course—used the same loudspeakers for a while, I made another proposal.

"I've grown rather fond of the Apogee Stages, so I think a review of some front-end sources would be a good idea," I said.

"How about that review you're planning on medium-priced turntables?" JA's suggestion was a bit guilt-provoking.

"That'll happen real soon now," I responded in my best Sommerwerckese, "But not in time for that issue."

I knew that the mixing and matching required for a decent turntable review, considering the multiple cartridges and tonearms I'd also arranged for, would be a major, time-consuming project, one I hadn't been able to begin yet. I also knew that turntable and cartridge technology was reasonably stable. The items we had for review would likely remain unchanged for a while. Not so with digital technology.

"We have four CD players in-house that all sell for around $2000, give or take a few hundred. One Bitstream, one a MASH variant, and two of the multiple-bit variety (one of those a tube player). Could make for an interesting survey review," My eagerness to find out what was happening lately in the one-box CD-player world was showing. "And I've been doing my CD listening through the Esoteric D-2 processor for three months now. Could use that as a reference."

"Terrific," JA responded, "if you include that NAD player in the batch."

I agreed, although the latter suggestion seemed a bit farfetched. The NAD seemed to be something of a lost lamb in the bunch; after all, it sold for less than a third the price of the next cheapest unit. But I'd been using it for weeks, using its digital output to drive the Esoteric D-2 processor. And with fine results. (That combination was, in fact, the source in use when the Apogee Stages were heard by Peter Mitchell, as reported in his "Yankee Audiophile" column in November 1990.) So including the NAD couldn't hurt; it might even bring a little perspective to the proceedings. There were, of course, a number of other CD players around the premises which also needed to be reviewed. But the line had to be drawn, and five seemed to be about a practical limit for one review, what with the inevitable comparisons which would have to be made. The gauntlet had been thrown.

It was a motley cast of characters. My first task was to get to know each one on a casual basis—what it offered, what made it tick, how it differed from the others. And why it wanted to be your CD player. But first...

Is a Bit Bits?

If you haven't seen reams of copy on the latest 1-bit D/A conversion schemes, you haven't been paying attention. Suffice it to say that all of these techniques abandon the common multibit, resistive ladder D/A converter topologies. Instead, the 16-bit signal is processed in the digital domain to convert it (requantize it, to use the technical term) to a series of identical amplitude pulses which vary in either their width (so-called Pulse Width Modulation, or PWM) or their density (Pulse Density Modulation, or PDM). The result of this is that the signal variations are then represented by either the density or width (and in some designs, the polarity) of these single-bit pulses, instead of by the original 16 bits. Relatively simple output low-pass filtration is then used to reconvert these pulses into the analog signal. Oversampling is part and parcel of all of the 1-bit variations, and a technique called noise shaping is also necessary both to minimize requantization noise in the audio band and to preserve the digital data's original 16-bit resolution. The main differences between all of the 1-bit configurations lie in whether they use PDM or PWM (and in the latter by the number of pulse widths used to represent the signal), and in their type of noise shaper, degree of oversampling, and clock rate.

It goes without saying that each manufacturer has a name for its implementation that boasts (it hopes) the appropriate sizzle. Each claims that its technique is the best, and can show you the technical measurements and explanations to prove it. The upshot of all this is that 1-bit systems claim to improve a number of "flaws" in multi-bit systems—most significant of which is low-level linearity. It's not exactly a secret that the linearity of multi-bit converters is difficult to maintain in mass-production players—especially of the low-

1 All 1-bit systems use a very high clock rate.
priced variety. There's no reason that a 1-bit player has to be inherently superior to a carefully designed and aligned multi-bit design; some of the best converters around are of the latter variety. It's just more expensive to make them, and to do so consistently. And there is a certain appealing elegance to the 1-bit variations, even if the actual implementations end up being rather complex. One of the questions I hoped to answer in this survey was whether or not the sound quality of the five machines bore any consistent relationship to their "bit number."

California Audio Labs
Aria Mk.III: $2395

The face was different, but the look was familiar. It should have been. The Aria Mk.III is a close cousin to the Aria II that I'd hung around with for about two years. Same sense of style, same heart of tubes. CAL Audio apparently made it what it is today, from the ground up. They even designed its transport and transport-drive circuitry in-house. In a high-end world which has gone increasingly to separate digital processors, CAL has been, up till now, a conspicuous holdout. They've only recently introduced their first outboard converter, and have in the past argued in favor of the all-in-one player. Something about reduced jitter from all the timing circuits being under one roof.

But only if you properly isolate the digital and analog stages within the chassis. To accomplish that, CAL starts with star grounding, moves on to link the digital stages by means of glass fiber-optic cable, and uses separate transformers for the transport (and its associated circuitry), analog, and digital stages. These three transformers drive a total of 22 local supplies with discrete-circuit regulation. With the Aria Mk.III, CAL has stuck doggedly to multi-bit circuitry—18-bit D/A converters operating at an 8x rate, one per channel. To achieve good linearity, CAL hand-trims the four most significant bits of each converter.

The two tubes in the output stage of the Mk.III (6DJ8s, one per channel) are incorporated in a hybrid circuit with FETs. The tube stage is AC-coupled, the FET stages DC-coupled. The circuit is configured to provide the required output ultrasonic filtering without the use of complex ladder circuits.

The Mk.III has all of the usual programming functions—including random play (one of the few features accessible only from the remote), which is exactly what it sounds like—playback of the disc tracks in totally random order. Just the thing, I suppose, to freshen up an album you've grown bored with—play "what's the name of the next tune?" And a number of features are available to maximize the efficiency of dubbing your CDs onto cassettes. A rare feature is the incorporation of a pre-emphasis light—indicating discs which are made in that fashion (a rather small percentage). The Aria Mk.III does not come in stock form with a digital output, the only one of the present group of players not so equipped. It's available as an option, however, at $95—either on initial purchase or any time in the future (a dealer can install it).

While the CAL Aria Mk.III had a less rich look and feel than either the Sony or the Philips, it was well-built nonetheless, and was the only player on test with a rack-mount front panel. I didn't care for its drawer mechanism, which made a variety of not exactly confidence-inspiring noises. While the mechanism which a user sees and hears on inserting and removing a disc is merely a carrier, and is not involved

2 The transport mechanism and laser circuitry are made for CAL by Matsushita to CAL's design; only the castings are stock Matsushita parts. The remainder of the drive circuitry, as well as the rest of the player, are manufactured by CAL in California.

3 Though their new Genesis player and System I digital processor use MASH conversion technology.
in the actual play of the disc, it can still make an important positive or negative impression. The Aria III's front panel was subdued, yet at the same time a bit busy. If you lose the remote, however, you can still access most of its features, unlike the remote-dependent Sony and Philips.

I did have two problems with the Aria Mk.III. One evening before a listening session, I discovered that one channel had failed and was putting out in excess of 7V DC! It seems that a couple of parts had gone out, including an output-stage IC. We had had a power failure a couple of weeks before and the Aria had been on—as had the rest of the equipment in the room. It had not been used in the interim. Had the power loss and subsequent possible turn-on surge caused the failure? We'll never know, of course, but nothing else in the listening room sustained any damage. A quick return to CAL for servicing brought the player back into operation. The second problem was unrelated—although it was only noticed after the above servicing. On two discs played (out of several dozen), the Aria failed to "read" the table of contents subcode properly and would not play all of the bands on the discs. Attempting to eject the "malfunctioning" disc would then result in its continuing to spin as the drawer opened, until the friction of the drawer slowed it down (which took about a second). These discs caused no problems on the other players.

The Mod Squad Prism II: $1895

Like its Prism I predecessor, the Prism II is based on a Philips player: the same 16-bit, 4x-oversampling converter, the same general control layout. But The Mod Squad does their own extensive remanufacture, both on the internal circuitry and on the cosmetics—the latter involving a handsomely sculptured case and metal front trim-panel surrounding Philips's command center. Despite its front trim-panel and upgraded case, the Mod Squad Prism II has all of the ergonomic strengths and weaknesses of a relatively modestly priced Philips machine. The front controls were neat and reasonably solid—though more "plastic" in feel than the other comparably priced players on test. The drawer mechanism itself seemed more substantial than I would have expected from my experiences with previous designs based on Philips players, although the front cover of the drawer, with its integral "open" button, felt a bit flimsy. Despite this, the physical appearance and feel of the Prism II is decidedly improved over that of the Prism I.

The Prism II retains the Philips transport, the latter's power-supply transformer, the Philips D/A conversion and digital filter chips, and some of the original digital circuitry. But Mod Squad has incorporated digital changes and enhancements from their own research, including an added transformer to power the regulator ladder circuitry in the D/A, separate regulation for the digital stages, and a high-speed CMOS buffer between the filter and converter. The Prism II's digital output, also nonstandard, is claimed to offer improved performance.

The analog stages, entirely Mod Squad's own design, are powered from the same added transformer used for the digital ladder circuitry, but with an otherwise separate analog supply using three regulators. Both discrete circuitry and op-amps are used, the latter for both current summing and the output DC servos, the former (a FET/bipolar hybrid) in a high-current output buffer stage. All components have been carefully selected, including the circuit board. Cardas and Wonder Wire are used in critical locations, and Wonder Solder is used in all of the new circuitry. The digital and analog circuits are grounded at a common point (although some of the digital circuitry itself retains the dis-
tributed grounding scheme of the Philips original). The variable outputs are buffered and may be used simultaneously with the fixed output without, it is said, audibly affecting the latter. The Prism II had the highest output of all of the players from its fixed output jacks—approximately 5dB higher in level than the Esoteric P-2/D-2 used as a reference.

**NAD 5000: $499**

The NAD looks nothing like most inexpensive CD players. Its plastic trim doesn’t look cheap. It doesn’t look expensive either, but it certainly won’t be embarrassed to show its face in polite company. The front panel is neatly arranged and easy to interpret and use. It’s the smallest and lightest of the present company of players—the only obvious physical reflections of its low-budget heritage. Inside, however, NAD has done a lot to put your money where it counts.

The 5000’s power supply uses a single transformer driving eight individual supplies. Among these are separately regulated supplies for the D/A converter and analog circuits. Star grounding is used.

As one of the new generation of "1-bit" players, the 5000 utilizes Matsushita’s MASH (Multistage Noise Shaping) chip set. 32x-oversampling is used with third-order noise shaping. Separate D/A converters for each channel are contained within the single MASH chip.

The analog stages use Signetics NE5532 dual op-amp chips. The digital filter capacitors are polypropylene-film; the single capacitor in the main signal path (fixed output) is an electrolytic with a film-capacitor bypass. All signal-path resistors are 1% metal-film.

The NAD has the usual CD-player operating features, none of them news with any CD player: repeat play, A-B repeat, programming, scanning, remote control, fixed and variable outputs (the latter controllable from the remote, though with no fixed indication of volume position), 4 headphone output fed from the variable output, and a digital output which appears to have been carefully designed—a buffered, RF-filtered, transformer-coupled, 75 ohm output digital feed. It also has one unique feature (though not unique in NAD products)—a so-called CDR compressor. This circuit, selectable when desired, is useful for low-level listening or in making tapes for automotive use—especially of classical music whose full dynamic range is useless in such an environment. The CDR compresses the dynamic range in the digital domain by means of a Yamaha DSP compressor chip operating before the MASH filter and DAC.

The NAD did give me some intermittent tracking difficulties—nearly always at the beginning of a disc. This occurred primarily in the pre-critical listening phase of my getting to know the NAD, so I failed to note (to my chagrin) the specific discs which mistracked. But I did note that occasionally a disc would begin rotating within the player with more mechanical noise than usual; on one of these occasions it duplicated the skipping problem. Reseating the disc in the tray and starting over cured the problem. This disc, incidentally, had one of the small, white, centering rings used with the old Mod Squad disc damper. That may have caused the problem, but I could not confirm this. Many of my discs have this ring in place.

**Philips LHH500: $2000**

Philips showed their first Bitstream D/A converter in late 1988; the LHH500 is now their top-of-the-line one-piece CD player incorporating that technology. Bitstream utilizes Pulse Density Modulation with 256x-oversampling and a second-order noise shaper. In the LHH500, Philips uses two pairs of SAA-7231 PDM D/A dual DACs, one pair per channel operating in a differential mode. The data stream feeding one of the two SAA-7231s is each chan-

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4 Though it reverts to ~20dB at turn-on.
nel is inverted via a bank of 74HC164 chips. Combination of the two DAC pairs is said to result in a 4dB increase in dynamic range. The analog stages of the LHH500 consist of 5534 op-amps. Both unbalanced and balanced (XLR) outputs (fixed level) are provided, the latter transformer-coupled. Coaxial and optical digital outputs are also present.

None of the LHH500’s other features is surprising. Philips’s Favorite Track Selection (FTS) is included. If you have, somehow, never heard of it before, it allows you to program selected tracks of up to 226 CDs for later replay at any given time; the programming is stored in non-volatile memory. Philips’s A-B Repeat is unique in that it allows you to select a particular passage of music to be omitted from playback, in addition to its normal operation. Random/Shuffle Play is also available.

The LHH500 was right up there with the Sony in the “fit, finish, and feel” sweepstakes. Its brushed gold cabinet, heavy metal endcaps, and understated control panel were first-rate in both functionality and appearance. It uses the best-quality Philips drawer mechanism—not as quiet as the Sony, but well ahead of those found in Philips’s cheaper players.

Sony CDP-X77ES: $1700

With Sony’s latest flagship single-box player we find yet another variant on 1-bit D/A technology—High Density Linear Converter, or HDLC. At the heart of this Pulse Length Modulation5 D/A technique is Sony’s CXD-2552 Pulse D/A converter (two per channel in complementary mode in the CDP-X77ES). This complex LSI chip incorporates a third-order noise shaper, the PLM converter, and a digital sync circuit receiving its input from the system clock. Preceding the Pulse D/A converter is an additional CXD-1244 noise-shaping digital filter which performs the initial oversampling; combined with the filtration within the Pulse D/A itself, the total oversampling rate is 64x. A third-order, high-pass analog filter at the output converts the PLM pulse train into an analog signal. In addition to exceptional linearity, Sony claims that this converter achieves a dynamic range of 124dB. Impressive, but perhaps a moot point; the dynamic range of the signal coming off of a CD is limited to 96-100dB by the basic limitations of the CD system itself (16 bits times just over 6dB per bit). Most of the features of the CDP-X77ES are controlled from the supplied remote. Sony has its own variation on FTS, dubbed Custom File, and their own Shuffle Play. With Custom Edit you can determine the best way to fit selections onto a cassette when dubbing your CDs. A digital fade feature is also available—it fades the current selection to silence and puts the player in pause. Unbalanced fixed and variable outputs are provided (the latter not controllable from the remote, but via a front-panel potentiometer—which also controls the headphone output), as are balanced outputs. Coaxial and optical digital outputs are also found on the rear panel.

The CDP-X77ES has a solid, substantial feel and look which seem more than skin deep. Everything about its physical appearance and feel says “expensive” in no uncertain terms, from its gloriously smooth and quiet drawer action to the feel of its controls. (The only tacky touch was the artificial wood-grain over particle-board endcaps—though the grain and finish were first-rate.) It did, however, develop a glitch after a few weeks of operation. The drawer began making a “chirp” just before it opened.

5 Sony’s name for Pulse Width Modulation.
with no disc inside (it was silent when opened with a disc). It sounded rather like a brief scrape of plastic parts. Other than that, the action remained smooth and silent.

The Inside Story
The external visible quality of the Sony continues with its internal appearance. The case is jammed full of multi-layered, multi-sided boards with good-quality parts visible throughout. The two large (large in the context of preamps and CD players, not power amplifiers) transformers are located well away from the rest of the circuitry. Two other small transformers near the balanced outputs clearly are used to drive the latter. The weight of the X77 is reflected in what’s inside. The slight noise heard just before the drawer opens appeared to be caused, not by plastic parts, but by the bottoming of the CD center support (the mechanism which actually rotates the CD) as it drops slightly on release from the upper clamp prior to the drawer opening. It appears to be the sort of problem a warrantee service facility (not specifically Sony’s, but almost anyone’s) would balk at fixing—like trying to get a squeak fixed in a new car.

The Philips was, not surprisingly, manufactured in Japan, not in Europe as you might expect from the brand name. It is very likely built in the same facility which produces Marantz products. Though less jammed full of parts than the Sony, its internal construction was no disappointment, either, including the rugged, heavy-duty Philips transport. A single large transformer was the only one visible, except for two smaller “cans” which, judging from their location, appeared to be driving the balanced outputs. Although the overall weight of the Philips is about the same as that of the Sony, several pounds of it are due to the heavy, cast-metal, decorative endcaps which appear on the sides of the unit. The (apparent) copper chassis of the LH500 was impressive, however.

The NAD’s fairly lightweight metal chassis encloses a transport typical of modestly priced CD players, and one large circuit board, which takes up about half the internal space. What appears to be the digital section of this board includes a single, large NEC chip and other chips from Sony and Toshiba. The analog section makes use of both ICs and discrete components. Although recognizing circuit-board “grades” is not my forte, this board appeared to have been made from a more “standard-grade” material than that in the other, more expensive players here (except for the digital board in the Prism II). The large number of miniature electrolytics on the board and very open chassis layout suggest that legions of potential modifiers may be warming up their soldering irons and stocking up on bypass caps and Wonder solder—ready to void their warranties in pursuit of that last iota of performance. But recall that only one of these caps is said to be in the signal path, and that one is already bypassed.

The Prism II’s cast-plastic chassis and modest transport clearly stem from its mid-line Philips player origins—although the former is slightly reinforced by MDF endcaps. The original Philips digital board is supplemented by a circuit board (and additional transformer) from The Mod Squad—incorporating superior workmanship and what appear to be good parts—which occupies about one-quarter of the unit’s internal space.

Looking through the top ventilation grid of the Aria III reveals a number of green lights inside the unit. These turn out to be LEDs used
as voltage references. The first thing which strikes you as you remove the cover is, of course, the two tubes, each surrounded by damping rings. The single, large board within the player is extremely well made and takes up a good two-thirds of the internal space. There also appears to be another board beneath it, barely visible from the top. Two large and one smaller transformers are also visible, as are the two Burr-Brown D/A converter chips. The high parts quality on the main board is obvious—as is the relative lack of miniature electrolytic capacitors.

So that's bow I had come to this. Surrounded by scowling, predatory CD players. There was no hope. There was no way out. There was nothing left to do. I'd have to listen to them. World, you're on your own.

Sound
All of the players were auditioned in a system which consisted of the Rowland Consonance preamp, Threshold SA/12e monoblock power amplifiers, and Apogee Stage loudspeakers (on their optional stands). The connection from preamp to all players was via 1.5m lengths of AudioQuest Lapis. (Although two of the players offered balanced outputs, unbalanced connections were used for all of the listening tests since the Rowland (and most other preamps) only offers that form of input.) The fixed-level outputs were used for all players. Balanced Cardas Hexlink cable, however, was used from preamp to amplifiers. The Stages were bi-wired with Symo cable. Playback levels were adjusted to compensate for the different outputs of the various players when comparison listening was done—a particularly easy (and easily repeatable) procedure with the Rowland preamp. In addition to solo listening, all players were compared with the Esoteric P-2/D-2 transport/processor combination—the latter connected via a non-exotic but characteristically correct (75 ohm) video cable. No CD "tweaks" of any sort were used in the test.

CAL Aria Mk.III: "It's music." That, in any event, is what I wrote shortly after beginning my audition of the Aria Mk.III. I was captivated by its performance. It was not without fault, to be sure, but it was one of two players in the group which caused listening sessions to extend longer than intended. And it was one of two players that seriously challenged the reference Esoteric P-2/D-2 combination. For this listener, the Aria Mk.III was a standout. It combined a striking three-dimensionality with a sense of tactile presence that brought good CDs alive in a way the other players here could not quite manage.

You want depth? The Mk.III will give you depth—at least on those CDs which provide it. Herbie Mann's recent Chesky release, Caminho de Casa (Chesky JD40), displayed a superb sense of layering through the Aria. Individual details on Paul Simon's latest album The Rhythm of the Saints (Warner Bros. 26098-2) were solidly placed, front to back in the soundstage. But depth is, in my judgment, merely a subset of a more important characteristic—three-dimensionality; the sensation that voices and instruments are fully formed, fully rounded. Call it "bloom." Call it clarity. Whatever you choose to call it, it creates a feeling of involvement, of real musicians performing. Instrumental timbres are rich and natural. Ambience is warm and glowing. Armada (Virgin Classics VC 90722-2, reviewed in Vol.12 No.9), a superb collection of small-scale vocal and instrumental pieces from—as you might infer from the title—the time of the Spanish Armada, came very near to making my "top five" recordings in this issue. Through the Aria, it displayed all of the above characteristics, combined with a sensation of hearing the full resonance of the strings and their harmonic interplay in a way I did not experience with the other machines. Textures were grainless, with no hint of etching or artificiality. Yet there was all of the detail I could have desired.

And voices! I make no secret of the fact that I consider vocal reproduction of paramount importance. A heavy percentage of my listening is done to vocal music of one sort or another. And while the Aria Mk.III was not the only player in this group to present the human voice in a convincing fashion, it managed, somehow, to reproduce it with a combination of natural warmth and tactile presence which wasn’t quite matched by the others. Eileen Farrell Sings Harold Arlen (Reference Recordings RR-30CD) is not, in many ways, my favorite vocal recording. But over the Aria Mk.III it certainly sounded real—flesh and blood, not "reproduced." No "film at 11" here; you're on the scene. The long muted-trumpet introduc-

6 And the Apogee Stages are, in my opinion, absolute knockouts at properly rendering the human voice.
tion to band 7 of this disc, "Happiness is a Thing Called Joe," was reproduced with the same sense of visceral reality.

But while the CAL is glorious through the midband, it does have limitations at both ends of the audible range. Some of you will simply not like its bass. I wasn't particularly taken by it, but I can tolerate the lack of hair-trigger low-end response if given sufficient midrange magic in compensation to grab and hold my attention. The bottom two or three octaves in the Aria Mk.III's response are strong and deep, but noticeably soft. That characteristic bloom of the midrange continues on down into the bass, where it's a mixed blessing. Within the limitations of the Stages—limitations which must be taken into account (the Stages have a powerful, sometimes striking low end, but do not extend into subwoofer territory and have a definite, high-Q (sharp) peak around 40–50Hz)—the Aria Mk.III was outpointed by all of the other players on test here in LF tightness, balance, and detail. I emphasize that, for me, this did not detract from the CAL's strengths to a major degree. But I seldom listen to music having a continuous, strong bass-line, and the occasional overripe bass "whomp" does not greatly bother me—if balanced out by major strengths elsewhere. The low-end "expansiveness" of the Mk.III only occasionally intruded into the lower end of guitar and male voice—two "instruments" that are important to me—to lend a bit too much warmth and fullness. I dwell on the low end of the Aria not because I was particularly put off by it, but because I suspect some readers will be.

In the top octaves, the CAL displayed no lack of detail and "quickness," but it was just slightly softened at the very top, and shaded toward brightness in the lower treble—not at all unlike the character of much other equipment incorporating tubes. And though I sensed a very slight loss of air and delicacy at the top, the lack of grain and lively, open quality of the Mk.III's upper end more than compensated.

I've already mentioned that the Aria provided fierce competition for the reference Esoteric P-2/D-2 transport/processor combination—at least a third the price. In no way could the Aria compete in apparent build quality and finish, of course, but our concern here is with the sonic comparison. On Armada, reproduction from the Aria was richer, sweeter, slightly more "present." The Esoteric combination (which hereafter will be referred to simply as the Esoteric) was a bit thinner, with individual instruments and voices appearing to be somewhat more two-dimensional. But the Esoteric did have an airier and more delicately rendered extreme top end. The CAL had the more moving presentation, primarily because of its lively and more fluid, liquid sound. Both players reproduced equally convincing soundstages.

On a number of vocal recordings the Esoteric actually bettered the CAL. Not because it was more alive or real-sounding, but because it was better able to handle high-level peaks without glare or edge. On both the Eileen Farrell recording and on Tuck and Patti's Tears of Joy (Windham Hill Jazz WD-011), the Esoteric displayed an ease at high levels which the Aria III could not quite match.

On The Rhythm of the Saints the Esoteric demonstrated a firm grip on the low end and fine, precise detailing through the mids and highs. While the Esoteric was marginally better at reproducing the overall soundstage here, individual details through the Aria were better separated in space, less homogenized into the overall sonic fabric. I was impressed by the Esoteric's precision and ease, but captivated by the Aria's ability to draw the listener in—at least this one.

Willow (Virgin 7 90939-2) is not exactly James Horner's most hummable soundtrack, and while it is no Rite of Spring, it shares the latter's barbaric intensity and adds its own cinematic twist. Over the Aria Mk.III it was stunning. Only in the low end was it clearly bettered by the Esoteric—the CAL tending toward the overripe on the bass percussive dynamics that heavily punctuate this work. To a lesser degree, the lower treble could also occasionally come on a bit too strongly with the CAL. But the latter had the better overall dynamics, conveying a sense of excitement and immediacy which the more laid-back Esoteric could not match. In depth reproduction, the CAL had the upper hand—though that was not consistently the case on all recordings. The Aria, while somehow less refined, overall, than the Esoteric (most especially at the frequency extremes), simply made this work more involving in a way that the more expensive player did not.

I admit that I vacillated between preferring

7 More two-dimensional is not the same thing as two-dimensional—which the Esoteric certainly is not.
the Esoteric or the Aria Mk.III on various recordings more than I did on any player here save, perhaps, the Sony. In the end, I had to admit that the Esoteric was smoother, more refined, and overall the more accurate player. But I found the CAL to be a powerful draw. If it had a slightly tauter low end and a shade more top-octave "air" it would clearly, in my judgment, embarrass most high-ticket processors and transports. And while its low-end character may turn off some listeners, for me the Aria Mk.III provides more of those things I like in analog, and less of those things I dislike in digital, than any of the other players in the present survey.

The Mod Squad Prism II: My first impression of the Prism II was extremely positive. On *Armadada*, I noted a convincing sense of ambience, believable front-to-back depth, and a just slightly laid-back perspective. Subtle details of the string playing became evident which I had not noted before. The sound was light and open, not in any way "euphonic" or closed-in. No grain or edge was evident, but there was no tradeoff sacrificing high-frequency definition. Nor, on this recording at least, did sweetness seem to be sacrificed for clarity. An impressive start.

By and large, the impressions held up. In rendition of fine detail, tautness and definition of bass, and soundstage specificity in both width and depth, none of the other players on test quite equaled it. On John Pizzarelli’s *My Blue Heaven* (Chesky JD38), the sound of the hi-hat was right-on, neither zingy nor softened. The acoustic slap bass had hair-raising upper harmonic transients and a taut low end. On *Eileen Farrell Sings Harold Arlen* individual instruments were firmly anchored, yet separated in three-dimensional space. A fully developed sense of air, missing from most of the other players to a greater or lesser degree, was conveyed by the Prism II. There was little grain and no sign of the dreaded "wedge of sound" characteristic of mediocre digital reproduction (though, to be fair, all of the players did quite well in the latter respect). Piano had the proper percussive impact yet was not "clangy."

One of my favorite pop vocal references has long been Gordon Lightfoot’s *If You Could Read My Mind*, which has been superbly transferred to CD (Reprise 6392-2). The cuts are sonically variable, but the best of them—"Me and Bobby McGee," "Sit Down Young Stranger," and "The Pony Man"—are outstanding. The Mod Squad rendered these with a good blend of vocal warmth and detail. On "The Pony Man" there are two spots where there are microphone pops where Lightfoot pronounces the "P" of Pony Man. The Prism II got this sound precisely—the other players tended to soften or blur it. While it might be argued that this is hardly a musical sound, you can also argue that the messenger should relay the message as it is, not as it should be.

But while the Mod Squad was certainly an impressive performer in those areas I’ve mentioned, over the course of time it began to seem a little relentless in its coolness, clarity, and detailing. While only rarely did I notice any actual glare (the vocal peaks on the Eileen Farrell recording gave it perhaps the most trouble in this respect), I soon noted a certain lack of musical warmth that more than occasionally kept the proceedings at arm’s length. This was often noted on voice—though certainly not on all recordings (note the Lightfoot, above). But I frequently missed the sense of a fully three-dimensional and balanced vocal sound with a real singer attached to it. Compared with the reproduction of the Esoteric, the Mod Squad was a bit lean and bright. This was also evident on symphonic works, where the Prism II tended to the analytic at some sacrifice to the weight and "hum" of the orchestra. The sweetness I noted in its reproduction of *Armadada* was still there, but seemed more evident on recordings which already had this characteristic to spare. The Mod Squad was more "impressively" detailed than the reference Esoteric, but the latter actually had as much detail—it was simply more subtle and delicately shaded.

Shortly before my evaluations of the Prism II ended, Steve McCormack, Mod Squad’s head designer, recommended that I try the player with Tiptoes and Soft Shoes (two of Mod Squad’s products) in combination—using two short Tiptoes in back and one longer one in front. An upgraded power-line from Music and Sound was also recommended (the Prism II’s is detachable). Since all of the required parts were on hand, I gave them a try. Well, the Prism did seem to improve slightly. This time I com-

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8 Lightfoot’s later Reprise albums were far poorer, in my opinion, at least sonically: over-arranged, over-dubbed, over-engineered, and over-reverbed. Musically they gradually lost the folk flavor of this early folk-pop work.
pared it to the Sony CDP-X77ES. As in my earlier listening sessions, the Mod Squad player made a strongly positive first impression. But musical timbres were ultimately more fleshed-out, more musically real with the Sony. And I also have reservations about how the Prism II might work in a brighter system; the Rowland preamp, Threshold amplifier, and Apogee Stage combination, in my listening room, has an abundance of detail, but is most certainly not tipped-up or top-heavy.

The Prism II is not, as I have said, without its genuine positive aspects. It does excel in openness, clarity, and transparency. For that, some of you will love it. I respected it for what it does well, but ultimately didn't warm up to it as fully as I did to some of the other players in this report.

**NAD 5000:** "What's a nice little player like you doing in a place like this?" That's what I thought as I began auditioning the NAD. Could a modestly priced CD player hope to compete in this class? Was I being unfair to the NAD to even force it to try?

The NAD was not outclassed. No, I'm not about to tell you that I found a budget player which bettered the best of the higher-ticket machines, that knocked them off the shelf and removed their justification for existence, save that they have more sex-appeal. But the 5000's performance did not betray its price; it was perfectly comfortable fronting a system far more expensive than those in which it's likely to be found. If you're still awaiting the full evolution of digital, and believe that spending big bucks at present on an up-market player is money down the drain,9 the NAD might just keep you happy halfway to the next millennium.

If the NAD made a single overriding impression, it was that of overall listenability. It had no major points of superiority in the company of high-ticket players, but neither was it seriously outclassed in any area. It had neither the most open, detailed, or delicate highs, nor the tautest, most subterranean lows. But its bottom end was extended, deep, and respectably well-defined. And its top end, while it had a trace of crispness and was just slightly etched next to that of the best of the more expensive contenders, was clean, open, and lacking in obvious grain. On Leo Kottke's outstanding *A Bout Toward Noon* (Private Music 2007-2-P), fine fingering details were fully developed, with no transient smear or grain. I did note just a trace of spurious edge or etching to the highs, but it was less than a minor distraction. Perspectives were right on—neither forward and pushy nor laid-back. Instrumental timbres were believable, the soundstage well-defined. *My Blue Heaven* was open and spacious, with good detailing; hi-hat sparkled, without splash or ringiness. Again, I caught a bit of mid-treble emphasis, but again, it caused me about a half-second's concern.

