

Stereo Review

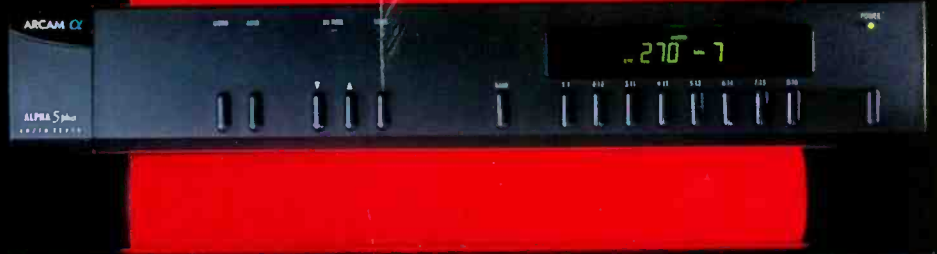
NOVEMBER 1995 • US \$2.95 • CANADA \$3.95 • UK £1.95

BEST BETS

COMPONENT SEPARATES OR A RECEIVER?



HOME THEATER Tips on Shopping For a TV Set



AUTOSOUND A Preview of the 1996 Models

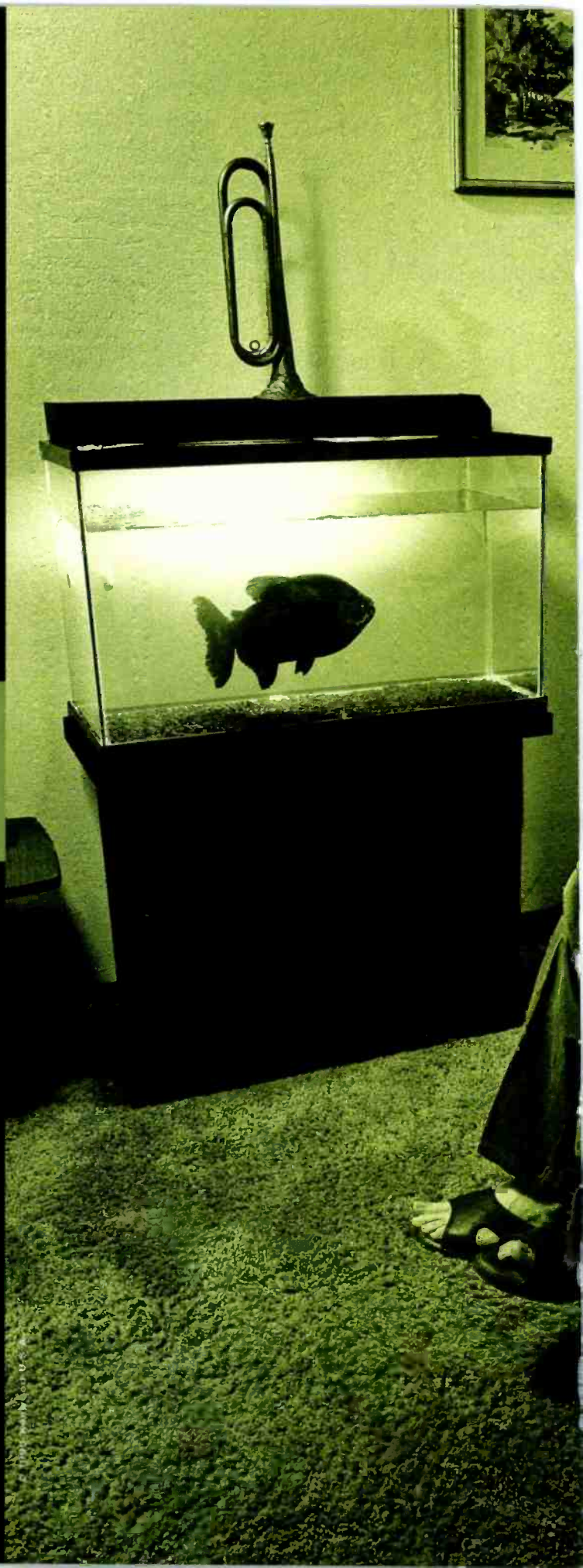


TEST REPORTS Yamaha CD Changer, AMC A/V Preamp, Cambridge SoundWorks Portable, Digital Phase Speaker, and more



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The sound quality of most televisions
is almost enough to keep people from
watching them altogether.





We feel your pain.

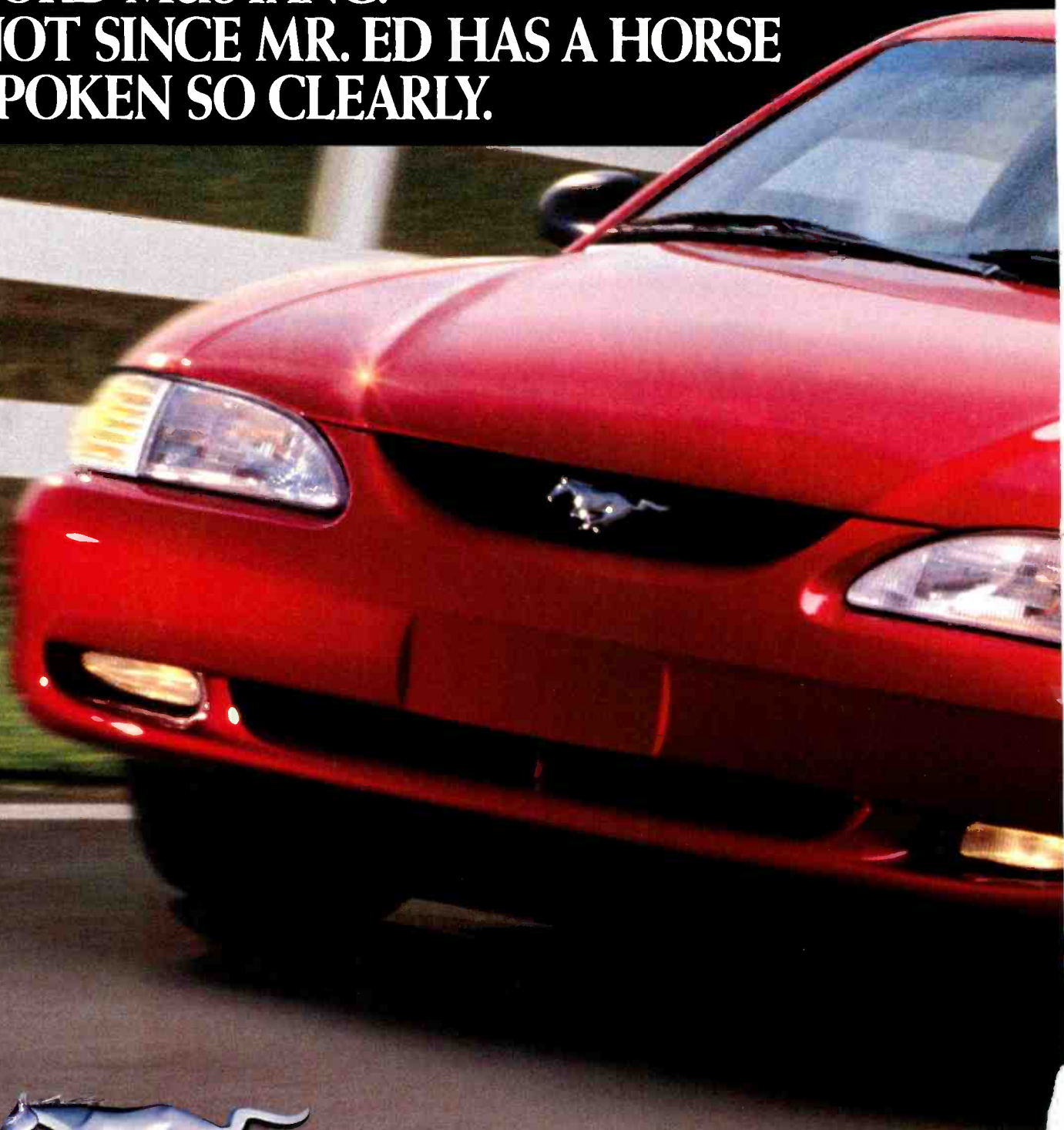
Watching ice fishermen scratch themselves. Watching buttermilk coagulate. Watching mimes debate economic theory. Anything is preferable to enduring TV with inferior sound. And so we created Kenwood Home Theater Systems with complete surround sound. Systems that give you true movie sound reproduction at home. Because while bad TVs probably won't cause irreparable inner ear damage, these days you never can be too safe. For the dealer nearest you, call 1-800-KENWOOD. Do the music justice.

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CIRCLE NO. 81 ON READER SERVICE CARD

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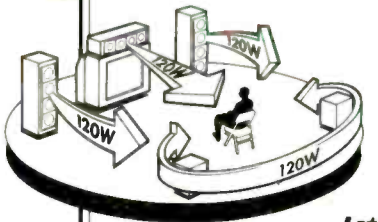


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A FORD LATELY?**



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WITHOUT THE
HIGH ANXIETY**

HOW TO BRING HOME THE RIGHT HOME THEATER RECEIVER.



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Should you build your system around a receiver, such as the Denon AVR-2500 (bottom)? Or with separate components, such as (from top) the Linn Wakonda preamp, Arcam Alpha 5 Plus AM/FM tuner, and Adcom GFA-5500 power amp? See page 68.

Photograph by Roberto Brosan

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Stereo Review

INCORPORATING HIGH FIDELITY

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If you think the ultimate speaker system would have a subwoofer, you're half right.

The dual-subwoofer *Ensemble*® speaker system by Henry Kloss. \$599⁹⁹ factory-direct.

Ensemble is Cambridge SoundWorks' very best speaker system. It involves no compromises in performance, no cost-saving shortcuts. As a result, its performance stands head-to-head with audiophile tower speakers selling for well over \$1,000 a pair, yet its unique four-piece design literally disappears in your room.

There is no other speaker system like it.

Designed to perform in your home – not in a laboratory.

It has always been true that speaker placement in the listening room has a significant effect on the sound of any speaker system. No matter how a speaker may perform in a laboratory or a specially-designed showroom, at home the acoustics of the listening room significantly affect the sound.

Most positions in a room where you might place a speaker tend to emphasize one portion of the musical range, and tend to de-emphasize some other portion of the musical range. For example if you place a conventional speaker close to a room corner which will enhance the bass response, that location may hinder the upper ranges of music.

Ensemble's unique four-piece design eliminates this dilemma.

Big sound without the big boxes.

Ensemble consists of four separate speaker units; two for each stereo channel. Two

powerful, but ultra-slim subwoofers reproduce the deep bass, while two compact satellite units reproduce the rest of the range.

By separating the low bass from the rest of the musical range, *Ensemble* is able to reproduce just the right amount of energy across the musical spectrum, without turning your listening room into a stereo showroom.

"Crisp, balanced sound, stereo imaging is phenomenally sharp – some of the best I've heard...some of the speakers I'm comparing it to cost \$1900 to \$2800"

High Performance Review

You can place the subwoofers on the floor, up against a wall, or in a corner – all places that allow them to reproduce bass notes efficiently. These locations are also often out-of-sight, which can be a real decorating advantage. The satellite speakers can then be placed out in the room, at ear level, positioned to create a realistic stereo image. They can be hung directly on the wall, placed on shelves, or mounted on stands.

Why two subwoofers?

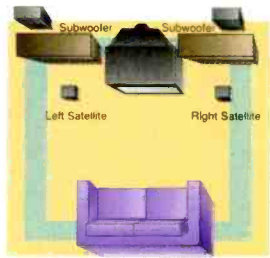
Subwoofer/satellite speaker systems that use one subwoofer can and do sound terrific (in fact, we offer a full range of single-subwoofer systems). But for the ultimate in

brehtaking, accurate sound reproduction, and the most powerful bass performance, you should have two subwoofers. Here's why:

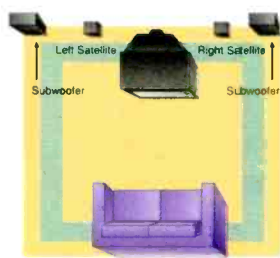
- *Increased sound pressure levels and power handling capability.* Quite simply, *Ensemble's* dual subwoofer system, with its two 8" long-throw woofers, will play louder and take more power than single-subwoofer speaker systems, including our own. This is even more significant if you are using *Ensemble* in a home theater, since authentic low bass sound effects in movies require extra-powerful bass output.



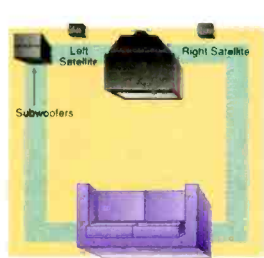
Ensemble is now available with either its original charcoal *Nextel* finish with black subwoofers, or a new version with white hand-finished satellites and white vinyl subwoofers for no additional charge.



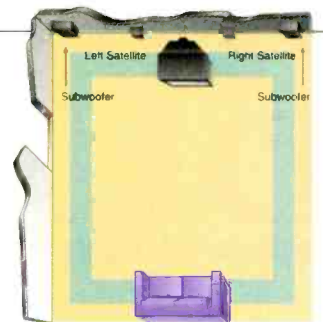
Ensemble's ultra-slim (4 1/2") subwoofers can be put in out-of-the-way places – even behind or under furniture.



Ensemble's dual subwoofers accurately reproduce the stereo bass on some modern digital recordings, adding to imaging realism.



Ensemble's dual subwoofers can be placed together in a corner to achieve very high bass output for reproducing low-frequency movie sound effects with incredible realism.



In larger rooms with big openings into other rooms, Ensemble's dual-subwoofer design assures uniform bass throughout the room.

• *Uniform bass response throughout the listening room.* Depending on room acoustics and speaker placement, a system can produce bass "nulls" and "peaks" in different areas of

Cambridge SoundWorks "may have the best value in the world."

Audio Magazine

a room. Two subwoofers can solve that problem. To quote *Audio* magazine, "At low frequencies, strong and widely spaced room modes are occurring... some locations have a lot of bass while others lack bass. When two subwoofers are placed in the room, better uniformity of bass response is obtained."

• *Ultimate placement flexibility.* It is our experience that room placement is the ultimate key to real-life performance of any given speaker in any given room.

Ensemble offers more placement flexibility than any other speaker we know of. Its subwoofers are only 4 1/2" thick, so you can actually put them in places where no other subwoofer would fit: under furniture, on top of bookshelves or behind draperies. You can also put one on one side of the room, and the other on the opposite side, which turns out to be correct placement in many cases.