The NAD 5000 gave up a trace of that ever-popular "palpable presence" to the Esoteric, Aria Mk.III, and the Sony, but, auditioned on its own, I never felt deprived. It made me want to continue to listen to particularly good CDs longer than I had intended—a characteristic it shared with the same three players. And it never left me itching to find out how it compared with them.

Ultimately, of course, I did make just such a comparison, specifically with the Esoteric. At 16 times the price, the latter bettered the NAD, but left it not even close to battered. The Esoteric's primary advantage over the NAD was an overall sense of refinement: It was sweeter and more natural at the top, with a more delicate rendition of fine details, including ambience. Voice could tend a bit to edginess with the NAD, but this was not a common factor across a wide range of recordings. Voice, in fact, was sometimes a trace livelier on the NAD, though less liquid and smooth. On full-scale orchestral material the Esoteric came across as the more three-dimensional. It also had the more solid low end, though the difference here over the reference system was not dramatic.

After I finished with the primary listening evaluations, I made a brief check of the NAD's compression feature (CDR). For this, I listened over headphones driven from the headphone jack on the NAD itself. On the CDs I sampled, the level reduction of loud passages was not noticeable, but the level increase of soft passages was clearly audible. Music with a wide dynamic range sounded louder overall, which is just what should happen, when you think about it (musical pianissimos are generally more common than crescendos on such material). Unfortunately, background noise in the CD was also increased in level, noted not only on analog-based CDs, but on an all-digital

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9 Didn't everyone have a relative like that when color TV was introduced? "I'll wait till it's perfected."
Telarc as well. But since the point of CDR is to allow you to listen at a lower level or make tapes for use in a noisy environment, this should not be a problem. In fact, the gain in S/N available with the typical cassette deck (from being able to record the now more limited dynamic range material at an overall higher level) should more than make up for the increase in audible program noise caused by the compression.

There are better CD players in this survey than the NAD, but none is dramatically better in all areas. Better in ways that are significant to this reviewer? Certainly. Better in ways that may be significant to you? Perhaps. But improvements gained at substantial increase in cost? Definitely. As I reflect, at the end of this survey, on my experiences with all of these players without reference to my copious notes, the strengths and weaknesses of each, as I heard them over the reference system, stand out in my mind. Except for the NAD. Except for the fact that it was slightly crisper and less subtle in its high-frequency reproduction, no particular positives or negatives instantly rush to mind. I consider that a very positive observation. The 5000 is a good-sounding player that stayed out of its own way and, more important, out of the way of the music. A solid performer that didn't better the best of the more expensive players here but was not humbled, either.

If your pocketbook, or even just your ears, tell you that you'll be happy with the NAD until the next big breakthrough, I won't drop by to argue the point.

Philips LHH500: Although covered here near the end because of the alphabetical listing, the Philips was actually the first of these players to be auditioned. My initial impressions were lukewarm. It was neither clinical nor overly analytical—not hard, harsh, or edgy in any way. But it also seemed to be less dynamic than the other players. Low-frequency reproduction was respectable—full and extended—though a bit soft and lacking in punch and drive. But of most concern to me was a definite dryness; a fine grain, if you will, which affected the upper octaves. Sibilants were overly breathy. “Inter transient silence” was reduced.

I also judged the soundstage presentation to be forward and more two-dimensional than the other players. Vocal body was well presented—the Philips was not lean or lacking in warmth—but the upper-end dryness and lack of liquidity worked against listener involvement.

Thinking that perhaps something else in the test setup had gone awry, I proceeded to compare the Philips with the Esoteric fairly early in the auditioning process. Because the Philips was auditioned first, I did not yet have access to the Esoteric P-2 transport to use for reference. But the Esoteric D-2 processor was available. I chose the Sony CDP-X77ES to use as the drive transport for comparing the D-2 with the Philips—the Sony feeding the D-2 from its coaxial digital outputs.

The Sony/Esoteric combination had none of the dryness and HF grain of the Philips. Bass was tighter, transients regained their delicacy. The soundstage became deeper, the overall presentation captivating. With the superb South American group Uakti's album Uakti (Verve 831 705-2) the Philips wasn't able to separate HF details nearly as well as the reference, and the presentation lacked the pristine three-dimensionality of the Sony/Esoteric. The LHH500 was simply too up-front.

The Philips was a definite disappointment to me. It has the look. It shares a Rock-of-Gibraltar solidity with the Sony—fully competitive with that of the very pricey Esoteric. It isn't a bad-sounding player, but it is bettered sonically, in my opinion, by every other player here, including the modestly priced (and far less battleship-like) NAD. Not good. The basic structure and build quality are there in spades. Certainly Philips has the technical resources to spare, and some of their less expensive machines, though not recently reviewed here, have earned very good reputations. I really looked forward to reviewing this latest example of their Bitstream technology, and wish I could be more upbeat about their single-box flagship. But I cannot.

One of the pitfalls of audio criticism is that observations can sometimes get overstated. All of the above may well make it appear that the LHH500 was difficult to listen to. That was not the case. As I said at the start, it was largely free of hardness, glare, or edginess, and sounded clean and smooth on program material which lacked strong HF content. But in the end I found myself exceedingly anxious to move on to the next player. At the end of the overall evaluation process I returned to the Philips for another listen, and found my impressions unchanged.
A machine physically similar to the LHH500 is sold overseas as the Marantz CD11. Philips has owned the Marantz brandname everywhere else in the world besides the US until recently, when they acquired the rights to that name here also. It's definitely possible that the CD11 will appear here as a Marantz product, either in place of or in addition to the LHH500. Both players share features and physical appearance, but I have no way of knowing at present if they are internally identical.

**Sony CDP-X77ES**: The first CD player I owned was Sony's original CDP-101. That machine took a lot of heat in audiophile circles for its sound quality—much of it justified, if my experience was at all typical. But there were a lot of things that player manufacturers still had to learn in 1983. They haven't been standing still, least of all Sony. Their latest single-box flagship—the CDP-X77ES—is a convincing demonstration of their progress.

The X77 was the most vibrant, luscious-sounding player in the survey. Vocal and instrumental timbres were rich, full, and fluid. Perspectives were just a bit on the forward side, enough to give the sound an appealing "thereeness" without jumping into your lap. Textures were smooth and grainless. Detail was there in abundance, yet never jumped out and demanded that the listener pay attention. Bass was full and deep, shading toward softness rather than driving tautness—just about in the middle ranks of the present group as regards definition and detail, but at the top in extension and solidity.

There were, however, a few more twists and turns in my route to full appreciation of the Sony's virtues than had been the case with, especially, the CAL Aria Mk.III. With the Sony, I was immediately impressed by its smooth, relaxed detail and complete absence of the usual (and thankfully becoming less usual) digital artifacts. String detail on guitar was fully formed yet did not dominate the body sound of the instrument. Small groups of naturally miked acoustical instruments were sweet and open-sounding—without flatness or unnatural warmth. Soundstaging was consistently good (given its presence on the recording, of course), though never really striking. Vocal reproduction was consistently in the top rank. And digital glare was minimal.

But I was troubled a bit by the X77's tendency to soften transient leading edges. The "jump factor" that gives much music its excitement and drive was subdued. In view of digital's tendency to become excessively analytic and cool, I have to say that I found this omission to be inoffensive. But I did miss some of the drive in the instrumental backing to "Bird on a Wire" (*Famous Blue Raincoat*, A&M YD 0100/DX 3182), though Jennifer Warnes's voice was arresting reproduced. I would have preferred a bit more air and transparency in the audience sing-along on "Waltzing Matilda" from *Two Gentlemen Folk* (Telarc CD-84401), and longed for more fire, snap, and inner detailing in Willow's complex, visceral orchestration.

It was when I got down to serious comparison with the Esoteric transport/processor, however, that the Sony's overall competence finally won me over. On *A Shout Toward Noon*, the Sony was decidedly sweeter and warmer in sound—actually making the Esoteric appear a bit cool and dry in comparison. Though the Esoteric seemed to grab more detailing from the disc (without going to excess), the Sony was definitely the more musically engaging. With *My Blue Heaven* the reduction in transient impact from the Sony seemed less significant than it had when listening to the X77 in isolation, though the Esoteric remained the more appealingly incisive and transparent. But the Sony's way with vocal reproduction more than made up for its marginally softer overall sound.

Still, that slight loss of transient impact was a limitation. At the start of "Joan Of Arc" from *Famous Blue Raincoat*, bells are heard at a very low level. On the X77, their leading-edge sounds practically disappeared. With the Esoteric, they were clearly defined, though still appropriately subtle. On the soundtrack from *Aliens* (Varese Sarabande VCD47263), the transient impact and enhanced three-dimensionality of the Esoteric made the music "work" in a way that the Sony could not. But the sound of the Sony was still entrancing, its vocal reproduction, in particular, luscious and lucidly sweet. And despite its slight tendency to softness, it was never obviously lacking in detail.

And so it went. It was clear to me the ways in which the Sony fell short of the performance of the reference. It was equally clear that I sometimes found myself actually enjoying the Sony more. While I ultimately preferred the Esoteric overall, that preference was not clear-cut across the board. Considering the differ-

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ence in price, that’s saying quite a lot.

The sign of a topnotch component, for a reviewer, is the difficulty of tearing yourself away from it when it’s time to go on to the next evaluation. The Sony continually begged to be listened to just a little longer—a siren song hard to resist.

**Measurements & General comments**

Although I did all of my listening evaluations up to this point using the fixed-level, unbalanced outputs (to minimize the variables involved since all of the players had, at minimum, this form of output), I originally intended to do a later check of the variable outputs on those three players which have them. I ultimately did not listen to the variable outputs, the reasons for which will be made clear shortly. The same applies to the balanced outputs. The players with balanced outputs (the Sony and the Philips) simply had a more linear response through their unbalanced connections. Most of the measurements, except as noted, were made through the fixed-level, unbalanced outputs for the same reasons.

I also checked the AC voltage from chassis ground to main (house) ground on all of the players to determine the correct line-cord orientation. The Aria III, with its three-prong connector, measured about 12V, the Prism II 11.5V with the correct orientation (12.5V the other way—an insignificant difference), the NAD just over 10V (us just under 19V the “wrong” way—and the plug is not “keyed”10), the Philips 52.5V with the factory orientation and 38.6V reversing the plug with a cheater, and the Sony around 53V with an inconsequential difference in the reverse plug orientation. Both of the latter results are higher than desirable, though these voltages will be shunted to ground when the players are connected to a properly grounded preamplifier.

In order to determine the cause of the slight tracking problems encountered with two of the players, I checked all of them with the dropout tests on the Pierre Verany Digital Test CD. The results were perhaps indicative of the problem but not necessarily conclusive: the NAD mistracked first (on the 0.75mm gap), followed by the Sony (1.25mm), the Aria III (2mm), the Philips (2.5mm), and the Prism II (3.0mm, though with a slight glitch at 2.5mm).

The CD standard only requires tracking of a 0.2mm gap, although theoretically the error-correction codes make regeneration of gaps of up to 2.47mm possible. Only the Philips and the Prism II approached or met this theoretical potential.

All of the players here were non-inverting from all of their outputs.

**CAL Aria III:** The measured frequency response of the Aria III (fig.1) shows a noticeable droop at the extreme high end. While ~2dB at 20kHz would be a trivial deviation in a phono cartridge, it is atypical of a CD player and may be responsible for the very slight loss of top-end “air” noted in the auditioning. The de-emphasis error (fig.2) has an abrupt peak at 10kHz (though not a large one—note the scale) which will slightly brighten pre-emphasized discs. The channel separation, shown in fig.3, was greater than 85dB at 200Hz, decreasing to 75dB at 1kHz and 55dB at 10kHz, indicating possible capacitive coupling between the channels, perhaps due to adjacent pcb tracks.

The spectral analysis of a −90.3dB dithered 1kHz sinewave (fig.4) shows a considerable amount of power-supply–related noise (of several harmonics), though all of it below −90dB—and none of it audible during any of the auditioning. (While several of the harmonics are nearly as high in level as the −90dB test signal, they will be much less audible because of the ear’s decreased sensitivity at low frequencies.) Note the relative absence of signal harmonics, indicating relatively good DAC alignment. The Aria III’s linearity at low levels is shown in fig.5 (only the right channel is shown—the left channel was just marginally better). While this is a good result, it is not up to the very best available from today’s technology. But the CAL’s IM distortion measurement (fig.6) is outstanding. The two test signals at 19 and 20kHz are clearly visible, with very little else to comment on, apart from the very slight intermodulation spur at 18 and 21kHz. The squarewave result (fig.7) shows a slight rounding of the leading edge (from the HF rolloff) with the clipped Gibb’s phenomenon ringing typical of the dig-

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10 That is, both prongs are the same width, enabling it to be plugged into an outlet in any direction. Some audiophiles hold that equipment should be plugged in with an orientation which provides the least voltage on the chassis (before hook up to other equipment) for the best sound. I try to hook up my equipment this way—it costs nothing except investment in a decent voltmeter. Even “keyed” two-prong plugs, incidentally, are not always correctly wired at the factory for the correct orientation (minimum chassis voltage), requiring the use of a cheater plug.
ital filter used. And though the -90dB undithered tone has a good waveform (fig.8), it shows a slight downward slope from left to right indicative of the already-noted power-supply hum.

The Aria III's output impedance measured 52.8 ohms. Overall, its measured performance was respectable, though still in the mid-rank, objectively speaking, of the present players.

**The Mod Squad Prism II:** The frequency response of the Prism II (fig.9) was virtually flat, with a few high-frequency ripples characteristic of Philips-based machines. However, its de-emphasis error shows a slight deviation (fig.10) — not serious in itself but affecting a broad band of the lower treble. This should be mildly audible on pre-emphasized discs. Its crosstalk
(fig.11) was excellent up to 1kHz, deteriorating slightly at higher frequencies. Crosstalk remained greater than 100dB up to 1kHz, dropping somewhat at higher frequencies but remaining greater than 80dB up to 16kHz (the limit of our tests).

The spectral analysis of a -90.31dB dithered 1kHz sinewave (fig.12) indicates some noise in the bass and lower midrange, but all of it below -100dB. As with the CAL player, signal-related harmonics are very low in level, implying good linearity. The Prism II's departure from a truly linear behavior at low levels is shown in fig.13 (only the left channel is shown—the right channel was very slightly superior), and indicates a somewhat better performance than the Aria III, although its deviation is in the opposite direction.

However, the Prism offered relatively high levels of intermodulation distortion measurement at high recorded levels, which might tie in with my feelings concerning its sound. The cursor position in fig.14 shows the IM difference product at 1kHz to be just 48dB down from the level of the 19 and 20kHz test frequencies, the latter also surrounded by a number of 1kHz-spaced IM products. To investigate whether or not this might be due to the unusually high output of Prism's fixed outputs, I reran the test at a ~6dB setting from the variable outputs, with almost identical results.

The output impedance of the Prism II was 100 ohms from its fixed outputs and just under 3 ohms through its variable outputs. While the
latter, plus the Prism II’s high output level, would indicate its suitability for preamp-less operation using the volume control of its variable outputs to set the gain, its rather coarse steps (3dB at a clip), plus the lack of any visible indication of the volume setting, make this a questionable proposition. The low output impedance and high level of the fixed outputs, however, make the use of the latter in conjunction with a passive line stage a practical consideration.

NAD 5000: Except for a marginal increase above 10kHz, the NAD’s frequency response (fig.15) was ruler-flat. The variable output response is not shown—it was identical to that from the fixed outputs. The slight de-emphasis error (fig.16) was of no practical consequence. The 5000’s separation (fig.17), first-rate right up to the limit of the test, remained at or greater than 110dB right up to 10kHz, “deteriorating” to 105dB at 16kHz.

And the spectral analysis of a −90.31dB dithered 1kHz sinewave (fig.18) shows neither distortion harmonics nor power-supply noise (though some low-frequency noise can be seen at 30Hz—generally well down in level). The 5000’s linearity at low levels is shown in fig.19.

Only the left channel is shown—the right was equally superb and virtually identical, showing less than 1dB departure from the correct level all the way down to −105dB. We have not shown the IM test here because it indicated performance virtually identical to that of the CAL and Sony—that is, as good as we have ever measured.

The output impedance of the NAD was 111 ohms through the fixed outputs. Through the variable outputs it was virtually identical at most settings, dropping to 75 ohms at maximum output. I found the variable outputs to be of minimal usefulness, however, since adjusting the level proved to be a very tricky proposition, a light touch on the remote vol-

Fig.15 NAD 5000, frequency response (right channel dashed) (0.5dB/vertical div.)

Fig.16 NAD 5000, de-emphasis error (right channel dashed) (0.5dB/vertical div.)

Fig.17 NAD 5000, crosstalk

Fig.18 NAD 5000, dithered 1kHz tone at −90.31dB with noise and spuriae, right channel dashed (½-octave analysis)

Fig.19 NAD 5000, departure from linearity, left channel (2dB/div.)
ume control (the only means of adjustment) causing unpredictable changes in level—usually too much. Measurements indicated that the most fleeting touch on the remote usually resulted in changes of 6dB or so in the output, although, with some finesse, intermediate steps could be found.

Altogether, however, the lab performance of the NAD was among the best we have measured in all respects, and was impossible to fault.

**Philips LHH500:** The Philips's frequency response (fig.20) was flat down to 20Hz with some rolloff below that point. Its HF response was flat to 20kHz, with the small ripples typical of Philips designs. The two channels were identical, except for a 0.25dB level mismatch. While the output of the balanced outputs is not shown, it had a response which drooped slightly in the high frequencies, starting at 3kHz and dropping to -0.3 to -0.4dB at 20kHz. De-emphasis error showed only a moderate and inconsequential deviation above 10kHz (again, the displaced graphs merely indicate a small interchannel level mismatch) (fig.21). Although not as impressive as some of the players here, crosstalk was more than adequate at an almost constant 72dB from 125Hz (our lower measurement limit) to 4kHz, decreasing to about 66dB at 16kHz.

Spectral analysis of a 1kHz dithered tone at -90.31dB (fig.22) shows a moderate amount of power-supply noise (especially at the 120Hz second harmonic)—but still well below -100dB. But note the difference between the output at 9kHz and that of the 1kHz primary signal. In the Philips the signal is only about 5dB above the level of the 9kHz spurious. In the best-
measuring of the machines here (the NAD and the Sony), the 9kHz spuriae are 16dB below the signal. The Philips's low-level linearity is partially at fault here. Note this linearity in fig.23 (one channel shown—both were virtually the same): not up to the promise held forth by 1-bit technology and no better (arguably worse) than the multi-bit players in the survey. Fig.24 shows the frequency content of a 1kHz undithered tone at -90dB on the Philips. Note that while the expected low-order harmonics are not present, there is a significant amount of hash between 5 and 10kHz. While this curve was not shown for the other players—it provided no clue to their sound—in the case of the Philips it just might explain some of the dry, grainy quality heard. However, the Philips's IM distortion (not shown) was very nearly as good as that from the Sony and the CAL, with marginally higher (but essentially insignificant) spuriae above 20kHz.

The output impedance of the Philips was just under 100 ohms from both the balanced and unbalanced outputs. To contrast the typical Philips digital low-pass filter with that from Sony or NPC, fig.25 shows the waveform for a 1kHz squarewave at 0dB. Note the unclipped ringing due to the filter's linear-phase characteristic.

**Sony CDP-X77ES:** The Sony's frequency response redefined the concept of "ruler-flat" from 20Hz to 20kHz though its fixed and unbalanced outputs (fig.26). Through the balanced outputs, however, the response (fig.27) showed a sharp 1.4dB peak at about 12Hz, returning to zero by 20Hz, then echoing the response of the unbalanced outputs up to 20kHz. Through the variable outputs (not shown), with the front-panel volume control set to its halfway position, the HF response began to droop at 3kHz, reaching -0.6dB at 20kHz, this due to a high output impedance from these outputs: at full volume it was just under 200 ohms, but at the half setting of this control, the output impedance increased to a rather high 4475 ohms, suggesting that the volume potentiometer is not buffered. The output impedance of the balanced outputs was 666 ohms; through its fixed-level, unbalanced outputs, it was just under 200 ohms.

Crosstalk (fig.28) remained greater than 110dB up to 5kHz on the worst channel, then decreased to 100dB at 16kHz. The de-emphasis error was practically non-existent.

![Fig.27 Sony CDP-X77ES, frequency response](image1)

**Fig.27** Sony CDP-X77ES, frequency response (right channel dashed) fixed/balanced outputs (0.5dB/vertical div.)

![Fig.28 Sony CDP-X77ES, crosstalk](image2)

**Fig.28** Sony CDP-X77ES, crosstalk

![Fig.29 Sony CDP-X77ES, dithered 1kHz tone at -90.31dB with noise and spuriae, right channel dashed (1/2-octave analysis)](image3)

**Fig.29** Sony CDP-X77ES, dithered 1kHz tone at -90.31dB with noise and spuriae, right channel dashed (1/2-octave analysis)
How did it turn out? I heard the same things, in general, that RH heard from the Meridian—a slightly forward midrange and an open if very slightly bright high end. Bass was solid and secure. But the Sony was, in my opinion, the better-sounding player. It had the more liquid, smooth, three-dimensional midrange. Though superficially softer in sound, the Sony actually seemed superior in retrieval of subtle, inner detail. Both players were somewhat forward in sound compared with, say, the Prism II, but the X77 less so. The Meridian (combined with the NAD) had a bit of the forwardness of the Philips LHH500, though with a far cleaner top end. The Sony had a more vital presence, especially in the vocal region. In the low end there was not a great deal to choose from between these players, but the Sony was the more potent—especially notable on organ.

The Meridian is an excellent value in a separate processor; I simply feel the Sony to be superior.

The best of these players give very serious competition to separate, high-ticket processors and transports, if my experience with them is the Esoteric P-2/D-2 is any indication. And they make me wonder about the market for the moderately priced processor—though the latter has a definite place in providing for a moderately priced upgrade for an older player with a good transport and digital output.

My top recommendations in this shoot-out have to go to the CAL Aria Mk.III and the Sony CDP-X77ES. Both excel in reproduction of the midband—the vocal range in particular. Neither is quite as striking at the frequency extremes, but their overall balance of virtues ultimately won me over. I marginally preferred the Aria overall on the basis of its lively, affecting clarity. But tomorrow I may get up and vote for the Sony for its smooth, sweet, yet deceptively detailed and three-dimensional sound.

The Sony will be a powerful attraction to those who want to have their subjective cake and the objective icing to go with it—its performance on the test bench was nothing short of stunning, the Aria's merely competent. The more I listened to both players, the better I liked them; both drew this listener into the music in a way that the other players did not. And there's not much more besides that needs to be said.

They were placated, but were they satisfied? These players had been tamed, but there would be others. Equally voracious.

Further thoughts & conclusions

It occurred to me in the course of these evaluations that the audiophile world seems to be going the way of the separate processor for CD. Comparing these players with the $8000 Esoteric combination is all well and good, but how might a more real-world processor/transport fare against them? To find out, I decided to use the highly regarded Meridian 203 driven from the digital outputs of the NAD 5000. Keep in mind that when RH reviewed the 203, he drove it from the Esoteric P-2 transport to hear it at its best. For this comparison, I purposely chose to use a far more modest transport; the NAD combined with the Meridian results in an overall "player" which costs $1500. This is close to the $1700 price of the Sony—the player I chose to do battle with it.
What did you on your wedding night? I know what I did. All three times. But Casey McKee? He spent his wedding night at the end of October installing the new Lingo power supply on his Linn LP12. I know. I was there.

You remember Casey. You met him in my review last September of the ArchiDee turntable table. Casey works at Brooklyn dealer Innovative Audio; he and wife Angela live in Austin. No, not Austin, NY. Austin, TX! Yup. A long commute. (Buy American Airlines stock. Casey flies American.)

It wasn’t as bad a case of *Audiophilia nervosa* as it sounds. Car-racing enthusiast Casey had persuaded Angela that the most suitable place to spend a honeymoon was Adelaide, Australia—the same weekend as the final 1990

Formula One Grand Prix. And as it wasn’t possible to leave for the Antipodes until the following morn, why shouldn’t the fellas listen to a few sounds while the ladies oohed and aahed at the wedding gifts. Thus it was that I sat, jaw on my chest, at the difference Linn’s new Lingo power supply made to the sound of a fully loaded LP12.
But, as always, I'm getting ahead of myself. Take a minute to refill your glass of Veuve Clipy while I tell you about the latest installment in Linn Products' master plan to achieve analog domination.

33½ and 45

So what is the magical Lingo?

A synchronous motor runs at a speed governed by the frequency of the AC voltage supplied to it. Such a turntable motor that is fed straight from the wall voltage, as was the pre-Valhalla LP12, is therefore subject to the frequency vagaries of your local power company, as well as to the presence of any noise on the line. Using that wall power to feed a circuit dedicated to producing a high-purity, low-jitter drive signal is therefore an obvious step forward.

The Valhalla board was Linn's first attempt to achieve this object. It worked well, giving a noticeable improvement in clarity without diminishing the turntable's soul. According to Paul Messenger of the English magazine Hi-Fi Choice, Linn tried to replace the internal Valhalla with an external power supply, the "Wakonda," a couple of years back, but this didn't go into production, it not being felt to offer any sonic improvement.

The Lingo, however, is a different kettle of silicon. Constructed on a single well-stuffed circuit-board running the full depth of its aluminum chassis, the inside of the Lingo looks more like a power amplifier. Which is what is: a power amplifier intended to deliver a high-purity 120V 50Hz sinewave to the turntable's synchronous motor. In fact, it delivers two sinewaves. Whereas the Valhalla board delivered a single drive signal to the motor, with the second-phase signal derived by a capacitor, the Lingo synthesizes both phases of the supply voltage. The Lingo also offers something that we Linn owners who have collections of 12" singles have been begging for over the years—a 45rpm speed. Yes, there was always the pulley adaptor to enable the LP12 to run at 45, but this was at best a kludge.

The heart of the Lingo is a low-jitter crystal oscillator derived from that used in the ultra-expensive Numerik A/D—I/A processor that Linn Products developed for the pro-audio industry. The high-frequency output of this oscillator is divided down to 50.0Hz (for 33.33rpm) or 67.5Hz (for 45) by conventional TTL chips, and the low-frequency signal is filtered and shaped to give a spectrally pure, low-noise, low-jitter sinewave. This is then amplified to 120V and fed to the turntable.

Modification of an existing LP12 to run with the Lingo is straightforward, but is best left to your Linn dealer. (He or she can give the suspension a tune-up at the same time.) The Valhalla board is removed, along with the ball thrust-bearing under the motor. The traditional, single-LED push switch is replaced with one carrying two LEDs, one red, one green, and the new umbilical, terminated in a spring-locking 8-pin plug, replaces the AC cable.

As my sample Lingo was too early in production to be supplied with a manual and I was on vacation when Audiophile Systems' Steve Daniels installed it, I had to work out for myself how it works. Here's what this tired old brain gathered: A brief push on the LP12's new push-switch results in the red LED lighting and the platter starting to rotate (with a bit of judder). When the platter reaches speed, the LED dims slightly as the Lingo output changes from high-torque mode to speed-maintenance mode. A second brief push cuts off power to the motor, though the LED doesn't extinguish until after the platter has stopped rotating. Holding your
finger on the push-switch results in first the red LED lighting, then to be replaced by the green as the Lingo understands that you want the higher speed. Again, the green LED dims as the platter reaches 45rpm, and a brief push turns off the supply to the motor.

Sound

Sound? Of a turntable? Gedoudadown!

That was pretty much the reaction of audiophiles in the mid-'70s (were they called "audiophiles" back then?) when the pinnacle of circular LP performance was supposed to be a Technics SP10. Or a Sony TTS-3000. Or—I'm not making this up—a Kenwood KD-500. And if you read a few pickup cartridge reviews from that time, they sometimes mention the tonearm used but never the turntable.

Then came Ivor and his amazing magic show. There wasn't a hi-fi exhibition in the world in the late '70s where Linn's Ivor Tiefenbrun wasn't to be found demonstrating his Sondek LP12, showing that it sounded better than a direct-drive Technics fitted with the same arm and cartridge, that the Sondek fitted with a cheap arm and cartridge sounded better than an inexpensive turntable fitted with an expensive arm and cartridge, that the natural hierarchy was therefore to get the best turntable you could afford, then the tonearm, then the cartridge, then the amplifier and preamplifier, and finally the loudspeaker.

Despite guffaws from those who pointed out that the reductio ad absurdum conclusion of this philosophy was to put together a system that consisted of a Linn and an AM radio, it didn't take me long to be convinced. Unlike test instruments, your ears don't lie. In late '77 I bought the first in what was to be a series of Sondeks. I wasn't alone. Apparently some 80,000 LP12s have been sold since the turntable's introduction in 1974 or so, its users convinced of its positive effect on the sound of any system in which it is used.1

Although, as with any long-lived product, there has been a continuous series of minor improvements in the Sondek as the manufacturer learns how to make the product better, there have only been three major changes in the design. The first was dubbed the Nirvana mod, which consisted of a new set of suspension springs and bolts; the second was the addition of the Valhalla board; and the third was the replacement of the welded-steel subchassis by one that is glued together, and the original fiberboard armboard by one made from a laminated material.

The general trend shown by these improvements and changes was to render the LP12's performance much more stable over time and to reduce its propensity for upper-bass muck. Although I've tried other turntables in my system, notably the original Oracle with Sumikos The Arm and the SOTA Star Sapphire with the ET2 arm, I've always ended up returning to the Linn, its ability to portray the musical values within recordings outweighing the fact that other turntables can be shown to have better performance in one or more specific areas.

Your glass filled? Well, here's to Casey and Angela. Now, on with the review.

I won't list the ancillary equipment I used during my auditioning of the Lingo other than to note that I used it for my last three issues' worth of equipment reviewing with the LP12/Ekos/Troika sitting on the ArchiDee table. I must note, however, that it gave me the impetus to finally get round to retubing my Audio Research SP10—that's one fine phone preamp!

Truly valid comparisons would involve swapping the arm and cartridge from a Linn/Valhalla to the Linn/Lingo. I own up. I didn't do that. There is a Linn/Valhalla fitted with an Ittok and a Denon DL103D in my wife's listening room, but I disturb her system at my peril! My impressions are therefore gleaned from "before and after" testing.

Not that that's something to be worried about. As good as I feel the basic Linn sound to be, the difference between the pre- and post-Lingo LP12s is anything but subtle.

Specifically, the new power supply adds an octave of low-bass extension to your loudspeakers. You know that slight tussiness that you thought was your loudspeaker's intrinsic upper-bass sound? With the LP12/Lingo it disappears, bass instruments acquiring more definition and more low-bass weight as a result. You know that slight muck that obscures the rear of the soundstage, something that you thought was a characteristic of your preamp? That's gone too, the window into the image.

1 The LP12's ability to sell itself in dealers' listening rooms continues. Some two years ago, my late stepfather wanted to buy the best system he could for his retirement. He studied all the magazines, he asked dealers, he even asked me. He was told by just about everyone that CD was the medium he should have his new system on. He therefore went out one day to buy a CD player; he came back with a Sony CD player and a Linn.
taking on more of the quality of an optical flat.