• *Two-channel bass on modern recordings.* Some modern recordings, especially two-microphone recordings of full orchestral works, have stereo bass imaging. *Audio* magazine says, "Using two subwoofers provides more realistic bass and takes

advantage of program material with fully stereo bass."

No compromises. No shortcuts.

Don't be fooled by *Ensemble's* price. It's affordable because of our efficient factory-direct sales system.

• The satellites are genuine two-way designs with separate 4" mid-bass/mid-range drivers and 1 3/4" tweeters with integral domes. The satellite cabinets are solidly constructed of resonance-resistant MDF for optimum acoustic performance. Each one is hand-finished in scratch-resistant, suede-like Nextel or durable white paint.

• The speaker drivers used in the satellites and subwoofers are of the highest quality. The 8" long-throw woofer drivers, designed by Henry Kloss and manufactured by Cambridge SoundWorks, use a unique, integrated heat sink for increased power handling capacity.

• Each satellite and subwoofer contains the precise response-tailoring crossover circuitry it requires. This allows you to choose from several different ways to wire the entire system.

• Both the satellites and subwoofers use gold-plated five-way connecting posts.

• Durable, acoustically transparent metal grilles protect the speaker drivers, instead of the inexpensive cloth grilles used by many systems.

• Last but not least, the entire *Ensemble* system has been painstakingly fine-tuned (or "voiced") by Henry Kloss for proper octave-to-octave tonal balance. Because it

does not give undue emphasis to any one octave of music, *Ensemble* has a rich, natural, accurate sound normally associated with the best (and most expensive) of conventional speakers under laboratory conditions.

"Smoother than many more expensive speakers... it is hard to imagine going wrong with Ensemble.."

Stereo Review Magazine

You can spend hundreds of dollars more for a speaker system that doesn't sound as good. Or you can buy *Ensemble*—direct from Cambridge SoundWorks, or at Factory-Direct Speaker Walls in Best Buy stores.



Factory-Direct Savings

Ensemble is available factory-direct for only \$599⁹⁹ with a full 30-day risk-free home audition. Listen to *Ensemble* in your home, with your music. If you aren't happy, return it within 30 days for a full refund. We even reimburse your original UPS ground shipping charges in the continental U.S. Call today.



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Are "tower" speakers better?

A great many people presume that very large, very expensive "tower" speakers are inherently better than subwoofer/satellite speakers. Nothing could be further from the truth. If you were to take apart a high quality tower speaker and *Ensemble*, you'd see both use premium quality drivers, crossovers and cabinets. The physical volume of the cabinets

enclosing each speaker driver is carefully matched to the demands of that driver. With *Ensemble* you get all the quality components and precise engineering of premium tower speakers – built into four smaller cabinets instead of two large ones. Separate cabinets give you room placement flexibility to get optimum performance in your listening room.

BULLETIN

BY BOB ANKOSKO & WILLIAM LIVINGSTONE

FLAT-PANEL TV RACE HEATS UP

Wall-hanging TV's, which have existed in sci-fi movies and TV shows for decades, are moving a step closer to the real world. Mitsubishi recently demonstrated a 2¼-inch-thick prototype plasma video display with a 20-inch screen and announced

that it hopes to market a 40-inch system in early 1997. The system's exact configuration and features have yet to be finalized, but it's expected to sell for \$6,000 to \$10,000. Meanwhile, Sony has said that it plans to introduce a 1½-inch-thick Plasmatron TV with a 25-inch screen in Japan this year. Matsushita (the parent company of

Panasonic) and Fujitsu have also announced they are gearing up for large-screen plasma display panels. Matsushita aims to introduce a 26-inch wall-hanging set in Japan next spring. NEC said it hopes to enter the wall-TV race next year.

FORMAT WAR AVERTED

Worries that two identical-looking yet technically incompatible digital video-disc (DVD) formats would hit store shelves next year have been laid to rest. A compromise reached by the two rival camps, headed by Toshiba and Time Warner on one side and Sony and Philips on the other, paves the way for a single format using a CD-size 4.7-gigabyte disc that can store a 133-minute movie on one side. The system will be compatible with existing CD players, deliver better-than-laserdisc picture quality, and support six-channel digital soundtracks and multimedia-computer applications.

Proponents of the new format are hoping to introduce a \$500 player mid-to-late next year, though some said the first players to reach market could be more expensive.

CD & BOOK DEAL

Bach, Beethoven, Mozart, and Tchaikovsky are the first four composers in the Play

by Play series of integrated hardcover book and audio CD packages brought out by Harper Collins of San Francisco and PolyGram Records. The noted music critic Alan Rich has written the musical guides, and his analysis of musical compositions is illustrated by the Analytical Indexing digital process, which permits a reader/listener to locate the exact passage under discussion in the accompanying CD. Performers on the first four Play by Play packages include Georg Solti, Charles Dutoit, and Alfred Brendel. Price: \$25.

MUSIC NOTES

GTE Entertainment is releasing "Forrest Gump — The Music, Artists, and Times," a three-disc CD-ROM set (\$39.95) that expands on the music used in the hit film starring Tom Hanks. In addition to lyrics, film scripts, and old record reviews, the interactive set includes interviews with

Michelle Phillips of the Mamas and the Papas, Ray Manzarek of the Doors, and other performers. . . . The Grateful Dead album "Grayfolded" (Swell/Artifact) is a pastiche of tapes of more than a hundred performances of the song *Dark Star* at Dead concerts over the last twenty-five years. Playing time of the two-CD set is 136 minutes. . . . Tickets are on sale for the 1996 Olympic Arts Festival to take place next summer in connection with the Centennial Olympic Games in Atlanta. For information call 404-224-1835.

PURCELL LIVES

The 300th anniversary of the death of English composer Henry Purcell (November 21) is being observed with many new releases. Philips, for example, has issued a Purcell recital by soprano Sylvia McNair. Harmonia Mundi has released "A Purcell Companion," a set of six CD's for the price of three (for details contact Harmonia Mundi

USA, 2037 Granville Avenue, Los Angeles, CA 90025).

A/V DIGEST

The latest chapter in the tale of the incredible shrinking satellite speaker has been written by Bose. The company's \$2,500 Lifestyle 12 music system features a pair of 4 x 2 x 3-inch double-cube speakers to go with its Acoustimass bass module and sleek brushed-aluminum control center, which combines a six-disc CD changer, AM/FM tuner, and two-zone preamp. . . . Runco recently held the first public demonstrations of a prototype video projector built around a unique Digital Light Processing system developed by Texas Instruments that's said to deliver filmlike picture quality. The heart of the system is a pair of 5/8-inch-square microchips, each containing 500,000 digitally switched microscopic mirrors, one per pixel. Runco hopes to market a system late next year for less than \$10,000.

NEW INTERACTIVE MUSIC LABEL

A new independent record label devoted solely to releasing music-oriented multimedia CD's that can be played in CD players and computers with CD-ROM drives has been formed by a group of executives from the record and computer-software industries. Los Angeles-based nu.millennia/records will develop new artists and release interactive titles in conjunction with major record labels, according to Norman Bastin, the company's CEO and a former Compton's NewMedia executive. Releases from a number of artists — including Soundgarden, White Zombie, P.M. Dawn, and country singer Clay Walker — are scheduled. The discs will be either mTrax EP's (\$10.95) or full-length mTrax LP's (\$19.95), which are said to be compatible with 90 percent of the CD-ROM drives in use.

Nu.millennia/records president Paul Atkinson, a record-industry veteran and founding member of the Sixties rock group the Zombies, said all titles will feature imaginative 3-D graphic environments that provide access to videos, interviews, concert footage, liner notes, and more. Bernie Taupin, Elton John's long-time songwriting partner, is a board member and creative consultant for nu.millennia.

ILLUSTRATION BY TERRY ALLEN

Deep sea divers spend time in hyperbaric chambers to decompress.

(What do you do?)



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adjusted to their proper input and surround modes. To find out about our complete range of home theater equipment and for a dealer near you, give us a call at 1-800-PIONEER. And while another way to unwind may come along someday, don't hold your breath.

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Art Director
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Vice President, Group Publisher
TONY CATALANO

Consumer Electronics Group Advertising

VP/Advertising Director
Scott Constantine

Regional VP/Ad Director, East Coast:
Charles L. P. Watson, (212) 767-6038

Regional Account Managers, East Coast:
Christine B. Forhez, (212) 767-6025
Penry Price, (212) 767-6077

Midwest Advertising Manager:
Jerry Stoecigt, (312) 923-4804

Regional VP/Ad Director, West Coast:
Robert Meth, (213) 954-4831

Western Advertising Manager:
Paula Mayeri, (213) 954-4830
Sales Assistant: Nikki Parker

National Record Label Sales Representatives:
The Mitchell Advertising Group (MAG Inc.)
Mitch Herskowitz, (212) 490-1715
Steve Gross, (212) 490-1895

Assistant to the Publisher: Aline J. Pulley
Promotion Coordinator: Dominique A. Leupi

Operations Manager: Sylvia Correa
Advertising Coordinator: Linda Neuweiler

Sales Assistant: Yvonne Telesford
Classified Advertising: (800) 445-6066

Production Manager: Vicki L. Feinmel
Production Director: Patti Burns

Business Manager: Christine Z. Maillet
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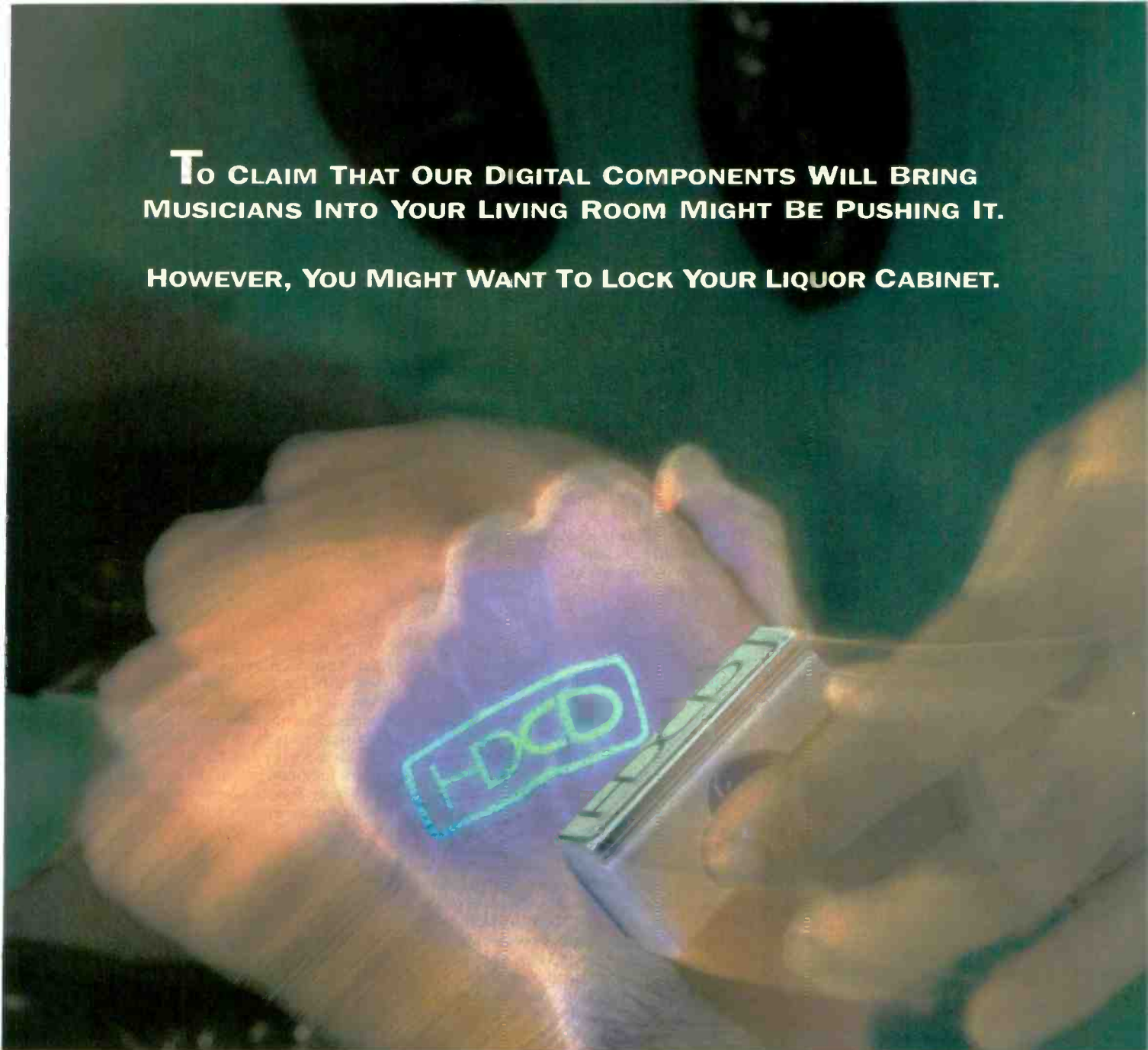
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Another Brick in the Wall,
Us and Them, Nobody Home* and
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Tree With Winding Roots
Beside The Lake Of Dreams Mix.*

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LETTERS

Concert-Hall Fidelity

I enjoyed Julian Hirsch's "Technical Talk" in the September issue, but he begs the question: It's not "How Much Fidelity Is Enough?" but "What Is Fidelity?"

There are very few music halls that do not electronically amplify the music, significantly changing the sound from what would be heard without amplification. The same performance in a different hall has a different sound. Popular music often uses electronic instruments capable of infinitely variable sound. Each instrument may have its own track, so that the mixdown creates the sound. In this case the *recording* has the highest fidelity to the artist's wishes.

Let's stop worrying about fidelity and enjoy what we have. Live performances are enjoyed for their ambience — the crowds, the excitement, the "going out" — even though the sound is often atrocious.

ARTHUR GRAY
Elkins Park, PA

As an occasional concertgoer, mostly for classical music, and a relative newcomer to the world of hi-fi audio, I'm somewhat bemused by the idea of recreating the live-concert experience at home. It is a decidedly bad idea.

Even if you could afford the top equipment that engineering currently offers, that ideal would still be elusive. In order to get the true feel of the modern concert hall at home you would have to find a couple of dozen people to slowly, and loudly, liberate candy wrappers during the tenderest passage of a Mahler symphony. You'd have to hire people to sit on either side of you in your music room and put their sweaty arms on the arms of your recliner, letting them slip and jab you in the ribs from time to time, followed by intermittent bursts of uncontrollable coughing. And, of course, it should all be preceded by an hour's ride through traffic and a \$6 cappuccino.

JEFFREY C. TURBITT
Morganville, NJ

Headphone Lament

Reading the review of the Sennheiser HD 565 headphones in September, I was again filled with the same longing I've experienced for years — and the same frustration: How do you connect your headphones to a receiver that is across the room, too far away for the cord that came with them? The obvious answer is to buy an extension cord, and I've done that. But it's a hassle to have a long cord draped across the carpet, and a hassle to stow it and drag it out again for each session. Of course, the other obvious answer is to locate the receiver within 6 feet of your listening chair, but that's never been an acceptable arrangement no matter where I've lived. Run the headphone cable under the wall-to-wall carpet? Get serious.

The result: I don't use my headphones, and although I'd like to upgrade to better phones (like those Sennheisers), the hassle of connecting them makes satisfying headphone listening in the living room unattainable. I know there are wireless phones, but I haven't been satisfied with the sound or the comfort of the ones I've seen. Note to manufacturers: What is needed is a wireless headphone jack into which we can plug the phones of our choice!

I visualize a box with a transmitter (infrared or whatever) that is plugged into the headphone jack on my system, and another box, with a receiver for the signal and a headphone jack, that could be located next to my chair. The receiving station could either be plugged into the wall for power, or battery power could liberate me from the wall altogether.

TOM SLOCOMBE
Orange, CA

Nipper's No Bull

Oliver Berliner's suggestion (August "Letters") that RCA's Nipper is a bull terrier is way off. The "party animal" that peddled beer on TV a couple of years ago was a bull terrier. That uncouth ruffian couldn't sell classical records, or any music, the way civilized Nipper has for almost a hundred years. Like most people, the artist who painted Nipper, Francis Barraud, thought the dog was a fox terrier.

WALTER H. HENRY
Downey, CA

Reader's Choice

I'm sure any of the \$5,000 home theater systems featured in "Dealer's Choice" (August) would thrill the average consumer. But I wanted to include only S-VHS video components for a much sharper picture and still have enough money for the new Sony SAS-AD1 Digital Satellite System receiver. I used a spectrum analyzer and my eyes and ears to locate my room's perfect position for a trio of the Advent Legacy, my favorite budget-price full-range speaker, while avoiding magnetic interference with the TV tube.

After an afternoon of heavy lifting there was no contest: Mounting the speakers high on the wall, just below ceiling level, and tilted slightly down yielded clear, reflection-free audio with such smooth reproduction it was a revelation. Thirty bucks' worth of hooks, chains, and molly-bolts and a wire track cover, and I had three super main speakers. Moreover, channel separation is greater in Pro Logic mode since I can use the Wide setting, with a full-range center signal, and not matrix the bass over to the left and right speakers as you must normally do when not using a subwoofer.

The three Advents cost \$400 total, and the rest of the system now includes everything your pros picked, plus S-VHS, and there's a grand left for the DSS dish even

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after squeezing the budget for a rotor roof antenna for clearest local FM and TV reception. Look, Ma, no cable bill!

You Noo Yawkers must be too used to spending twenty bucks for a \$3 sandwich!

RICK LEE
Ft. Lauderdale, FL

Hum Busters

For over a year I had been fighting a ground-hum problem in my audio system. I tried

using cheater plugs on my amplifier to bypass the third prong on its power cord; that lowered the hum, but it was still there. I ran a separate AC line for my audio/video gear but still had a hum.

Then I read about the Mondial Magic circuit ground-isolation device in Rebecca Day's user's report on Digital Music Express in the July issue. I went to a local store and bought one.

Wow! What a difference — no more hum! Hats off to STEREO REVIEW for the

tip! Hats off to Mondial Designs for a great product!

LEN HYMAN
Carlsbad, CA

I am an electronics technician and have been installing and servicing A/V systems for twenty-plus years. I have run into the hum problem that Rebecca Day described in her user's report on Digital Music Express in July. Rather than buying an expensive device like the Mondial Magic circuit, you can insert two matching transformers back to back in the cable line before any other component in the system. That will eliminate the hum, and it only costs a few dollars.

CHARLES HARTSOOK
San Rafael, CA

Back-to-back matching baluns will often do the trick, though not always, depending on how the transformer is designed. And as Bret Peters pointed out in "The Buzz on Cable TV" in the August 1994 issue, such a connection will be a source of RF leakage as well as a point at which external interference can enter the system.

Minimalist CD Baggage

Want a convenient, less bulky way to carry CD's without buying a CD wallet? Open up the jewel boxes and remove the thin black trays that hold the discs. You can stack many of these trays in a small space. Just be sure to carry them in a fanny-pack or bag to protect them from dust.

GARRETT NELSON
Fergus Falls, MN

Corrections

"The Center of the Action" in September included an incorrect photo for the RDL RA Labs Center Channel speaker. The photo printed with the article was of the RA Labs Reference Subwoofer (tested in this issue, page 44). The Center Channel is shown below.



RDL RA Labs Center Channel speaker

"Changer Challenge" in October incorrectly identified the Marantz CD changer that Ken Pohlmann tested as the CC-65SE (the SE is for Special Edition). The test unit was actually the CC-65, which carries a list price of \$400, a hundred dollars less than the cost of the specially "tweaked" CC-65SE changer.

We welcome your letters. Please address correspondence to Editor, Stereo Review, 1633 Broadway, New York, NY 10019. You should include your address and telephone number for verification. Letters may be edited for clarity and length.

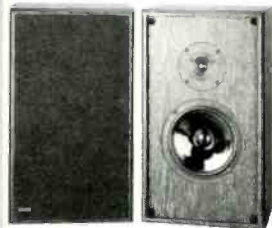
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TIME DELAY

30 YEARS AGO

Those who can't, criticize: In the November 1965 Letters column, reader Frank Papan of Berkeley, California, suggested that reviewer/lyricist Gene Lees stop "kicking" Bob Dylan because "Lees himself writes some of the worst lyrics I've ever heard."

In "A Buyer's Guide to Headphones," Bennett Evans examined models ranging from the Lafayette F-767 (\$11.88) to the Sharpe HA-660/Pro (\$60). Elsewhere, Julian Hirsch tested Heath's AR-13A receiver kit ("comparable to many factory-



wired tuners costing far more") and Empire's 888PE phono cartridge, which was half the size of previous Empire models. The Installation of the Month belonged to Tony Janak, a former Columbia Records engineer, who had a wall-mounted KLH amplifier and tuner, a Sony open-reel tape deck, an AR turntable, and two KLH Six speakers.

And your point is . . . ? After listening to "Judy Garland and



Permoflux headphones, 1965

Liza Minnelli 'Live' at the London Palladium," Gene Lees pronounced the album "raucously, arrogantly, rottenly, miserably, ear-tearingly bad."

20 YEARS AGO

Much of the November 1975 issue, beginning with the cover portrait by Alan Magee, was devoted to the 100th anniversary of the birth of French composer Maurice Ravel. An Eric Salzman essay made the case for Ravel as "the most influential composer of the twentieth century." Harold Lawrence profiled composer/conductor Manuel Rosenthal, one of Ravel's last living students, while Robert Offergeld contributed an appreciation of mezzo-soprano Jennie Tourel, one of Ravel's foremost vocal exponents. And in "The Basic Repertoire," Martin Bookspan rated competing LP's of Ravel's *Le Tombeau de Couperin*.

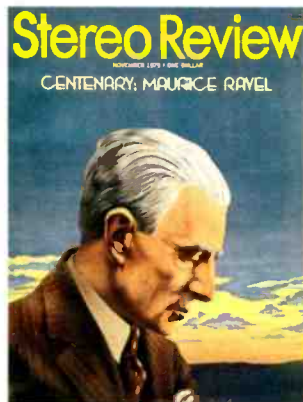
New products this month included Scott's RD 1000 digital FM receiver, with ten



Uher portable, 1975

station presets, and the Audio Research D-150 power amp, a vacuum-tube behemoth weighing 110 pounds. In test reports, Hirsch-Houck Laboratories looked into the B&O Beogram 4002, a record player that had already become a permanent exhibit at New York's Museum of Modern Art, as well as the Uher CR 134 stereo cassette recorder, a portable model that "has much of the quality of a good home machine, yet is smaller than most mono portables."

In Best of the Month, Stoddard Lincoln endorsed a Deller Consort disc of Purcell's *The Fairy Queen* on Vanguard, and Peter Reilly was tickled by a comedy album derived from the TV series *Monty Python's Flying Circus*. In other reviews, Steve Simels was ambivalent about ex-Creedence honcho John Fogerty's self-titled solo debut, deeming it "a flawed record from a



great talent." David Hall and James Goodfriend found a lot to like about new recordings of Ravel's *Daphnis et Chloé* conducted by Lorin Maazel and Pierre Boulez. And Joel Vance found his personal space invaded by "Rubycon" from German synth-poppers Tangerine Dream, "a cross between Goethe and Rommel, between the *Ode to Joy* and *Deutschland ueber Alles*."

I'll have what he's having: Describing a CRI disc of avant-garde chamber works played by the Concord String Quartet, Eric Salzman concluded, "This music (like real life) makes no sense to me whatever."



10 YEARS AGO

Ralph Hodges, writing in "The High End" in November 1985, mused over McIntosh after a visit to Binghamton, New York. "Although the expense of a McIntosh system can be truly hideous," Hodges noted, "there is no evidence that any McIntosh executive ever lost sleep over it, the prices being honestly representative of what was built in."

Taking a look at "The New \$300 CD Players," Julian Hirsch compared models from Mitsubishi, Pioneer, Sanyo, Sony, and Technics. In test reports, Hirsch examined Tandberg's TCA 3008A preamp ("the highest caliber of audio preamplifier performance") and, in a special report, Polk's SDA-SRS speaker system, which used a second set of drivers in each speaker to cancel the interaural crosstalk produced by the main drivers in the opposite speaker.

No refunds, obviously: Reviewing the latest from Air Supply, Alanna Nash declared, "If you buy this album, you will die." — Steve Simels

Air Supply, 1985



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Julian Hirsch, Stereo Review

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David Frith, Sydney Morning Herald

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MISSION ▶

The top of Mission's 73 Series, the 42-inch-tall Model 735 tower speaker has two chambers:

One is sealed and houses a 1-inch tweeter and a 7-inch midrange driver, the other is ported and holds two 7-inch woofers that play below 120 Hz. Sensitivity is given as 90 dB and the low-frequency limit as 35 Hz (-6 dB anechoic).

Finish is black ash-woodgrain vinyl. Price: \$1,099 a pair.

Mission, Dept. SR, 400 Matheson Blvd. E., Unit 31, Mississauga, Ontario L4Z 1N8.

• Circle 121 on reader service card



▼ JOSEPH AUDIO

The heart of Joseph Audio's 15-inch-tall RM7si speaker is a patented Infinite Slope crossover with a steep 100-dB-per-octave cutoff that's said to eliminate acoustic interaction between the system's 1-inch silk tweeter and 6½-inch glass-fiber woofer.

Sensitivity is given as 86 dB and response as 45 Hz to 30 kHz ± 2 dB. Price: \$1,299 a pair in black or oak wood veneer, \$1,499 in rosewood (shown). Joseph Audio, Dept. SR, 2 Pineridge Rd., White Plains, NY 10603.

• Circle 122 on reader service card



▲ DYNACO

Dynaco, the forty-year-old audio brand known for its vacuum-tube power amplifiers, is now using tubes in the analog input and driver stages of its CDV-1 CD player. Highlights include Class A analog operation, a Philips CDM-12 transport, 1-bit D/A (digital-to-analog) converters, a volume control (which enables it to be

connected directly to a power amp), multitrack-sequence programming, and both random and repeat playback modes. Distortion is given as 0.01 percent and channel separation as 85 dB at 1 kHz. Price: \$699. Dynaco, Dept. SR, 125 Cabot Ct., Hauppauge, NY 11788.

• Circle 123 on reader service card

NEW PRODUCTS



▲ CELESTION

Celestion's Impact speaker series, designed to have high sensitivity and high power handling, comprises the 12-inch-tall Model 10 (\$199 a pair), the 15½-inch-tall Model 15 (\$299 a pair), the 18½-inch-tall Model 20 (\$399 a pair), the 32-inch-tall Model 25 (\$550 a pair), the

32-inch-tall Model 30 (\$650 a pair), the 35½-inch-tall Model 35 (\$750 a pair), and the 39½-inch-tall Model 40 (\$950 a pair). The standard finish for all the speakers is black ash vinyl. Celestion, Dept. SR, 89 Doug Brown Way, Holliston, MA 01746.

• Circle 124 on reader service card



▲ WRIGHT AUDIO

Housed in a solid red-oak cabinet, Wright Audio's LGP-1 Series 2 all-tube preamplifier features a separate power supply for each channel, six line-level inputs, and both processor and tape loops. It uses common 12AX7WB or 12AX7WXT tubes, which have a minimum life expectancy of 4,000 hours, and is covered by a three-

year parts-and-labor warranty (except on the tubes, which are guaranteed for six months). Distortion is given as 0.05 percent with a 2-volt output. Available factory-direct for \$685 (plus shipping) from Wright Audio, Dept. SR, 3088 W. 15th Ave., Unit 17, Eugene, OR 97402; phone, 503-343-1413.



MITSUBISHI ▲

The Mitsubishi TS-5087 rear-projection TV squeezes a 50-inch screen into a tabletop cabinet (shown with optional storage base) measuring 43½ x 43½ x 23¼ inches. It receives the Star-Sight on-screen TV program guide and uses three 7-inch cathode-

ray tubes, said to produce 40 percent more light than the 5-inch CRT's in other sets. The TV also has a dual-tuner picture-in-picture (PIP) system. Price: \$3,899. Mitsubishi, Dept. SR, 5665 Plaza Dr., Cypress, CA 90630.

• Circle 125 on reader service card

INFINITY ▶

Infinity's Kappa 60cs car speaker package includes two 6½-inch woofers, two ¾-inch silk-dome tweeters, two passive crossovers, and mounting hardware. The system is rated down to 50 Hz. Price: \$370. Infinity, Dept. SR, 20630 Nordhoff St., Chatsworth, CA 91311.

• Circle 126 on reader service card



▼ NAD

Simplicity is the guiding design principle behind NAD's Model 310 integrated amplifier, whose "super-simple" circuit topology uses about half as many components as in conventional amps. Forgoing "extras" like a phono section, loudness switch, and headphone jack, it has five

inputs, defeatable tone controls, and a combined volume/balance control. The Model 310 delivers 20 watts per channel and is said to be stable into 1-ohm loads. Price: \$199. NAD, Dept. SR, 89 Doug Brown Way, Holliston, MA 01746.