But more importantly, every record you put on seems more vivid yet more involving, even when you might have thought that you didn't like the music. I'll give you an example. A singer my wife loves but whom I've been unable to approach is Tony Bennett. Yes, a nice-sounding, cappuccino-toned voice, but I never felt that he breathed and phrased in the consummately perfect way typical of Sinatra in his heyday. In particular, I feel that he clips the end of phrases a little too abruptly for my tastes, whereas fellow Italo-American Frankie just effortlessly floats them on out. Then Casey gave me a copy of The Tony Bennett/Bill Evans album from 1975 (Fantasy F-9489). Yes, TB still tends to end phrases more abruptly than I would like. But the clarity of the Lingo-powered Linn allows you to hear that this mannerism still makes musical sense, it being less of a clip than a tendency to do a sharp diminuendo before the actual cut-off of sound. On the Comden/Greene/Bernstein "Some Other Time," he sails the unexpectedly long lines over the Satie-esque backing figures in a risk-taking manner I wouldn't have expected, including a swooping portamento on the phrase "Oh Well" that sends shivers down my spine. Good stuff. (And has anyone else noticed how musically appropriate Karen Carpenter's phrasing was?)

**Measurements**

I hadn't intended to do any measurements. But I couldn't resist it. That ol' left-brain insisted on having its way. So I put on Denon XL7007A, the 5kHz track, plugged in the frequency meter—3000Hz, right on the button at 33.3rpm; 4049.5Hz at 45rpm. (These were the mean values; as with every other turntable I've measured with a digital meter, the indicated value bobbed a little.) To look at the speed stability in more detail, I captured a 1kHz tone (actually 1003Hz) with DRA Labs' MLSSA system set in distortion-analysis mode with a 2kHz bandwidth. Transforming to the frequency domain courtesy of Monsieur Fourier allowed me to look at the spectrum of that tone. Fig.1, which displays the Troika's output from 850 to 1150Hz with a 2Hz resolution, shows a relatively pure 1kHz component, with the first sidebands at ±11Hz due to the Ekos/Troika's fundamental resonance. Two more sets of sidebands appear, with then a major set, indicated by the cursor position, at ±50Hz. This is the Lingo's driving frequency, but as the sidebands are 60dB down from the 5cm/s reference level, I imagine they are subjectively inconsequential.

For comparison, fig.2 shows the identical measurement taken on my wife's LP12 Valhalla/Ittok/DLIO3D, and fig.3 that on one of the LP players set up in Stereophile's listening room, the Australian Aura, fitted with the excel-

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2 The easiest way to remember which side is which is: "Left is Logical; Right is Romantic.

3 I keep finding new uses for the MLSSA system, which is possibly the best bargain in test equipment around right now, incorporating as it does a complete 12-bit storage oscilloscope with a completely programmable anti-aliasing filter, an MLS signal generator, and a wide variety of post-processing software for around $3000. Contact DRA Laboratories at 607 West Nettlebee Road, Sterling, VA 22170. Tel: (703) 430-2761. Fax: (703) 430-0765.
lent Graham tonearm carrying a Rowland Complement cartridge. The Valhalla spectrum is very similar to that of the Lingo Sondek, apart from the absence of 50Hz sidebands and the tonearm sidebands being placed at ±14Hz. The fundamental peak also can be seen to have slightly wider “skirts.” In the Aura spectrum, the FFT missed the lower tonearm-resonance sideband, but the upper one, at +8Hz, can be made out. The speed is also slightly high, with the 1003Hz tone re-playing as 1010Hz. Note the very strong sidebands at ±26Hz, 50dB down from the fundamental and the fact that the noise floor is generally higher in level than with the Linn player.

What can I draw from these measurements? Certainly nothing that would indicate why the Linn/Lingo appears to dig down an extra octave in the bass. But two things do strike me. One, the tonearm low-frequency resonance appears to dominate measurements of a turntable's speed stability, though the Lingo-powered LP12 is excellent, nevertheless, in that it produces a clean fundamental peak in the spectrum. And two, the LP12/Ekos/Troika is mechanically well-matched, as you might expect from an LP player with all the parts sourced from the same manufacturer. The tonearm resonance is both well-damped and well-placed at 11Hz or so.

**Conclusion**

Just lately I've noticed a number of second-hand LP12s appearing in *Stereophile's* "Audio Mart" section, presumably because their owners have been seduced by the latest CD players and D/A processors. I'm ashamed to say that, prior to the appearance of the Lingo, I also had been playing more and more CDs, as players and processors like the Meridian 208 and Stax DAC-Xlt have proved capable of squeezing a little music from the little silver devils. (Casey McKee, being made from sterner stuff, doesn't own a CD player!) The Lingo-powered LP12 put paid to that, my LPs again showing up CDs as mere digital impostors.

The Lingo costs almost as much as the LP12 itself. Does it double the turntable's performance? In a word, without a doubt. Yes. Absolutely. As Larry Archibald said when we were listening to loudspeakers one afternoon (without him being aware that the LP12 was being fed its AC fuel by the Lingo), "Your LP player still sounds a lot better than CD."

All you LP12 owners, go and buy the Lingo right now! Tell your bank manager I said you could. And if you've been putting off buying an LP12, the time has come. Do it now. Before the record industry succeeds in lobbying Congress to make LP playing and owning an illegal activity.

Oh, the Australian Grand Prix? Mansell fought brilliantly in his last season for Ferrari—for once he didn't ask too much of his mount—but ultimately lost out to the veteran Piquet's masterful handling of his Benetton-Ford. See you in Phoenix on March 10, Casey, for the start of the 1991 season?

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**PHASE TECHNOLOGY PC-80 & SNELL TYPE K/II LOUDSPEAKERS**

**Robert Harley**


available: matched grain, hand-sanded and -oiled pairs in oak or walnut veneers, or black-finished veneer, with black grille cloth. Shipping weight: 52 lbs/pair. Price: $465/pair. Approximate number of dealers: 100. Manufacturer: Snell Acoustics Inc., 143 Essex Street, Haverhill, MA 01832. Tel: (508) 373-6114. Fax: (508) 373-6172.

In some ways, building an inexpensive yet musical two-way loudspeaker is a greater design challenge than creating a cost-no-object reference product. Although the latter is a much more complex endeavor, the venerable two-way box seems to bring out the creativity and resources of the designer. Rather than throw money at the product in the form of more expensive drivers, enclosures, or components, the designer of a low-cost two-way is forced to go back to the basics, rethink closely-held tenets, and rely on ingenuity and sheer talent to squeeze the most music from a given cost. Consequently, the inexpensive two-way is the perfect vehicle for designers to develop their skills. If one has mastered this art form, one is much more likely to achieve success when more ambitious designs are attempted.

The Phase Technology PC-80 and Snell Type K/II reviewed here represent the respective efforts of two distinguished designers: Bill Hecht (PC-80) and Kevin Voecks (Type K/II). Let's see what each has to offer.

Review context
The Phase Technology PC-80s and Snell Type K/IIIs replaced the Hales System Two Signatures in my reference system, and were auditioned on the excellent Celestion 24'' spiked and lead-shot—filled stands. Each pair was driven by the VTL 225W Deluxe monoblocks, Krell KSAs 250, and Threshold S/550ce (the last two reviewed elsewhere in this issue) via 10'' runs of AudioQuest Green Hyperlitz. I auditioned the Type K/IIIs in both single-wire and bi-wire configurations, while I listened to the PC-80s only in single-wire mode due to their lack of bi-wire capability. The analog front end consisted of a Well-Tempered turntable, just refitted with a Lary Pederson-modified Well-Tempered arm, and a Sumiko Boron cartridge. The moving-coil's low output was stepped up with the Expressive Technologies SU-1 transformer, which drove the phono inputs of an Audio Research SP11 Mk.II preamplifier. The SP11's tape outputs fed an Electronic Visionary Systems Stepped Attenuator, a passive control unit. All interconnects in the phono chain were Expressive Technologies IC-1. The Stepped Attenuator's second stereo input was driven by the digital source, a VTL Digital to Analogue Converter, fed from an Esoteric P-2 transport (both reviewed last month). The digital interconnect between transport and converter, which I have found to be critical, was the Aural Symphonics Digital Standard. Interconnect between the Stepped Attenuator and power amplifier(s) was IC-1.

The listening room has optimum dimensional ratios for room mode distribution. AC power to the entire system—except the power amplifiers—was conditioned by a Tice Power-Block and Titan. A pair of Phantom Acoustics Shadows, an active low-frequency control system, were turned off during the auditioning.

Phase Technology PC-80: $650/pair
Way back in Vol.7 No.4, Dick Olsher reviewed the Phase Technology PC-60 loudspeaker and was quite impressed with its performance. Since then, Phase Technology has refined and upgraded their designs, the result being a line of loudspeakers ranging from the tiny PC-40 Mk.II bookshelves to the floorstanding PC-8.5. The PC-80 reviewed here falls exactly in the middle of the five-product Phase Technology line.

Before getting to the PC-80, a few words about the company. Phase Technology is a 36-year-old company founded and run by Bill Hecht and his son Ken. Although the name Bill Hecht may not be familiar to audiophiles, his designs certainly are: he is the inventor of, and held the patent on, the soft-dome tweeter. His designs and products have found their ways into a wide range of products since 1959, including those from Dynaco, Yamaha, Fisher Radio, MacIntosh, Pioneer, and Electro-Voice. In addition to the soft-dome tweeter, Phase Technology holds, or has held, other patents on raw driver design and fabrication methods including the basket-less woofer/midrange.

1 The arm modification is available from Research and Development Lab, 208 Pepperwood Street, Hercules, CA 94547. Tel: (415) 799-3858.
2 The patent expired in 1987.
mounting assembly, the self-damping woofer voice-coil, silicone-injected drivers, and the manufacturing process for solid, flat-piston drivers. The company manufactures all the drivers used in their own products, and supplies many other brands with completed loudspeaker systems. In fact, most of Phase Technology's 60,000-square-foot factory is devoted to raw driver and complete speaker-system manufacture.

The PC-80 is an attractive loudspeaker that is larger than most mini-monitors without approaching floorstanding dimensions. It's finished in real oak veneer (other finishes are available) rather than vinyl, as is common at this price point. The front baffle is rounded to reduce diffraction, which also adds to the PC-80's appearance. A black fabric grille stretched over a wooden frame conceals the drivers. The rear panel contains a port 2¾" in diameter toward the top center of the cabinet. A large pair of knurled and gold-plated posts is angled in the terminal cup, making for easier connection.

The PC-80 employs a 1" soft-dome tweeter recessed in a large piece of sculpted foam. The foam's funnel-shaped opening is centered on the tweeter, with the small end slightly larger than the tweeter's dome. This design absorbs tweeter energy that would otherwise be diffracted by the enclosure. The foam is unusual in that it is comprised of cells of unvarying size. Phase Technology calls this proprietary foam "Unicell" and has trademarked this name. Unicell foam reportedly works with the grille to reduce diffraction, suggesting that the grilles should be left in place for listening. The idea of reducing diffraction with the Unicell foam is so important to the overall design that the tweeter's dome geometry was optimized for working within the foam structure. This is a good example of how a loudspeaker system designer has an advantage in also being the driver designer and manufacturer: he has total control over the finished product, rather than having to accept less than optimum performance for a particular design.

The PC-80 is also unusual in that it uses a flat, solid-piston woofer. This proprietary driver, designed by Phase Technology, is a solid conical configuration made from "Rigid Polymer Foam" and carries the "RPF" trademark. The solid construction reportedly eliminates cone break-up while launching all frequencies from the same plane, thereby eliminating phase anomalies. The woofer also features a unique damping system that absorbs energy at the end of the voice-coil's travel before it bottoms out on the rear of the pole piece. A small shock absorber cushions the voice-coil, while also preventing the spider from hitting the basket. The 1½" voice-coil is wound on a Kapton bobbin, and is supported in an oversized magnet structure. In addition, the pole piece is vented into the cabinet, providing additional voice-coil cooling while releasing the back pressure on the flat, solid diaphragm.

Significant attention has been paid to reducing the PC-80's enclosure resonances, especially considering its moderate price. The side walls, front baffle, and rear panel are all 1"-thick MDF, and the enclosure was designed with the aid of an interferometer. Two internal braces support the cabinet, further increasing its rigidity. Giving the PC-80 the "knuckle rap" test produced a dull thud, indicative of a very inert enclosure.

Crossover frequency is 2.1kHz, with 24dB/octave acoustic slopes in both high-pass and low-pass sections. This is accomplished with a 12dB/octave electrical network, the steeper 24dB/octave slopes achieved with the help of
the drivers' acoustical rolloff. Because the tweeter's resonance is only an octave below the
cutoff frequency, an "anti-resonant circuit" (presumably a notch filter) is incorporated in
the network. All capacitors are Mylars in the
tweeter circuit, and electrolytics in the woofer
section) are bypassed with polypropylene types.
The woofer is protected by a series capacitor
that keeps out frequencies below which the
woofer can reproduce.

Overall, the PC-80 is well-made, with very
good fit and finish. The real wood veneer
 cabinet is excellent, and adds to the PC-80's overall
"non-budget" look. More important, the PC-80
appears to be a product designed with musi-
cal performance in mind. The 1"-thick cabinet
construction, complex crossover, custom
drivers, and solid construction all point to a
loudspeaker that tries to get the most sonic per-
formance for the money.

Listening: The Celestion stands placed the PC-
80's tweeters 36" off the floor, exactly ear level
in my listening chair. I ended up with the Phase
Techs pointed straight ahead, 51" from the rear
wall and 33" from the side walls, putting the
listener off the direct axis. I experimented with
different amplifiers, and decided that the VTL
225 W Deluxe monoblocks were a better match
with the PC-80 than the Threshold S/550e or
Krell KSA-250. Before auditioning the PC-80s,
I spent some time with the Spica TC-50s, a
loudspeaker that perhaps sets the standard of performance for its price range.3 The Snell Type
K/II was also used for comparison.
The PC-80's tonal balance was fairly smooth
through most of the midrange, but there was
some coloration apparent in the bass as well
as in the upper-midrange/treble region. Starting
with the bass, it achieved remarkable extension
for a cabinet of this size but tended to be under-
damped and somewhat ill-defined. Bass lines
were a little sluggish, creating a "rolling" sen-
sation rather than a taut, crisp feeling. LF pitch
resolution and articulation suffered, making
it difficult to follow intricate bass lines. This was
especially true in music in which the bass
player tends to be melodic and conversational
rather than creating a pulsating rhythm. The
PC-80s did, however, provide prodigious out-
put in the low end for such a small loudspeaker,
creating the impression of a much larger sys-
tem. Many listeners will choose it for this reason.

The coloration in the upper bass gave an
unnatural huskiness to female vocals and
caused some left-hand piano notes on Dick
Hyman Plays Fats Waller (Reference Recor-
dings RR-33CD) to move forward. I noticed this
coloration immediately with Dianne Reeves's
vocal on David Benoit's This Side Up (En Pointe
ENP 0001). In the first line, sung with minimum
accompaniment, there is a low-frequency pop
caused by a "p" sound with the vocalist very
close to the microphone diaphragm. I've heard
this track many times, but through the PC-80s,
the pop fairly jumped out at the listener. Her
voice also took on a heaviness and bloat in her
lowermost registers. To sum up the PC-80's
bass presentation: lots of low bass, a little
threadbare in the upper bass, somewhat slug-
gish and ill-defined, and with one major peak.
These are by far my most serious criticisms of
the PC-80s.

Most of the midrange was quite smooth and
uncolored, with an "unboxy" quality. The flugel-
horn on my own jazz recording was very well
reproduced, with a rich, round character. The
PC-80s added a little bit of a sheen to the instru-
ment that was not unpleasant. The upper mid-
range to lower treble tended to be a bit promi-
ment, giving the presentation a forward render-
ing in this region. Saxophone seemed most affected,
acquiring a somewhat thin and reedy sound
rather than being big and full. Exacerbating this
impression was the feeling that the lower
midrange—where the meat and weight of
many instruments lie—tended to be a bit thin
and threadbare. The sax's "blat" component,
which gives it its distinct rich quality, was
somewhat lacking. The discrepancy between
my impressions of the flugelhorn and sax indi-
cate that the PC-80's excessive upper-midrange
energy (in relation to lower-midrange energy)
is fairly high in frequency. The sax has a much
more complex harmonic structure, with higher-
amplitude upper-order harmonics.

This impression was supported by further
listening. Cymbals assumed a slightly promi-

ent, up-front position in the soundstage. The
presentation tended to be a little etched and dry
in the treble, with slightly hard textures. Sibilance
tended to be aggravated by the PC-80s, giving
female vocals a slightly chalky character on "s"
and "ch" sounds. However, I wouldn't charac-
terize the presentation as hissy or sizzly. Instead,
the brightness was lower in frequency rather

than making the top octave etched. The mids were nicely detailed, with the ability to portray finely woven textures. Apart from these criticisms and the husky quality noted earlier, however, most vocal and other primarily midrange instruments were quite smooth and uncolored.

There is one area in which the PC-80s excel and even compete with the best: imaging. They had a remarkable ability to throw precise, pinpoint images within the soundstage. Instrumental outlines never diffused, blurred, or overlapped. Instead, each instrument occupied a precise, focused location, spatially distinct from other instruments. In addition, the PC-80s produced a very strong center channel, completely independent of the two loudspeakers on either side. Female vocals became pinpoint images that floated exactly in the soundstage center. There was no sense of lateral discontinuity in the soundstage: images were strong and precise no matter where they existed between the loudspeakers. Listen to the drum solo in “Mis-turada” from Three-Way Mirror (Reference Recordings RR-24CD). The location of each drum in the kit is resolvable within inches, and the center-channel palpability is remarkable. The PC-80s were stunning in this regard, exceeding the performance of both the Spica TC-50s and Snell Type K/11s.

Soundstage depth was good, but not as impressive as image specificity. The feeling of depth seemed to be better in the soundstage center than toward the sides. It was almost as though the soundstage were shaped like a triangle, pointed away from the listener. This impression really hit home with the excellent English Lute Song (Dorian DOR-90109). First listening to it through the PC-80s, I heard Julianne Baird’s voice to the left, with the gorgeous acoustic decaying between her and the lute. After switching to the TC-50s, the acoustic enveloped her, extending behind her and even to her left. The TC-50s produced a greater sense of space, conveying the recorded acoustic better. While the TC-50s excel in this regard, the PC-80s were nevertheless superior to many other inexpensive loudspeakers in presenting space and hall size.

Measurements: Starting with the Listening Environment Diagnostic Recording (LEDR) on the Chesky Sampler and Test CD (JD37), the PC-80s produced a good sense of the image moving up above the loudspeaker. The “over” test was better, with a clearly defined arc between and above the loudspeakers. The “lateral” test was excellent: the image was solid and moved contiguously between the PC-80s. Next, I drove one loudspeaker with a variable-frequency sinewave oscillator, listened for any audible problems, and felt the cabinet for any sign of resonance modes. Not surprising in light of their rigid construction, the PC-80s were extremely inert. Even with high input levels, the cabinet was rock solid. The only resonance I detected was at 330Hz, and this was minimal. Next to the extraordinarily constructed Hales System Two Signatures, the PC-80s were the most resonance-free cabinets on which I’ve performed this experiment.

The PC-80’s impedance magnitude and phase angle (solid and dotted lines respectively) show the port’s 52Hz tuning (fig.1). The impedance dips to 4 ohms at about 200Hz and stays at about 5 ohms above 3kHz, suggesting that the PC-80s are not a difficult load, but a fairly solid amplifier is recommended. Note the rise in impedance below 25Hz due to the additional infrasonic filtering.

Looking next at the FFT-derived frequency response spatially averaged over a 30° lateral window (fig.2), we can see a basically very flat response, but with an increase in energy between 2kHz and 5kHz and a peak at 2.5kHz. When I saw these curves (after I had completed the auditioning), I could immediately correlate them with my impression of too much upper-midrange energy, which was manifested as a nasal, reedy character to saxophone and a too-prominent reproduction of “s” and “ch” sounds in voice. Although the PC-80’s overall response appears quite flat, the amplitude anomalies it does have unfortunately occur exactly where the ear is most sensitive. The ear’s ability to distinguish amplitude changes varies enormously with frequency. If the PC-80’s midrange hump had been in any other area, it would have been much less audible. Looking at the individual response curves taken at various positions off-axis before the spatial averaging (not shown) revealed that the midrange hump as well as the excessive treble energy are much less severe as one gets off-axis. Listening with the speakers pointed straight ahead is therefore indicated (and was also indicated by the auditioning), despite the slight loss of center-channel solidity and pinpoint image specificity.

The curves on fig.2’s left-hand side are nearfield measurements of the woofer and port,
respectively, taken with the Audio Precision System One and appended to the MLSSA FFT-derived frequency-response curves. The port's output is fairly broad and can be seen to augment the woofer's rapid rolloff. (The port tuning is shown by the minimum in the woofer output at 50Hz.) These curves correlate with my impression of good extension, but with excessive energy in the bass, perhaps the result of the wide overlap between the woofer and port outputs.

The PC-80's impulse response, shown in fig.3, is quite clean, but with a hump delayed from the impulse. This is generally typical of higher-order crossover filters. Finally, the PC-80's cumulative spectral decay or "waterfall" plot can be seen in fig.4. The peak at 2.5kHz mentioned earlier can be clearly seen, and is accompanied by a ridge at that frequency, indicating the delayed release of stored energy. Since this graph was derived from the impulse response taken directly on-axis, the treble rise and midband peak are at their maximum and will be less pronounced off-axis. The treble decay is extremely clean and fast, and among the best measured. The dark ridge at 16kHz is a measurement artifact (the computer's line-scanning frequency) and not a loudspeaker characteristic.

**Conclusion:** The Phase Technology PC-80s are well-made, with considerable design effort apparently expended in their creation. In terms of construction quality and fit and finish, they are exceptional for a product in this price range. Musically, I found them satisfying for the most part.

![Fig.1 Phase Tech PC-80, electrical impedance (solid line) and phase (dashed), 2 ohms/vertical div.](image1)

![Fig.2 Phase Tech PC-80, anechoic response on listening axis averaged across 30° lateral window with nearfield woofer and port responses](image2)

![Fig.3 Phase Tech PC-80, impulse response on listening axis at 48" (5ms time window)](image3)

![Fig.4 Phase Tech PC-80, cumulative spectral-decay plot](image4)

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part, but with some specific criticisms. In their favor, the PC-80s had a fairly smooth and soft upper treble that was relatively free of hardness and grain. The mids were nicely laid-back, but with some loss of body in the lower midrange and a tendency to be more forward in the upper midrange. Bass extension was excellent, and surprising for such a small enclosure. Finally, the PC-80s were imaging champs: they could throw tightly focused instrumental outlines anywhere between the loudspeakers with authority and pinpoint precision.

On the down side, I was disturbed by the underdamped and somewhat sluggish bass that obscured pitch and articulation. Although the LF rendering was weighty and full in the lower bass, music lost some of its rhythmic drive as the bass line tended to roll along behind the music rather than propel the rhythm. In addition, bass output appeared to be greater in the lower bass than in the upper bass, accentuating the lowermost notes in relation to the overall low-frequency level. A slight midband nasality also tended to introduce a common tonal shading to some instruments.

Compared with the comparably priced Spica TC-50, which has almost become the benchmark for inexpensive loudspeakers, the PC-80s had more lower-bass output with deeper extension, but at the expense of definition. The TC-50s had a more natural midrange presentation and a smoother, silkiest treble rendering. Despite the PC-80’s slightly better focus of instrumental outlines, the TC-50s presented a more realistic sense of size and space.

Next to the Snell Type K/II, I preferred the PC-80’s softer treble, but felt the latter’s midrange was more colored. Low-frequency definition was far superior through the Type K/II, despite its relatively less-well-extended lows. In terms of imaging, the PC-80s took the prize. Although the Type K/IIIs imaged fairly well, they didn’t have the precise focus of the PC-80s.

The bottom line? The PC-80s are well worth an audition.

**Snell Type K/II: $465/pair**

The Type K/II represents the lowest-priced loudspeaker in the six-model Snell line, which culminates in the highly regarded Type A/III.4 Snell has applied the same design philosophy and manufacturing methods to the inexpensive Type K/II as is lavished on the $4650 Type A/III. The primary engineering goal of Kevin Voecks, designer of the Snell line, is to provide flat amplitude response5 not just on the loudspeaker’s axis, but over a wider horizontal and vertical forward window so that room boundary reflections do not have a different spectral balance that would color the loudspeaker’s direct sound. The contribution of sidewall reflections to what the listener ultimately hears is significant; a loudspeaker with off-axis amplitude anomalies may measure quite flat on-axis, but have tonal colorations when placed in a room. Consequently, Snell loudspeakers’ amplitude response is specified over a 30° horizontal window, not just directly on-axis. In addition, the loudspeaker’s response is optimized over a 45° vertical window, taking into account floor and ceiling reflections. Flat amplitude response off-axis is achieved with higher-order crossover slopes (18dB/ octave) and careful driver design.

Like other Snell loudspeakers, the Type K/II’s development was heavily influenced by the testing procedures at Canada’s National Research Council, headed by Dr. Floyd Toole.6 The NRC provides loudspeaker-evaluation services including double-blind listening tests, on- and off-axis amplitude measurements, and a full-size anechoic chamber. Many loudspeakers tested at the NRC share some design parameters: high-order crossovers and flat response over a wide window.

The Type K/II is very ordinary looking, except for the nice cabinet work. As soon as the veneer is cut, loudspeakers become pairs, assuring matching grain within a pair. Cabinets are hand-sanded and -oiled, unusual in an inexpensive product. All cabinetry is done in Snell’s own cabinet shop. The Type K/II’s enclosure is made from 3/4” high-density particle-board. According to Kevin Voecks, no internal bracing was needed because of the small unsupported wall dimensions. Snell’s Type K/II stands carry a suggested retail price of $98/pair.

The enclosure rear has a rectangular inset that holds two pairs of five-way binding posts. Like all Snell loudspeakers, the Type K/II can be bi-amped or wired. Shorting bars are

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4 Larry Greenhill reviewed the Type A/III in Vol.13 No.3. His comprehensive review also includes a history of the Type A’s evolution and critical reception over its remarkably long life.

5 See **TJN**’s Interview with Kevin Voecks in Vol.13 No.3.

6 A bound edition reprinting Dr. Toole’s earlier papers is available for $3.75 (US), including postage, from the National Research Council, Division of Physics, Ottawa, Ontario K1A 0R6, Canada. These papers are essential reading for anyone interested in loudspeaker design and testing.
Stereophile, January 1991

Snell Type K/II loudspeaker

provided for single-wire operation. A tweeter level control is provided next to the binding posts. Where the Snell Type A/III (which uses the same tweeter as the Type K/II) features a two-position switch that allows the user to switch the rear tweeter on or off, the Type K/II’s rotary knob provides infinite variability over a fairly narrow range. The knob’s 12 o’clock position is marked “optimal.”

The Type K/II’s 8” polypropylene-cone woofer, specially manufactured for Snell, uses a special surround designed to dissipate stored energy. The cone shape and dustcap are designed for flat off-axis response, the cast-magnesium basket and the voice-coil for high power handling. The tweeter is the popular Vifa 1” treated textile-dome unit found in the Dahlquist DQ-12 and Triad System Seven, both of which I’ve reviewed (in Vol.13 Nos.4 and 10, respectively). Despite this tweeter’s rising top-end response, many designers feel that its other attributes compensate for this tendency toward excessive upper-treble output. (My primary criticism of both the DQ-12 and Triad System Seven was too much treble energy.) Crossover frequency is 2.7kHz, with third-order slopes. Air-core inductors are used throughout, and film capacitors are used where appropriate. The crossovers are hardwired into the loudspeaker, rather than connected with push-on terminals.

What really distinguishes the Type K/II’s crossover (and those in all other Snell loudspeakers) is the careful matching of crossover to drivers. Because raw driver manufacturers typically guarantee ±3dB tolerance in frequency response, it is difficult to achieve production units close in performance to the prototype. Snell overcomes this problem by measuring each driver and adjusting crossover component values to compensate for driver tolerances. Crossover component values are adjusted with trimmer caps and by varying the number of inductor winding turns. The result is that each Type K/II’s frequency response is within 0.5dB of the prototype. This is an extraordinarily tight production standard for any loudspeaker, much less one in the Type K/II’s price range. As far as I know, this exacting procedure is unique to Snell.7

Listening: I auditioned the Type K/IIIs on the same Celestion spiked and lead-shot-sand-filled stands used with the Phase Technology PC-80s. The stands placed the Type K’s tweeters 40” above the floor, 4” above ear level. After some experimentation, I listened to the speakers toed-in toward the listener, 50” from the rear wall, 36” from the side walls. Before listening to the Type K/II, I spent some time with the Spica TC-50s.

I was immediately taken by the Type K/IIIs’ musical performance. They were very well balanced, open, and had no glaring colorations. The bass was particularly impressive: tight, articulate, tuneful, satisfyingly conveying the weight and rhythm of music. The low-frequency presentation successfully walked the fine line between quantity and quality of bass. I never felt shortchanged of fullness and body, yet found the bass to be very well-defined, punchy; and with good pitch resolution. The Type K/II’s low-frequency agility created the feeling of good integration between bass and the rest of the spectrum. Often, a sluggish bass rendering results in poor cohesion as the bass lags the rest of the music.

In addition, bass guitar lines were easy to pick out, never becoming homogenized with the rest of the music. This was especially apparent in passages where the bass and another

7 Each pair of KEF’s Reference series loudspeakers are also carefully matched in this manner, though I understand they are not matched pair to pair.

—JA
instrument both play the melody. Examples include bass and violin on “Hereafter,” from the Dixie Dregs’ Dregs of the Earth (Arista ARCD 8116), and bass and flute on “Misturada” from Three-Way Mirror. In all these cases, the bass was distinct from the other instruments, and the clearly identifiable pitch contributed to the Type K/II’s conveyance of the composer’s intent.

Low-frequency dynamics were similarly impressive, with a feeling of effortlessness and speed. The Type K/II’s solid and taut low end combined with a punchy rendering of bass drum, infusing music with rhythmic energy and drive. The entire low-frequency region was the antithesis of a sluggish bloat that drags down the tempo and robs music of urgency. Not surprising, in light of its size and sealed enclosure, the Type K/II lacked the extreme bottom end that adds a visceral element to the musical experience. The PC-80s, by comparison, produced a greater feeling of weight in the extreme bass. Nevertheless, the Type K/IIIs managed to provide remarkably satisfying low-frequency reproduction. Although the bass was very well-defined for a budget loudspeaker, in absolute terms it didn’t have the tautness and detail of more expensive systems. Nevertheless, of the nine under-$1000 loudspeakers I’ve reviewed since the September issue (Vol.13 No.9), the Type K/IIIs have the best-integrated, most articulate, and musically satisfying low end.

I began the auditioning with the tweeter level control at 12 o’clock, as suggested by the “Optimum” marking at this location and also by Kevin Voecks. It was soon apparent, however, that there was too much treble energy with the knob set flat. I finally struck a balance between a forward, sizzly treble and one that lacked life and air, with the knob pointed at 7 o’clock as seen looking from the back. I don’t know if it’s a hearing peculiarity, but I find the vast majority of loudspeakers, especially inexpensive ones, far too bright. As a former hi-fi salesman, I’m well aware that a brighter loudspeaker will end up in the customer’s trunk far more easily than one with a more natural tonal balance. I therefore welcomed the addition of a tweeter level control on the Type K/II: it can be demonstrated with excessive HF energy, then the customer can turn down the treble once the charm of the exaggerated presentation wears thin. However, one of the level controls on the review samples sounded as though the wiper wasn’t making good contact: it made an intermittent scratchy sound as it was rotated. Despite the potential sonic problems of a tweeter level control, it was certainly nice to be able to tame down what would have been the Type K/II’s aggressive treble. I found that with the right amount of upper mid/low treble energy, the extreme treble was too prominent, giving cymbals a spitty and sizzly character. With the tweeter turned down for natural top-octave energy, the upper mids and lower treble were slightly lacking in life.