• Circle 127 on reader service card





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NEW PRODUCTS

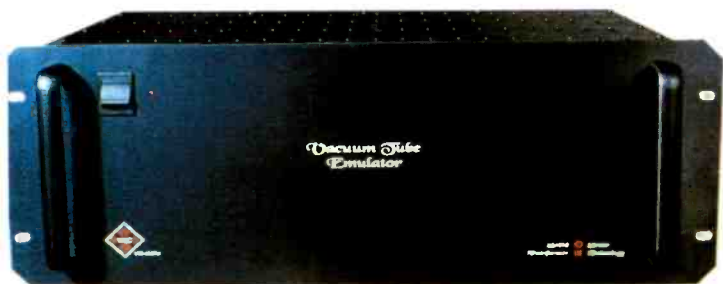


▲ KENWOOD

Kenwood's first THX-certified home theater grouping comprises the LS-X1F magnetically shielded front speaker (\$500), which mates pairs of 5¼-inch woofers, 1-inch soft-dome tweeters, and ¾-inch soft-dome supertweeters in a sealed cabinet; the wall-mountable LS-X1S dipolar surround speaker (\$600 a pair), with two forward-firing 5-inch woofers and side-mounted 3-inch midrange and ¾-inch tweeter

complements; and the vented SW-X1 subwoofer (\$500), which is rated to handle 150 watts. For use in rooms larger than 3,000 cubic feet, the SW-X1 has a parallel connection for a second subwoofer. The LS-X1F and SW-X1 are finished in black, the LS-X1S in white. All have banana-plug connectors. Kenwood, Dept. SR, 2201 E. Dominguez, Long Beach, CA 90801.

• Circle 128 on reader service card



▲ WARNER IMAGING

Warner Imaging's Vacuum Tube Emulator power amplifiers are solid-state devices that are designed to sound like a tube amplifier. Models include the 100-watt-per-channel VTE200S (\$1,495), the 200-watt-per-channel VTE400S (\$2,195), the 300-watt-per-channel VTE600DM

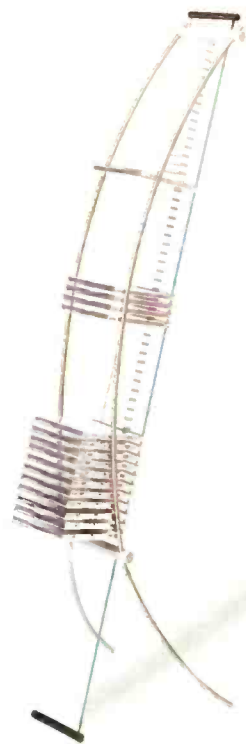
(shown, \$2,995), and the 300-watt mono VTE300M (\$3,395 a pair). Available factory-direct (plus shipping) with a thirty-day money-back guarantee from Warner Imaging, Dept. SR, 5607 Huntsmoor Rd., Baltimore, MD 21227; phone, 410-247-6631.

• Circle 131 on reader service card

PROGRESSIVE DESIGNS ▶

The stylish GLW 5600 CD rack from Progressive Designs holds fifty-four discs and is made of tempered glass and stainless steel. Discs are separated by anodized aluminum bars that are permanently bonded to the glass. The rack is 45 inches tall and weighs 11 pounds. Available factory-direct for \$180 (includes shipping) from Progressive Designs, Dept. SR, 61 E. Lake St., Northlake, IL 60164; phone, 1-800-466-0582.

• Circle 129 on reader service card



▲ PS AUDIO

PS Audio has incorporated the Pacific Microsonics HDCD (High Definition Compatible Digital) decoder/filter into its flagship digital processor, the UltraLink Two. The chip is said to enhance the depth and detail of standard and HDCD-encoded CD's. The processor uses UltraAnalog's AES

21 digital receiver and D20400-A 20-bit D/A (digital-to-analog) converter and has AES/EBU, AT&T ST, coaxial, and Toslink inputs and balanced and unbalanced outputs. Price: \$2,295. PS Audio, Dept. SR, 7325 Roseville Rd., Sacramento, CA 95842.

• Circle 130 on reader service card



◀ ALLISON

In-wall speakers from Allison Acoustics include the IC 62 ceiling model (\$251 a pair), which has a 6-inch coaxial driver; the IW62 (\$383 a pair), which has a 6-inch woofer and 1-inch tweeter; and the IW82 (\$535 a pair), which has an 8-inch woofer and 1-inch tweeter. All feature a paintable frame and grille. Allison Acoustics, Dept. SR, 478 Stanford Ave., Danville, KY 40422.

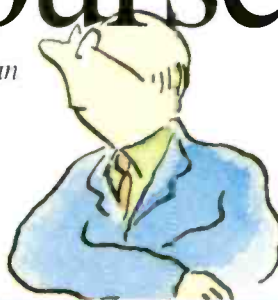
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— excerpts from *Audio Magazine*, by Anthony H. Cordesman

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NEW PRODUCTS

◀ MICROSMITH

Microsmith's AC-powered Hot Link Remote Control Booster System is said to extend the range of any infrared remote by up to 65 feet. It can be used to improve the remote performance of six A/V components. Available factory-direct for \$49 (plus \$4.05 shipping) from Microsmith, Dept. SR, P.O. Box 1554, Pacifica, CA 94044; phone, 1-800-999-8846.

• Circle 133 on reader service card



▼ ROTEL

The transport in Rotel's RD-960BX cassette deck uses a high-torque servo motor for the capstan drive and a separate motor that's said to insure accurate tape handling during fast-forward and rewind. The deck has a hard permalloy record/playback head, a ferrite erase head, Dolby B and C noise reduction, Dolby

HX Pro headroom extension, and automatic bias adjustment with a fine-tuning control. Among other features are music search, memory rewind, a real-time tape counter, and a remote control. Price: \$400. Rotel, Dept. SR, P.O. Box 8, North Reading, MA 01864-0008.

• Circle 134 on reader service card

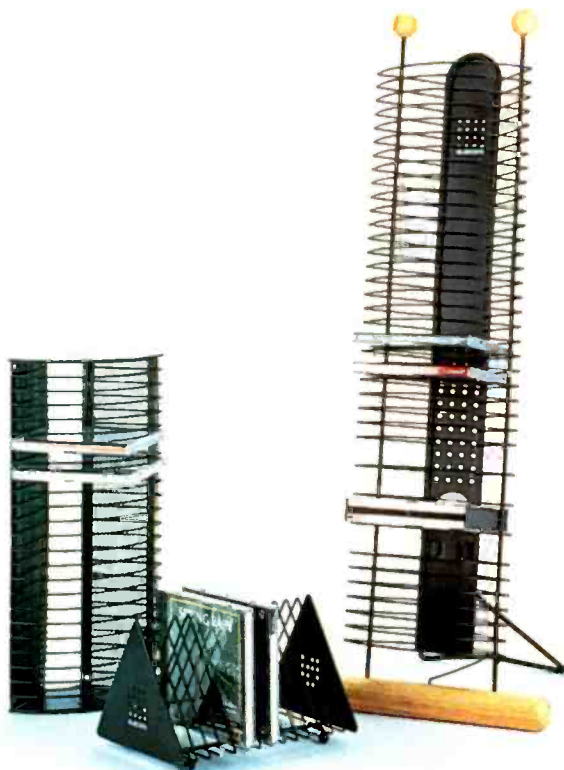


▲ ELECOM

Elecom's CDHQ series of steel CD racks includes the twenty-four-disc CDHQ 24 (\$18), the fourteen-disc CDHQ 14 (\$12.50), and the forty-disc CDHQ 40 (\$32), which has an oak base. Up to four CDHQ 24 units can be joined for expanded capacity, and both the CDHQ 24 and the

CDHQ 40 include wall-mounting hardware. All models in the series are finished in satin black, and they are covered by a lifetime warranty. Elecom Computer Products, Dept. SR, 17316 Edwards Rd., Suite 280, Cerritos, CA 90703.

• Circle 135 on reader service card



NSM ▶

Part of NSM's new Master Series, the 14-inch-tall Model 20M loudspeaker uses a 6½-inch woofer with a coaxially mounted fabric-dome tweeter, an arrangement said to produce a stable, symmetrical radiation pattern with smooth power response. In-room frequency response at 80 dB SPL is given as 45 Hz to 20 kHz ±3 dB, sensitivity as 85 dB, and recommended power as 50 to 200 watts. Price: \$1,995 a pair in walnut (shown), \$1,495 in black lacquer. NSM Loudspeakers, Dept. SR, P.O. Box 326, Garden City, NY 11530-0326.

• Circle 137 on reader service card

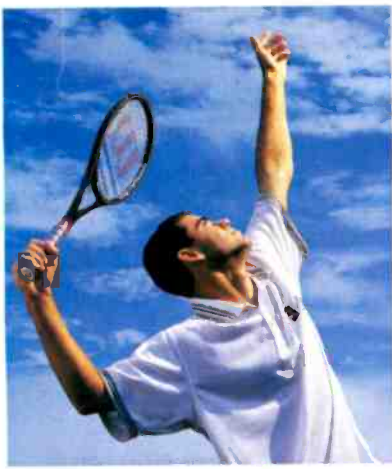


◀ SASAKI ACOUSTICS

Handcrafted from fine crystal glass, Sasaki's 6¼-inch-diameter CW-160AV Crystal Wave speaker uses a magnetically shielded 3½-inch full-range driver. Frequency response is given as 130 Hz to 20 kHz and impedance as 4 ohms. Price: \$480 a pair. Sasaki Acoustics, marketed by Cyclops Distributors, Dept. SR, 600 N. 12th St., Reading, PA 19604.

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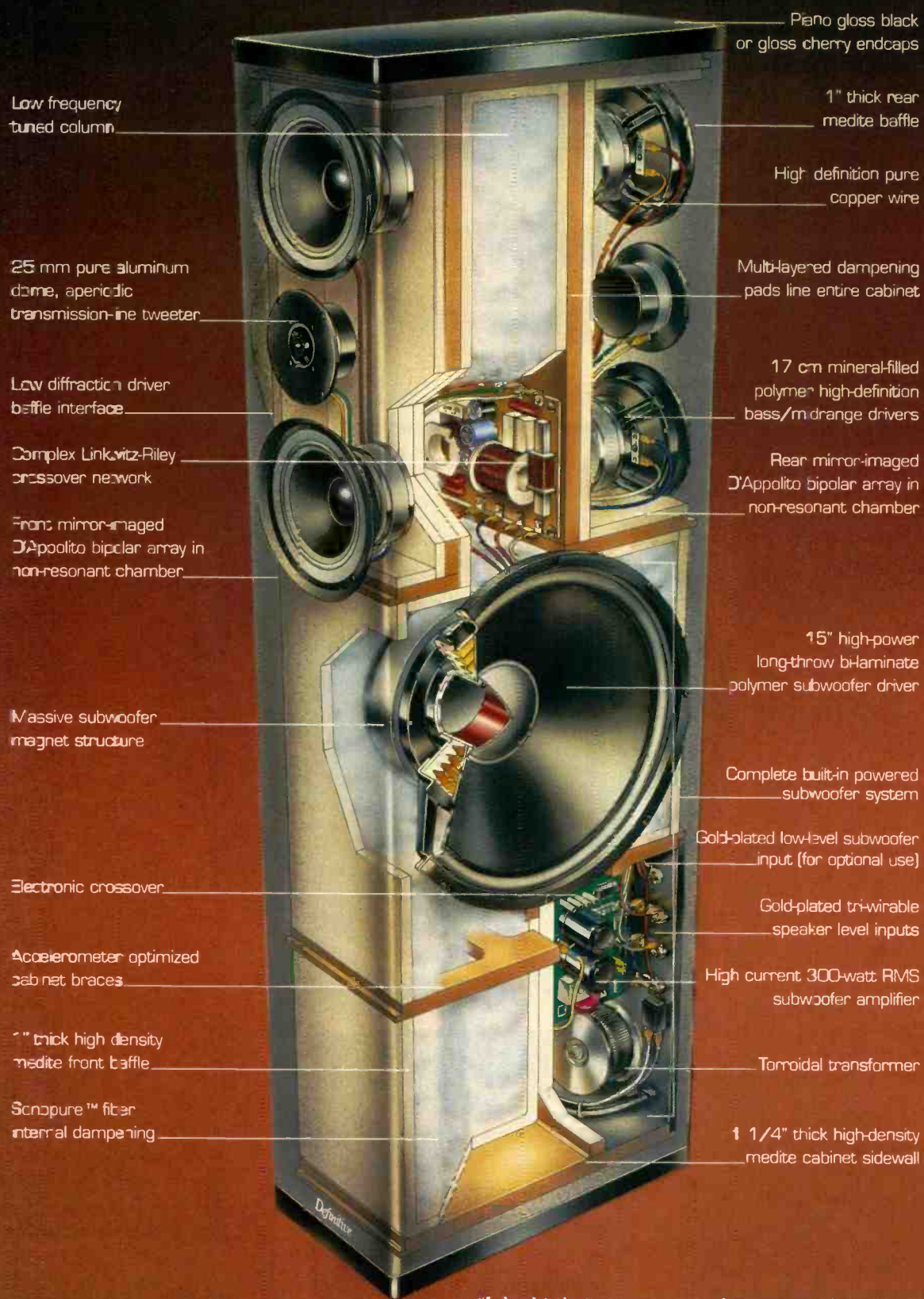
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AUDIO Q & A

IAN G. MASTERS

Dolby AC-3 as an Add-On

Q I am eager to try the new Dolby Surround AC-3 Digital system, but I wonder how an outboard decoder will fit in with my existing A/V receiver. Will I be able to plug the discrete surround channels into the receiver's main-in surround jacks and leave the front channels alone because they carry the same information? And will I end up with two subwoofer channels, one on the decoder and the other on the receiver?

JAMES R. TALASKA
Ironwood, MI

A While it's true that soundtracks encoded in both AC-3 and Pro Logic may end up carrying pretty much the same information in the three front channels, the information is delivered to the speakers in very different ways. In Pro Logic, the center channel is derived from the front left and right channels by a form of steering logic; in AC-3, the three channels carry separate, discrete signals, and the crosstalk among them (the amount of sound that leaks from one channel into the adjacent one) is virtually nil. The arrangement you suggest would give you only the discrete surround channels, but it wouldn't take advantage of the discrete front signals, thus wasting a lot of the potential of the new system, especially the superior overall sound quality available to all AC-3 channels. You might be able to use both subwoofer outputs, as you suggest, but there's no real advantage in doing so. In fact, for several reasons, using both may sound worse than either alone.