I found the Type K/II’s treble open, airy, and detailed, but with a trace of harshness to the textures. Unlike the Spica TC-50s, listening height was not that critical. (Even slight differences in height, like those due to sitting up straighter in the listening chair, produce significant changes in the TC-50’s upper-midrange and treble energies.) Overall, the Type K/II was brighter, more forward, and livelier than either the Phase Technology PC-80 or the TC-50. I think this impression comes partly from the Type K/II’s generally more forward presentation and harder textures, rather than from excess treble energy that could be tamed with the tweeter level control.

The midrange was remarkably smooth and uncolored, with no serious tonal aberrations. The flugelhorn on my own jazz recording was round and liquid, but a bit forward and prominent in the presentation. I had similar impressions about female vocals: the vocalist seemed to exist in front of the loudspeakers. The entire presentation could be characterized as forward, present, and immediate, rather than laid-back and distant. The Type K/IIIs had the ability to present fine inner detail of instruments, involving the listener in the performance. Transient detail, especially drums, was good, giving the Type K/IIIs an “up” or “alive” feel. They were the opposite of dull and boring.

Soundstaging was quite good, but the Type K/IIIs didn’t produce the tightly focused, rock-solid images heard through the Phase Technology PC-80 or Spica TC-50. Images tended to be less anchored within the soundstage, with slightly diffuse borders. However, soundstage

8 They are, Vol.13 No.9: the Dana Audio Model 1 ($1799/pair), Tannoy E11 ($349/pair), NHT Model 1.3 ($480/pair); in Vol.13 No.10: Mission Cyrus 782 ($900/pair), Fried Q4 ($490/pair), Triad System Seven ($1000 system), Plateau Camber 3.5ti ($699/pair); and the two loudspeakers reviewed here.

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transparency was excellent, giving the listener the ability to see toward the back of the presentation. The Type K/II’s also had a big, airy quality about them, the antithesis of closed-in or veiled. Soundstage depth was impressive, contributing to the feeling of openness and size produced by the Type K/II’s. Finally, it was easy to differentiate instruments within the soundstage, despite the less-than-precise focus.

**Measurements:** Playing the Listening Environment Diagnostic Recording (LEDR) from the Chesky Sampler and Test CD (JD37) produced fairly good “lateral” and “over” images, but with some discontinuities. The “up” image was noticeably poorer, with the image stopping just above the loudspeaker. Driving the loudspeaker with a variable-frequency sinewave oscillator revealed a lively cabinet, the enclosure vibrating significantly. Many resonances were detected, the most severe of them at 100Hz and 270Hz, which produced audible cabinet contributions to the tone. Rapping the enclosure with my knuckles produced a fairly lively tone.

Looking at fig.5, the Type K/II’s impedance magnitude (solid line) and phase angle (dotted line), the sealed-box tuning is evident from the single impedance peak which reaches 24.3 ohms at 65Hz. The impedance never drops below 4.5 ohms, thus should not present a too difficult load for an amplifier. However, an amplifier with some ability to drive current into low impedances is suggested.

Fig.2 shows the Type K/II’s FFT-derived, anechoic frequency response measured on the tweeter axis with the loudspeaker’s HF level control all the way up, spatially averaged across a 30° lateral window.9 The curve on the graph’s left-hand side is a nearfield measurement made with the Audio Precision System One, with the B&K microphone almost touching the woofer’s dustcap. A computer program JA wrote appends the nearfield measurement to the averaged MLSSA data, with approximate level matching between the two curves. Some irregularities between 500Hz and 3kHz can be seen, although the auditioning didn’t suggest problems in this region. Above 3kHz, the response rises rapidly, with a very large increase in energy above 10kHz. This is typical of the Vifa tweeter used in the Type K/II. This curve corresponds to my impression of too much top-octave energy, rather than excessive upper-midrange/lower-treble brightness. The relatively gentle low-frequency rolloff typical of a sealed box can be seen to start below about 75Hz, confirming the Type K/II’s specified –3dB point of 70Hz anechoic.

Looking at the time domain, the Type K/II’s impulse response is shown in fig.3 as measured from 48° away on the tweeter axis. Very little ringing can be seen. Fig.4 shows the Type K/II’s cumulative spectral decay plot. The decay is quite rapid, but with a little bit of hash between 5 and 10kHz as well as in the low treble. (The dark ridge at 16kHz is the computer monitor’s line-scanning frequency, and not part of the loudspeaker response.) The exaggerated treble can be expected to be less severe with the HF level control turned down, of course.

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9 All the MLSSA measurements on the K/II were made in TNN’s Los Angeles condo.
Conclusion: Despite my minor criticisms of its treble, the Snell Type K/II was eminently musical and enjoyable, with an overall spectral balance that was natural, open, and uncolored. The low-frequency performance was outstanding: tight, articulate, well-defined, and tuneful. The Type K/II's bass would have been excellent in an $800 loudspeaker; it's surprising to find such performance in a $465 product. However, I did drive the Type K/IIIs with the Krell KSA-250 and Threshold S/550e, both of which have stunning low-frequency presentations. Although the Type K/IIIs will most likely not be used with amplifiers of this caliber, this combination nevertheless reveals the loudspeaker's intrinsic ability to correctly reproduce the input signal.

The mids were open, unboxy, and free from spectral colorations, though a bit forward-balanced. Instruments were portrayed by the Type K/II with their individual tonal shadings intact, rather than being superimposed over the loudspeaker's editorial contribution. This ability to render natural timbral textures I think contributed to the Type K/II's surprising ability to convey the music presented them. I always felt drawn into, and intimate with, the musical performance.

During the review of the Krell KSA-250 and Threshold S/550e, I auditioned these superb amplifiers (as well as the VTLs) for a time with the Type K/IIIs. Even under such close scrutiny, the Type K/IIIs easily resolved the subtleties between these amplifiers. In fact, it was easy to forget I was listening to a pair of $465 loudspeakers.

Of the nine pairs of under-$1000 loudspeakers I've reviewed lately, the Type K/IIIs are perhaps the most musical, accurate, and enjoyable. No, they don't exceed every other loudspeaker in every area (the PC-80s imaged better, the Triad System Seven had a purer and more detailed midrange, the Mission Cyrus 782 was more dynamic, etc.), but for overall balance and musicality, the Type K/IIIs are my first choice. This judgment is perhaps due to the Type K/II's absence of glaring problems and their sense of balance rather than one specific area in which they excel. Ironically, they are also the third least expensive (after the $179/pair Dana Audios and $349 Tannoy E11s) in this ongoing survey.

The Type K/II's most serious competition is the Spica TC-50. I found the Type K/II to have a more up-front character, especially through the treble. Bass reproduction from the Type K/II was easily better in terms of depth, articulation, and detail. Despite the Type K/II's smoothness through the midrange, the TC-50 had an almost magical quality in this area (where most of the music is), as well as a smoother treble. Imaging was also superior though the TC-50. However, I found distracting the TC-50's requirement of maintaining exact listening height: straightening one's back in the chair produced a significant change in the tonal balance, a problem not found with the Type K/II.

The Snell Type K/II offers a surprisingly high level of musical performance for its modest price. I enthusiastically and unhesitatingly recommend it for audiophiles on a budget.
AVALON ECLIPSE LOUDSPEAKER

John Atkinson


"Boy, that's flat!" I whistled. I was looking at a quasi-anechoic TDS response Avalon Acoustics' Charles Hansen had produced for his latest brainchild, the two-way Eclipse loudspeaker that he was setting up in my listening room.

"Who is Charles Hansen?" I hear you muse.

"And who are Avalon Acoustics?"

Charles is a whimsical-looking Coloradan with a penchant for loudspeaker design; Avalon Acoustics is the company formed to manufacture and sell those designs. Those with a nose for recent history will remember the excellent...
sound to be found in the CES rooms shared by Avalon Acoustics and the Jeff Rowland Design Group.1 Such sonic fussbudgets as Lewis Lipnick were witnessed retreating to the Avalon/Rowland room for vital musical restimulation before proceeding on their rounds. Even a heart-hardened show stalwart like me was to be found hanging out in these rooms, enjoying such sonic delights as Thomas Dolby’s Aliens Ate My Buick or Kraftwerk’s Electric Cafe albums before heading back to the “zoos,” the hi-fi journalist’s not-so-affectionate term for the main display area of a CES.

The loudspeaker gracing these sonic oases was the first design produced by Charles Hansen for Avalon Acoustics, the three-way Ascent, selling in the more lofty high-end emporia for a whopping $15,000. Such diverse reviewers as Bebo Moroni, writing for Audio Review in Italy, and Michael Gindi, in the US’s Sounds Like... , have proclaimed the Ascent to be just about the best—ie, most neutral, most revealing, most sonically transparent—loudspeaker to be found around.

Nevertheless, a company’s fortunes are not to be built with a model selling well into five figures—one reason why David Wilson introduced the WATT—and it was an eminently sensible move for Avalon to expand their line with a more affordable model. (Though the word “affordable” needs to be equipped with more than the usual degree of elasticity when the new model, in its most basic guise, is to sell for more than $5000/pair.)

The Eclipse shares the same “leaning-backward” styling of the Ascent, though its crossover is internal rather than being in a separate box. The Eclipse also shares the Ascent’s unique beveled front baffle, which at its maximum is 4.5” thick. This contouring minimizes the baffle area in the vicinity of the tweeter, aiding a wide, smooth dispersion in the treble. The rigidly braced cabinet is built by Avalon, and to the knuckle test seems to resemble granite rather than some l igneous substance. It is available in two finishes: a gray Nextel selling for $5600/pair, and a superb, North-American hardwood veneer—Charles will not use a rainforest veneer—on all surfaces except the base, which raises the price to $7200/pair.

Despite these high prices, the Eclipse is a
two-way design. The tweeter is a modified version of the much-praised titanium-dome unit from MB in Germany, while the woofer is an expensive Eton driver featuring an edge-wound voice-coil, a cast basket, and a honeycomb cone fabricated from Kevlar and Nomex with a 7” radiating diameter. Unlike many high-end speakers, the Eclipses are recommended to be used with their grilles on. These consist of a vestigial graphite-reinforced nylon frame covered with black material. The entire space between the speaker baffle and the cloth is filled with felt, with holes cut in it for the driveunits to speak through. (That for the tweeter is beveled to minimize any cavity effect.) As supplied, the tweeters have wire-mesh cages over them. These are held on by the driver’s magnetic field, and once the Eclipses have been optimally positioned, Avalon recommends carefully removing these grilles.

The crossover is contained within a sealed chamber in the Eclipse’s base, with electrical connection via a downward-facing terminal strip within the speaker’s black-painted, 1.5”-deep plinth. Though this makes rapid cable changes awkward, the terminals do allow spice lugs to be firmly torqued down. (Since Audio Research’s Classic 60 became a more-or-less permanent fixture in my listening room, I have become a big fan of terminal strips rather than binding posts.) Although I didn’t examine the crossover, Avalon says that it’s made from very high-quality components, including air-cored, Litz-wired inductors and selected polypropylene-dielectric capacitors throughout.

Supplied with each pair of Eclipses are individual TDS frequency sweeps and a handsome hardbound book rather than a “manual.” As well as including comprehensive (and sensible) instructions on how to set up the Eclipses, this book contains an excellent essay on choosing a loudspeaker’s bass alignment. The sealed-box Eclipse’s bass alignment has a Q (quality factor) of 0.5, which Charles feels to be optimum for bass transient performance.

Review context
Source components used in the preparation of this review consisted of a Linn Sondek/Lingo/Ekos/Troika setup sitting on an ArchiDee table to play LPs, a Revox PR99 to play 15ips master tapes, and the Meridian 208 (Bitstream) CD player, this also used to drive the Stax DAC-X1t processor. Charles Hansen is a big fan of Con-
vergent Audio Technologies' SL-1 and recommended I use this tube preamplifier to get the best sound from the Eclipses. This didn't prove possible, however, so my preamplification consisted of initially a Mark Levinson No.26/No.25 combination, then either a Mod Squad Phono Drive EPS or my 1984-vintage Audio Research SP10 hooked into one of the line-level inputs of the Meridian 208 CD player. (The latter was also used to feed the power amps directly.) Power amps used with the Avalons included a Mark Levinson No.23.5 and a pair of No.20.5s, an Audio Research Classic 60, a pair of VTL Compact 160 tube monoblocks, and a pair of Rowland Model 1s, all connected to the preamplifier via 15' lengths of AudioQuest Lapis unbalanced interconnect. Speaker cable was 5' bi-wired lengths of Cardas Hexlink, this recommended by Avalon's Charles Hansen, but I also used 5' bi-wired lengths of AudioQuest Clear and double 5' runs of AudioQuest F14.

I use a mixture of nearfield, in-room, and quasi-anechoic FFT measurement techniques (using primarily DRA Labs' MLSSA system with a B&K 4006 microphone, but also an Audio Control Industrial SA-3050A 3-octave spectrum analyzer with its calibrated microphone) to investigate objective factors that might explain the sound heard. The speaker's nearfield low-frequency responses and impedance phase and amplitude were measured using Stereophile's Audio Precision System One.

**Sound**

Setting up the Eclipses in my 20' by 17' by 9', wood-frame-construction listening room proved somewhat problematic. As one of the longer walls consists of windows permanently covered with blinds, the only way to set up a pair of loudspeakers so that their acoustic environments are symmetrical is to place them along the other long wall. This tends to place the listening chair about 7' away from the speakers, which is on the close side. Although I rarely have trouble getting a good balance between low-bass extension and upper-bass flab—two recent exceptions were the Thiel CS5, where the upper bass remained slow, and the Hales 2 Signature, which was too lean—for a long time I could neither get weighty low bass nor clean upper bass no matter where I positioned the Eclipses. I have a number of 16' Tube Traps in the room corners to mop up a honk in the lower midrange, as well as one behind the listening seat to break up any immediate reflection from the wall. I did try removing all the Tube Traps from the room to loosen up the Eclipse's LF. Unfortunately, this made the room far too live-sounding in the lower mids, so I replaced the Traps.

Avalon's excellent handbook recommends that the distances between either speaker's woofer cone and the rear wall and between it and the sidewall not be closer than 33% of each other, with minimum distances of 24" and 48", respectively. Ultimately, however, with the help of Sitting Duck Software's "Listening Room" program, I ended up with each speaker some 66" away from its sidewall and 72" away from the wall behind them (59" from the front of the LPs that line the wall), which gave a light-weight but well-defined bass with the speakers driven by the VTLs, with enough fundamental weight for the sound still to be musically satisfying. (The sidewalls have almost floor-to-ceiling bookshelves at the points where the speakers would otherwise produce strong reflections.) Having found the optimum positioning, I placed three brass cones from German Acoustics under each speaker (one at the front, two at the back) to couple them to the tile-on-concrete floor under the carpet, and proceeded to run the speakers in with pink noise. Avalon recommends at least 100 hours of run-in, with 200 possibly being needed. I also used the speakers for several days of informal listening before taking any notes.

For my initial auditioning, the preamp and power amps were the Mark Levinson No.25/26 and the pair of No.20.5s that have been my reference for the last couple of years, connected to the speakers with AudioQuest Clear. Though the Eclipses did some things very well, the overall sound was disappointing. The high treble was tizzy, the low treble bright, and the lower midrange recessed, resulting in a lean, not very satisfying balance. It was also immediately obvious that the Eclipse was not without coloration. A slight "hee" effect could be heard on both orchestral strings and male speaking voice, the latter also acquiring a somewhat "hollow" character. Both of these effects could be heard with pink noise; listening to the woofer alone revealed it to be the source of the

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2 Reviewed last month by Thomas J. Norton, this inexpensive ($29.95) program for IBM PCs and compatibles is well worth the money. Sitting Duck Software can be contacted at PO. Box 150, Veneta, OR 97487. Tel: (503) 935-3982.
"hollowness" noted. Both, however, were relatively minor in degree and were swamped by the coloration differences between microphones on Track 5 of the Stereophile Test CD.\footnote{Available for \$8.95 including S&H. See the advertisement in this issue for ordering details.} Pink noise also revealed a basically smooth if lightweight balance, though some emphasis in the low treble could be heard.

Replacing the AudioQuest cable with the Cardas, then the No.20.5s with either the new Mark Levinson No.23.5 or the Jeff Rowland Model 1, rendered the high treble more musically natural, though the low-treble emphasis remained. Eliminating the Mark Levinson preamp from the chain and driving the power amplifier directly from the Meridian's variable outputs also reduced the feeling of treble glare. With all these solid-state power amplifiers, the low bass was extended, though too dry, in my room. It seemed to me that the Eclipses would benefit from tubes; accordingly, the Audio Research Classic 60 found its way into the system.

That was more like it! Though the Eclipses still offered rather a prominent treble, the midrange acquired more body, better balancing the highs. The sound was particularly true on good piano recordings. A current favorite of mine is Mitsuko Uchida's performance of Mozart's Sonata in C, K.330 (Philips 412 616-2), where Miss Uchida makes the piano sing. With the Eclipses driven by the Audio Research, the piano hovered at the speaker end of my room, every note true. The "eee" coloration noted with the solid-state amps, while still present, was significantly diminished. Then I substituted the pair of VTL Compact monoblocks, with their eight KT90s, for the Audio Research's eight triode-connected 6550s: the midrange became even more fleshed out, Miss Uchida's presence joining that of the piano.

Paradoxically, though both tube amplifiers had less tidy presentations of sub-80Hz bass than the solid-state amps, they actually proved to produce a more musically accessible upper bass. One of the more confused-sounding live recordings to grace my shelves is Miles Davis's 1982 We Want Miles album (Columbia C2 36005), where the kick drum and Marcus Miller's Fender share the same frequency region. With the tube amps driving the Eclipses, particularly the Classic 60 which offered a tighter upper bass, the two instruments held on to their own identities a little better, aided by the speaker's superb presentation of space.

It also took the Audio Research or VTL amplifiers to bring the mid-to-low bass to life. Even with the optimum positioning, however, the Eclipses didn't really go down much deeper than 40Hz or so, to judge from the warble-tone tracks on the Stereophile CD.\footnote{I was pleased to note in the November/December 1990 issue of The Absolute Sound that Steven Stone used these tones to assess the bass extension of the speakers he was reviewing. My motive for including them on the disc was to enable any audiophile to more consistently assess bass extension and smoothness—thus being able to optimize room placement—either by ear or with no more test equipment than this CD and an inexpensive Radio Shack level meter.} This was sufficient for enjoyable reproduction of organ recordings—there was just enough of the organ pedal tones on the superb Telarc recording of the Duruflé Requiem (CD-80135) to underpin the choir—but might be regarded by some audiophiles as a drawback in a speaker at this price level. Nevertheless, the quality of that bass was excellent. On Joni Mitchell's classic Don Juan's Reckless Daughter (Asylum BB-701), Jaco Pastorius announces the start of the track "Cotton Avenue" by hitting an awesome detuned C from his Fender Jazz bass. This was reproduced by the Eclipses in sufficient of its 32Hz-fundamental glory to thrill to the edge intellectually if not quite in full emotionally.

Yes, while never producing lows that approach the majesty of live rock, these Avalons probably have enough bass for all but the most picayune audiophile.

It was in the presentation of the recorded soundstage that the Eclipse excelled. My usual test for image specificity is the imaging test tracks on the Chesky Test CD (JD37). The Eclipses performed better than any speaker I've heard on this test apart from the big Thiels. Lateral images were tightly defined in space from left of left to right of right. (It was interesting that the reverberation excited by Bob Enders's voice remained pooled in the center rear of the soundstage no matter where the direct sound came from.) On the LEDR tests, the signals could be heard quite unambiguously to rise in the air above the loudspeaker, almost reaching ceiling height. This, again, is better than any speaker I've tried these tests with, apart from the CS5s.

Soundstage depth, too, was astonishingly deep. In fact, one friend who visited, impressed by the width and depth of the soundstage thrown by a pair of Eclipses, said that he felt the
speakers exaggerated the sense of space, almost as if one of the tweeters had been wired incorrectly. As measurement was later to show, this was not the case; the space reproduced by the Eclipse is genyoonie! These Avalons join Thiel’s C55 in doing the “disappearing-speaker” thing better than any other speaker I have heard. I’ve always thought the time-coherency of a speaker’s performance an important factor behind this ability. Yet though the C55 is time-coherent and the Eclipse not, due to its high-order crossover, both are equally excellent.

The imaging excellence offered by the Eclipses seemed to be a function both of their superb image specificity in every plane and also of an astonishing lack of midrange and treble grunde that allows every reverberant morsel of sound to be savored. The title track on Michael Hedges’s Aerial Boundaries album (Windham Hill WD-1032) has an upfront balance, but via the Eclipses the guitarist could be heard illuminating a huge dome of ample with his shattered bass notes, with the occasionally excited flutter echoes presented well to the outside edges of the loudspeakers.

Well-recorded classical music benefited in spades from this ability of the Eclipses to retrieve even the finest amount of ambience from recordings. My listening notes repeatedly featured the words “delicate” or “exquisite” in this regard. Elsewhere in this issue, Gordon Holt recommends the Bruno Walter performance of Beethoven’s “Pastoral” Symphony. Surely he jests, thought I, recommending this 30-year-old John McClure–produced CBS recording. After all, wasn’t it Mr. McClure who was responsible for those bright, thin Columbia classical recordings of Stravinsky and Bernstein? So I bought the CD release (MYK 36720), and do you know, Gordon was right. Tonal problems apart, the sense of space on this disc as reproduced by the Cardas–linked, tube-driven Eclipses sent a shiver down my spine.

This was as true for mono recordings. A much-played set of records in the Atkinson household is the Smithsonian Virtuoso collection of 78 and early tape transcriptions. On Artur Rubinstein’s 1938 performances of piano works by Fauré, Poulenc, de Falla, and Chopin, the Eclipses threw a superb sense of image depth, the piano being distinctly set behind the loudspeakers, with a natural tonality. Even the live Glasnost/Mondial CD, which even the most enthusiastic member of the party-goer audience would not say has been recorded with audiophile sound quality,6 reproduced via the Eclipses with a terrific sense of “there” there, sonic warts’n’all.

So given that its intrinsic balance in-room will be on the bright side, making it unkind to electronics other than of the thermionic kind, its bass is reticent though clean, and that it throws a superbly defined, wide, deep, deep soundstage, what else is there to say about the Eclipse? Only that its dynamics were limited in a way that I found surprising, given the speaker’s superbly clean presentation.

My positive comments were all noted when the playback level was held within strict bounds, in which case the music’s ebb and flow were superbly presented. However, although massed soprano voices, such as those on the Telarc Durufle disc above, had a very true tonality at moderate playback levels, they took on a distinctly strident rattle when the going got loud, causing me to leap for the volume control. Couple that quality with the speaker’s brightish balance with solid-state amplifiers, and I eventually just wanted to turn the sound off with less than audiophile-quality recordings. Take the “My Man’s Gone Now” track from the aforementioned Miles Davis album: if I set the playback level so that the opening bass and drum sounded true, allowing me to be enveloped in the sense of space and sonic communication, when Miles’s trumpet (which admittedly has been recorded on the bright side) entered, it tended to rip my head open every time he ventured to the top of the treble staff and above unless I turned down the volume to the point where serious listening was not really possible.

Sonic heaven with the right ancillaries and with spls ranging between 75 and 95dB, with a feeling of effortlessness to its sound, the Eclipse acquires an unmusically hard quality to its sound at 96dB or above. This is all the more disturbing in that, due to the speaker’s exceptional transparency, the listener is given no forewarning sense of increasing strain.

Avalon pointed out that this threshold could possibly be due to the onset of amplifier clip-

5 Featuring a high-end band of 30-something magazine writers and manufacturers (including yours truly on Fender bass), this recording was made with a single-point microphone and the Colossus digital recording system. It’s yours for a $15 donation to MADD-LA. Write to Bainbridge Records at P.O. Box 8248, Van Nuys, CA 91409-8248.

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ping. Although the average level of the drive signal to the Eclipses at this level was around 11.75V RMS, supposedly well within the capability of either the Audio Research or VTL amplifiers, capturing the loudest waveforms with a storage 'scope did reveal the peak voltages at these spls to reach ±33V (Classic 60) and ±37V (VTL) (implying that the choral signal had a peak/mean ratio of 10dB or so). These voltages are uncomfortably close to the amplifiers' measured clipping voltages at 1kHz into the Eclipse of ±34.8V and ±47V, respectively. Substituting a 500W VTL amplifier gave a 4dB or so increase in acceptable level from the pair of Eclipses before the onset of hardness on the Durufle Requiem, suggesting that Avalon did have a point. However, as the more powerful amplifier was nowhere near clipping at 100dB levels in-room, the threshold of audible hardness would now be due to the speakers running out of dynamic range.

For the last listening session, I thought I'd return to the Jeff Rowland Model 1, this time using two of the amplifiers, bi-amping each speaker with each stereo amplifier. In this way, with the help of a Bourns 10k stereo pot in the feed to the HF amplifiers, I could lower the tweeter level by arbitrary amounts, which might help the sound of the speakers driven by the solid-state amplifiers to match the much better sound obtained with the tubed models. The only cable that I had four equal lengths of was the inexpensive (79¢/foot) AudioQuest Fl4. This proved to be surprisingly good in this application, though it lost out in low-bass weight to the more expensive cables, and the speaker's lower-treble emphasis became even more apparent.

The results were inconclusive overall. On typical multi-miked, vividly balanced classical recordings—London's Rachmaninoff symphonies from Ashkenazy (411 657-2), for example—lowering the treble level by 2dB or so brought the sound into better focus, rendering instrumental textures closer to the live sound of an orchestra without smearing the Eclipse's superbly transparent stage. But on more naturally miked recordings, particularly those of solo piano, choosing the exact tweeter level involved a complicated trade-off involving balancing the exact amount of top-octave air against the lower-treble glare. And during all this auditioning, the upper bass was a little too thick, the lower bass a little too dry, for ultimate musical satisfaction when compared with that produced by either the VTLs or the Classic 60.

A high-quality, high-power tube amplifier must be used, therefore, if the Eclipses are to give their musical all to their owners.

Measurements

The first thing I wanted to examine was why the sound of the Eclipses seemed so dependent on the amplifier with which it was driven. Accordingly I measured the frequency response of four of the amplifiers I used it with while hooked up to the speakers. The results are shown in fig.1, which plots, from top to bottom, the responses of the Rowland Model One, Mark Levinson No.23.5, Audio Research Classic 60, and VTL Compact 160 monoblock. Note that both the solid-state amplifiers acquire a quarter-dB or so of top-octave boost when hooked up to the Eclipse. More important, note how the relatively high output impedances of the two transformer-coupled tube amplifiers results in a significant modification of their frequency responses, due to the voltage-divider interaction between their output impedance and the speaker impedance.

Fig.2 shows the Eclipse's impedance amplitude and phase; note that it follows the shapes of the lower two curves in fig.1 exactly. This effect is nothing new. But the Avalon's basic sound changes with the tube amplifiers in that a welcome degree of midrange emphasis is added, about 1dB with the Classic 60 and about 1.5dB with the VTL, which more successfully balances the speaker's treble. The tube amplifiers also slightly but usefully fatten the low bass while reducing the energy in the upper bass, a region where the Eclipse tends to be a little overgenerous, at least in my room. Used with the Audio Research and VTL amplifiers, the Eclipse is altogether a more finely balanced loudspeaker, in my opinion.

Returning to fig.2, the sealed-box woofer tuning results in a high peak of 34.5 ohms at 36Hz. Though the spec implies an impedance not varying much from 6 ohms, there is a simi-
lar peak in the midrange due to the crossover, this set to quite a low frequency (below 1kHz, in fact). The high impedances of these peaks will result in more of an interaction between the Eclipse and amplifiers with a highish output impedance, as shown in fig.1. As the impedance doesn't drop below 7 ohms, with high phase angles only present at frequencies when the value is high, the Eclipse represents an easy load for any amplifier to drive, more like 8 ohms than the specified 6. Its lowish sensitivity— it measured 4dB louder than the LS3/5a with a 1/2-octave-wide warble tone centered on 1kHz, approximately equivalent to 87dB/W/m— means that low-powered amplifiers must be avoided.

To look at the Eclipse's anechoic frequency response, I hoisted it onto a 40"-high platform in my yard, well away from the adobe walls, placing the first reflection of its sound, that from the lawn, more than 7ms after the arrival of the direct sound at the microphone, which was 55" away from the tweeter. This 7ms time window means that the MLSSA-derived quasi-anechoic response will be accurate down to a frequency of 140Hz. Below that frequency, I plotted the Eclipse's nearfield response with the mike almost touching the woofer's dustcap. This is shown to the left of fig.3, and shows the Eclipse to dig down reasonably deep in the bass, being -6dB down (with respect to the level at 100Hz) at the sealed-box tuning frequency of 36Hz, comfortably below the bottom note of the double-bass and bass guitar. (The Eclipse was driven with a Mark Levinson No.20.5 for all the MLSSA frequency-response measurements.)

To the right of fig.3 is shown the anechoic response on the tweeter axis at 55" averaged across a 30° horizontal window. The response trend is pretty smooth, apart from the slight excess of energy in the very top octave, most of which will be above the typical listener's range of hearing. The sharp spike at 25kHz is due to the tweeter's "oil-can" resonance and will also be inaudible. Some minor blips can be seen around 2kHz, but these are not nearly pronounced enough to indicate why the Eclipse's sound should be bright. For comparison, fig.4
shows Avalon's own quasi-anechoic curves for this speaker, measured with the Crown TEF system from 20Hz to 350Hz with 9Hz resolution and from 350Hz to 20kHz with 200Hz resolution. (This is the curve I whistled at earlier.) Broadly similar to fig.3 in that both feature a degree of boost between 1 and 2kHz, it shows more of a problem between 3 and 5kHz, though its top octave is somewhat depressed by comparison, which could be due to a difference in microphone response.

Looking at the manner in which the Eclipse's output changes with listening height, the speaker's balance remains pretty constant as the listener's ears move from about 27" to 40" from the ground, indicating the presence of a high-order crossover. It is only when the listener stands that a significant notch appears in the speaker's output around the crossover frequency.

To look at how these quasi-anechoic responses translate to what would be heard in a room, I take 20 1/3-octave spectral responses of left and right speakers individually across a 72" by 20" window centered on the listening seat and average them with a slight weighting toward the listening position. This has proven to give quite good correlation with the subjective balance in my room, which has reasonably live acoustics. This spatially averaged response for the Eclipse, again with the speakers driven by the Mark Levinson amplifiers, is shown in fig.5. Note the excess of energy in the upper bass, the exact region which fig.1 indicated would be subdued a little by the tube amplifiers.

Note also the broad excess of energy in the lower treble. Here, I suspect, is one of the reasons why the Eclipse can sound lean with solid-state amplification and why it is so revealing of preamp and CD-player treble problems. Despite its having a fundamentally flat on-axis response, the speaker's wide dispersion in the treble results in too much lower-treble energy in the room, right in the frequency region where the ear is most sensitive. With a typical tube amplifier, the slight rise in midrange energy will balance the treble to what subjectively turns out to be quite a significant extent, though the speaker still could never be called reticent. The typical upper-midrange depression offered by most moving-coil pickups will also make the Eclipse's sound better balanced when compared with CD sources.

The curve shown in fig.5 also explains the results of my bi-amping experiments with the Rowlands. The exaggerated region in fig.5 is just above the speaker's crossover point. Lowering the tweeter level by even a couple of dB usefully hinges down the response, achieving a better match between the midrange and the low treble. However, this will do nothing about the in-room upper-bass thickness I noticed during the bi-amped auditioning.