Whether you can integrate an outboard AC-3 decoder with your present equipment depends entirely on what you have. If your receiver has pre-out/main-in jacks for all five channels you can probably add an AC-3 decoder. Put the receiver in two-channel mode and feed the front left and right pre-amp-out signals to the line-level inputs on the decoder. Then feed the five outputs from the decoder to the appropriate main-in jacks on the receiver. Connect your laserdisc player's AC-3 output directly to the decoder. You should let the decoder handle both AC-3 and Pro Logic material.

Digital vs. Analog Radio

Q I've been a radio buff all my life, and I read recently that digital audio broadcasting (DAB) will eventually supplant FM radio. How about AM? And if digital radio is five or six years away in the United States, as has been suggested in several articles, what is the outlook for Canada?

STEPHEN J. LEALI
Stony Plain, Alberta

A There will no doubt come a time when conventional analog radio will be totally displaced by its digital equivalent, but you can expect them to continue in parallel for a very long time. That's partly because the switch to the new medium will be gradual; no broadcaster is going to rush into dropping listeners who have yet to embrace the new technology. And if an "in-band" system, in which a compressed digital signal is modulated onto an existing FM or AM signal, were to be adopted, there'd be no good reason for the broadcasters ever to drop the older signals. The new digital signals would be ignored by older radios and retrieved only by digital models.

In Canada the situation is very different, as an in-band system has been pretty much rejected in favor of the European Eureka system. This occupies a separate part of the radio spectrum — up among the radar frequencies — and can coexist with regular radio for as long as anyone thinks it's worthwhile having both. Digital audio broadcasting could be a reality north of the border as early as 1996, and many broadcasters are gearing up for that launch date. In fact, there are already a couple of experimental transmitters in operation (although none near you, yet), with at least one more ready to go on the air.

Disappearing Bass

Q The three front speakers in my home theater system are floor-standing models with 10-inch woofers. When the surround processor is in either Phantom or Normal mode everything sounds fine, but when I switch to Wide the low end disappears from all three speakers. This happens with every source. What's going on?

DAVE KUNISH
Burbank, CA

A In its Normal mode, a Dolby Pro Logic decoder detects anything above 100 Hz that is common to the front left and right channels, removes it from those channels, and steers it to the center. But in that mode it also removes frequencies below 100 Hz from the center-channel signal and sends them to the front speakers, the reasoning being that most center speakers are small units with inherently weak bass. The bottom octaves will thus continue to be reproduced by the main speakers. In the Wide mode, the decoder treats all frequencies the same. As a result, in Wide mode it is not unusual for the bass to sound somewhat thin, because the low frequencies are being reproduced by one speaker rather than two, and because in many systems the left and right speakers are

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- NM: Ultimate Elect.; Albuquerque; Sound Ideas; Albuquerque.
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- VT: Audio Video Authority; S. Burlington.
- WA: Definitive Audio; Bellevue, Seattle; Evergreen Audio; Silverdale; Pacific St. & Sd.; Wenatchee; Tin Ear; Kennewick.
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more likely than the center to be close to a side wall or corner, which will reinforce their bass output.

The differences are usually not dramatic, though, and can often be overcome by a judicious tweak of the system's bass control. Your situation sounds more serious, however. In fact, I encountered the same problem a couple of years ago in a receiver sent to me for evaluation. The problem turned out to be an inherent design flaw in the decoder chip, which made any "fix" impossible.

That's the bad news. The good news is that there is no real advantage to running your system in Wide mode even if your center speaker is a full-range model, so I suggest simply using the Normal setting. And if your system has a dedicated output for a powered subwoofer and you choose to take advantage of it, whatever happens up front becomes largely irrelevant.

VCR Compatibility

Q My main VCR is almost ten years old, so I took it to a local shop for a good cleaning. The technician said it was in excellent shape and required minimal servicing, but I still have a problem. Tapes recorded on this machine or elsewhere play fine, but if I try to play tapes recorded on it on my other hi-fi VCR I notice audio quirks and reduced picture quality. For instance, it won't track the hi-fi audio in SP mode, and picture quality suffers at all speeds. Is it possible that my heads are just plain worn from lots of recording over the years? If so, is replacing them worth it?

ROBERT LUN
South Bowie, MD

A From your description, I'd guess that the problem is with the second VCR, not your main one. Since tapes recorded both by the machine itself and on other VCR's play well, the problem is obviously elsewhere. And it's very unlikely that wear is a real concern at this stage — I have a much-used VCR that's pushing twenty, and its heads are still fine.

Equal Cable Lengths

Q In the days of quad, we were instructed to make all the cables leading from the amplifier to the speakers of the same length lest we experience phase shift or other irregularities. Now in my Pro Logic system I have five speakers, the center one only a few feet from my receiver. Should it be connected to 30 feet of cable like the other channels? And with the prospect of digital surround with six channels, what are the rules?

SUMNER KERNAN
West Hollywood, CA

A Given that the electrons course through those speaker cables at close to the speed of light, any audio-frequency phase shift caused by using a 30-foot cable in one channel and a 5-foot cable in another would barely be measurable, let alone audible. There might be some virtue in assuring near-identical resistance and capacitance in all channels by using identical lengths, but

the same thing can be achieved by using heavier cables of different lengths. To me that would be preferable to having a tangle of extra cable piled up behind the nearer speakers.

Replacing Speaker Cabinets

Q I have owned my loudspeakers for seven or eight years, and I still think they are among the best-sounding speakers I have heard, but the cabinets were damaged by water during a move. I would like to replace them, but the manufacturer doesn't seem to be able to help me. If all else fails, I could build some cabinets. Would I risk losing that great sound as a result?

BOB BURKE
Louisville, KY

A Probably. A speaker system is a delicately balanced thing, in which the designer takes into account not only the electrical elements but the physical as well. Driver placement, front-panel (baffle) material, internal bracing, vent size and shape, and a host of other factors contribute to the way a speaker sounds, and you tinker with them at your peril. Except, perhaps, for the baffle, the actual surface treatment of a speaker enclosure is not all that significant, so you might be able to strip off the surface layer and replace it. If the surface is wood and simply discolored by the moisture, consult a cabinetmaker about possible ways to remove the stains or refinish the surface.

DTS on Tape?

Q I recently rented a videocassette of Jurassic Park, and I noticed in the credits that the soundtrack was encoded using the DTS sound system. How could that be when DTS is based on a 5-inch CD-ROM and I was watching the movie on tape?

SEAN CRAWFORD
San Diego, CA

A In theaters, the movie did use the DTS digital surround playback system, and the credits were designed for that audience. Assuming your home system includes a Dolby Pro Logic decoder, you were listening to a Dolby Surround-encoded soundtrack, which is standard in all consumer movie releases. A home DTS decoding system is not available yet.

Home Theater Wiring

Q We recently bought a new rear-projection TV monitor for our home theater system and wired it up according to the manufacturer's suggestion: The cable signal goes through a splitter to both the TV and the VCR's antenna inputs, the video and audio outputs of the VCR go to the line-level inputs on the TV, and the TV's audio outputs are fed back to the inputs of our A/V receiver. With this arrangement, the audio level of the TV has to be almost at its maximum (with the internal speakers off) to deliver an adequate level to the receiver, and we still have to set the receiver's volume at a higher

level than before. We're afraid that pushing the TV audio so hard may cause damage, and we would also like to regain the convenience of our old setup, in which the VCR's output went to the receiver first and then to the TV. Is there any reason why we shouldn't wire things up in that manner?

ROBERT E. RUCKER
Las Vegas, NV

A Nope. In fact, that's the more orthodox way to go about it. With the wiring scheme you have now, the audio signal probably has to travel a fair way from the VCR to your TV set and then back again to the receiver, and long runs at line level can pick up interference. Better to run a short cable from the VCR to the receiver and leave the long runs to the speaker cables, which are far less vulnerable. Most A/V receivers enable you to switch both audio and video sources.

Open-Reel Dilemma

Q I have about 700 hours of music I recorded on open-reel tape fifteen years ago or more. The tapes play very well, but my recorder could use some service. As an alternative, I have considered copying my old tapes onto cassettes or VHS Hi-Fi videotapes, but I'm afraid that the cassette tape may not be as durable as the open-reel tape. Will the cassettes still play in twenty-five years? And if I go the video route, I intend to use the slowest speed so that I can get 6 hours of music on each tape, but I'm not sure how much quality I'll be losing at that speed, especially in terms of wow and flutter. Either way, I figure it will take me at least six months to make the copies. What procedure would you suggest?

ROBERT J. EHRENTAUT
Grand Rapids, MI

A A current-model cassette deck, especially one with some facility for matching tape to machine, should yield recordings virtually indistinguishable from the originals as long as you use high-quality tape. And, properly handled, the cassettes should outlive you. Using the hi-fi recording feature of your VCR can also yield superb results, even at the slowest speed. The main drawback to this recording approach is that you'll have to wind through miles of tape to find a particular selection.

I suggest bringing the open-reel deck back up to spec while you still can. That way, you can still play original recordings rather than copies, and you can avoid the immense investment in time (not to mention blank tape) involved in duplicating your whole library. Frankly, I think six months is pretty optimistic: If you dubbed 2 hours a night every night without a break, recording 700 hours of material would still take you the better part of a year.

If you have a question about audio, send it to Q&A, Stereo Review, 1633 Broadway, New York, NY 10019. Sorry, only questions chosen for publication can be answered.

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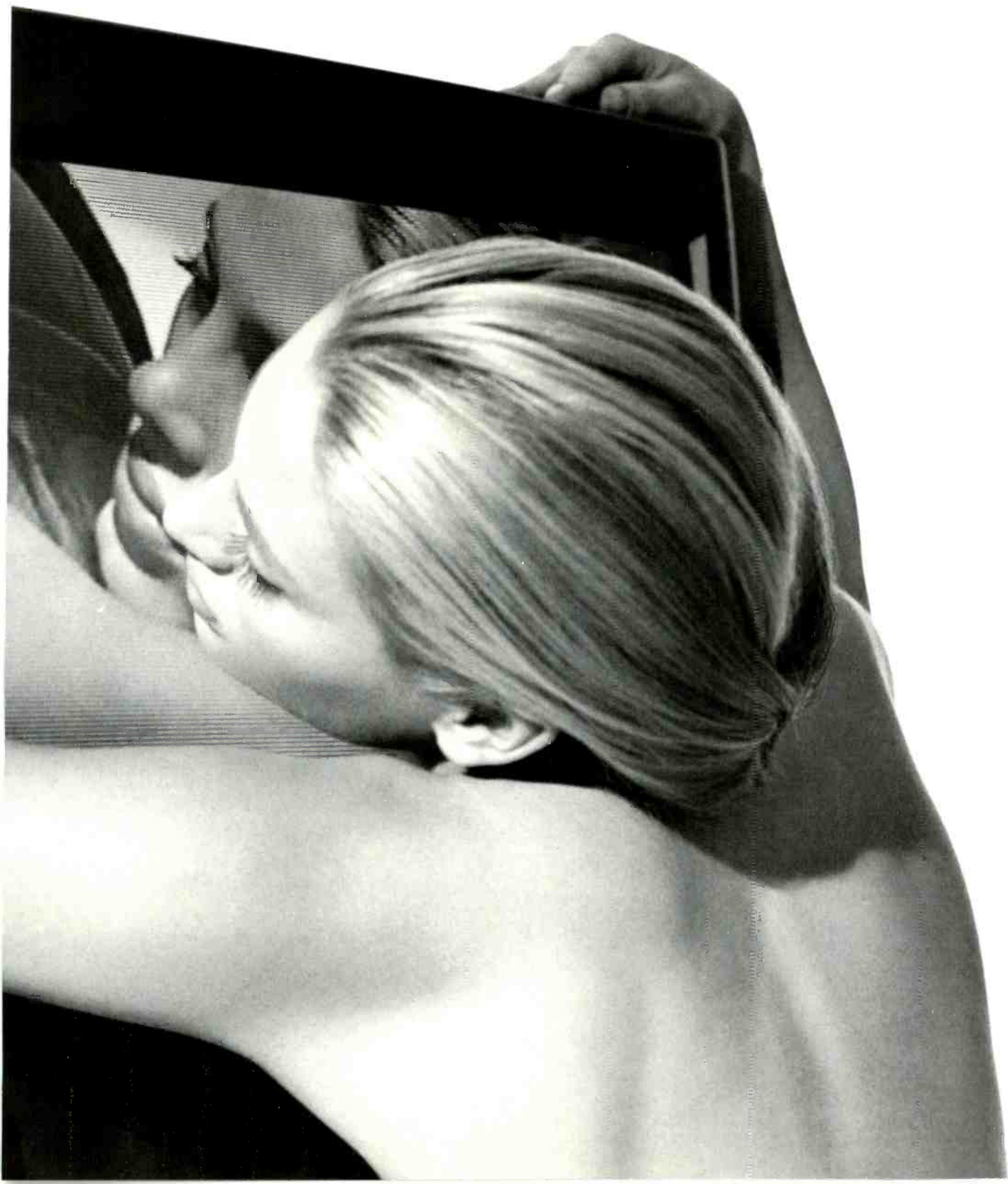


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SIGNALS

KEN POHLMANN

Holy Matrimony

It's not unusual for flight attendants to smile and say hello to the passengers. But I recently noticed that when I board American Airlines flights, they often greet me by name. I'm not sure how many thousands of flight attendants American has, but I think maybe this is a sign that I'm flying way too much.

I'm writing this at 31,000 feet, somewhere over Cape Hatteras. At least this flight is for pleasure, not business. I'm going to the wedding of two friends. I've known Dick since we were in kindergarten. That's particularly impressive if you consider that our kindergarten class photo is in black and white. On the other hand, my photos of Cheryl are in color. They make a great couple — they have lots of common interests. Without belaboring the analogy, I'll simply say that this isn't the

only wedding I'll be attending this winter. At the upcoming Winter Consumer Electronics Show I expect to witness another match made in heaven.

The match will involve two common electronic devices: the computer and the CD player. Despite the obvious external differences, computers and CD players are actually quite similar, technically speaking. Both contain a microprocessor, memory chips, a means for data input and output, a user interface with buttons, and a visual display. With the advent (and subsequent supremacy) of digital audio technology, the audio industry is moving solidly into its digital future. In the same way that home theater has united audio and video, the microprocessor will pave the way for the merger of audio and video components with computers.

Similarly, as digital television and radio standards are finalized, those industries will complete the conversion from analog to digital. Many television sets already use microprocessors to perform various picture-enhancing tasks. And for years now the TV has been a necessary adjunct to the video-game console — another hybrid computer/entertainment phenomenon. Direct broadcast satellite systems that deliver digital audio and video signals to home TV sets provide yet another example of technological consolidation.

Entertainment technology has been evolving with breathtaking rapidity, but its pace is elephantine compared with the changes in home computing. The ascent of the price/performance ratio is staggering. *Computerworld* magazine once proposed an interesting analogy: If automobile technology had evolved as far and fast as computer technology, a Rolls-Royce would cost \$2.50 and get 2 million miles to the gallon. Think about the kinds of computers that were available when you were in kindergarten. Compare them with what's available today, and you begin to appreciate the analogy.

The advent of low-cost computers that can handle the very demanding data rates and have the computing power required to process digital audio and video files has fueled a multimedia explosion. There's

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hardly a computer sold today that's not "multimedia ready" — that is, equipped with a CD-ROM drive, a 16-bit stereo sound card, and a couple of speakers. To say that the computer industry has enthusiastically embraced the greatest audio product of our day — the compact disc — would be an understatement; it has brought audio/video and audio-only CD playback to millions of computer users practically overnight.

Moreover, the computer industry is developing its own forms of data distribution. Most notably, sound and pictures are now available to computers around the world via the Internet's World Wide Web. Check out the Web and you'll find Bill Clinton welcoming you to the White House tour, Beavis and Butt-head discussing existential philosophy (Butt-head: "I like to blow things up." Beavis: "Yeh, that's cool." Butt-head: "Heh, heh, heh, heh."), radio stations "datacasting" music, and William Shatner of *Star Trek* fame singing *Mr. Tambourine Man*. You'll also find huge virtual record stores stocking thousands of discs and tapes. You browse the store, clicking on icons to hear sample excerpts, fill your virtual basket with the items you want to buy, key in your credit-card number, and click on the Send button to complete the transaction. A week later your order arrives by mail.

The point is, the distinction between audio/video entertainment and home computing is blurring, which sets the stage for a whole new generation of entertainment products that combine the best of the computing and A/V worlds. Imagine a powerful computer with an MPEG-2 video decoder, a keyboard, a re-

The distinction between audio/video entertainment and home computing is blurring, which sets the stage for a whole new generation of entertainment products.

mote control, and an optical-disc drive that reads and records high-quality audio and video. Such a system could play and record audio and multimedia CD-ROM discs, decode direct broadcast transmissions and D-VHS tapes, and access and download high-quality audio and video files from other networked computers,

as well as filling all of your off-line computer needs.

Of course, in order to be successful, A/V computers will have to accommodate existing digital audio and video formats as well as those coming down the pike. New format families are already being designed with integration in mind. Toshiba's SD (Super Density) family of discs, for example, includes an audio-only disc that accommodates 24-bit digital words and a 96-kHz sampling rate, a digital videodisc (DVD) that holds 142 minutes of video with 5.1-channel audio, a disc for computer and game applications, and a recordable disc, all of which share a common format. To avoid user frustration, Toshiba even has a compatible 42-gigabyte disc on the drawing board.

All of this sounds wonderful, indeed, but designing a topnotch A/V computer is no small task. It will take clever engineering to avoid a Frankenstein box that's tedious to use, with endless menus and uncoordinated diversity. Are manufacturers up to the challenge? I think so, although first-generation A/V computers will probably suffer some ergonomic shortcomings. We'll just have to wait and see.

Meanwhile, as I deplane in Vermont, I say goodbye to Jennifer, an excellent flight attendant, lovely, smart, and . . . single. Hmmm, I wonder if . . . □

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TECHNICAL TALK

JULIAN HIRSCH

Audio Illusions

Despite the rather overworked "concert-hall realism" metaphor, the entire sound-reproduction process, at least in the home, is an illusion. As we know, however, the illusion can be quite effective.

One of the most common audio illusions is the positioning of a virtual sound source at a specific point in space. After all, that is the entire basis for stereo reproduction. In a crude sense, it is an obvious result of having two speakers a few feet apart; even a listener with only one functioning ear can distinguish between "left" and "right" if the signal is supplied to only one speaker at a time.

But that is not what we mean by "stereo" reproduction, although a surprising number of people (*not* readers of *STEREO REVIEW*, I'm sure!) do not appreciate the distinction. A true stereo program can — and should — contain, in addition to the primary left- and right-channel information, other signal components whose amplitude, phase, and frequency characteristics supply the spatial characteristics of the recording environment.

Such "ambience" gives a recording its believability, the sense of space that is present in a concert hall but not in a number of other recording environments, such as the excessively "dead" recording studios that are used to record popular music. Fortunately, it is possible to "liven" recordings by adding artificial reverberation, either in the recording process or in the home, by means of delay circuits.

Although you sometimes find a reference to the presence of "height" information in a recording, conveying such information is not really possible in a two-channel stereo system. Under some circumstances, though, the elevation of a source can be simulated after a fashion, as in the Chesky JD37 test/demo CD. The test signal is a repetitive burst of noise, about 1 second in duration, that seems to start at the left speaker, then rise as it moves

toward the right speaker, where it descends to the height of the speaker.

This illusion relies on your brain's knowledge of the "frequency response" of your ear's external "flaps," the pinnae (singular, pinna). The pinnae's response differs with the angle of arrival of the sound (both horizontally and vertically), and these cues are recognized by your hearing system and interpreted as directional information. With the Chesky track, apparently, the spectrum of the noise is modified as it moves from left to right, so that the brain interprets the effect as coming from a change in elevation of the (virtual) source. It appears that the speaker's vertical (or high-angle) radiation characteristics can account

**A true stereo program
contains signal components
that supply "ambience,"
the sense of space
that gives a recording its
believability.**

for the observed differences between speakers in this test. Interesting as it is, I consider this effect — which is a true illusion — to be of little practical value with conventional music playback, although it is being used in "virtual reality" systems.

One anomaly of loudspeaker sound that has always bothered me is an unnatural heaviness (or "boom") in the sound of male voices. It seems to be present with most high-quality loudspeakers to a greater or lesser degree. Although the effect varies with the speakers and their placement, the room characteristics, and the program source, it is difficult to eliminate without sacrificing some low-end response. It also represents an area where things

conspire to lead to the failure of an audio illusion, in this case the illusion that flat overall response leads to natural-sounding reproduction.

I am most aware of the problem when I listen to FM broadcasts (I have few recordings of male speech). Even if the sound is excellent in the musical portion of the program, a male announcer's voice is usually emphasized in some part of the upper bass or lower midrange, imparting an unnaturally boxy or tubby quality.

Probably the main cause of the voice boom is the way a radio announcer usually speaks into the microphone, getting so close to it that the "proximity effect" boosts the lows in his voice (an important consideration for low-quality portable or car receivers). The original signal is thus "imperfect," and even reproduction by a "perfect" loudspeaker (whatever that is) will be bottom-heavy.

Only a few of the things that determine the sound are within my power to change: the listening room, the speakers, and their placement. The first is not practical, since the room is my laboratory, where all the "action" is. The second is constantly undergoing change as different speakers come and go (although I still have my venerable KEF 105 Series II speakers, I don't get a chance to listen to them very often). And the third is essentially limited to the portion of the room where all speakers are tested.

Not surprisingly, the coloration on male voices is most noticeable with speakers having a strong bass response, capable of exciting room resonances. Small speakers can sound very good on male voices but usually leave something to be desired on music with a healthy bass content.

Presumably, if I had to have boom-free male voice reproduction, with the option of full bass coverage when needed, I would need a remotely switchable equalizer or bass control set to compensate for typical microphone proximity-effect bass boosts. That solution would give me the option of switching on the equalizer when a tubby voice bothers me while retaining full bass capability for most music programs.

This only goes to show that any part of the sound-reproduction chain can break the audio illusion of "realism." And the success or failure of an audio illusion may not be the responsibility of your home playback system but instead of the signal being reproduced. □

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The changer provides a full complement of playback functions, including forty-track programming (distributed over any or all of the loaded discs), Disc Scan (which plays the first 8 seconds of each disc), pushbutton selection of the disc and track, fast-forward and reverse scan, repeat of tracks or discs, and even (through the infrared remote control) direct access to any index point on a disc. It also enables automatic synchronization with a compatible Yamaha tape deck for recording selected portions of a CD. Regardless of the tape deck used, setting of recording levels is facilitated by an automatic peak-level search function that quickly locates the highest signal

level on the portions of the CD selected for taping.

The CDC-655 is slightly deeper (front to back) than most carousel CD changers, providing the extra space to accommodate a deeper disc tray. When the tray is fully out, all five disc positions are accessible; it can be opened far enough during play to reach four of the five disc wells. The player is supported on large, rubber-cushioned feet designed to isolate it from external vibration. On the rear apron are phono-jack analog outputs and an optical digital output.

The front panel has a row of ten small pushbuttons for selecting track numbers and a smaller row of larger buttons for disc selection. It has the conventional control buttons for play, stop, pause, and disc-drawer open/close. A Skip/Search bar provides



fast-forward and reverse playback control. The PlayXchange button opens the disc drawer partway without affecting the currently playing disc. A small rocker control, next to the headphone jack, varies the output level smoothly from maximum (a nominal 2-volt level) to zero

for both the line and headphone outputs; a sequence of squares in the display window shows the setting of the level adjustment. The display window is relatively small, showing which disc positions are occupied, which one is currently selected, the total number of tracks on that disc, the current track number, and the elapsed or remaining time on the disc that's playing and in the current track.

The CDC-655 comes with a remote control that duplicates all the front-panel controls while adding several more. The extras include a three-step adjustment of the display brightness, switching for the time display, and index selection.

The CDC-655 acquitted itself admirably in our lab tests, especially in respect to its ability to track flawlessly through large gaps in the data stream (such as might be caused by scratches or careless handling). In its immunity to disc-surface damage, the CDC-655 far surpassed any other CD player we have yet tested, playing the calibrated 3,000-micrometer errors on Track 37

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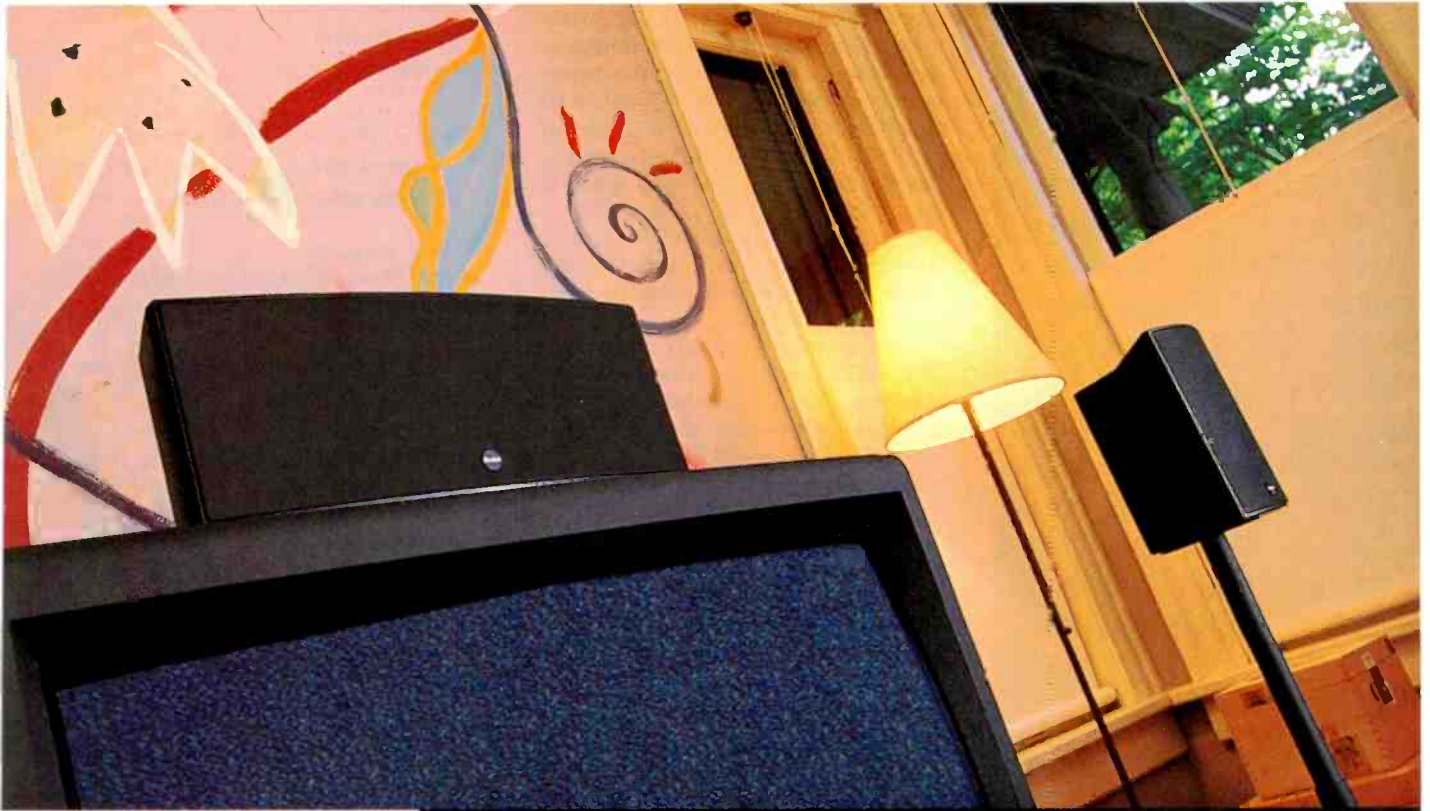
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TEST REPORTS

of the Pierre Verany #2 test disc without even a momentary "tick." Only a few players in our past experience have gone beyond 2,000 micrometers in that test; at 3,000 micrometers they are usually "hung up" and stuttering, if they have not shut down altogether. Demonstrating that this achievement was no fluke, the player also handled the two successive 3,000-micrometer interruptions in Track 50 of the test disc without difficulty.

The CDC-655 was relatively resistant to physical impact. Although its large top surface did flex enough when slapped to cause momentary mistracking, it still ranks among the better current players in that respect. And despite the considerable mechanical movement involved in disc changes, the player's action was very quiet. It was surprisingly fast, too, with a change taking only about 8 seconds between adjacent discs and typically about 9 to 10 seconds between more widely spaced discs.