Turning to the time domain, the Eclipse's impulse response (fig.6) is typical of a design using a high-order crossover and a metal-dome tweeter. Looking at the individual impulse responses of the tweeter and woofer (not shown) reveals that they are connected with the same polarity. (Repeating the measurements for the other speaker of the pair revealed identical behavior, proving that the wide, deep soundstage thrown by the Eclipses was not due to any drive-unit misconnection.)

Looking at the manner in which the fig.6 impulse response decays gives the "waterfall" plot in fig.7. With the exception of some non-sense between 1 and 2kHz, the decay is exceptionally clean in the treble, which undoubtedly contributes to the speaker's transparency and impressive sense of image space. Repeating the measurement for the woofer alone with 15Hz resolution, however, shows that the woofer does contribute some resonant hash in the midrange (fig.8), perhaps due to the cabinet, which might contribute to the feeling of hard-
ness I felt the speaker's sound to acquire at high levels.

I also felt it worth looking at the Eclipse's distortion performance at the lower end of the tweeter's passband. The impedance plot (fig.2) implies a low crossover frequency for the 1" dome unit. A representative of MB, the unit's manufacturer, recently mentioned to me that using this tweeter to lower than 2kHz or so was "unwise." In the main, the tweeter appeared to be a low-distortion device. Even at a high 93dB level (measured at 1m), for example, the total distortion imposed on a 2kHz tone by the tweeter lay at a low 0.3%. And two octaves lower, the distortion added by the woofer to a 499Hz tone at the same spl was very low, at around 0.1%. But as can be seen from the spectrum of distortion products in fig.9, changing the frequency to 1kHz and driving the tweeter at this level results in a more than 10-fold increase in distortion. The second harmonic measures just 37dB down, or 1.4%, though the third remains 54dB down at 0.2%. These figures are more typical of a two-way monitor.

The woofer will be making about the same contribution to the sound at 1kHz, so I also looked at its distortion spectrum at the identical drive level (around 7V RMS). Though the second harmonic is below -60dB, 0.1%, the third is on the edge of audibility at -47dB, or 0.45%. Looking at the overall distortion at 1kHz with both drive-units driven at this level (fig.10), it can be seen that the second harmonic from the tweeter and the third from the woofer are the major distortion products, both appear-

![Fig.7 Avalon Eclipse, cumulative spectral-decay plot](image1)

![Fig.8 Avalon Eclipse woofer, nearfield cumulative spectral-decay plot (note 15ms time axis)](image2)
ing at levels which will be audible. Dropping the spl to a moderate 86dB results in the tweeter's second harmonic reducing to a more reasonable −43dB, or 0.7%.

As neither the Classic 60 nor the VTL 160 amplifiers were near clipping at this level, I have to conclude from these measurements that these relatively high levels of distortion from signals around the Eclipse's crossover region, coupled with its treble-forward in-room balance, probably contribute to the hardness and stridency I noted at high playback levels, particularly as the distortion products fall in the exact region where the ear is most sensitive.

**Conclusion**

This was one of the hardest reviews I've had to write. The Eclipse offered me deep, lasting glimpses of audio heaven on a consistent basis. More than once, however, it had me shuttering the system down in pure frustration. And at a price for the veneer-finished version approaching 50% greater than the B&W 801, which, while falling short of the American speaker's transparency, will play much louder and dig much deeper in the bass, the two-way Eclipse suffers fierce competition in the market place. A WATT/Puppy combination or a pair of Thiel CS5s costs not a lot more. And while the plain-jane Nextel-finished Eclipse is significantly less expensive at $5600, it must be said that the $2000/pair Apogee Stages offer a less colored, more musically believable midrange presentation.

In absolute terms, I feel Charles Hansen's decision to make Avalon's more affordable design a two-way has to be judged a qualified success. The fact that the Eclipse is itself on the verge of producing an unacceptably bright, overly strident sound explains why it is so sensitive to changes in amplifiers, cables, source components, and playback level. 6

But oh, that soundstage, that sense of space!

Based on my preliminary auditioning of the Avalon Eclipse, I placed a provisional recommendation for it in Class A of the "Recommended Components" listing that appeared in the October 1990 issue. My experience has been that a Class A recommendation seems almost a guarantee that the loudspeaker will be fuzzy, finicky, and demanding of much TLC before it will give anything like a Class A sound. Such is certainly the case with the Eclipse: with the wrong amplifier or the wrong CD source, or the wrong pickup cartridge, it will produce a sound that, while detailed, will be too lean, clean, and mean.

But choose your CD player for the maximum musical retrieval (better still, if you haven't a Stax or VTL processor, stick with LPs played with a good MC) and drive the Avalons with high-quality, high-powered tubes, and, provided you neither want to burst the walls with bass or play rock or classical orchestral music at levels approaching those experienced live, the Eclipses will then provide you with a hugely transparent, Class-A view into the soundstage to rival that thrown by a pair of Thiel CS5s or Apogee Divas. Particularly if your first love is chamber music or solo piano. (As I write this, I'm listening to the Handel Chaconne on the excellent Kabi Laretei Close-Ups album, Proprius PROP 7829, on the Eclipses driven by the VTL mono-blocks with levels set to 94dB peak. I have to say that I have not heard a more realistic, more palpable piano sound in my listening room.) While I cannot give Avalon's Eclipse a wholehearted recommendation, therefore, I can say to those who value imaging finesse and a sense of musical envelopment over all other aspects of reproduction (as I have been known to do), "Go forth with your tube amps and LP player — check out the Eclipse for yourself!"

7 In this regard, the Eclipse actually proved a superb reviewing tool.
8 It is fair to point out that Avalon claims that the Eclipse's neutrality and transparency more clearly reveal problems with everything else in the system, a claim that I have a hard time fully identifying with. Carried to the limit, it means that it will be impossible to enjoy all but one record via the Eclipses, probably only once.

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Sterephile, January 1991
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*Recommended Component*, October 1990, (Vol. 13, No. 10), Stereophile

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The passing of Leonard Bernstein on October 14, 1990, hit New York's cultural community with a sense of shock and loss without precedent in my experience. It should have come as no surprise. Portentous and ominous signs during the summer included cancellation of the long-awaited European tour with the Berkshire Music Center Orchestra. Then came reports, from those who had journeyed to Tanglewood for his annual summer BSO concert, of a figure once identified with the very essence of vitality now in extreme distress. Finally, the early-October cancellation of all his performing engagements, the announcement of his retirement from public life, and his plans to compose and write, somehow rang false. Lenny was nothing if not confirmed workaholic. A person like Lenny does not retire from anything. There were inside rumors of oxygen tents and respirators. Yet the news, which for me flashed up on a TV screen tuned to CNN, struck like a thunderbolt, as it did for virtually everyone—as though this were the passing of a head of state, or a family member.

Those of us of the generation between childhood and adulthood who incorporated music into our lives during the 1950s watched Leonard Bernstein climb from an engaging upstart who shocked our elders by composing Broadway shows and conducting symphonies, who jumped up and down too much, and was entirely too cute and too hip to be involved with the immortal classics, to become one of the undisputed elder statesmen of music. He moved in virtually all of the profession's various milieux, and was a family member of the New York, Israel, and Vienna Philharmonics, not to mention the Concertgebouw, Bavarian Radio, LSO, CSO, BSO, and others over the years too numerous to mention. Even more numerous were the show bands, rock bands, and jazz combos.

By virtue of his outspoken eloquence, and an apparently insatiable need to understand and experience everything, he had either placed or found himself in key spots at key moments. Being the first American, and a Jewish-American at that, to conduct in Germany at the close of WWII, has to epitomize the idea of being in the right place at the right time, as did his early appearances with the Israel Philharmonic in 1948, during the War of Independence. And that's not to mention the historic New York Philharmonic broadcast debut, all of which was mythical ancient history by the 1950s. Far in the future lay an audio/video Beethoven 9th to commemorate the collapse of a yet-unbuilt wall through the city of Berlin.

Currently running were the "Omnibus" TV programs, and later, the live TV coverage of the Saturday morning NYP Young Persons' Concerts. In order to appreciate the impact of all this, one would have to know what had passed for "music appreciation" before Bernstein—largely reticent elderly men or pompous matrons. Lenny was one of the early media naturals. It's little wonder that he not only enhanced his own fortunes, but those of the entire profession simultaneously.

During the '60s, his outspoken eloquence, perhaps even an element of brashness in his advocacy of radical and anti-war causes, would earn him a place on the Nixon Administration's enemy list. But he was where he wanted to be, not merely observing the history of his time but acting upon it in any way he could, right in the thick of things, reminding us, if we needed reminding, that cultural leaders do not live apart from the lives and times of their societies.

For us '50s, '60s, '70s, and '80s "music kids," Lenny was the tour guide who made it all pos-

1 Richard Schneider played tuba under Bernstein in the Israel Philharmonic.
sible. We may not have realized it if we became idolatrous fans of Toscanini, Reiner, or Walter; or Callas, Tebaldi, or Björling. But it was Lenny who showed us more than how to like what we would know and to know what we would like. Later on, as we grew up, we started taking him for granted. Sure he was great, but he seemed to always be there as though he always would be there, turning up everywhere, doing everything. Unevenly and excessively at times, but we knew, better than our childhood elders could have imagined, that we could count on him for a memorable experience—always. And that goes for those of us who worked under his direction, as well as those who experienced the end product.

He had a lot to teach us, and he did his damnedest to see it got learned. But he’s gone now. He’s left behind one of the most meticulously documented musical careers in history, and I’m certain that, over the years, all that audio and video will be heard and seen. But we’re still on our own.

We appear to be riding a crest of cultural prosperity, with orchestras, operas, and ballets virtually everywhere, and zillions of recordings of everything by everyone, waiting to be plucked from the shelves of record supermarkets. Who made that possible? No. Not all by himself. But if Bernstein wasn’t one of the key players, I’d like to know who was. More important, we need to remind ourselves that this apparent cultural cornucopia is highly vulnerable, subject to collapse in the kind of the absence of support which flows toward it during periods activated by the type of scholar, performer, and showman who was the late Leonard Bernstein.

Whether we like it or not, culture needs at least one major showman as a spokesperson, and we now seem to be bereft. On the other hand, we may be far too close to the current situation to really assess the potential of our current crop of performers, scholars, and upstarts.

One of Lenny’s favorite Charles Ives works was The Unanswered Question. Like all great artists, as well as those who appreciate great art, Lenny loved ambiguity. While we ride the apparent crest of cultural prosperity, we could just as easily find ourselves adrift on a sea of ambiguity, politically, economically, morally, and culturally. Lenny picked a hell of a time to bow out, but he didn’t have answers to unanswered questions. Only further questions.

It’s up to us to ask the questions now.—RS

Leonard Bernstein chips away at the Berlin Wall

My friend Paul Seydor, passionate in his devotion to Leonard Bernstein’s art, put it in best perspective: “What if he’d died before the breaking down of the Berlin Wall?” Paul asked me rhetorically in a phone conversation the day after Bernstein’s burial, “Who would’ve conducted the Beethoven Ninth?”

Who indeed? Amid a generation of lookalike conductors who largely abjured personal interpretation in favor of “objective” readings of the classics—in truth mostly derived from the titanic interpretations of Arturo Toscanini, cast into orthodoxy in the decades after his death—Bernstein stood almost alone as an interpreter of Western classical music able to reach past the score and draw upon the collective unconscious, and upon the commodious reserves of his own Faustian soul.

Who could have stood in for him that day? Who can succeed him? Who to inherit the flame from this man who lived at the heart of Western music through the nearly 30 years that the Wall stood? Certainly not those students Bernstein inspired in America—Ozawa, Slatkin, and Michael Tilson Thomas, uniformly competent artists but rarely artists of genius, and immensely less communicative than Bernstein. Even James Levine, the American conductor with the most imminent appointment with greatness, despite the occasional exhilarat-
ing performance of Beethoven or lacerating recording of Mahler, in the main still clings to that mold which our musical doxologists have cast from Toscanini's death-mask.

Nor is the situation more promising among those born on the other side of the Atlantic, where the cynosure of history appears to have migrated. The new podium occupants in Berlin and Amsterdam have shown some skill in selling recordings and receiving praise from the musical press; almost as if leading some Herbert von Karajan ghost-band, the PolyGram marketing cyborg ticks on uninterrupted even after that conductor's passion has expired. But they have shown scarce ability to kindle any fire of primal excitement. And Simon Rattle, the brightest of Europe's young generation of conductors, is still a question mark, occasionally raising the fear in the breasts of those admirers with no axe to grind (I count myself as one) that maybe he has shot his wad while still in his young 30s.

No, the Berlin celebration had to have Bernstein, the charismatic figure who had pulled so many rabbits out of his hat, and had almost alone breathed new life into the classical repertoire, eschewing the roles of doxologist and archivist so prevalent among living conductors.

Of course, had Karajan lived a little longer, a real choice would have been forced; Karajan might have got the nod that day in Berlin, given his incumbency in that city. The spectacle of the ex-Nazi rather than Bernstein presiding over the inception of the Fourth Reich would have provided a radically different, and I think pathological, context. It is only fit that the hypothetical choice must be between these two artists, for during the three decades that the Wall stood, Bernstein and Karajan came to embody two poles of musical culture: Bernstein the man who lives for the moment, trusts his instincts and their connection to his deeper psyche, and interprets the music of which he is caretaker; Karajan the perfectionist in execution, figurehead of a corporate empire the central resource of which was the Berlin Philharmonic Orchestra, which he molded into perhaps history's greatest virtuoso ensemble, with the broadest repertoire. The polarity between the two becomes all the more telling when one recalls that the young Karajan, during his Third Reich years, developed his efficient style in opposition to the style of his first great rival, the very personal and idiosyncratic interpreter Wilhelm Furtwängler.

Furtwängler, like Bernstein, was an artist of inspiration, a chance-taker and communicator able to construct a conduit directly between his psyche and his audience. But it would be a mistake to assume that there was real com-
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monality in the sources of their art, and especially wrong to assign them to the same performing tradition. Furtwängler truly descended from the Teutonic tradition, and the incantatory rites which were his concerts harken back to the misty, barely Christian time a millennium ago when men convened, deliberated, and blood-fed at the Icelandic Althing.

Bernstein enjoyed no such direct connection to the soil and mist of Europe, nor to any history of conventionally classical music. His intellectual confessors were notably not interpreters of classical music, but were those fast-burning American men who matured after 1945, incubated by the possibility of nuclear holocaust, haunted by their apprehension of state-scientific terror and the conformist imperative of the modern corporation, united in the conviction that they could build new worlds upon the discredited ruins of past tradition employing little more for material than the violent and improvisational brilliance of their masculine sexuality. They included John Kennedy in politics, Marlon Brando, James Dean, Sam Peckinpah, John Huston, and perhaps George C. Scott in cinema, and, most suggestively, Norman Mailer and William S. Burroughs in literature (also by grandfather-clause their progenitor, Hemingway). Mailer’s name and works are, as so often, the most promiscuously multivalent in this context, and I know that I am not the first, and can scarcely be the last, to invoke his 1957 essay “The White Negro” (truly a birth certificate for the postwar generation of American hipster existentialists) as a touchstone for the generation that included Bernstein, and for Bernstein himself.

Mailer calls it like it is, tagging his hipster as a psychopath in an aberrant social matrix which turns psychopathy on its ear, and as “one [who] exists in the present, that enormous present which is without past or future, memory or planned intention.” This emphasis on present existence and the unrefined action which stems from the present reveals that it was not Furtwängler’s Teutonic strain which was Bernstein’s birthright, but jazz, the ultimate artform of the improviser and libertine. “For jazz is orgasm, it is the music of orgasm, good orgasm and bad,” Mailer writes, celebrating the signature music of his hipster. Especially in his early New York career, Bernstein made art which was silverbright and new and desultory and seemed disdainful of the accretions of musical tradition which had come to envelop even Toscanini’s shade. In his toppling of the conductor icons who preceded him, Bernstein echoed the insolent, psychotic incandescence of the bebop artists, Parker and Gillespie and Bud Powell and the young Miles Davis, who had abnegated the sweet sacred inheritance of their own Swing progenitors, flouted yet celebrated the very alienation of their peripheral situation in a disequilibrated and pathological society.

The portrayal of Bernstein as Mailerian hipster has its limits. A vital thread of that hipster’s personality is his intense desire for, indeed dependence upon, anonymity; a life-need to exist in the shadows, immune from the straight life, invisible to the thought cops and irrelevant to the cultural establishment. Bernstein hardly fit this description, living an aggressively public life almost to the point of self-analysis by proclamation. Mailer’s hipster also lives disconnected from past history. Bernstein, despite his short conducting apprenticeship and wilful creative practices, also had the tremendous perceptiveness about history to recognize in the close of Mahler’s *Das Lied von der Erde* “the last C-major triad of all Faustian history,” a perception that with feeling speaks as profoundly as two volumes of Spengler. This reveals that facet of Bernstein’s destiny which allowed him to transcend any externally imposed roles as *Wunderkind* or media idol: as he grew as a conductor, deepened his repertoire, and conquered cultural Europe, Bernstein came to inhabit and fill the interstice between the European history which he came temporarily to possess, on his own terms, and the improvisational American soul which possessed him.

Bernstein grew old, he looked deep into his own Faustian self, he synthesized. Again, borrowing from Mailer, on his hipster: “...his associational journey into the past is lived out in the theatre of the present, and he exists for those charged situations where his senses are so alive that he can be aware actively.” If, as Mailer goes on to write, the hipster seeks love as a succession of ever more apocalyptic orgasms, we must consider that the man who chooses the life of spiritual risk might find his ultimate orgasm in death, or at least the apprehension of death. And so it was that, late in his career, Bernstein made several cathartic and endlessly controversial recordings of sympho-
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nies written when their composers were near death: the Mahler 9, Tchaikovsky 6, and a Bruckner 9 which I understand to have been recorded, now awaiting release. The method of the conductor’s last ten years is still based on individual inspiration, but the focus is now on things eternal. In these exasperating readings, interminable, noisy, and self-indulgent though they appear on the surface, we hear again Bernstein as incantatory jazzman in spirit if not by race or practice. No longer the mocking bebopper, instead he projects outside time to higher spheres, as if extending musical kinship with the last improvisations of John Coltrane, that saxophonist’s meditations also sounding indolent and impenetrable upon first hearing, but, heard anew, providing accessible and supremely devotional experiences.

No, only Bernstein retained the right to wield the baton in the city of the ruined Wall. It wasn’t only that the occasion provided the salutary image of an American Jew rather than an ex-Nazi celebrating the collapse of one-half of the postwar materialist dialectic. It marked also the passing of the Western musical tradition back to Europe from the America which had been its guarantor for two generations, two violent and painful generations when Bernstein’s magic and the magic of others kept the Western strain growing and animated even while severed from its native rootstock, grafting it upon more prodigious if also more protean American vines while the European plant recovered (or has it truly recovered?) from infestation by the sucking lice of fratricide.

And Bernstein leaves no school, no clear successors in the artistic life of America. How could he? Charismatic leaders almost always leave a crisis of succession, and one whose promethean abilities swing an idiosyncratic arc through so many areas of achievement as Bernstein’s can mentor no successors worthy of all his aspects: that would contradict and smother the necessary wilful brilliance of those successors. So there were no proper successors to Franklin or Jefferson or Goethe, only acolytes, codifiers, and mythologizers. Bernstein’s art, integrated across so many fields, also leaves those who follow him as bereft of new expressive vocabularies as would any outrageous individual work of mind with truly centripetal, summarizing force (one thinks of Beethoven’s late string quartets, Joyce’s Ulysses, the quantum mechanics of Planck and Heisenberg, and Coltrane’s Love Supreme). Which implies the need for revolution, not disciples.

The death of so mythic a character as Bernstein is necessarily rich in symbol and possibilities for solutions, for it also suggests the approaching demise of the distortedly masculine self-absorption which is the dark side of Bernstein’s generation, and which has substituted for a more nurturing devotional life through most of the cynical years of this quantitative century. It is the hipster icon which the new generation must topple. Bernstein’s death closes one circle of the Faustian history which, vampire-like, has outlived its natural rhythm; his senescent Eros has connected with the same old Thanatos, and any young successor who aspires to make his statement using the exclusive vocabulary of masculinity, sex, and orgasm, which 40 years ago presented an untapped artistic vein to the likes of Mailer and Bernstein, will find it mined to absurd extinction in the liberalized media which those artists heralded, and about which we sometimes feel ambivalent today. The next liberating revolution will have to come from artists more connected to feminine and nurturing exigencies. (To personify with a question: will Simon Rattle manage to balance his twin imperatives of making transcendental art and raising a family?)

A new conductor who aspires to symbolize the healing effect of art for the next reunited Berlin will benefit from no Leonard Bernstein school of performance, but he—or she—can take revolutionary inspiration from him. I see one imperative lesson, which I relate in the form of a grossly belated reply to a correspondence from the father of the young American conductor Andrew Litton. George Litton sent me a cassette tape of a 1988 BBC radio interview in which his son explains that he had recorded Mahler’s youthful first symphony, rather than one of the later symphonies, because the later works, tortured as they are and endlessly suggestive of ultimate things, were not material appropriate for a young conductor.

Andrew, if Lenny has anything to teach you, it’s that you must not behave yourself, mustn’t do what is expected of you. Do what you must, unafraid to make the outrageous mistake, to wed hopelessly incompatible elements, to attempt that for which you are unqualified. Someday, someone will, rightly, call what you have done transcendent art. —KC

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Beethoven is a lion not easily tamed, but Previn, in this latest installment of his ongoing cycle of the composer’s symphonies, has managed to do it. To be more specific, these performances scale heights of blandness unmatched in any other accounts of this music that I have ever heard. Nothing, to be sure, is mannered or affected, but no interpretive risks are taken, no feeling or insight displayed. It is as if conductor and orchestra were going through these scores dutifully but indifferently, with little, if any, attention to nuance, rhythmic suppleness, or shadings of dynamic and emotional contrasts. As a result, virtually all of the music’s wit, tension, and brusque erupitive force are neutralized. Italicizing such interpretive flaws is an unnaturally immediate perspective that makes winds sound breathy and has nothing to do with the kind of sound one experiences even from the best of close-up seats in the concert hall. Previn observes all exposition repeats, but in the context of his faceless readings, this wise practice merely prolongs the boredom.

Among currently available editions of 4 and 8, Karajan’s (DG Galleria) and Bernstein’s (DG) are among the best to be had, and Keitel’s (Capriccio) offers the best combination of sound and interpretation. If sound is not a prime consideration, the Szell 8 (CBS) shines as one of that conductor’s finest Beethoven efforts.

—Mortimer H. Frank

Dohnányi’s Bruckner 9 moves apace, practically motoring across the first two of its three movements of cosmic expanse. The effect of the conductor’s efficiency is to drain the music of much depth and anguish, aspects vital to Bruckner’s devotional meaning. The first movement suffers from this especially, as when the woodwinds rush mechanically into their dotted theme at m.285, with no pause to consider in silence the possibilities of the great orchestral climax just completed. The horn ostinato at m.389, an utterance surviving another such climax, merely punctuates where it might lacerate.

While there is little of transcendence, Dohnányi is ever alert to the structural and harmonic possibilities of the movement. He brings to the fore such dissonances as the diabolical F in the brass in the movement’s final page; too
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many conductors gloss over these features of Bruckner which look forward to 20th-century music. The fleet and metallic Scherzo has an appropriate sourness, but falls short of the hard-smile brilliance of despair in Keilberth's Frankfurt reading. The disciplined and clear orchestral playing matches well Dohnányi's approach to this movement. Rather than making the awesome noise brought to the fortissimos by Joachim's Dresden or Karajan's Berlin forces, the Clevelanders, as has been their tradition for decades, favor precision to sheer quantity of sound. The CD also sounds clear and precise rather than warm, and reveals few of the secrets of Cleveland's Masonic auditorium.

In the last movement, Dohnányi takes the symphony to a level of meaning one might not anticipate from his aloofness in the first two movements. He opens up the music, giving it space and making use of silence: this is one of the longest Bruckner 9 Adagios on record. The ascending string tremolos just before the first announcement of the brass farewell theme are shaped almost as lovingly as in Walter's recording. Not that the sense of the new performance is like Walter's: Dohnányi's Adagio bears the scars of struggle much more visibly. The emotional immediacy exacts no sacrifice of virtuosity. The orchestra's silences are unanimous as well as pregnant with meaning. Dynamic shading is excellent, the contrabasses acquiring themselves especially well in their brutally exposed unison parts, playing together as an ominous whisper when that is what is required.

All my enthusiasm about the Adagio cannot erase the great interpretive discontinuity I perceive between it and the two preceding movements. I wish I could hear in this a brilliant interpretive plan to the performance, an incline from the ordinary to the exalted. I cannot. Another listener might have quite a different experience and synchronize perfectly with Dohnányi's gear-shifting. What I can conclude is that a superior last movement does not make this Ninth a top recommendation when the catalog offers so many great recordings: Walter's on Columbia, Matacic's live 1980 performance on Supraphon, Keilberth's on Teldec, Joachim's two on DG and EMI, and Karajan's on DG.

—Kevin Conklin

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Delos DE 3093 (CD only). John Eargle, eng.; Amelia S. Haygood, Adam Stern, prods. DDD. TT: 73:01

This release of two of David Diamond's symphonies and his Concerto for Small Orchestra forms the latest inclusion in Delos's Great American Composers series. If "Great" is perhaps too lavish an encomium for some entries, it certainly fits in the case of Diamond who, at 75, is now completing his 10th and 11th symphonies.

Unless you're a professional musician or scholar, you may never have heard of Diamond; his music has seldom been performed over the past four decades. Although Symphony 2 was completed in 1943 and premiered by the Boston Symphony Orchestra the next year, it has never been recorded until now. But thanks to Delos and conductor Schwarz, all of Diamond's symphonies and several of his other works are scheduled for future release as part of Delos's ongoing American project. And thanks is certainly the right sentiment, as Diamond's music—at least all of it that I know—reflects a composer who has something important to say and says it with uncommon grace and power. Never one to bow to fashion, Diamond early on eschewed the serial techniques adopted by so many of his contemporaries; instead, he developed his own compositional vocabulary which expanded the tonal—and most decidedly the rhythmic and coloristic—palette of romanticism.

Symphony 4, written in 1945, is a marvelous work that explores a wide range of feelings within its unusually compact (just over 16 minutes) structure. Loosely inspired by Fechner's theories of life and death, the first movement Allegrétto's gentle, outdoorsy opening reaches heroic proportions before returning to a state of hesitant repose. Following a second movement rich in religious undertones, the closing Allegro begins with a jazzy outburst and maintains an irrepressibly optimistic momentum to the end. A master orchestrator, Diamond's writing for brass, winds, and percussion is particularly striking and imaginative.

At almost 43 minutes, Symphony 2 is over twice as long. It is also more overtly American in character and touches deeper recesses of the human spirit. Though the composer presumably had no specific program in mind when working on the piece during 1942-43 at the height of World War II, one is tempted to read into it both the anxiety and reaffirmation of decency and faith Americans felt so strongly at the time. But whatever its inspiration, it is music of granitic strength and emotional vibrancy that is entirely accessible (unless, that is, your sense of adventure stops with Brahms). The haunting lament of the strongly diatonic first movement, marked Adagio funebre, is followed by a second movement that crackles with nervous energy and feisty jabs from brass and percussion. The third movement is one of endearing rural simplicity, while the fourth is
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folklike in the manner of Copland. Indeed, in terms of sound and atmosphere, the latter two movements are more derivative of Copland than I had remembered from a performance heard many years ago, with the third strikingly similar in mood to Copland’s 1940 film score to Our Town. But this stylistic debt in no way diminishes music of such resounding strength and beauty. Add to that performances by Schwarz and his musicians that are wonderful in every way (the composer was in attendance at the recording sessions), as well as Delos’s splendid engineering, and you have a sonic document to be treasured.

—Gordon Emerson

FIELD: Nocturnes
John O’Connor, piano

Though little notice is now paid the Irishman John Field, his career as composer and concert pianist was certainly a glittering one in the first quarter of the 19th century: he was apprenticed to Clementi who, in 1802, took him on tour to Paris, Vienna, and eventually St. Petersburg. Staying on after Clementi had left, Field was lionized by the Russian aristocrats, and decided to make Russia his home. Treatment for cancer brought him back to England in 1831, where he met pianist-composers Mendelssohn, Moscheles, and Sterndale Bennett. He was heard by Chopin during a season in Paris, but ill health forced him to return to Russia after a tour of Belgium, Switzerland, and Italy. He died in 1837, certainly having made his mark, although now mainly remembered for having established the genre of the Nocturne in the Romantic composer’s repertoire.

I can’t imagine a more sympathetic advocate of this exquisite music than John O’Connor. His touch and balance between hands allow just the right amount of voice leading. He is sensitive to the delicacy of these lines and is never tempted to over-inflate them. He understands the poetry inherent in each miniature, and his expression of it is mesmerically beautiful. A suitably warm and intimate acoustic lends further enhancement to the issue and, although notes do tend to spread a little at the edges, I wouldn’t hesitate in recommending this to anyone in love with the piano and its repertoire.

—Barbara Jahn

FRANCK: Sonata in A for Violin & Piano
Arturo Delmoni, violin; Meg Bachman Vas, piano
North Star DS0015 (LP), Mobile Fidelity MFCD-781 (CD). David Hancock, eng. AAA/AAD. TT: 54:40

Arturo Delmoni makes his mark on a composition by making no mark at all. That’s high art. In his previous recording with Meg Bachman Vas, Songs My Mother Taught Me (reviewed in Vol. 11 No. 8), and in his solo effort of Bach, Kreisler, and Ysaye pieces (Vol. 12 No. 10), Delmoni thoroughly assimilated the music, making it seem that his playing was the composition itself. He achieves the same end in these well-chosen sonatas by Franck and Fauré. Delmoni’s singing lyricism, coupled with a strong sense of compassion, again result in an impressive level of musicianship.

Though always avoiding showmanship, Delmoni’s playing continually reveals imaginative nuance. There is an impetuosity in the second movement of the Franck, for example, that sounds inevitable but is seldom discovered by other performers. The stillness of the phrases immediately following the recitative of the third movement also has that sense of being a little different, but just right. And in the finale, Delmoni’s celebratory energy springs to the fore almost causa sui. Pianist Vas, as always, becomes the complementary component of Delmoni’s musical soul.

The only performance of the Franck sonata that clearly surpasses this one is that of Oistrakh and Richter in their famous Moscow Conservatory recording on Melodiya/Angel. Those two are in an altogether different orbit from everyone else.

In the Fauré, Delmoni and Vas again are wholly committed to the composer rather than to themselves. Tempos seem to be right on target. Although brief portions of the second movement may sound as if they are searching for direction, all the pieces fit together nicely in the end. Especially noteworthy is Delmoni’s lithe, delicate articulation in the spiccato passages of movement three.

David Hancock, who also recorded Songs My Mother Taught Me, has done another superb job using the same Studer A80 recorder at 30ips and two Cambridge C35 ribbon microphones. Both recordings were made in New York City’s Church of the Holy Trinity, but each has a distinctive sound quality. The new recordings have a lighter character that doesn’t capture the full body of Delmoni’s Stradivarius, but they also have greater depth of image and more air around the instruments. Overall, the sound is exceptionally natural. The LP seems a bit more effortlessly smooth than the CD, and also has a bit more depth.

Delmoni and Vas continue to fulfill the promise of their first recording. We can only hope their artistic success will continue to be presented in such stunning sonics.