As our measurements show, the CDC-655's electrical performance was also first-rate. Its low-level linearity was well-nigh perfect, with the output at levels between -60 dB and -90 dB measuring within 0.5 dB of the nominal value.

One of the CDC-655's most impressive specifications is its price — a mere \$299. And at that, it is actually the next to the top model in Yamaha's current lineup of CD changers. I have

MEASUREMENTS

MAXIMUM OUTPUT LEVEL	2.0 volts
FREQUENCY RESPONSE	10 Hz to 20 kHz ± 0.06 dB
DE-EMPHASIS ERROR (at 5 kHz)	+0.4 dB
CHANNEL SEPARATION	
100 Hz	110 dB
1 kHz	114 dB
20 kHz	98 dB
SIGNAL-TO-NOISE RATIO (A-wid)	104 dB
QUANTIZATION NOISE	-90.6 dB
DYNAMIC RANGE	97 dB
DISTORTION (THD+N)	
1 kHz, 0 dB	0.004%
1 kHz, -20 dB	0.003%
20 Hz to 20 kHz, 0 dB	0.003% to 0.032%
LINEARITY ERROR (at -90 dB)	+0.5 dB
MAXIMUM INTERCHANNEL PHASE SHIFT	0.13°
DEFECT TRACKING (Pierre Verany #2 Disc)	3,000 μ m
IMPACT RESISTANCE (top and sides)	B+
DISC-CHANGE TIME	8 to 10 seconds

seen numerous examples in the last year or two of the almost incredible value offered by many of today's hi-fi components, but it is still noteworthy when a product is innovative, state-of-the-art, and inexpensive to boot. The CDC-655 is an incredible bargain any way you look at it. □



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A U D I O A N D A U D I O / V I D E O C O M P O N E N T S

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“Cambridge SoundWorks Home Theater For



For many speaker designers and manufacturers, home theater is a relatively new idea. But the people who work at Cambridge SoundWorks - including our cofounder Henry Kloss (who also founded AR, KLH and Advent) - have been involved with the concept of home theater from the beginning. In 1969 (years before VCRs and cable TV), Henry Kloss founded Advent, the company that introduced the first home theater audio/video systems - complete with big-screen TVs and digital surround sound. We have had an ongoing relationship with the people at Dolby Laboratories, creators of Dolby Surround Sound, since Henry Kloss introduced the first consumer products with Dolby noise

standard for home theater components.

Because we sell carefully matched and tested home theater speaker systems factory-direct, with no expensive middlemen, you can save hundreds of dollars. We believe the products on these pages represent the country's best values in high performance home theater components. Audio critics, and thousands of satisfied customers, agree.

Stereo Review said "Cambridge SoundWorks manufactures loudspeakers



Our Surround Speakers

magnetically shielded so they can be placed near a TV or computer monitor. *Center/Surround IV* is a compact, one-way speaker identical to our *Ensemble® IV* satellite speakers. **\$49.99.** *Center/Surround III* is a small, affordable two-way speaker. **\$79.99.** *Center Channel* is identical to a Cambridge SoundWorks *Ensemble* satellite (but with magnetic shielding). **\$149.99.** *Center Channel Plus* uses an ultra-low, ultra-wide design that is ideal for placement above (or, with optional support stand, below) a TV monitor. **\$219.99.**

Surround Speakers

Cambridge SoundWorks makes two "dipole radiator" surround sound speakers. Dolby Laboratories recommends dipole radiator speakers for use as surround speakers. *The Surround* has a very high power handling capacity and is often selected for "high end" surround sound systems. *Audio*, describing a system that included *The Surround* said "In many ways the surround sensation was every bit as good as far more expensive installations." **\$399.99 pr.** The smaller *The Surround II* is arguably the country's best value in a dipole radiator speaker. **\$249.99 pr.**



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that provide exceptional sound quality at affordable prices." *Audio* suggested that we "may have the best value in the world."

Center Channel Speakers

Cambridge SoundWorks manufactures four speakers for use as center channel speakers in Dolby Pro Logic home theater systems. All four are

reduction over 20 years ago. And now at Cambridge SoundWorks we believe we have set a new price-to-performance



Our Popcorn

Opens The Way To Killer An Affordable Price.”

Stereo Review

Powered Subwoofers

The original *Powered Subwoofer* by Cambridge SoundWorks consists of a heavy-duty 12" woofer housed in an acoustic-suspension cabinet with a 140-watt amplifier and a built-in electronic crossover. *Stereo Review* said it provides "deep powerful bass...31.5 Hz bass output was obtainable at a room-shaking level... they open the way to having a 'killer' system for an affordable price." **\$799.99.**



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Our Powered Subwoofers

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CIRCLE NO. 6 ON READER SERVICE CARD

TEST REPORTS



RA Labs Micro Monitor Loudspeakers and Reference Subwoofer

JULIAN HIRSCH • HIRSCH-HOUCK LABORATORIES

The RA Labs series of loudspeakers is designed and manufactured in the United States by RDL Acoustics of Bellingham, Massachusetts. The founder of RDL Acoustics, Roy Allison, was formerly associated with Acoustic Research and Allison Acoustics and is credited with a number of significant advances in loudspeaker design. Perhaps most notably, Allison has done extensive research into the relationship between a loudspeaker and the room that contains it (RDL stands for Room Designed Loudspeakers) and for many years has explicitly designed most of his speakers to give optimum performance, with minimum degradation of sound quality, in specific room locations (free-standing, against a wall, shelf-mounted, and so on). The key word there is "explicitly," since, as Allison's work has demonstrated, the performance of any loudspeaker system is strongly affected by its room

placement and thus cannot be optimal in all locations.

The RDL catalog contains a number of speakers, from small shelf-mount units to full-size floor models, all sold direct to the customer with a money-back satisfaction guarantee. They are handsomely finished in cherry veneer

DIMENSIONS

Micro Monitor: 7 inches wide, 10½ inches high, 7¼ inches deep
Reference Subwoofer: 11 inches wide, 24¾ inches high, 15¾ inches deep

WEIGHT

Micro Monitor: 6 pounds
Reference Subwoofer: 36 pounds

FINISH: Black vinyl veneer

PRICE

Micro Monitor: \$136 a pair
Reference Subwoofer: \$301

MANUFACTURER: RA Labs, Dept. SR,
1A Business Way, Hopedale, MA 01747;
telephone, 1-800-651-7444

and priced commensurately with other speakers of similar size and construction. The company's budget RA Labs speakers roughly parallel the main RDL designs in size and performance, but they are enclosed in simple vinyl-covered cabinets and priced well below the RDL models as well as most competitive speakers.

The RA Labs speaker line consists of six models ranging from the Micro Monitor (a small two-way design) to the full-size, floor-standing, three-way Reference 3a and including a shielded center-channel speaker for home theater systems. In addition, there is the Reference Subwoofer, designed specifically to extend the low-frequency reach of the RA Labs Micro Monitor and Mini-Reference satellite speakers. It is a passive (unpowered) subwoofer that is *not* recommended for use with any other makes or models of loudspeakers.

The Micro Monitor is a true mini-speaker, with a 5¼-inch woofer crossing over at 3 kHz to a 1-inch copolymer-dome tweeter. Its rated frequency response is 70 Hz to 20 kHz ± 3 dB. The input connectors, recessed into the rear of the cabinet, are multiway insulated binding posts that accept single or dual banana plugs, wires, or spade lugs. Like the other RA Labs models, the Micro Monitor enclosure is finished in black vinyl and has a removable black cloth grille.

Compared with its satellites, the Reference Subwoofer is relatively large and heavy. Its sealed enclosure contains two forward-facing 8-inch cone woofers, driven separately from the two stereo channels. Removing the detachable grille reveals that the bottom driver is mounted the opposite way from the upper one, with its cone facing inward and the magnet structure visible from the front. This "push-pull" arrangement minimizes even-order harmonic distortion (the two woofers are driven in opposite polarity so that their acoustic outputs emerge in-phase).

The Reference Subwoofer's back panel has separate pairs of spring-clip inputs for the left- and right-channel signals from the amplifier and similar outputs to the left and right speakers. Although stripped wire ends are preferable, the clips also accept banana plugs (if with some difficulty).

The Reference Subwoofer has internal first-order (6-dB-per-octave) crossovers, separate for each channel, with phase-shift networks (Zobel circuits)

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TEST REPORTS

to give the system a basically resistive impedance at low frequencies. The crossover is designed to provide a seamless transition between the subwoofer and the satellites. Since the subwoofer is designed for use only with specific RDL speakers, it has no level adjustments. The crossover frequency is specified as 100 Hz with the Micro Monitor speakers, which we tested, or 80 Hz with the slightly larger Mini-Reference speakers.

We installed the RA Labs Micro Monitors on 26-inch stands and 7 feet apart, about 3 feet from any room walls. The subwoofer was located against the wall behind the satellites. The averaged and smoothed room response of the two satellites (before the subwoofer was connected to the system) was flat within ± 3 dB from 130 Hz to 20 kHz, with usable output down to 80 Hz — excellent performance indeed for 6-pound speakers selling for only \$136 a pair.

A quasi-anechoic (MLS) frequency-response measurement revealed a sizable output dip at about 4 kHz, apparently related to the crossover between the Micro Monitor's drivers. The dip (7 to 10 dB) varied widely with distance and angle from the speaker and did not appear at all in room-response measurements (nor was it audible). Other than that one idiosyncrasy, the MLS response was excellent, flat within ± 1 dB from 300 Hz to 4.5 kHz. It rose about 5 dB between 4.5 and 11 kHz, dipped 8 dB at 15 kHz, and returned to 4 dB above reference level at 20 kHz.

We made several different close-miked response measurements of the Reference Subwoofer: with the microphone on the axis of the upper driver (the outward-facing woofer), on the axis of the lower (inward-facing) driver, and midway between the two. The output reached its maximum at about 50 Hz, with the summed response of the two drivers rolling off smoothly above and below that frequency and remaining useful down to about 35 Hz.

It is next to impossible to define the overall frequency response of a three-piece speaker system such as this one in any way that would be meaningful in another environment. The placement of the satellites and bass module, relative to each other and to the room boundaries, can have a considerable effect on the blending of their respective outputs throughout the room. But the sound we heard, with a variety of program material, was unequivocally

excellent for a system of this combination's size and price.

There were some surprises, too. Although the deep bass output was not of the earthquake-simulating variety emitted by some large powered subwoofers, program material with appreciable bass content (down to 40 or 50 Hz) emerged with full authority, and we established by listening to test signals that the Reference Subwoofer made an audible contribution down to the vicinity of 35 Hz.

Our measurements also indicated a sensitivity of 90 dB SPL with a 2.83-volt input, which is 2 dB better than rated. The Micro Monitor's minimum impedance was 6 ohms (its rating), and its maximum impedance was 23 ohms at 85 Hz. The design goal of having a subwoofer whose impedance was reasonably constant and essentially resistive was met: The Reference Subwoofer's impedance measured between 4 and 6 ohms, with a phase angle not exceeding 30 degrees, from 30

Music with appreciable bass content emerged with full authority from the RA Labs Micro Monitor satellites and the Reference Subwoofer.

to 130 Hz. In addition, its distortion was impressively low over its useful range, remaining between 1 and 3 percent from 35 to 150 Hz at an input of 2.83 volts. Although the Reference Subwoofer is not as unobtrusive physically as the Micro Monitor satellites, it does its job effectively and is unobtrusive sonically.

As luck would have it, the only other speakers at hand while we were testing the RA Labs system were many times its size, weight, and price, and we were impressed to find that the sound of the RDL speakers exhibited clarity, imaging, and overall quality (extreme low bass excepted) that compared quite favorably with the sound of the larger system.

Our bottom line, after listening to a wide variety of music through this three-piece RA Labs system, is that it is one of the great bargains in today's hi-fi market. □

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ROBERTO BOSMAN

AMC AV81HT/THX Audio/Video Preamplifier

DAVID RANADA • TECHNICAL EDITOR

Glowing reviews of other AMC components in foreign audio magazines had whetted our appetite for testing the company's top A/V preamplifier. We weren't disappointed.

Actually, we tested two versions of the AV81, for the preamp is available either with straight Dolby Pro Logic decoding (the AV81HT) or with Dolby Pro Logic plus full Home THX processing (the AV81THX). (There's a third version without any surround decoder, the AV81, which would be of interest only to those who need just A/V switching capabilities.) The AV81THX incorporates Home THX re-equalization, timbre matching, surround decorrelation, and crossover filters (for correct hookup of a Home THX subwoofer). An AV81HT can be converted to THX status by a simple procedure that involves the near-drop-in replacement of some circuit boards (AMC nevertheless recommends that the conversion be performed by an authorized dealer). With either an origi-

nal or upgraded THX model, you will have to give up the single, general-purpose ambience-enhancement mode available with the standard version, called PBX (an unexplained abbreviation presumably not related to a telephonic Private Branch Exchange).

The AV81HT's THX-convertibility is not its only outstanding feature. For some users, the microphone that comes with either version will rank even higher. Its very long cord plugs into a front-panel jack. Together with a vertical string of LED's at the right of the display window, it forms a simple sound-level meter for balancing

the channels in surround-sound operation. The procedure uses the surround decoder's test-signal generator as the reference signal source. Even though speaker-to-speaker level balancing is important for accurate surround-sound reproduction, it is typically one of the most onerous tasks in setting up a home theater system, with the result that it is often done poorly, if at all. The AV81HT/THX's mike, metering, and individual channel-level controls on the back panel take the worry out of being accurate.

At least as important as balancing the five primary speakers in a home theater setup is setting the level of the subwoofer in systems equipped with one. If you push the AV81HT/THX's rear-panel subwoofer button to the on position, the surround-decoder test-signal sequence will include a subwoofer test signal that can also be picked up with the mike and displayed on the front-panel meter. Getting the subwoofer level right is enormously simplified by these provisions. Normally you'd need both a separate sound-level meter and a CD with specially generated test signals.

Otherwise, the AV81HT is pretty conventional. Horizontally arrayed on the rear panel are connections for four audio-only sources (CD, tuner, two recorders) and four A/V sources (two VCR's, a laserdisc player, and auxil-

DIMENSIONS: 17 inches wide, 3 1/4 inches high, 11 7/8 inches deep

WEIGHT: 11 pounds

PRICE: AV81HT, \$750; THX upgrade, \$550; AV81THX, \$1,200

MANUFACTURER: AMC, distributed by Weltronics Corp., Dept. SR, P.O. Box 80584, San Marino, CA 91108

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- Corey Greenberg, *Home Theater Technology*, Volume 2, No. 7



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*Manufacturer's FMV retail price.