—Robert Hesson

MUSIC OF PERCY ALDRIDGE GRAINGER

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Geoffrey Simon, Melbourne Symphony Orchestra

Koch International Classics 3-7003-2 (CD only). Tim Handley, eng. & prod. DDD. TT: 66:02

GRAINGER: Disbed up for Piano, Vol. 1


Martin Jones, piano

Nimbus NI 5220 (CD only). DDD. TT: 71:34

GRAINGER: Disbed up for Piano, Vol. 2

Tchaikovsky: Piano Concerto 1 (opening); Paraphrase on the Waltz of the Flowers; Brahms: Cradle Song; Gershwin: Love Walked In, The Man I Love; Rachmaninoff: Piano Concerto 2 (3rd Movement); Dowland: Now, O now, I need must part; Elgar: Nimrod (from Enigma Variations); R. Strauss: Ramble on the last love-duet from Der Rosenkavalier; Chinese Melody: Beautiful Fresh Flower; American Song: The Rag-Time Girl; Grainger: Lullaby from Tribute to Foster; Bach: Blithe Bells (“Sheep May Safely Grace”); Fugue in a (from The Well-Tempered Clavier; Bk. 1)

Martin Jones, piano

Nimbus NI 5232 (CD only). DDD. TT: 58:53

GRAINGER: Piano Music for Four Hands, Vol. 1

In a Nutshell; Spoon River; When the World was Young; Molly on the Shore; Hill Song 2; Country Gardens; Mowgli’s Song against People; Eastern Intermezzo; English Waltz; The Wraith of Odin; Always Merry and Bright (Mock Morris); The Duke of Marlborough Fanfare (completed by Barry Ould); A Lincolnshire Posy

Penelope Thwaites, John Lavender, pianos

Pearl SHE CD 9611 (CD only). Chris Lovell, eng.; John Langridge, prod. AAD. TT: 71:34

Syphonoms, the two mixed vocal and instrumental LP anthologies recorded by Benjamin Britten and Peter Pears (most of which are now available on CD), wind ensemble pieces conducted by Frederick Fennell, Simon Halsey’s anthology of choral music, solo vocal settings and folk-song arrangements sung by David Wilson-Johnson, and, not least, a variety of splendidly performed CD collections of piano music by Nigel Coxe and Joseph Smith.

How can one describe Grainger’s music? The composer at times has, quite aptly, been termed an Australian Ives; no better example of that may be found than in the frequently polytonal and polyrhythmic music for his imaginary ballet, The Warriors, a work scored for an enormous orchestra (especially in the percussion department, but then one must also not omit mentioning the offstage band), and which in its 18 primarily energetic, highly impressionistic minutes was described by Grainger as “an orgy of war-like dances, processions and merry-making, broken or accompanied by amorous interludes.” Composed between 1913 and 1916 and dedicated to his friend Delius, it may well be a minor masterpiece, albeit, in its seeming lack of form, a flawed one.

Two other works of great importance in the Grainger output are contained on Geoffrey Simon’s orchestral disc, the “Hill Songs” 1 and 2, which evoke the wildness of the Scottish Highlands. Among the most recorded of Grainger’s popular works is the “Irish Tune from County Derry,” a more accessible piece and an excellent one, especially in the particular orchestral version heard here, for experiencing the harmonic audacity and sheer inventiveness of the setting. Some of the sheer exuberance of Grainger, as well as his penchant for heartfelt sentiment (even sentimentality—at times he could be an Australian Puccini), may also be heard in the four-movement Danish Folk-Music Suite. All told, then, this is a fine collection, well performed, even if the orchestra lacks the brilliance of the Chicago Symphony, whose broadcast of The Warriors early this year under Australian conductor Stuart Challender revealed a near-ultimate in virtuosic finish. Perhaps, also, more distinct imaging might have caused the somewhat too-distant Melbourne Symphony to sound better focused and a little less homogenized in detail.

Grainger throughout his life rearranged, reworked, and rescored his compositions, often to provide additional (and better) venues for performance. That is why so many of his works exist in more than one setting, as one can readily see by examining the heading list above. With Grainger, however, the alternate version—single piano or double keyboards as

Though a good part of Percy Grainger’s reputation rests, somewhat unfortunately but not unreasonably, on such popular, utterly charming folk-derived settings of such pieces as “Country Gardens,” “Molly on the Shore,” “Spoon River,” and “Handel in the Strand,” the Australian-born composer-pianist (1882–1961) was in truth an incredible innovator, a ceaseless experimenter, and sadly, toward the end of his life, a creator emblazoned by his lack of acceptance. Earlier on—in the 1920s and ‘30s—he was considered one of the great pianists of his time, but, except for those aforementioned, best-selling hits, he was never in his lifetime accepted as a serious composer by the majority of his peers or the establishment. Over the last ten or so years that situation appears drastically to have changed, as more and more discs of Grainger’s music have been made available. Among these 1 would include such personal favorites as the series of five orchestral LPs made in Australia by John Hopkins with the Sydney, Adelaide, and Melbourne

1 Any reader interested in becoming a member of the Percy Grainger Society should contact the Secretary, Barry Peter Ould, 6 Fairway Crescent, Aylesbury, Buckinghamshire HP20 2ES, United Kingdom, for information.

Stereophile, January 1991

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here—is never quite the same as the original, and the careful listener is certain to derive pleasure from all the differing details of the composer’s variant efforts. Martin Jones, having recently finished recording all of the pianistic Debussy for Nimbus, now has turned to Grainger and with excellent interpretative results. Vol.1 (of what promises to be a multi-CD production) presents a nice mixture of the familiar and the occasional rarity, such as the early “Saxon Twi-play,” “Andante con moto,” and “Peace,” written when the composer was in his mid-teens. There is great rhythmic esprit, as well as an excellent sense of dynamic variety, to Jones’s playing, both essentials for proper performance, but there is also a welcome poetic strain (listen to the impression of the Pastoral movement from the In a Nutsbell Suite, Vol.2) that reveals Grainger’s quite eclectic, sometimes odd musical interests, many of the arrangements serving for his own performances. At their very best, these are fullfledged paraphrases, such as the Waltz from the Nutcracker, a post-Lisztian confection, or the delicious “Rosenkaivalier Ramble,” which Grainger himself recorded on 78. Others, including the Tchaikovsky and Rachmaninoff Concerto truncations, are of less importance (Grainger sometimes would play these on broadcasts). Jones again is extremely effective, indeed often quite brilliant; only once, in the Busoni-influenced Bach Fugue, did I find him not quite unbuttoned enough, at least in comparison with Grainger’s own romantically exuberant style. The sequence of pieces on this second volume is a little strange, “The Man I Love” coming after the Bach A-Minor Fugue, for example, being an unwelcome shock. Acoustically, Nimbus has provided its usual cavern ambience, which is a shame considering that there could have been so much more intimacy and detail. As it is, the piano lacks depth, and the bass seems restricted. It’s possible, of course, to get used to anything.

The British duo-piano team of Penelope Thwaites and John Lavender (the latter was born in Australia) appears to understand the many-mooded Grainger very well. They present an exceptionally enjoyable blend of cheerful sentiment and unembarrassed vitality, as well as a keen understanding of the composer’s impressionism. The two-piano versions again represent different views of some of these pieces, ones that, as in “Hill Song 2” (heard in the later orchestral setting on the Geoffrey Simon disc), work equally well no matter the setting. If you want to be thoroughly captivated by this two-piano collection, however, try the “Gay but Wistful” movement from Nutsbell. Pearl’s recording features a slightly tight ambience with not much feeling for the room, the BBC Maida Vale studio. The tonal range, emphasizing midrange frequencies, is nonetheless quite wide, and the sonics, with a welcome, realistically based and unexaggerated lack of separation between the two pianos, are perfectly satisfactory.

It remains, finally, to be noted that the various annotations—by John Pickard for Nimbus, Penelope Thwaites for Pearl, and Stephen Lloyd for Koch International—are informative and readable models of their kind. To judge from these latest Grainger installments, the composer appears to be in very good hands indeed.

—Igor Kipnis

IVES: Symphony 2
With: The Gong on the Hook and Ladder or Firemen’s Parade on Main Street, Tone Roads No.1, Hymn: Largo Cantabile, Hallow’en, Central Park in the Dark, The Unanswered Question
Leonard Bernstein, New York Philharmonic
D.DD. TT: 67:32

In 1951 the late Leonard Bernstein—he died between my first and second listenings to this new release—conducted the world premiere of Charles Ives’s Symphony 2, three years before Ives’s death and 42 years after the symphony had been completed. This was still more than 10 years before Lenny’s recording—again, the first—appeared on Columbia. That noisy, clattery, raspy recording—it’s awful—served as the only one for quite a while; even by decade’s end, when Columbia released the first (and only) boxed set of The Four Symphonies of Charles Ives (D3S 783), they had to compile recordings of three different conductors with three different orchestras.

Still, close to 30 years after its first transcription, Ives’s second symphony boasts but four recordings, including Bernstein’s new one. This is astounding; I agree with Lenny when he says in his notes that “there are those who think that Ives’s Second is still one of the most beautiful symphonies ever written by an American.” It’s clear, from the passion and attention to detail that Lenny exhibits in this new recording, that he himself was one of those who thought so until the end.

Although I’ve promised myself never to use the “P-word” again, I’ve got to admit it: Charles Ives was the first post-modern composer. If post-modern architecture is the art of building “about” other buildings, Ives was, as Lenny has said, one of the first to write music about music. Not about sound, or aural geometry, but about other compositions. Ives’s claim on the entire world of music as equally usable raw material,
not to mention his iconoclastic sense of humor, has made it all too easy to belittle him as little more than a musical punster and weirdo, precursor of Frank Zappa and Carl Stalling. Or even, as Bernstein himself said—a bit condescendingly, I think—an American primitive.

But I’ve loved this symphony since I first heard Bernstein’s first recording back in ‘65, with its hundreds of musical quotes from everywhere—Bach, Beethoven, Brahms, Dvorák, Wagner—an entire movement’s worth of variations on “America” and Tristan, raspberry final chord, and all. It’s a unique American elegy and jubilee all at once, a melancholia spiced by dry New England wit and outright guffaws: American content, European form. When Ives quotes whole bars of Wagner’s Tristan cheek by jowl with “Pig Town Fling,” it’s not jarring or ludicrous. The symphony’s integrity is such that I instead ask myself, “Well, what else could he have put there?” The symphony’s inevitable unfolding makes such seemingly arbitrary choices absolutely right,” filled with that never-ending sense of discovery of what had been hitherto thought wholly familiar, that marks a great composition.

And a great interpretation. Even in the brief first-movement Andante moderato it’s clear that Lenny had learned a great deal about a symphony he had lived with for at least 40 years. His ’62 recording, 3½ minutes shorter, was a kaleidoscope, a glittering heap of fascinating fragments—which also describes the NYPO as an ensemble at the time. As it was the only recording for quite some time, it was easy to assume that this fragmentedness was written into the symphony; “well, that’s Ives.”

But the cohesion in this 1987 live recording is stunning: Ives’s contrapuntal mastery and sheer daring are everywhere evident. One hears so much more music in this recording—both Ives’s and others’—than in any other. There’s never a sloppy or glossed-over moment, never an opportunity lost. Bernstein reveals so much more of the symphony here than in his earlier recording that I probably will never listen to the latter again. He has truly grown up into this work: the parade and snare-drum passages now swing as they never did; the Brahmsian richness of the string writing is full-bodied and -blooded, passionate; the finales of the second and fifth movements, with their seemingly bottomlessly layered themes, are triumphant, magnificent, transparent, heartfelt and hilarious at once.

The NYPO truly plays as an ensemble these days, unlike the rag-tag, thrown-together playing of 20 or 30 years ago. I quarrel only with the first-chair cellist’s lack of cantabile in the hymn-tune at the end of the last movement.

DG, which has taken its share of lumps in recent decades, delivers somewhat close-up (Bernstein grunts, groans, and wheezes throughout) but very believable, very vivid sound, if a bit cold (but that’s Avery Fisher Hall). And no fade-to-digital-black between movements.

On the other hand, many of the shorter pieces filling out the disc are musical jokes: the most obvious is the brief Hallowe’en, a polychoral tonal depicting a bonfire (“not for a nice concert,” said Ives)—pure rant with a wild, neo-classical ending. The Gong... is classic Ives, a mix of “Clementine” and patriotic tunes depicting a hook-and-ladder truck’s wheel-activated gong getting out of step with the marching band. Hymn, a set of variations that sounds, to me, like a stilted prayer to an austere, craggy, New England god, seems to prefigure Barber’s Adagio. And in the rugged Rugglesiana of Tone Roads No. 1 Ives attempted to depict strong-willed American forefathers (remember them?) “saying whatever they thought regardless of consequences!” Sound like any ignored American composer you know?

None of these works are particularly conductor-friendly, even Ives’s two more popular pieces, Central Park in the Dark and The Unanswered Question, which close the album. (And even these tend to sound the same no matter who’s at the helm.) Hearing these last two back to back exposed similarities I had not noted before: both share Ives’s technique of representing silence—of the Central Park night and of the Druids, respectively—with slowly shifting chords in the string choir. Each builds to a frenetic climax and ends with those oblivious night chords unresolved. Bernstein’s performance of Question offers little over his earlier recording (also coupled with Symphony 2—and 3—on CBS MK 42381).

Still, it’s one of the more easy, pleasurable jobs I’ve had as a reviewer to strongly recommend this generous CD as fitting closure and a return to roots for a quintessentially American conductor and composer and an unjustly neglected American masterpiece. Bravo, Lenny; rest well.

—Richard Lehner

LALO: Le Roi D’Ys
Jean-Philippe Courtis, Le Roi D’Ys; Dolores Ziegler, Margaret; Barbara Hendricks, Rozen; Eduardo Villa, Miylo; Marcel Vanauk, Karnac; others; Choeurs de Radio France, Orchestre Philharmonique de Radio France, Armin Jordan
Erato MF 245 015-2 (2 CDs only). Didier Gervais, eng.
DDD. TT: 111:40

There are people who adore this piece of late-19th-century fluff; I am not among them. Yes, the orchestration is impressive and the melodies come one after another, but I never for a moment care about any of these legend-laden...
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schtappers and the sea which floods their
town, let alone an evil character named Karnac.
(Perhaps go elsewhere for a detailed synopsis;
for me to offer one would be to contribute to
your already crowded data bank.) The most
famous piece, favored by tenors from Gigli to
di Stefano to Gedda and beyond, is the lovely
"Aubade," but it's poorly sung here by tenor
Eduardo Villa, so if that's what you were looking
for, stop now.

Otherwise, what the set has to offer is some
fine playing by the orchestra, Armin Jordan's
affectionate leadership (even in the face of such
goo), and the stunning singing of both Hen-
dricks and Ziegler as a pair of sisters in love
with the same man. (Their first-act duet is a
peach, actually.) The rest of the cast is not
good, and that doesn't help.

I'm amazed that there are three recordings
of this cupcake available—the other two are
somewhat historic and murky in sound, but
this one is as digital as you can get without actu-
ally attaching a laser to your head. The 1922
Met premiere of this work starred Rosa Pon-
selle, Frances Alda, and Gigli: singers seem to
love it, so take my dislike with a personal grain
of salt. Perhaps if I heard a superb performance
I'd be converted, but I doubt it—my sugar
tolerance just isn't high enough. Over to you,
but caveat tastebuds.
—Robert Levine

MAHLER: Symphonic Movements
Totenfeier, "Blumine," Adagio from Symphony 10
Karl Anton Rickenbacher, Bamberg Symphony
Virgin Classics VC 790771-2 (CD only), Herbert Fruh-
bauer, eng.; Wolfram Graul, prod. DDD. TT: 62:38

This CD compiles three movements for orches-
tra which have made their ways into and out of
(and occasionally back into) Mahler's sym-
phonies. They span his lifetime as an orche-
stral composer, and give valuable insight into
his creative processes.

"Blumine" (the title presumably translates as
"little blossoms") was once part of the work
we now know as Symphony 1. At its 1889 pre-
miere, the symphony was billed as a Sym-
phonic Poem in five movements, the second
of which was "Blumine" a seven-minute Andante
in the character of a serenade. Its sentimental
solo trumpet melody probably began life, in
a different day, as incidental music Mahler
wrote for a theater-piece some years earlier.
Reconceived as part of Symphony 1, Mahler
intended it to represent the "youngish asininity"
of the symphony's hero (or so Bruno
Walter remembered Mahler saying). Fact was,
the young Mahler was the hero of the piece, as
he generally was in his symphonies.

Finding this uncomplicated movement
"insufficiently symphonic," Mahler discarded
it, apparently after the symphony's third per-
formance in 1894. The music was rediscovered
at Yale University and performed again in 1967.
It is occasionally included in performances of
Symphony 1 as a curiosity; the most famous
recording available is Ozawa/BSO on DG.

Totenfeier, or "Funeral Rite," began as a
sketch for the first movement of a planned sym-
phony in c, was recast as a stand-alone sym-
phonic poem, then finally became the version
we know today, the first movement of Mahler's
Symphony 2 ("Resurrection"). It is the 1888
symphonic poem which is performed here.
The subject of the funeral rite is, of course, the
hero of Symphony 1—Mahler again—and the
work was apparently inspired by a vision the
composer had of himself laid out on a flower-
bedecked bier.

Totenfeier's themes and basic form will be
familiar to those who know the "Resurrection,"
but close listening will reveal very different
scoring. In particular, there are fewer doublings
of voices in the symphonic poem version, and
more passages of what impress me as mostly
decorative scoring. The effect is of less relent-
less forward thrust than in the symphony ver-
sion. The latter half of the poem differs in struc-
ture most significantly from the symphony, its
form more appropriate to existence as an
independent work.

The last piece is, of course, the first move-
ment from Mahler's Symphony 10, the only
movement the composer left substantially
complete at his death in 1911. It appears here
in the completion by the composer Ernst Kre-
enk, reflecting also a few changes suggested by
Alban Berg. It is the one doubtless great Mahler
work on the program: forgetting all doubts,
moral and practical, about the various comple-
tions of the five-movement 10, the Adagio must
be considered one of the very few pivotal
works connecting the last gasps of Romantic
tonality with the musical idiom of the nascent
20th century.

So much for musicology. Rickenbacher and
the Bamberg forces get mixed results in their
wide-ranging program. Mahler himself called
"Blumine" "falsomely sentimental," and so it
benefits from a sweetly expressive perfor-
rance. The Bambergers are a good and well-
conducted orchestra, but they play a bit coolly
and lack the big, sweet sound that greater
ensembles can bring to this music. Virgin's wan,
diffuse recording doesn't help, either. Toten-
feier fares better, a strain of appropriate fierce-
ness popping up from the basically reserved
reading.

The Symphony 10 Adagio is the best inter-
pretation on the disc, a measured traversal
which emphasizes the 20th-century aspects of

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the work. The great nine-tone dissonance is chilling, and really echoes the dissolution of 19th-century tonality. What’s missing is an equally strong statement of those Romantic aspects of the movement with which that dissonance must contrast. For that you’ll have to go to Bernstein/NYPO, the only version available on CD which does justice to the two-fold aspect of the work.

Reservations aside, this is an enlightening program of pieces not otherwise available in one place. Recommendable to all Mahler neophytes.

—Kevin Conklin

MOZART: Symphonies 35 & 38
Sir Colin Davis, Dresden Staatskapelle
Philips 416 155-2 (CD only). Horst-Dieter Käppler, eng.; Volker Strauss, prod. DDD. TT: 52:01

MOZART: Symphony 40, Clarinet Concerto, Eine kleine Nachtmusik
Colin Lawson, clarinet; Roy Goodman, Hanover Band
Nimbus NI 5228 (CD only). DDD. TT: 78:48

MOZART: Symphonies 36 & 39
Emmanuel Krivine, Philharmonia Orchestra
Denon 81757 4176 2 (CD only). Hiroshi Goto, eng.; Yoshiharu Kawaguchi, prod. DDD. TT: 60:43

MOZART: Symphonies 38 & 39
Yehudi Menuhin, Warsaw Sinfonia
Virgin Classics VC 7 91078-2 (CD only). Lech Dudziki, Krysztof Drab, engs.; Tim Handley, prod. DDD. TT: 56:01

MOZART: Symphonies 40 & 41
Yehudi Menuhin, Warsaw Sinfonia
Virgin Classics VC 7 91082-2 (CD only). Lech Dudziki, Krysztof Drab, engs.; Tim Handley, prod. DDD. TT: 57:42

Taken as a whole, this is a generally distinguished group of releases, the prizes among them being the two CDs featuring Menuhin. Indeed, even those who know these works well are likely to discover something new from what Menuhin reveals of them. With a small ensemble of what I would guess to number between 40 and 50, he captures the “authentic” spirit of the music while (with modern instruments) avoiding the fundamentalist’s attempt to recreate how it may have sounded two centuries ago. Thus, the strings have a gorgeous singing tone made all the more expressive by unusual care with phrasing, and the winds and brass cut through to enrich color, the overall sonority thereby acquiring a transparency not attainable with larger forces.

But most arresting is Menuhin’s extraordinary musicality. Melodies are shaped with loving tenderness, underscoring the operatic face of the symphonic Mozart; motifs are sharply etched, clarifying structure; and the prevailing ethos of each movement is pointedly conveyed. Thus 41 emerges with a grand imperious thrust, 40 with a fierce intensity and haunting eeriness, 39 with a blend of delicate cantabile grace and heroic power, and 38 with a clarity of design that makes clear how it suggests the tense amelodic direction Mozart’s symphonies might have taken had he lived longer. And in every instance, Menuhin’s tempos seem superbly judged: allegros crackle with energy; slow movements are not sentimentalyzed, andantes never being transformed into adagios; and minuets are animated without being rushed off their feet. What’s more, throughout all four scores Menuhin reminds us of Mozart’s extraordinary originality. Note, for instance, the conductor’s care in clarifying daring facets of the music: the other-worldly chromaticism that runs through the slow movement of 40, the agitated syncopations in the opening movement of 38, and—in all the symphonies—the bold harmonic movement that must have startled Mozart’s contemporaries.

There are, to be sure, some shortcomings in these readings. The Warsaw trumpets are not as assertive as one might like, and occasionally Menuhin inserts a breath-pause at the end of the Trio in the third movement of 39. The accompanying annotations claim the pause is specified in the original manuscript. Perhaps so, but it still sounds ludicrously awkward. And purists may object to Menuhin’s playing of grace notes before rather than on the beat. All the same, these are arresting and vibrant readings that anyone interested in Mozart should make a point of hearing. Menuhin observes all exposition repeats in outer movements save for that in the first movement of 39 and also the first repeat in the slow movement of 38. Note, by the way, that this performance of 40 was produced in 1989 and should not be confused with one Menuhin recorded for Aperto of the same work in 1987 with the same ensemble, this latter effort being marginally slower and less intense. All four symphonies are accorded very close, clean sound free of harshness and relatively flat in perspective.

It was with Mozart that Sir Colin Davis gained some of his earliest phonographic triumphs. His new recording of 38 is his third (and second for Philips). Like its predecessors, it features a sharp delineation of texture and detail. But it is also a bit more labored than Davis’s previous efforts, though of itself it remains an admirable reading, free of affectation and boasting a tension and grandeur that suit the music well.

Surprisingly, this account of 35 marks Davis’s first recording of the work. Its sonority (as in Davis’s 38) is robust—a marked contrast to that of Menuhin’s smaller ensemble. But Davis’s knowing hand clarifies winds and brass, animates outer movements, and brings out a number of important details often smudged in other performances, a prime case in point being the timpani rolls in the finale. And rarely is the slow
movement heard with such rhythmic precision and subtlety. In short, Davis has produced a preferred edition of this warhorse, one that in its festive animation matches the superb account of Szell (CBS). I do wish, however, that Davis had not observed the second repeat in the slow movement, a practice that produces disproportionate length. In 38, incidentally, he observes exposition repeats in all three movements. Philips’s engineering is close, clear, and musical, but some detail is covered by resonance.

Emmanuel Krivine is a young conductor, but he gives two mature performances of 36 and 38. In overall style, they are similar to Davis’s: full sonority, bracing but unhurried tempos, strong accents, and well-defined detail. Only in the finale of 38, where Krivine fails to convey all of the music’s nervous scurry, can his readings be faulted. Like Davis, Krivine favors grace notes played before the beat and observes all exposition repeats. Denon’s sound is generally musical and natural, spoiled only by excessive midbass emphasis.

With Goodman and the Hanover Band we have period-instrument readings and, in the main, good ones. Goodman, to his credit, is not a literalist and therefore does not observe all of the many repeats Mozart specified in 40. And he enlivens things with well-chosen tempos made all the more expressive by the colorful timbres of winds and brass. But the kind of subtlety present in Menuhin’s readings is utterly wanting here. With Goodman, for instance, scales sound merely like scales; with Menuhin, they are dynamically inflected and pointedly phrased so as to create tension and heightened drama. And to my ears, the harpsichord tinkling along in Goodman’s reading—however historically justified its presence may be—sounds utterly redundant harmonically and anomalous in terms of timbre.

Similar limitations mar the thoroughly competent but undistinguished account of the Clarinet Concerto. Colin Lawson plays smoothly and accurately, but displays little nuance in shaping lines and inferring dynamics, and his basset clarinet sounds hardly any different from the familiar modern instrument. Eine kleine Nachtmusik, with a Minuet I.498a inserted between its first two movements, is crisply executed by a string orchestra with harpsichord, the performance serving as a reminder that this work is surely a little exercise in perfection, though hardly a reason to acquire this release. The reverberation of All Saints’ Tooting is a blemish on otherwise acceptable sound.

—Mortimer H. Frank

Ruggiero Raimondi, Boris; Vyacheslav Polozov, Dimitri, Grigori; Paul Plishka, Pimen; Ronauld Tresarowicz, Varlaam; Galina Vishnevskaya, Marina, The Hostess; Kenneth Riegel, Shuisky; Nikita Storojev, Rangoni; Nicolai Gedda, Simpleton; others; The Cheve Chase Elementary School Chorus, The Oratorio Society of Washington, The Choral Arts Society of Washington; National Symphony Orchestra, Mitislav Rostropovich

Erato 2292-45418-2 (3 CDs only). Michel Garcin, prod.; Michel Lepage, eng. DDD. TT: 3:32:00

This recording, which was made during July 1987 at Washington, DC’s Kennedy Center, uses Moussorgsky’s original scoring as per David Lloyd Jones’s 1975 critical edition. There are no cuts, and therefore the Simpleton’s music is repeated, but no matter—it’s good to have it all here. Some may find Moussorgsky’s orchestration too lean and might miss, for instance, the maniacal clanging in the Coronaation Scene or the hustle-bustle noise which accompanies the false Dimitri’s escape from the Inn, but I’ve grown to love its transparency and a certain pre-determined iciness which is inherent in the story as well as the music. This is not a reading for those who like their Boris melodramatic—this one is built gradually to its horrendous death (and ensuing Kromy Forest) scenes, but it packs quite a wallop. I’m not sure it would work in the opera house—it’s a bit too introspective (there are, as it were, many “close-ups”), but it’s terrific on discs.

Ruggiero Raimondi’s Boris never booms except in his final statement, immediately before his death, that he is “still Tsar,” where he pulls out all the stops and sounds utterly, and properly, demented. Along the way he is scared if dignified and all-too-human (if you were brought up on Boris Christoff recordings you’ll find Raimondi pint-sized), which I don’t mind, but of too light a hue to his voice, which I do mind. The Grigori/Dimitri of Vyacheslav Polozov is fierce and secure, but the tone is far from appealing. Galina Vishnevskaya is a good hostess and, dramatically, a fine Marina, although as the latter her voice is decidedly frayed. Nikita Storojev’s Rangoni is nice and slimy, and it’s good to have the whole role intact. Shuisky (who historically became Tsar after Boris’s death) is Kenneth Riegel, and he’s a frightening, yuppy-ish intriguer. Paul Plishka’s Pimen is wise, but the Varlaam is undernourished. Boy treble Mathew Adam Fish sings the tsarevich Fyodor brilliantly and beautifully. Nicolai Gedda’s Simpleton (he was a great Dimitri many years ago on EMI) is full of doom and pathos.

I like and respect Rostropovich’s reading a great deal. He builds the drama in large chunks, refusing to knock us over with the set pieces, and he’s very effective. He gets excellent singing and playing from his forces, although the

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many choruses never quite sound at home in Russian and don't draw as strong a portrait of a loony crowd as I like. The sound is good without being transcendent; this is, apparently, the soundtrack to an as-yet unreleased film, and every so often there are movements and effects which might be disturbing. The 224-page booklet has been arranged by a moronic group of Frenchmen: Cueing points are listed, but the titles of arias and sections are given only in French; the libretto is offered in French with English facing it, and is then followed by a complete Russian libretto—but only in Cyrillic, and without cueing points. Good luck with it. This Boris is a good gamble—spare and bleak, but a real experience.

—Robert Levine

ROSSINI: Overtures
Barbiero di Stiviglia, La gazza ladra, La Cenerentola, Il Signor Bruschino, La Scala di Setta, Guglielmo Tell
Fritz Reiner, Chicago Symphony
RCA 60387-2-RC (CD only), Lewis Layton, eng.; Richard Mohr, prod. ADD. TT: 46:56

Recorded in November 1957 and released a year later, the Reiner/CSO Rossini Overtures was one of the first RCA LPs to bear the "Miracle Surface" sticker. Always with the gimmicks. Some miracle. It was one of the noisiest surfaces I had ever encountered. It was a miracle you could hear the music. A round of exchanges brought only marginal improvement. Years later, I replaced it with a reasonably quiet, reasonably flat Dynaflex pressing. There was an open-reel quarter-track tape edition from Magrec-Stereotape, distributed by Barclay-Crocker, which merely traded one set of problems for another. It wasn't direct from the master, but was dubbed from a dub of RCA's backup dub. Pre-recorded open-reel's Achilles Heel.

Now we have it from the master, in, if not "perfect sound forever," at least clean, honest sound for some time to come. If you're annoyed by the play time of just over 45 minutes, bear in mind that this program of Rossini Overtures is practically the only music of this type recorded by Reiner/CSO. What could they have paired it with? Rachmaninoff's Isle of the Dead? Bartók's Hungarian Sketches? Lieberman's Concerto for Jazz Band and Symphony Orchestra? (This last causes acute embarrassment to the powers-that-be at RCA. They should reissue it immediately. It's a hoot!)

The program is well-chosen between the very familiar and large (for Rossini) orchestra—Tell, Barbierie, and La Gazza—and the less familiar, more intimate scorings of Scala and Bruscibino. Cenerentola falls somewhere in between, on both counts.

With the exception of the closing moments of the Tell coda, where tempo and dynamics are uncharacteristically sloppy and vulgar for Reiner/CSO, these performances are as revelatory in texture, nuance, and dynamic as Reiner's Mozart and Haydn, which remain grossly underrepresented in the current catalog.

Before signing off, a few observations must be made regarding what I have become increasingly aware of as various degrees of improper channel balance on vintage vinyls and CD conversions. 11 o'clock or 1 o'clock on the balance control usually straightens things out. Channel balance is crucial, not only for lateral location sense, but for depth, spatial relationships, uniform afterglow, you name it. For this recording, I would suggest a setting of 10 o'clock on your balance control. Get the woodwinds in the center, that's your guide, especially the oboe solos. Get that right, and the soundstage should pop right into place.

One possible excuse for the apparent imbalance is the extreme leftward location of the percussion section in Gazza and Tell, since the practical norm has usually been to place this difficult and heavy family of instruments in a position where its sound can be more easily shared between the two channels. Even by 1957, much stereo was subject to experimentation, a spirit shared by Reiner, who tried a considerable number of novel seating plans involving brass as well as percussion. In any case, during this period, as well as some others, the percussion was on the far left, Eisenhower was in the middle, and Goldwater was on the far right.

La Gazza Ladra offers the additional challenge of antiphonal snare drums. The first drum is with the main battery, far left, fairly near the stage apron. The answering drum is right of center, in back, where the bass section ends, near the low brass. One might have expected a more symmetrical approach, but if you balance your channels for this recording as I have suggested, at least as a frame of reference, you'll stand a ballpark chance of hearing what was recorded.

—Richard Schneider

ROSSINI: Le Comte Ory
John Aler, Le Comte Ory; Sumi Jo, La Comtesse Adele; Diana Montague, Isolier; Gino Quillico, Raimonda; Gilles Cachemaille, Le Gouverneur; others. Orchestre et Choeur de l'Opéra de Lyon, John Eliot Gardiner
 Phillips 422 4016-2 (2 CDs only). Erik Smith, prod.; Roger de Schot, Hein Dekker, engs. ADD. TT: 2:11:49
ROSSINI: Guglielmo Tell
Giorgio Zancanaro, Guglielmo Tell; Chris Merritt, Arnoldo; Cheryl Studer, Mathilde; Giorgio Surján, Gaetuliero; Franco De Grandis, Melchthal; Amerlia Felle, Jenny; others. Orchestra & Chorus of La Scala, Milan; Riccardo Muti
 Phillips 422 392-1 (4 CDs only). Erik Smith, prod.; Hein
Here are Rossini’s last two operas, first performed in 1828 and 1829, after which he entered his self-imposed 40 years of retirement, complete with fine dining, good drinking, and party-giving (along with occasional composition, but never for the stage). And what great operas they are! Tell is all heroism—in its plot, attitude, grandeur, and vocal needs—but more about it below. Comte, his final comedy, presents the composer at his French best—suave, short on slapstick and boom-boom noises, long on charm, wit, sex appeal, and subtlety. (Just how skillful a composer he was is evidenced by the fact that half the music was lifted from one of his Italian works from three years earlier and adapted to a French text.) The plot concerns the efforts of a young Count and his men to seduce a Countess while her husband and the men of the manor are away on a crusade. The Count and his men disguise themselves first as hermits, then as nuns, and while they come close, they’re foiled in the end. The humor, and the music, are very French—sophisticated and skillful.

This recording is better than good. John Aler is a fine Count Ory, managing the role’s coloratura and wildly high tessitura with aplomb. His sound, in the stratosphere, is a bit throaty, but his delivery is always pointed and well-conceived. Sumi Jo’s Countess Adele is spectacular. The role is difficult (even by Rossini’s standards), but Jo sells through it, making much of the text. I was particularly taken by her attitude near the opera’s close, when she knows she’s beaten the Count and he’s on the retreat. This is a singer who’s actually earning her superb reputation. Diana Montague’s Isolier is terrific, as is Gilles Cachemaille’s tutor (Gouvernour), although I prefer a bass rather than a baritone in this part (Samuel Ramey sang it at the New York City Opera in 1979). Gin Quilico is energetic, verging on mania, at times, I fear, as Raimbaud, but he adds to the fun.

The rest of the cast, orchestra, and chorus are properly French and very skilled, with particular praise going to the Lyon orchestra’s wind section, who have much to do. John Eliot Gardiner’s leadership is not as silky as I might have liked in this coy, witty work, but there’s no denying that he keeps the action truthful and a good time is had by all. The score is given complete, and the sound is Philips’s best, which is to say, superb. Highly recommended.

Guglielmo Tell, as it’s called here in Italian translation, is a monster of a work. Tell is of Wagnerian proportions, too unwieldy for most opera companies, and when it is occasionally mounted it’s always an event. Recordings are even rarer; there’s one with Gabriel Bacquier, Nicolai Gedda, and Montserrat Caballé (in French, on EMI, but currently out of print), and an Italian version with Sherrill Milnes, Luciano Pavarotti, and Mirella Freni. You should own either or both of them. There are numerous pages in this score which touch the soul and stir the spirit like no other opera I can think of. The trio during which Arnold is told of his father’s death contains Rossini’s most beautiful and deeply felt music, and there are dozens of other instances where “noble” is the only word which will do.

The tenor part is so difficult that when it was performed in Carnegie Hall in the ’70s, the tenor sang the first and last acts and another sang the middle two! There are dozens of high Cs, a couple of C-sharps, and countless high As and Bs. And the role is long and loud, to boot. The soprano role is a beauty, with two handsome arias and some very competitive singing in duets and ensembles. The eponymous baritone has to have a glorious voice, dignity, power, and style. The orchestration is subtle and remarkable—Rossini was a far greater composer than he’s often given credit for. I report with a heavy heart that this recording does not do the work credit.

It isn’t that it’s bad, it’s that it’s impossible to listen to. It was recorded live and the balance is off—we can rarely hear the singers properly, and the main mikes seem to be in front of the cymbals. The gorgeous, final, three-minute hymn sounds like a parody of Grand Opera—it’s grotesque. And believe me, I’m not that fussy—I was raised on nasty-sounding pirates. This is a nightmare come true.

“Other than that, Mrs. Lincoln,” you ask, “how was the show?” Well, Giorgio Zancanaro is a golden-throated Tell, but he lacks authority, even taking the rotten acoustic into account. Tenor Chris Merritt has all the notes and sings them with ease, but something stops him from being truly valiant: it may be the sound of the voice itself or, again, it could be that he seems to be a block away. (Listen to Pavarotti in this role—it’s his greatest recording.) Cheryl Studer is terrific as Mathilde—she deserves another chance. The rest of the cast varies, but would be good enough if the engineers’ mistakes hadn’t buried them. Muti is literate and more passionate than he has been of late (the live ambience probably helps), but it doesn’t matter. This is a real missed opportunity. This great work merits acoustic respect, and it doesn’t get it here. Any explanation, Philips?

—Robert Levine

SHEPPARD: Media Vita
The Tallis Scholars, Peter Phillips, dir.

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Stereophile, January 1991
In Murray Schisgal’s *Jimmie Shine*, the title character is a monstrously failed artist constantly taunted with cries of “But what does it mean?” from those who view his works. For a while, he responds with the usual fine arts gabble, but when driven to the edge he finally gets it right. “It means we die,” he answers. That is, *sub specie aeternitatis*, what all great art must mean. Here it is summed up in John Sheppard’s magnificent setting of the Office which begins: “Media vita in morte sumus” (“In the midst of life, we are in death.”)

As Peter Phillips’s liner notes indicate, the English composer John Sheppard is not well known; to judge from the critical acclaim which has already been heaped on this recording, that situation is changing. The credit for this is in some part due to the tireless work of scholars who have prepared performance editions of these works. In addition to *Media Vita* we also are given seven other settings of hymns and responses; most of these were missing parts which had to be reconstructed by David Wulstan and Phillips himself. (Fortunately, Sheppard often used plainchant tenors as the basis of his writing, which makes such reconstruction possible.) In this case, their labors have resulted in a significant addition to the recorded corpus of music from the Tudor sacred tradition.

As I have said on numerous occasions, no one performs this music better than the Tallis Scholars. Their precision of intonation and precise voicing of each chord are the epitome of what is right in the English style of Renaissance choral singing. As usual, Mike Clements’s superb recording is entirely supportive of the performance. I would, however, like to see him get his hands on something like the dbxkriti A/D converter (although the Tallis Scholars’ recordings have been among the least “digital”-sounding from the first).

—Les Berkley

STRAUSS/BRITTEN: Sonatas for Cello & Piano
Yo Yo Ma, cello; Emanuel Ax, piano
CBS MK 44980 (CD only), John Newton, eng.; James Mallinson, prod. DDD. TT: 51:36

I don’t know of a more compelling performance of the Strauss Sonata on disc: Ma and Ax not only manage to make convincing the weaker moments of this early work, but enhance as well Strauss’s developing lyricism with such a degree of unselfconscious expansiveness that they are able to adumbrate the characteristics of the mature Strauss. Similarly, the urgency, wit, and virtuosity of the third movement suggest those middle-period masterpieces, the orchestral tone poems.

That these two artists know each other so well, socially and professionally, is evident in their music-making; it is almost as if we are listening to a private soirée, the elements of intuition and spontaneity are so great. This works against them a little in the Britten Sonata, where the first and last movements just lack the tension necessary to hold them together. And I’m not convinced that their “voice” is quite right for Britten in the central Elegia; surely here the greater intimacy of Rostropovich with Britten himself (Decca 421 859-2) is called for. Nevertheless, both works are given with typical distinctiveness and *elan*, and their recording, despite an unpleasant edit early on in the Strauss, is clear, bright, and perfectly balanced.

—Barbara Jahn

TCHAIKOVSKY: Grand Sonata, Op.37; Romance in F; The Seasons (excerpts)
Barry Douglas, piano

The question of whether this recording is an attempt to capture Tchaikovsky’s *Grand Sonata* as a “signature piece” for the powerful playing of Barry Douglas is moot, because the seldom-recorded work is surprisingly upstaged here by the much-less-spectacular *Seasons*. Finally, this is the Douglas who has been hiding: the poet of the smaller piece who lays at much claim to the performer’s heart as the showpiece does to his fingers.

Douglas plays five excerpts from *The Seasons*, each of which can easily become insipid if the reading is too casual. Douglas, however, remains clear-sighted in his restrained but penetrating interpretations. He sees the darkness beneath the bright surface of “June.” He understands the palpable yearning of the final hung-in-air note of “October.” Through the entire set, he creates the impression of an other-worldly suspension of the physical laws of piano playing. Flesh and bone become insubstantial, passing only the glow of the music with barely a reminder that it is produced by an intermediary. Despite Douglas’s impressive playing on previous releases, I believe this is his most gratifying recorded work yet. It is easily worth the price of the entire disc.

But we also get the *Grand Sonata* (as well as the puffed-corn *Romance* in F, if you care to listen to it). The sonata is Tchaikovsky’s ostentatious gesturing at its best—or worst, depending on your point of view. I find the music to have more sound than substance, but Douglas at least captures that sound in its ripeness. The *Tranquillo* melody of movement one could be a little less muscular and the *arpeggios* in the
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second movement a bit more fluid, but Douglas carries the piece with an admirably robust sweep.

Paul Goodman's recording sounds nearly identical to his work with Horowitz in the same RCA Studio A in New York: The Studio Recordings of 1985. The upper mids have a slight "loose-change" jingling quality, while the lower mids have a minor tubby coloration. Neither distracts from the final overall sound, which is more like a small concert hall than a studio.

Needless to say, I was enormously impressed by The Seasons and believe it signals a major milestone in Douglas's development. So far, his repertoire has comprised only late Romantics with a pyrotechnic bent. Let's hope he records more music that looks inward.—Robert Hesson

WALTON: Belshazzar's Feast, Coronation Te Deum, Gloria
Amelia Gunson, contralto; Neil Mackie, tenor; Gwynne Howell, baritone; Stephen Roberts, bass; John Scott, organ; The Bach Choir; Philharmonia Orchestra, Sir David Willcocks
Chandos ABRD 1750 (LP), CHAN 8760 (CD). Ralph Couzens, eng.; Brian Couzens, prod. DDD. TT: 61:38

WALTON: Belshazzar's Feast
BERNSTEIN: Cibichest Psalms, Missa Brevis
Donna Carter, soprano; Victoria Blakeney, mezzo-soprano; Derek Lee Ragan, male alto; Rob Lund, tenor; William Stone, baritone; Wayne Baughman, bass; Atlanta Symphony Orchestra & Chorus, Robert Shaw

The success or failure of Belshazzar's Feast lies as much with the choir as with the baritone soloist—Sir David Willcocks's Bach Choir cannot muster the strength necessary to carry above the orchestra at full tilt to punch this Biblical drama home. The impact of the brass bands Walton requests is also lacking here, and add to this the Philharmonia in less than sparkling form, plus a Chandos recording that fails to rectify the imbalance, then the baritone, no matter how good, is not going to be able to save the performance.

The Atlanta Symphony and Chorus really go for their performance with full-bodied conviction, and are equally well-rehearsed. Shaw more successfully balances the structure of the work, too, making up the weight of the less convincing second section of Belshazzar to more realistically complement the first; happily, the clarity of Telarc's recording sacrifices nothing. But Shaw, like Willcocks, fails to time Walton's dramatic pauses to best effect, particularly before the baritone's entries, which themselves are well sung but with no great empathy for the theatricality of the narrative they carry. And why was it necessary to bring the chorus in to swell the final choral? This in itself irritates to the extent that an alternative version must be sought: I still have a great admiration for Previn's (second) Technicolor reading with the RPO and the excellent, though heavily focused, Benjamin Luxon (MCA Classics 6187).

Both discs have interesting couplings, Bernstein's Cibichest Psalms compellingly given and his Missa Brevis receiving its world-premiere recording here. Willcocks's choice of contralto in the Gloria is disappointing, but his Te Deum is dramatic and well-paced. (Previn's coupling, the Henry Vh Suite, is less apt, but his performance is characteristically gutsy and committed.)

———Barbara Jahn

WAGNER: Musik in Schloss Hohenschwangau
Transcriptions from Rienzi, Tannhäuser, Lobengrin, and Tristan und Isolde
Norman Shetler, Wagner's Tafel piano; Julius Berger, cello
Ebs 6015 (CD only). Ansgar Ballhorn, Brigitte Esser, recording technicians. DDD. TT: 59:44

I'd followed our haughty, jodhpurs-clad guide all through Schloss (Castle) Hohenschwangau—ancestral home of the Wittelsbachs, Bavaria's royal family—enduring his acid remarks about Richard Wagner, Wagner's patron Ludwig II of Bavaria (a Wittelsbach), and "zat Diss-naylant across the valley"—Schloss Neuschwanstein, Ludwig's temple to Wagner and everyone's favorite vision of the archetypal romantic castle. As we entered the chamber in which Wagner had stayed during his visits to Ludwig in the mid-1860s, our riding-booted guide flicked a disdainful hand at a small, blonde, dusty Tafelklavier ("table piano," or short spinet) crouching in a corner. "'On zis piano Wagner serenaded zah Kink,"" eyebrows arching in italics. He quickly moved on, tourists shuffling after. I waited until the group was at least two rooms away, then leaned over the keyboard and played the first three bars of Tristan und Isolde. Instead of the expected rush of Wagnerian associations, all I noticed was that the piano was horribly out of tune.

That was 1974. Wagner's piano may have been tuned since then, but no more—on this disc, recorded in that same room, it sounds very old, very ill, very neglected, the pin-board's grip on the tuning pins lost through dessication and dry-rot. And table-pianos don't sound very good even when new, let alone 130 years later. Berger's and Shetler's clunky duet transcriptions set back the cause of Wagner a good 50 years—let's face it, Wagner never sounds good in piano transcription—though Berger is actually musical on the one cut you might want to hear again, 'Almacht'ger Vater,blick herab!" from Rienzi. But the recording...! Berger's cello and breathing are so upfront he sounds as if he's playing through an iron lung, while the cello itself has all the
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depth, roundness, and warmth of a bandsaw in full shriek. The overwhelmed piano, hammers missing left and right, clanks and clomks like a marimba with bars of chalk, falling out of tune before your very ears. (Owners of *P.D.Q. Bach on the Air* will know what I mean.) Meanwhile, the castle’s heating system hisses merrily, only to be drowned out by copious amounts of tape hiss on what ebs claims is a DDS-recording.

But no one’s going to buy this disc for reasons sonic or musical. After all, it’s Wagner’s piano, right? (And—don’t ask me why—Boccherini’s cello.) Perfect Wagnarites like me will buy it anyway. The single CD comes in its own slip-case with a sumptuously printed four-color booklet in German, English, French, and Japanese (!), with long, earnest notes by an obvious Wittelsbach apologist. Guaranteed to sell at Schloss Hohenschwangau’s souvenir shop, and to perfect Wagnarites lusting for the frisson of genuinely awesome imperfection. A truly oddball release.

—Richard Lehner

**Classical Collections**

**ALFRED CORTOT: Rare 78rpm Recordings & Test Pressings**


Alfred Cortot, piano

Music & Arts CD-615 (CD only). Seth Winner, disc-to-tape transfers. ADD. 70:42

Alfred Cortot (1877–1962) was one of the most important pianists of the earlier part of this century. A superb musician, as well as one of the most poetic interpreters, his recorded playing, especially in his earlier years, often reveals a startling technical facility (notably in the justly renowned and dazzling 1919 Saint-Saëns disc which commences this program). However, his periodically less than ideal execution, especially in his later years, has adversely and, to my mind, unfairly marred his reputation in the minds of listeners bent on technical perfection at all costs. Much of Cortot’s vast recorded output, especially his Chopin, has been frequently reissued, even on CD, but I would be inclined to single out the present anthology as the best example of the pianist’s strengths. Two of my most favorite Liszt performances are contained here: the gossamer “La Leggierozza” of 1919 and a Hungarian Rhapsody No.2 from 1926 that, with its cheeky cadenza, has never failed to make me break out into smiles. These alone would be sufficient reason for acquiring this collection, but there are many other gems as well, including four previously unreleased Chopin sides of considerable interest. I’m not at all certain that the mixing of acoustic with electrical recordings is a sonic advantage (although of course the selections can be programmed otherwise), but overall the original discs have been made to sound tonally quite natural without very much taken off the top. That should be an obvious warning to those who are distressed by surface noise, but if they choose to skip this CD they will be missing some of Cortot’s greatest recordings. Excellent production, including pitch correction (Hungarian Rhapsody No.2), and superior annotations; highly recommended. —Igor Kipnis

**VOICE OF THE TURTLE: Music of the Spanish Jews of Turkey**

Voice of the Turtle, Judith Wachs, dir.

Titanic: TI-173 (CD only). Judith Wachs, prod.; Michal Schattner, eng. DDD. TT: 63:32

In 1492, Ferdinand, the Most Catholic King of Spain, having successfully thrown out the Moors, did the same to the Jews. His progressive policies thus stripped his kingdom of its bankers, merchants, shipwrights, poets, musicians, etc. When one considers that Spaniards of the period would occasionally sit down to a tasty meal of roast cat, these actions become less surprising.

In any event, most of these exiled Jews (Sephardim) eventually settled in various provinces of the Ottomans, who were only too glad to obtain the services of such useful people. There the Sephardim remained in a partially self-imposed cultural isolation, in which they maintained their language (a dialect of Castilian usually called Ladino) and musical heritage. This recording gives us a generous selection of such songs, collected from Spanish Jews living in Turkey. These songs are performed in a charming and unaffected manner, with accompaniment on traditional folk instruments of the region. If the vocals are a touch amateurish, this only adds to the charm—these are not art songs intended to be sung by trained voices. If you try this CD and like it, you will want to look up a couple of records by Esther Lamandier titled *Romances 1 & 2* on Ms. Lamandier’s own Alienor label. ELs vocals are considerably superior to those heard here, but her style is strongly informed by folk-music practice.

Titanic’s sound is very fine, with a good sense of the acoustics of the two somewhat different halls used. Like the performance, the recorded sound is honest and unaffected. —Les Berkley
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Stereophile, January 1991
The earliest music that I, and almost any American of my generation (those ubiquitous Baby Boomers, the first TV generation), heard was music we weren’t aware of as “music” at all. It was the music of the ‘toons on the tube. It could be said that this was the music of an entire generation’s unconscious, imprinted before we could talk or think, a set of musical reflexes and comic equations of sound and action that, for better or worse, none of us will ever escape. I certainly haven’t.

The most common and best cartoons, with the best music, were, of course, made by Warner Brothers between 1930 and 1960. To this day (I’ve just turned 40) I’ve been known to cart an armful of WB videos to a friend’s house (I don’t own a TV) to cackle for an hour or two at/with Bugs Bunny, Daffy Duck, Porky Pig, Foghorn Leghorn, Tweetie & Sylvester, Yosemite Sam, The Tasmanian Devil, etc. The cartoons have lost none of their charm, sharpness, wit, or sheer excitement, and I’ve been ever more impressed by the music.

I remember watching after-school cartoons one day when I was in fourth grade—I’d played flute in the school band most of that year, and, as I listened to the frantic stop-start cartoon soundtrack, the realization crashed down on me like a ton of music stands: “Jeez—that’s an orchestra playing that music! Must be 30 or 40 actual people playing notes that some composer wrote down!” At that moment I lost a bit of childhood innocence and gained an insight into media technology; the cartoons may have no longer been monolithically magical, hierarchically all-of-a-piece, but suddenly I felt an insider’s interest.

Well, composer Carl Stalling (1888–1974) wrote the vast majority of those notes, and they were fifty people—the Warner Bros. studio orchestra, in fact—musically depicting Sylvester falling down stairs, Bugs mincing in drag, and Porky building up a slow burn at Daffy Duck.

Which makes The Carl Stalling Project— Warner Bros. hints that it just might be the first of several volumes—so long overdue. Stalling grew up in Missouri playing piano to silent films, and later virtually invented scoring for cartoons (though it was not until the late ’40s that ‘toon soundtracks were even granted copyright protection). Like voice-man extraordinary Mel Blanc, Stalling briefly worked for Disney—he scored the first “Silly Symphony”—and both joined Warners in 1936.

There’s a remarkable continuity between “Porky’s Poultry Plant,” Stalling’s first WB score, and, more than 600 Stalling/WB cartoons later, the final “To Itch His Own,” from 1958. Stalling seemed to know exactly what he wanted to do from the very start—he simply got better at it. During his 22-year WB tenure, composing at the rate of one cartoon score per week at the height of Toontown’s glory, Stalling gradually compressed his musical quotations from folk-songs, jazz, classical, and popular tunes of the day (almost exclusively drawn from Warner’s huge music-publishing arm) into minimalist bytes lasting little more than a second or two (though he claimed that 80 to 85% of the music was still his own). The parallels with such deeply American scavenger-composers as Charles Ives, Frank Zappa, and Spike Jones are inescapable, and both composer John Zorn and producer Hal Willner admit Stalling’s strong influence on their own careers.

On most of these tracks, Treg Brown’s sound effects have been retained as integral parts of the music’s pulse and rhythm. Good thing—the music would have been full of holes otherwise. But sound effects aside, this is purely utilitarian music that, for the most part, is not so much trying to “be funny” as attempting—and almost always succeeding—in describing and emphasizing patently impossible action as accurately as possible. Stalling simply took as he needed, considering, as did Ives and as does Zappa, the entire world of music his very own grabbag—all musics of the world were considered equal. Listening to The Carl Stalling Project, it quickly becomes clear that Stalling arrived at his unique musical voice through sheer meticulous craftsmanship: detemring exactly the right sound, voicing, tempo, and pitch, then working the studio orchestra until they had it down to the microsecond.

In fact, Stalling invented the “tick” system, in which each musician heard each tiny musical segment’s tempo as “ticks” in his or her headphones. This allowed him to completely record an exactly synchronized cartoon soundtrack before the drawings themselves had gotten much farther than the storyboard stage.

The music itself is, of course, almost insanely fast-paced, utterly schizophrenic in its split-second extremes of dynamics, mood, color, and tempo as it mirrors and amplifies Toontown’s no-holds-barred guerrilla ontology. But I’d never be writing such a long review if the music wasn’t so interesting as pure music on its own terms. Perhaps the finest stand-alone work is the suite formed from two mid-’50s tracks, Speedy Gonzalez Meets Two Crows.
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Stereophile, January 1991
from Tacos. The sound is some of the best on the disc, sinewy strings sawing out a Capriccio Nutso on Spanish themes. There are also a complete Road Runner score in addition to Stalling's first and last scores, but most of this very generous CD is devoted to suites compiled on themes of subject matter or mood: Various Cues from Bugs Bunny Films (1943–1956), Dinner Music for a Pack of Hungry Cannibals, Anxiety Montage, Stalling: The War Years, and perhaps most interesting, a seven-minute set of outtakes of Stalling and orchestrator/conductor successor Milt Franklyn in rehearsal.

The music is surreal in the literal sense: super-real, overstated, underdeveloped, non-sequiturized, a comic shorthand for Trickster Bugs, like him eternally shape-shifting, cross-dressing, being dismembered only to rise again, whole, to plant a big wet one on Elmer Fudd's blushing dome. This CD is a marvel, and, believe me, never boring. Everything's mono, of course, but sounds remarkably good, considering, and with little digital hash. Warners has done a sumptuous job with the 24-page booklet, with session photos, original cartoon art, and copious notes by John Zorn, Hal Willner, Dick Blackburn, and current WB animation director Greg Ford.

Absolutely recommended. You may be surprised at how much there is to enjoy and re-hear on this album. And yes, you have heard this music before . . .

—Richard Lehner

JOHN WILLIAMS: 1941 (soundtrack)
Bay Cities BCD 3005 (CD only). John Neal, eng.; John Williams, Nick Redman, prods. AAD: TT: 38:05

Film composer John Williams once quoted Adolph Deutsch (who scored Some Like It Hot, among others) as saying that music for comedies "shouldn't try too hard to be funny itself." Williams followed that advice nearly to the letter in his score for Steven Spielberg's heroic 1979 comedy, 1941, responding to the gargantuian on-screen slapstick as if scoring for Tora! Tora! or Sink the Bismarck! True, he couldn't resist a perfectly drunken trombone choir or wonderful farting tubas, but other than that, this is John Williams over-composing to Bob Gale's over-scripting to Spielberg's over-direction and everyone's over-acting. In the grand tradition of American excess that is finally (thank God) drawing to a close, it's glorious.

1941 is one of my two or three favorite Williams scores, and this reissue is long overdue. (Years ago I saw the original Arista soundtrack album in a 50¢ sale and bought four of 'em; one is still sealed.) As Spielberg said, the film was edited in cut-time, and you can hear every bit of that frenetic pace in the music, particularly in "To Hollywood and Glory," which changes gears faster than Neal Cassady double-clutching his way down a mountainous of switchbacks in a '39 Harvester schoolbus without hitting the brakes.

The music's substance is more like Holst, Mahler, and Shostakovich doubly apprenticing under Sousa and Stalling. Williams fans will recognize the rich counterpoint, soaring French horns, great melodies, hypertrophic sentimentality, and hyped-up nobility of Williams's best Spielberg collaborations. Keep in mind that 1941 is yet another Spielberg fantasy about aircraft, and that no one writes better flying music than John Williams. There's plenty of it here. Other highlights include, of course, "The March from 1941," "Swing, Swing, Swing" (Williams's wild big-band send-up of Benny Goodman's "Sing, Sing, Sing," with Louis Bellson and Abe Most), and my own favorite, the long suite "The Invasion."

For audiophiles, the album is no great shakes: a heavily manipulated studio recording, claustrophobic and reverb'd, with a good many graceless edits. The Bay Cities CD is an improvement over the original Arista LP, however, particularly in the bass: tubas are floppier, brassier. I'm just happy it's back in print.

1941 was a box-office bomb (I loved it); regardless of whether or not it succeeded as a comedy, it remains one of the most finely crafted films ever made—every cent of the $37 million budget is visible on the screen. John Williams's score is at least as magnificently (over)wrought. Recommended.

—Richard Lehner

Jazz

JOHN PIZZARELLI: My Blue Heaven
John Pizzarelli, guitar, vocals; Bucky Pizzarelli, guitar; Clark Terry, trumpet; Dave McKenna, piano; Milt Hinton, bass; Connie Kay, drums
Chesky JD38 (CD only). Bob Katz, eng.; David Chesky, prod. DDD. TT: 59:37

HERBIE MANN: Caminho De Casa
Herbie Mann, flute, alto flute; Romero Lubambo, guitar; Eduardo Simon, Mark Soskin, piano; Paul Socolow, bass; Café, percussion; Ricky Sebastian, drums
Chesky JD40 (CD only). Bob Katz, eng.; David Chesky, Herbie Mann, prods. DDD. TT: 53:41

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John Pizzarelli, Bucky Pizzarelli's 30-year-old

2 Carl Stalling scored all the Warner Bros. cartoons during Warner's golden age, 1936–58. See preceding review.
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son, holds the reins on *My Blue Heaven* and doesn't let go. It's his show from start to finish, featuring his tasteful guitar-playing, singing, and writing talents. The title tune sets the mood of the entire album: cool, hip, swinging. After a tasty intro by McKenna and some noodling by Terry, John's smooth vocal sets the stage for an inimitable Clark Terry solo chock-full of humor and drive. John's scatting is impeccable, and the band is as tight as a drum-head. Milt Hinton's slap-bass is highlighted on Nat King Cole's "I'm An Errand Boy For Rhythm," and will set your loudspeaker drivers jumping. The detail captured, timbral accuracy, and palpability of the solo is stunning. John demonstrates his guitar chops on this track, and Dave McKenna proves he's still one of the most consistently swinging pianists around. "Lady Be Good" is an old-fashioned jam with a good, solid swing feel. With a length of eight minutes, everyone gets a chance to stretch out on the solos—and does!

"You're loud and you're lewd, you tend toward the the crude, my friends are disgusted with your attitude. I can't take you nowhere." Dave Frishberg introduces us to her on "Can't Take You Nowhere," which, in addition to cracking me up each time I hear it, features more fine solos from Terry and McKenna. Bucky lays down some fine rhythm guitar, John again serving up some tasteful scatting. Bucky contributes "Stray Horn," a beautiful, languid, ethereal, ultra-blue ballad dedicated to the late Billy Strayhorn. Duke Ellington's "Don't Get Around Much Anymore" features a father-son duet with great guitar playing by both. The close recording captures all of the performance's detail, especially the excellent rendering of the unique timbres of the two guitars. Billy Strayhorn's mournful ballad "Passion Flower" is similar in feel to "Stray Horn," with sensitive guitar playing by John and Bucky. Listening to this tune is like taking a slow, late-night stroll down an avenue of blue lights. Nice job, guys.

"Candy" is a fitting closer: an easy, laid-back swing feeling permeates the song, recalling the mood with which the album opens. Although the "candy" about which the song is written is not of the chocolate variety, I'm reminded of a Whitman's Sampler each time I hear it. And that's how I'd describe this disc: a cornucopia of sumptuous, delectable delights for ear and soul. Sonically, *My Blue Heaven* is among the best, if not the best, Chesky jazz release I've heard. That unmistakeable sense of presence one feels when hearing live music is wonderfully conveyed on this disc.

Herbie Mann, a recent emigré from New York to Santa Fe, continues his 30-year fascina-

*Stereophile, January 1991*
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Skylife
Windham Hill Jazz WD-0126 (CD only). Brian Walker, eng.; Darol Anger, David Balakrishnan, Cooke Mareno, prods. AAD. TT: 51:13
A Shock to the System (soundtrack) with Gary Chang; composer: Synclavier, Roland instruments
Windham Hill Jazz WD-0123 (CD only). William Yodelman, Mark Wolson, engs.; Gary Chang, Cooke Mareno, prods. DAD. 40:27

I’ve favorably reviewed the TISQ’s previous albums (Vol.11 No.11, Vol.12 No.5), but they’re thin gruel compared to Skylife. It’s a killer; music of serious commitment—I imagine these four Music Ninja Turtles tearing into their work with grim, gut-ripping glee. The arrangements are less merely interesting than always fascinating, the execution unfailing in impeccable, the emotion darkly passionate and breathtakingly joyful by turns. This band has gone far, far beyond the novelty of a string quartet playing “arrangements” of jazz and blues standards—and this is definitely not “third-stream” music. TISQ, category-defiant, makes music; pure and complex. Skylife begs inherently prejudicial questions—Is it improvised music played so well it sounds through-composed, or through-composed music played so well it sounds improvised?—and just as swiftly deep-sixes them.

As cellist Mark Summer says, “We’re a string quartet, we’re jazz musicians, we’re composers, and we grew up listing to the Beatles.” And for Skylife, says violinist/fiddler David Balakrishnan, “We… focused more on developing rhythmic intensity and emotional expressiveness.”

I’ll say. The title tune rocks with a fierce, meticulous raunch I’ve never heard before. “You Noticed Too” is an urbane neo-blues of deliciously indeterminate key, “Blues for Oakland” is double-jointed and second-lined, so alive it fairly pops the CD out of the drawer, while Mark Summer’s “Gettysburg” is a gospel yodel (on cello, no less) wed to Coplandesque hoedown rhythms and Protestant hymns filtered through Charles Ives’s sour mash. “Dexteriors” is a joyous exercise in polyrhythms, while “Tremors” is bittersweet, the TISQ stopping and starting, the playing reflective through the rhythmic pulse never flags.

New member/violist Katrina Wreudle (she replaces Irene Sazer) packs a remarkable amount of toughness and creativity into her sole composition, “Mr. Twitty’s Chair”—over jungle funk and unpredictable changes, the violins soar and stope like birds of prey, and everywhere lurks that “element of surprise” that Whitney Balliett considered so essential to the spirit of jazz.

“Grant Wood” is more inspired Americana, swingin’ country-fiddle dance tunes, as if Dvořák had apprenticed under Bob Wills. The slightly Hispanic “Ensenada” is sheer joy in music-making—I was grinning and laughing out loud with no idea of what would come next.

But the topper is “Crossroads,” based on Cream’s arrangement of Robert Johnson’s tune—a classic version of a classic version of a classic American song, and obviously TISQ’s answer to the Kronos Quartet’s “Purple Haze” encore. But no flies on these guys—their “Crossroads” is relentless, driven, demonic. Violinist Darol Anger may have grown up playing teenage bedroom tennis racquet to Cream’s definitive 1968 recording, but he had me playing air-fiddle along with himself. In my house, that’s high praise.

Skylife has passion to spare that TISQ has only hinted at before, a rhythmic and percussive density that will keep me coming back again and again. There’s a lot here, folks, even if Windham Hill still insists on recording them super-dry, astringent, the false reverb sounding just like false reverb. Still, the sound is better than on TISQ or Metropolis. (And bogus as it is, I still don’t want it cut short, as it is at the end of “Mr. Twitty’s Chair.”)

Such board-born soundstaging is far more convincing, gorgeously spacious, and put to much more dramatic use for Gary Chang’s soundtrack to Jan Egleson’s film A Shock to the System. Though musically no match for Skylife, this is some of the more palatable tasteful, intriguing film music to come along in a while. Chang owes an obvious and intelligently paid debt to Bernard Herrmann’s classic strings-only rabbit-scream Psycho score,3 and his far-from-overbearing keyboard work is hauntingly atmospheric, his Synclavier hands even defter than those of Ryuichi Sakamoto or Mark Isham.

The quiet scoring for string quartet is almost entirely pizzicato, further pushing the envelope in contemporary composers’ continuing discovery that the viol family works just as well as a percussion ensemble. The sense of musical tiptoeing is thus appropriately (I assume, not having seen the film) unsettling, restless, urbanly disturbing, and the score’s immense silences are big enough to hold all the

3 Available again, at last, complete on Unicorn-Kanchana UKCD 2021, conducted by Herrmann.

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viewer's—and listener's—fears. "Fixing the Witch" is particularly in-pulling, while the incrementally menacing "Getting Even" all but terrifies. Chang's delicately funky rhythm
electronics, reminiscent of Isham's, sound like Nana Vasconcelos lost in deep space.

As soundtrack albums go, a tasteful, chil-
ing winner. But evocative as A Shock to the System is, pass it up for Skylife if you can only afford one of these discs. You won't regret it.

—Richard Lehnert

**Rock**

**MARIANNE FAITHFULL: Blazing Away**


This is an album for adults. No, not like Carly Simon or Linda Ronstadt doing second-rate versions of first-rate standards—this ain't no exercise in easy listening. Nor is it because it is liberally sprinkled with four-letter Anglo-Saxonisms (although it does give some cre-
cidence to 2 Live Crew's cries of racism that there is nary a warning label to be seen on it). Nay, this is a record for adults because it deals with types and depths of emotion that are foreign to your average teen and pre-teen. It is for adults because it is music performed with con-
trolled intensity rather than abandoned thrash-
ing. In its most intense moments, Blazing Away deals in a sort of dignified dementia, if you will.

A live recording, this CD avoids the major pitfalls common to works of this kind. Most live poprock recordings offer straight readings of already released material with the inferiority of live sound, and without the visual excite-
ment afforded by being at the performance. Blazing Away provides the listener with an all-
star band performing the old material with a new point of view and a couple of new songs to boot. Almost half of the tunes appeared on Ms. Faithfull's stunning comeback album, Broken English, and sound better here for being less synthesized. Fernando Saunders's fretless bass and Dr. John's acoustic piano provide a warm bed for Faithfull's ravaged voice in a way that no synthesizer can. It is left to Marc Ribot's angular guitar to highlight the pain of the not-
so-distant past memories that make up "Sister Morphine." She wrote this song with Mick Jagger and here claims it as her own. Gone is the ironic distance that softened the Stones' version; what's left is an unadulterated tale of personal suffering.

Garth Hudson's (yes, the one from the Band) accordion alludes to the Piaf-esque quality that Ms. Faithfull inarguably possesses. However, this is no woman-imitates-drag-queen act, as some wags have suggested. If there is a connection between the art of Marianne Faithfull and Edith Piaf or Marlene Dietrich, it is in their cathartic release of pain that is the European equivalent of the blues, and in their complete lack of self-pity.

Producer Hal Willner has once again dis-
played his genius for assembling talented musi-
cians from different backgrounds (trumpeter Lew Soloff from the New York studios meets drummer Dougie Bowne, who has performed with Iggy Pop) to perfectly complement the featured artist. He also takes full advantage of the magnificent resonance of St. Anne's Cath-
edral, where the concert was staged.

This is by no means a perfect work. The main flaws are some of the material choices and the album sequencing. Shel Silverstein's "Ballad of Lucy Jordan" was barely saved from terminal sentimentality in the studio version and here fares little better. But the big question is, whose idea was it to start the disc with "Les Prison du Roy" and "Strange Weather" back to back? Each tune has charms of its own, but together they add up to almost 12 minutes of dirge-
tempo material.

I couldn't imagine beginning a concert like that; viewing the video shows that they couldn't either. The video reveals two more peppy num-
bers between the aforementioned. One, "Blue Millionaire," might easily have replaced a num-
ber of tunes chosen in its stead. In addition, the video includes the marvelous "Boulevard of Broken Dreams" and deletes the mediocre studio-recorded title track.

So buy the video and tape it, or buy the CD and reprogram it. Or better yet, buy both. This kind of music needs to be encouraged; there isn't nearly enough of it out there.

—Michael Ross

**GLASNOST MONDIAL SUPERGROUP: 1990 Aragon Jam Sessions**

Anthony Federici, Michael Fremer, Roland Marconi, Bob Reina, Paul Rosenberg, Rob Sample, vocals; Frank Doris, Steve Harris, Roland Marconi, Paul Rosenberg, guitars; Elliot Kallen, Bob Reina, keyboards; John Atkinson, bass; Allen Perkins, Neil Sinclair, drums

Bainbridge GMS-1 (CD only). Pj Littleton, Michael Kuslak, Jr., engs.; Pj Littleton, Paul Rosenberg, prods. Recorded live with direct feed to the Colossus Digital Audio Sys-

tem from a single MS-4 surround 4-channel micro-
phone. DDD. TT: 71:42

"Yahadtabethere" is the copout most reviewers employ when they're lucky enough to have attended the gig on the LP or CD under review. I'm not going to rub your noses in it, because that might cost this CD even one sale, and it deserves to go triple platinum. And for a num-

Stereophile, January 1991
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ber of reasons, the first not even related to music or sound.

The profits from this CD go to MADD, or Mothers Against Drunk Driving. Bainbridge's Harlene Marshall suffered a tragedy because some asshole didn't believe that gasoline and booze make a lousy cocktail, so she's the prime mover for this charitable effort. It's one that we should all support.

Enter the wild 'n' crazy guys from Aragon, who decided that the money normally spent paying for a room at CES would be better spent on a party. Who could disagree? Imagine all 1400 exhibitors felt that way? It'd make for a great CES... Anyway, "Tony Federici and Paul Rosenberg figured that live entertainment was mandatory, but what artists? McCartney and the Stones were already committed, Betty Boo didn't yet exist, and the assembled guests—all from the hi-fi industry—wouldn't get down without a reason.

And so, for one night only, the Glasnost Mondial Supergroup was formed, consisting of hi-fi journalists putting their cred on the line. Talk about calling their bluff. Augmented by a couple of manufacturers, the group went from its first-ever practice to the debut gig in four hours... and they were wonderful. Okay, so they were all thirtysomethings with a jazz/blues fetish (as proven by the track listing), but they cooked. All rivalries were buried as writers and editors from The Absolute Sound, Sounds Like..., Stereophile, and Hi-Fi News & Record Review got together to amuse their colleagues and make money for a good cause. The event—June 3-4, 1990 at Chicago's Moscow At Night—was recorded and released as this CD, and it's a killer.

The music? You could have been at any of a thousand frat parties where the band had good taste, a British rhythm section, a compere with a great sense of humor (yo! Mikey!) and few inhibitions. Some of the highlights were Rob Sample's mind-blowing vocals on "Hoochie Coochie Man," JA's bass playing (described by Steve Harris as 'awesome'), Neil Sinclair's stint on drums (who'd've believed that a laid-back Californian could cook?), and Frank Doris's guitar work. Yeah, Frank was the man of the evening, fer sher.


Listen: the music and the sound are bonuses. The reality is that Neanderthals are out there killing people with their cars because they drive while tanked. Send Bainbridge a $15 check made out to MADD-LA right now—Bainbridge Records, PO. Box 8248, Van Nuys, CA 9140. Tel: (213) 476-0631. Fax: (213) 472-4190—and receive a copy of the most enjoyable recording ever released for a good cause. Geldof: eat your heart out. —Ken Kessler

ROBERT JOHNSON: The Complete Recordings
Robert Johnson, guitar, vocals
Columbia C2K 46222 (2 CDs only). Frank Abbey, digital restoration, eng.; Don Law, original prod.; Stephen LaVerne, Frank Driggs, relase prods. AAD. TT: 106:50

Like Charlie Christian, his jazz counterpart, blues guitarist Robert Johnson, now dead for more than half a century, continues to influence all who follow him. Ironically, like Christian, Johnson died in his 20s, thus making it all the more remarkable that, historically, these two men remain their instrument's most significant spokespersons.

Now Columbia releases a two-disc set, Robert Johnson: The Complete Recordings, comprised of every known master and alternate take available—41 pieces, the longest lasting all of three minutes. Talk about efficiency. Though much of the material—all mono, obviously—appeared earlier on vinyl, the two CDs here offer listeners, in essence, the entire panorama of pop music from 1930 to the present.

Think of it—the history of blues and rock-'n'roll to date, contained in a scant handful of fleeting selections. The history of contemporary music in less than two hours. Quite a lesson. Invaluable, to say the least.

Forget the intermittent surface hiss that occurs in varying degrees on various cuts. Ultimately, this treasure may prove to be all anyone needs to understand where everyone from Muddy Waters to Howlin' Wolf to Rev. Gary Davis to Willie Dixon to Josh White to John Lee Hooker to Chuck Berry to Chubby Checker to Taj Mahal, and on down the line, got their ideas. Never mind people such as Woody Guthrie or Hank Williams, Sr. Or guys such as Ry Cooder who, more recently, has done as much as anyone to impart Johnson's stature. Think of the white blues/rock establishment that, of course, ripped off/advertised their music to Johnson's writings. Eric Clapton, who contributes to the liner notes, as does the Stones' Keith Richards, readily admit Johnson's enormous and ongoing impact. Half of Cream's repertoire may be present here. Listen to Johnson's slide and the likes of John Hammond can be heard. Listen to his near-falsetto vocal, his phrasing of lines, and Canned Heat, not to mention Led Zeppelin, come to mind.

Psychologically, this edition may render a major chunk of everyone's record collection irrelevant. All of Johnson's classics—recorded by a myriad of artists—are here: "Kindhearted Woman Blues," "Dust My Broom," "Sweet Home Chicago," "Come On In My Kitchen,"

Stereophile, January 1991
The Magic of Music

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It's been too long—seven years—since Kate & Anna's last album, the refreshingly immediate but out-of-print Love Over and Over. It's not like they've been too busy touring; hardly ever gigging, they prefer to put families first—Kate's in Quebec, Anna's in Ontario. No, these strong, northern women with small, quavery voices, composers of such timeless songs as "Heart Like a Wheel," "The Work Song," "My Town," "Go Leave," and "I Cried for Us," keep their counsel until it's needed.

And family is what this album is about, particularly in its two best songs. Kate's deadpan, almost numb "I Eat Dinner" is a slowly haunting evocation of her life as a single mother with a 13-year-old daughter: "We eat leftovers / With mashed potatoes/ No more candlelight / No more romance / No more small talk / When the plate is clean / When the hunger's gone." What makes the song work as well as it does is the complete substitution of simple sorrow for what could so easily have been self-pity.

"Dinner" is the highlight of what would have been "side 1" had Private Music released an LP. A side otherwise oddly unaffacting for a McGarrigles album. It's not until the second half that the sisters seem to come into their own voices (rather than producer Pierre Marchand's repetitive, keyboard-bound, overly percussive arrangements)—the opening banjo of "DJ Serenade" and the violin and piano of "I'm Losing You," the album's other gem. This is Kate's lingering goodbye to her and Loudon Wainwright III's son, Rufus, who sings harmony here. The song's senses of loss, resignation, and sorrow are poignant, to say the least.

"Love Is," which Emmylou Harris did a better job with on Bluebird, is also here, but one of the McGarrigles' best songs, "Cool River," which collectors can find on Maria Muldaur's Waitress in a Donut Shop, remains unrecorded by its originators. Too bad—it would have added a great deal to this record. As would have one of their French songs—Heartbeats Accelerating is Kate & Anna's first album without a single song in French, which, even if I never knew what the hell they were singing about, always boasted their strongest melodies and most passionate singing. (Try to find their French Record—it's great.)

The darkly jazzy "Hit and Run Love" doesn't really work, but "Leave Me Be" is probably the only song here tuneful enough to rival anything on the sisters' first two remarkable albums, Kate & Anna and Dancer with Bruised Knees. Otherwise, Heartbeats Accelerating is an oddly thin, hesitant, preoccupied-sounding record with far too many electronic percussion tracks for my taste. Though the sound itself is not particularly "electronic"—actually, this CD sounds great—there's little sense of genuine ambience, let alone of musicians playing together, until the very last track, the traditional "St. James Hospital (Cowboy's Lament)." Done in classic "Barbara Allen" style, the sparse voice/piano/accordion arrangement in a convincingly spacious ambience will remind some of the Cowboy Junkies, but reminds me of real music played by real people.

Of their other albums, only Pronto Monto is less satisfying, but it still feels awfully good to hear the McGarrigles sisters singing again.

—Richard Lehner
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Stereophile, Vol. 10, No. 9 Dec. 1987

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We haven't listed record reviews in this index; however, we do have a typeset record review index covering the years 1987 through 1990. If you would like a copy, please send $3 to cover postage and handling to "Record Review Index," Stereophile Editorial, P.O. Box 5529, Santa Fe, NM 87502.

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The Mod Squad Prism II

Editor:
Thank you for the opportunity to submit the Prism II for review.

I appreciate TJN's comments and was pleased to find him in agreement with so many of the performance aspects I value in the Prism II.

The only surprise was finding that he did not hear that beautiful sense of engaging musicality which I believe to be the Prism II's most outstanding feature. Happily, many Prism II owners have called to report that they enjoy the musicality of the player's performance as much as I do. This characteristic does take time to develop fully; the break-in period runs around 30-40 hours of use.

I wish TJN had been able to explore the performance of the Prism II's digital output with his D/A processor. This circuit is quite different from any other player that I know, and offers higher levels of performance.

Steven McCormack
Designer, The Mod Squad

Philips LHH500

Editor:
Thank you for the opportunity to comment on Stereophile's review of the Philips LHH500 CD player.

Mr. Norton correctly guessed that the LHH500 is produced by Philips's Marantz Japan facility, and is essentially identical to the Marantz CD-11 sold in Europe (save for European voltage). The model is sold as the Philips LHH500 in Japan and the Far East as well. He also mentioned the apparent copper chassis; in fact, the chassis is diecast alloy, copper-plated for best RF and EMI interference rejection.

We share Mr. Norton's disappointment in his findings about the sound of the LHH500. In fact, we are very mystified as to why it did not fare better in his listening evaluations. We do extensive listening to our products, and the LHH500 had a lot of critical input during the design process.

The function of any CD player should be, indeed must be, to reproduce to the most faithful degree the music present on the original master tape. The perfect CD player would not sound any different from the master tape. In practice, this is difficult to achieve, since the front end of the CD chain (the mastering and pressing) are quite variable in sound quality.

Recently, some of the Mercury Living Presence series of recordings were mastered for Compact Disc. At the request of Dennis Drake of PolyGram and Wilma Cozart Fine, we supplied an LHH500 for listening evaluation of test CD pressings. During listening sessions conducted for a number of audiophile journalists at the PolyGram tape facility, test CDs were played back on the LHH500 and compared directly to the original tape recording, playing back on the original tape recorder (levels carefully matched, etc.). Listeners could not distinguish reliably between the master tape and the CD playing back on the LHH500! Mr. Drake has recently advised us that he wants to keep the LHH500 as the reference CD player at the PolyGram Edison facility.

Comparing CD players to one another is all well and good, but without a definitive reference (the original master tape), it is simply not possible to draw specific conclusions about accuracy.

In addition, we have found that by using the LHH500's balanced outputs, improvements in sound quality are possible. All the Mercury listening sessions were done using the preferred balanced outputs; perhaps Mr. Norton will have the opportunity to test the LHH500 again.

David Birch-Jones
Marketing Manager, Philips Audio

Sony CDP-X77ES

Editor:
We thank you for including the CDP-X77ES CD player in Thomas J. Norton's "Attack of the Killer CD Players" review.

The objectivity, effort, and care taken made for a tremendously readable and informative article. All five players certainly help dispel the myth of non-musicality in digital source components. We heartily agree with the sonic assessments made of the X77ES, specifically those made regarding vocal and instrumental timbre and bass response. The bench-test parameters also concur with our expectations.

The "chirp" described in the review was probably caused by a misalignment of the loading tray with the loading gear/cam that is responsible for the positioning of the optical

Stereophile, January 1991
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block, or by inadequate lubrication at the block hinge points. In either case, the remedy is quite simple, requiring no parts or disassembly of critical components. A problem of this sort can happen due to rough handling in transit.

Bravo to Stereophile for transcending old biases and for a truly insightful review.

Peter J. Brady
Marketing Planning Manager
Sony High Fidelity Division

Phase Technology PC-80

Editor:
Thank you for exposing Phase Technology’s extensive company background and proprietary technologies, as well as the PC-80’s performance, to your readers.

We are pleased to see that the company’s ambitious design goals for this product were confirmed by your excellent review and comments. We strongly believe that the musically demanding customer who is on a very tight budget (under $800) for a pair of loudspeakers has the right to many of the performance attributes, quality, care in construction, and unique technologies available only through the cost-no-object loudspeakers—all in a convenient and attractive “package.” Specifically, our goal was to deliver the imaging of the costliest speakers (a three-dimensional soundstage that has both width and depth), and to convey the power and weight of bass frequencies found only in large speaker systems, in a convenient and practical size for many of today’s homes and apartments. The following comments from Robert Harley’s review confirm that we have squarely hit our mark: “There is one area in which the PC-80s excel and even compete with the best: imaging,” and “prodigious output in the low end for such a small loudspeaker, creating the impression of a much larger system.”

There are, however, two areas where I have problems with the findings of the review. The first, and most serious, relates to the measurements. It is obvious from the published curves that the measurements (and possibly the listening, although it is not clearly stated) were done with the grilles removed. This is incorrect! It is contrary to the design goal and unique technologies whereby the grilles and the tweeter’s Unicell foam treatment are key elements in the anti-diffraction system. Since our lab uses the same computer system (MLSSA), we have curves run without the grilles that duplicate the same peak at approximately 2.5kHz and a slight rise again at approximately 10kHz. When these curves are again run with the grilles on, as intended, both of these “anomalies” disappear. I would, therefore, like to request that the curves be rerun with the grilles in place, and further listening be done, so that the true performance of the PC-80s can be measured and heard as designed.

Furthermore, the review makes no mention of the unique, optional subwoofer (PC-90) which is designed to augment the PC-80’s already excellent performance. When auditioned with the PC-90 subwoofer (still an affordable $1200 three-piece audiophile system), the PC-80’s bottom end is substantially tightened up and extended well below 30Hz, and the already superb imaging and smoothness in the midrange are further enhanced!!

Possibly a brief follow-up review of the PC-80s with the optional PC-90 subwoofer would be in order and of interest to your readers. I am confident that when the virtues of the PC-80s are combined with the significantly improved and more musical bottom-end performance of the PC-90 subwoofer, the system will earn the distinction of “recommended component.”

Thank you again for your review, as well as your consideration of the follow-up steps that I am requesting.

Stewart Greenberg
President, Assured Systems, Inc.

Snell Acoustics Type K/II

Editor:
Our thanks to Robert Harley and Stereophile for a well-considered review. How can we help but be thrilled when RH says that “Of the nine pairs of under-$1000 loudspeakers I’ve reviewed lately, the Type K/IIIs are perhaps the most musical, accurate, and enjoyable”? We are not kidding in our literature when we say that we perform double-blind listening tests with speakers twice the price before we approve a new model for production!

In the review, RH states that he finds the vast majority of loudspeakers far too bright, including the K/IIIs when their tweeter-level control is set to the calibrated position. His observation is understandable, but he has pointed to the wrong cause. Virtually all microphones used in modern recordings have a rising high-frequency response characteristic (read: bright). (For an enlightening, if depressing, study of the state of recording microphones and “professional” loudspeakers with which listening evalu-
Washington DC's music lovers turn to us to recreate in their homes the excitement of last night's concert. Whether you're updating a component or planning the ultimate home concert center, please visit us. We'll see to it that you end up with the music you love, and not just a collection of equipment.
ations are usually made, see "The Preservation of Timbre: Microphones, Loudspeakers, Sound Sources and Acoustical Spaces," by Sean E. Olive, presented at the AES 8th International Conference: The Sound of Audio, May 3-6, 1990.) Whether you love or hate CDs, there is no question that they do not have the high-frequency losses inherent in the record production process. Microphones which did not result in bright records can result in bright CD sound. Most recordings are monitored on speakers that are anything but flat. This can result in the choice of a particularly bright microphone or in "sweetening" the recording with equalization. The result is an even brighter recording, and that's not even taking into consideration the hearing ability (or lack thereof) of the engineer!

Many manufacturers have responded to this preponderance of bright recordings by making loudspeakers with rolled-off high-frequency responses. This is the wrong approach on several counts. First, it is not possible to create a complementary response characteristic to match the mike's characteristics. They come in too many different flavors. A listen to J. Gordon Holt speaking through a variety of mikes on the Stereophile Test CD clearly reveals this. This is why RH's attempt to cure the brightness he heard by adjusting the tweeter-level control did not completely correct the recordings. If it corrected for one mike perfectly, it would not for another. Similarly, a loudspeaker with an intentional high-frequency rolloff will suit some bright recordings better than others, and will sound too dead with good recordings. This is why the K/II's tweeter-level control is intended only to make bright recordings listenable for those without tone controls, or as some compensation for overly bright listening rooms. Snell speakers, including the Type K/IIIs, are frequently used in recording studios. If we provided rolled-off high-frequency response, we would only be guaranteeing more bright recordings. It should be noted that the K/IIIs do not sound bright on recordings made with accurate mikes. Part of the design process includes listening to B&K instrumentation mikes in a live feed. The K/IIIs do not sound bright with these very accurate mikes.

Unfortunately, the response curves were made with the tweeter-level control turned all the way up, resulting in an extreme high-frequency response rise. [My fault.—Ed.] The readers should be careful not to conclude from them that the K/IIIs are bright. The speakers were never intended to be used with the tweeter-level controls up full. That is why the individually calibrated flat position is marked "Optimal." Please note that the accompanying curve (fig.1), made at the Canadian National Research Council's anechoic chamber, without averaging, indicates no high-frequency rise. (The low-frequency region would be more pronounced in a room.)

Finally, RH noted that the K/II's enclosure produced a "fairly lively tone" on the well-known knuckle-rap test. This simplistic test does not indicate the audibility of resonances. My philosophy is to "sink the money" into the performance aspects which have been shown to be significant in double-blind listening tests, and have been shown to be important in the most advanced academic research, rather than into the latest fad, or other aspects of lesser audible significance. The detection of a resonance in a single-tone sinewave test does not indicate its audibility with a musical source. Please see "The Modification of Timbre by Resonances: Perception and Measurement," by Floyd E. Toole and Sean E. Olive, JAES, Vol.36 No.3, for a complete investigation of the subject.

Again, thank you for the thoughtful review. I appreciate the opportunity to clarify these technical issues.

Kevin Voecks
Chief Engineer, Snell Acoustics

**Tice PT Clock**

**Editor:**

I am writing this letter in an effort to correct and clarify much of the rumors and misinformation surrounding the Tice PT Clock. Unfortunately, many audiophiles accept assumptions and misinformation as fact without question. I think it's time to set the record straight.

To understand the TPT Clock it must be bro-
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ken down into two distinct entities. The first is the technology called TPT (Tice Pulse Technology), and the second is the storage medium, which is the clock. The relationship between TPT (the technology) and the storage medium (the clock) is exactly the same as the relationship between music and recording tape. The clock without the TPT instruction installed in it is nothing more than a nice LED clock.

For those people who claim to hear big improvements when plugging in untreated off-the-shelf clocks, I commend you on your imagination. As absurd as it may seem, we did conduct blind listening tests using untreated clocks. Our listeners were asked to identify when the untreated clock was plugged in. The results were, as expected, no better than random chance would allow. You would be amazed how quickly opinions change when the blindfolds come out.

Another misconception is the idea that our TPT-treated clock will in some way look different inside when compared to an untreated off-the-shelf clock. The TPT treatment takes place at a molecular level which is not visible to the naked eye. Would anyone question whether music can be stored on tape or CD just because you can't see it with the naked eye?

TPT is a very versatile technology. We could have installed our TPT instruction into many other storage mediums. We chose the clock for one reason: low cost. The TPT treatment machines are extremely expensive to build and operate. We wanted TPT to be something everyone could afford. We honestly, and perhaps foolishly, believed our products would be appreciated more for their sonic value than their aesthetic value, especially when you consider the TPT Clock retails for $350! We were very disappointed to learn from our dealers that audiophile acceptance would be much higher had we installed TPT into an expensive aluminum or wood case and sold it for twice the price.

It is our hope that products will be judged on their merits and not on erroneous assumptions and misinformation. We would also like to disassociate ourselves from any other company or companies attempting to sell similar-looking products.

We at Tice Audio will continue to bring new technology to the audio industry, products based on innovation and science, not magic!

George R. Tice
Tice Audio Products

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In the three and a half decades since the arrival of stereo, no one has done more than J. Gordon Holt to develop and define a consistent vocabulary for describing reproduced sound. This is actually two dictionaries in one: a glossary of subjective audio and a comprehensive plain-English guide to nearly two thousand technical terms. If you aren't exactly sure about "liquid" midrange or "hard" sound, or find yourself puzzled by an unfamiliar word or alphabet-soup abbreviation, you'll find a concise explanation in this handy, compact reference volume.

But watch out! When you least expect it, Holt's dry humor emerges. You'll learn that a cassette is "a small cass," a chube is "a British tube," and a code causes "blockage of the dose." Whether you chuckle or groan, you won't be bored!

☐ YES! Please send me The Audio Glossary!

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Recession—Our Old Friend

Almost every issue of every newspaper has some discussion of the recession that the US is not officially in—but which everyone believes is here. One wonders if perhaps the recession wouldn't happen, after all, if there was no reporting! Naturally, anyone involved in a retail industry is concerned, including me. After all, though Stereophile's commitment is solely to its readers, we don't fool ourselves into thinking we would exist were there no high-end hi-fi industry. Hi-fi enthusiasts would have a hard time existing themselves were there no high-end components to purchase! The health of the industry concerns us all.

With this in mind I've been careful not to neglect my duty to visit high-end retailers and manufacturers as much as possible, partially for commercial public-relations purposes, but even more so I can keep you updated about where things are going. After all, no high-end consumer is going to spend $5000 (or $500) with a company about to go out of business, and Stereophile keeps financial stability in mind when selecting products for review.

You could say that what I've found is encouraging. The bad news is that, yes, high-end audio sales, particularly at the retail level in certain afflicted parts of the country, are flat or down. The good news is that the market has actually been that way since the fall of 1987—since just after Black Monday, essentially. (Here at Stereophile our theory is that the crash was triggered by all the first NYC Hi-Fi Show attendees rushing out to sell their stocks and buy expensive hi-fi equipment—Black Monday was the day after the Show closed—but others disagree.) The figures for 1987, because of the excellent market existing before the Crash, still looked good, but '88, '89, and '90 have all been years of very limited growth, and reports from retailers around the country make it sound more dire than that.

But this is good news because it proves that our industry is durable. Even when consumer spending on luxury goods is down (as BMW, Volvo, and Mercedes Benz will be happy to testify), enough money is still spent on high-end hi-fi to keep our network of dedicated retailers and manufacturers in business, if not exactly fat and happy.

I've also observed in my travels that the best high-end companies, the ones who make truly great products representing excellent performance and value for the consumer, are busting at the seams trying to get those products out to their dealers; adequate production may be a problem, but sales are not. (Stereophile's ability to bring a high-end message to an ever-larger group of audiophiles reflects the same trend—we're projecting circulation of 60,000 for 1991, up 50% from just three years ago.) In that way you, the buyer, ratify Sam Tellig's instruction to reviewers: keep products on the dealer's shelves unless they truly deserve a place in the consumer's home. Keep it up, but keep rewarding those companies making the best, and those dealers who truly enable you to get the best out of your systems.

Next, some news about J. Gordon Holt, Stereophile's founder 29 years ago and still our spiritual leader. Gordon was diagnosed last November as having a small cancerous tumor at the back of his throat. Although any news like this can't help but be very upsetting, as I write (December 3), Gordon has just undergone successful surgery for the tumor's removal. His doctor has prescribed a six-week dose of radiation therapy and is reported to be confident of Gordon's complete recovery. Although Gordon's throat is currently too swollen for him to indulge in his usual abusive banter, his writings indicate that his caustic sense of humor was unaffected by the operation. The tumor was in a location where its removal will fortunately not affect his speaking voice. He welcomes the concern that all of you no doubt feel, just as long as you don't tell him to his face! We expect him to be back to normal in just three months. Go, Gordon!

Finally, I'd like to share my excitement about the test lacquers I'm listening to of Stereophile's next record, entitled Intermezzo (and announced by JA in "Coming Attractions" this month). Pianist Robert Silverman's playing is exquisite, and the recording, in all immodesty, is terrific. It is a system-buster, though; even my Thiel CS5s drives by Levinson electronics are not quite up to it, though I'm going to work on the system until the piano is literally here in my room. Ah, the advantages of being at the recording session.

—Larry Archibald

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