†All systems shown include a powered subwoofer.

TEST REPORTS

ary video). There is one video-monitor output. All audio and video connections are via phono jacks, which means that there are only composite-video connections (no S-video). There is also no phono input. I would prefer to have at least one more audio-only input, though any unused input can be used for a line-level audio source (such as an outboard phono preamp). The remaining rear-panel facilities consist of the six line-level preamp outputs (left, center, and right front, left and right surround, and subwoofer), their corresponding channel-level controls, the subwoofer-output on/off button, a surround center-mode slide switch, and one unswitched and two switched AC convenience outlets.

On the front panel are bass and treble tone-control knobs, a tone-control defeat button, a rotary recording-source selector that directs any source to any recorder independently of the listening selection, a rotary switch that selects the delay time for the surround-channel outputs (15, 20, 25, or 30 milliseconds), and, to the right of the display window, a large volume knob. In addition to the level meter (activated only in the test-signal-generation mode of surround operation),

the display contains individual LED's to indicate the selected source. Beneath the display are four LED's that indicate the preamp's basic operating mode (mono, stereo, Dolby Pro Logic, and PBX or THX, depending on the model). A quarter-inch headphone jack resides between the power switch and the mike input. Plugging in a head-

number of buttons on this control make its infrared commands prime candidates for programming into a universal remote handset.

Both the AV81HT and the AV81THX performed very well on the test bench. The tabulated data show primarily the results for the AV81HT; results for the AV81THX are shown only when they

Both versions of the AMC AV81 preamplifier, the AV81HT and the AV81THX, performed very well

on the test bench. None of the measurements we made on them were less than good.

phone turns off all six rear-panel preamp outputs.

Use of the supplied infrared remote control is mandatory, primarily because it is the only way to select the signal source. Other buttons on the simple handset switch on the power, select the operating mode, control the volume, and turn on the surround calibration signal. Each press of this last button cycles the signal to the next speaker in the sequence. The small

are applicable or appreciably different. No measurements fell below at least good performance. For both models, the signal-to-noise ratios in Dolby Pro Logic operation were, in fact, slightly better than average (the front and center figures more so than the surround). And the Home THX version's surround-channel distortion was extremely good, a result of using true 16-bit PCM conversion in the surround-channel delay line instead of the near-ubiquitous Dolby Time Link delta-modulation system used by the AV81HT.

Other measurements indicated that the subwoofer output had low-pass crossover filtering with a -3-dB point of around 73 Hz (close enough to the spec of 80 Hz) and a rolloff rate of 24 dB per octave. Switching on the subwoofer output also switches in high-pass filtering on the front speaker outputs, with a measured -3-dB point of around 86 Hz (again, close enough to the 80-Hz spec) and a rolloff of 12 dB per octave below that frequency. Those numbers apply to both versions of the preamp and show that even with the AV81HT you are getting a THX-spec subwoofer crossover and high-pass filtering for the main speakers.

While having these filters available is in general an excellent idea, I would question whether they should be both internal and nonadjustable on a non-THX A/V preamp like the AV81HT, since the characteristics of filters matched to Home THX speakers may not be suitable for other speaker systems. Specifically, the subwoofer-output low-pass filtering will be redundant and might possibly interact undesirably with similar filters in typical powered subwoofers. To avoid such interactions you'd need a system for

MEASUREMENTS

STEREO PERFORMANCE

All data for the AV81HT.

OUTPUT AT CLIPPING (at 1 kHz) . . . 10.3 volts

DISTORTION (THD+N at 1 kHz)
at rated output (3 volts) 0.0037%

SENSITIVITY (for 0.5-volt output)
CD input 50 mV

INPUT OVERLOAD LEVEL
CD input 4.2 volts

NOISE (re 0.5-volt output, A-wid)
CD input -96.7 dB

FREQUENCY RESPONSE
tone controls centered
20 Hz to 20 kHz +0.06, -0.34 dB
tone controls off
20 Hz to 20 kHz +0.01, -0.17 dB

tone-control RANGE
100 Hz ±8.9 dB
10 kHz +8.5, -8.0 dB

DOLBY PRO LOGIC PERFORMANCE

All measurements for the AV81HT unless specified for the AV81THX.

FREQUENCY RESPONSE

(tone controls centered)

left, right . . . 20 Hz to 20 kHz +0.02, -0.29 dB
center 20 Hz to 20 kHz +0.02, -0.29 dB
surround 20 Hz to 10.3 kHz +2.7, -3 dB
surround (THX)
83 Hz to 7.2 kHz, +0.02, -3 dB

NOISE (re 200-mV output, A-wid)

left, right -79.5 dB
center -80.1 dB
surround -67.4 dB
surround (THX) -72 dB

DISTORTION (THD+N, 1 kHz, 1-volt output)

left, right 0.043%
center 0.049%
surround 0.14%
surround (THX) 0.038%

SURROUND DECODER INPUT-OVERLOAD

MARGINS (at 1 kHz)

left, right (re 2-volt input) 1.75 dB
center (re 1.414-volt input) 4.25 dB
surround (re 1.414-volt input) 1.25 dB

SURROUND-CHANNEL NOISE-REDUCTION

CALIBRATION ERROR

(re THX level (141.4 mV input))

AV81HT +1 dB
AV81THX 0 dB

CHANNEL SEPARATION (100 Hz to 7 kHz)

left output, right driven >39 dB
left output, center driven >41 dB
left output, surround driven >54 dB
center output, left driven >34 dB
center output, surround driven >40 dB
surround output, left driven >49 dB
surround output, center driven >44 dB

THX RE-EQUALIZATION ERROR

(maximum) 0.25 dB

THX SURROUND-EQUALIZATION

ERROR <0.5 dB

which the 80-Hz crossover frequency was appropriate and a subwoofer that either has no internal crossover or has one that can be switched out — truly rare in powered subs. For maximum freedom in speaker selection, a general-purpose subwoofer output should have either no low-pass filtering or filtering that can be switched out. The AV81's high-pass filtering is less problematic, being a good idea in general provided you can get a smooth "join" with the subwoofer.

As it happens, we used a full Home THX speaker setup while evaluating the AV81, so we encountered no compatibility problems. Indeed, the system almost fell into place, thanks in no small measure to the built-in sound-level metering system. At first glance, the rear-panel location of the channel-level controls might seem far less convenient than the typical remote-control access, but the mike's long cord enables you to make very delicate level adjustments without assistance while standing at the preamp (either behind it or reaching around from the front).

And the AV81's mike/sound-level meter combination is accurate enough to match speaker levels — even for the subwoofer! — within substantially better than ± 1 dB, as was confirmed by our lab mike and spectrum analyzer. To get this rare degree of accuracy you need only wait long enough after turning a channel's output-level control for the LED's in the meter to stabilize on their reading. That takes about 10 seconds when the levels read close to the reference level at the center of the scale, as indicated by the only yellow light in the otherwise green stack of LED's. You should adjust the levels so that there is no flickering of any LED above or below the yellow one. These fine points of adjustment are not mentioned in the overly terse, almost abbreviated, instruction manual. Also, in both our samples the level-meter LED's were misaligned with their display-window calibration markings. Just remember that levels are matched when each speaker individually lights up only the yellow LED on the meter.

Once the system was properly set up — and it's nice for a change to have built-in confirmation that a system *is* properly set up — it sounded fine with both versions of the AV81. Surround decoding was accurate in image placement and movement. The Home THX version scored higher in overall sound quality on soundtracks

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System comprised of the AV81, CC-500, ATD-150, PS-1000

TEST REPORTS

played at theatrical levels, which sounded less harsh with the AV81THX than with the AV81HT. This harshness reduction is a primary effect of Home THX processing, stemming from its re-equalization stage. The Home THX version's surround-channel decorrelation added a typical amount of THX "swimminess" or "tunneling" to the surround-channel sound. The pitch-

shifting employed was sufficient to render a surround-sound piano recording quite clanky. This side effect was generally undetectable with most movie soundtracks and was usually outweighed by the benefit of the decorrelation effect, which simulates the surround-channel diffusion created by the use of multiple side-placed surround speakers in a movie theater.

The only infelicity I encountered with either version of the preamp was the barely audible surround-channel background noise. The surround outputs are not muted during two-channel stereo operation, so there will be some noise leaking out of the surround speakers at all times. Depending on the setting of the volume control, that low-level addition to the ambient noise could prove distracting, but only if you also have a very quiet listening room and listen to low-noise recordings with wide dynamic range at real-life levels. Most listeners will not be able to fulfill all three conditions simultaneously. To hear the AV81's noise, I had to come in on a weekend, when the air conditioning in our listening room was off and the internal building noise was at a minimum. The AV81's noise level was still below that of other A/V gear we have recently tested, some of which has produced



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CIRCLE NO. 54 ON READER SERVICE CARD

**For all its simplicity, the
AV81HT's ambience-
enhancement mode was
remarkably useful
with certain types of music.**

background noise that was audible above the normal *weekday* ambient office noise.

The AV81HT's PBX ambience-enhancement mode makes use of only the front left and right speakers and the surrounds. It generates approximately eighteen artificial reflections from each of the surrounds, evenly spaced at the selected delay interval. For all its simplicity, the system was remarkably useful in enhancing certain types of music, namely, acoustic music performed in medium to large spaces (jazz and classical, especially). With other genres, the usefulness of the PBX mode will vary greatly, depending on the characteristics of the particular recording.

The AMC AV81HT and AV81THX are fine examples of topnotch surround-sound circuit design, made even more desirable by their ability to be set up accurately for optimum surround-sound performance using only the tools supplied with (and in) them. And on a price/performance basis, they are very hard to beat. □

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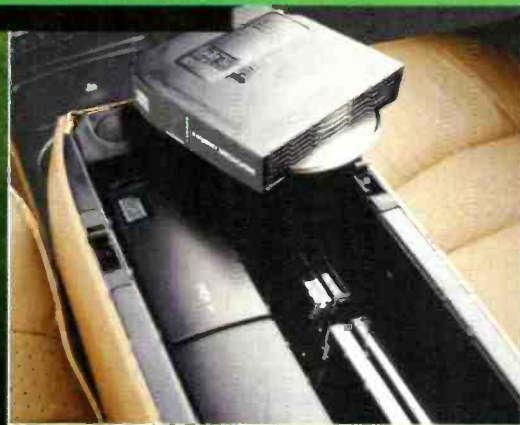
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TEST REPORTS



Digital Phase AP-7 Loudspeaker System

JULIAN HIRSCH • HIRSCH-HOUCK LABORATORIES

Several years ago, at a Consumer Electronics Show, I came across a room in which some relatively compact loudspeakers were producing a quality and quantity of bass that seemed out of keeping with their size and price range. The company name, Digital Phase, was unfamiliar, but the sound I heard captured my attention.

Now that I have had a chance to live with and test a pair of the company's speakers, I am even more impressed with what I hear (and measure) from them. The model I tested, a recent addition to the line, is the largest of Digital Phase's three bookshelf systems (there are also four floor-standing models).

A unique feature of Digital Phase speakers is their patented Acoustic-Reed technology, which involves the use of what the company calls an "elaborate network of acoustic reeds" within the speaker enclosure to generate surprising bass output from relatively small woofers. Although the Digital Phase literature does not ex-

pand further on the principles of the acoustic-reed design (and it was not possible to examine them in a nondestructive fashion), the system's performance speaks eloquently for itself.

The AP-7 is a compact two-way system with an unusual woofer lineup, a pair of 3-inch drivers with carbon-fiber-impregnated polypropylene cones and compliant suspensions that enable cone excursions rarely found in drivers of their size. They are vertically aligned (one above the other) with a single 1-inch tweeter below them. The tweeter has a spun-titanium dome, magnetic-fluid cooling, a powerful neodymium magnet, and a butyl-rub-

DIMENSIONS: 16¼ inches high, 11 inches wide, 12 inches deep

WEIGHT: 24 pounds each

FINISH: Honey or black oak

PRICE: \$699 a pair direct from manufacturer

MANUFACTURER: Digital Phase, Dept. SR,
P.O. Box 22813, Chattanooga, TN 37422;
telephone, 1-800-554-7325

ber surround. The enclosure is vented, with its port in the rear of the cabinet. The connectors, also in the rear, are a pair of gold-plated multiway binding posts.

Performance specifications for the AP-7 include a sensitivity of 87 dB sound-pressure level (SPL) at 1 meter with a 2.83-volt input and a nominal impedance of 4 ohms. The system is rated to handle as much as 75 watts of music-program input. Its frequency response is given as 35 Hz to 20 kHz ± 1.5 dB — a remarkable claim for almost any speaker! But even more remarkable was how close these speakers came to meeting it in an environment and with test procedures very different from those used by the manufacturer (whose test data on our samples essentially confirmed their claimed performance).

We placed the pair of AP-7 speakers on 26-inch stands about 7 feet apart and several feet from the wall behind them. Room response was measured separately for the left and right channel at a point 12 feet in front of the left speaker, smoothed and averaged, and corrected for high-frequency room absorption above 10 kHz. The resulting curve was impressively smooth, within ± 3 dB from 60 Hz to 20 kHz. Useful bass response was maintained, though with a greater fluctuation, into the bottom octave of the audio range, with an audible fundamental output at 30 Hz.

To further reduce the effect of room boundaries on the result, we also measured the speaker's response with the quasi-anechoic MLS mode of our Audio Precision System One. The response, at a 2-meter distance, was an impressively flat ± 2.5 dB from 300 Hz to 20 kHz, with its general features closely resembling those of the room-response measurement.

Horizontal dispersion was very good; 45 degrees off-axis, there was less than 5 dB response drop at 10 kHz and a maximum fall-off of only 6.5 dB at 15 kHz. The system's group delay (phase linearity) was notably constant, within ± 150 microseconds from about 500 Hz to 20 kHz. The measured system impedance was a minimum of just over 5 ohms at 20 Hz, 40 Hz, and 5 kHz, reaching a maximum of 18 ohms at 80 Hz. Sensitivity was 88 dB, slightly better than rated. At an input level of 3.5 volts (corresponding to a 90-dB SPL reference output), the close-miked woofer distortion was between 1 and 2 per-

cent from 2 kHz down to 130 Hz, rising at lower frequencies to 10 percent at 60 Hz and 15 percent at 40 Hz. Although distortion was greater in the deep bass than is usual for larger woofers, it was not audible with most program material having significant low-frequency content.

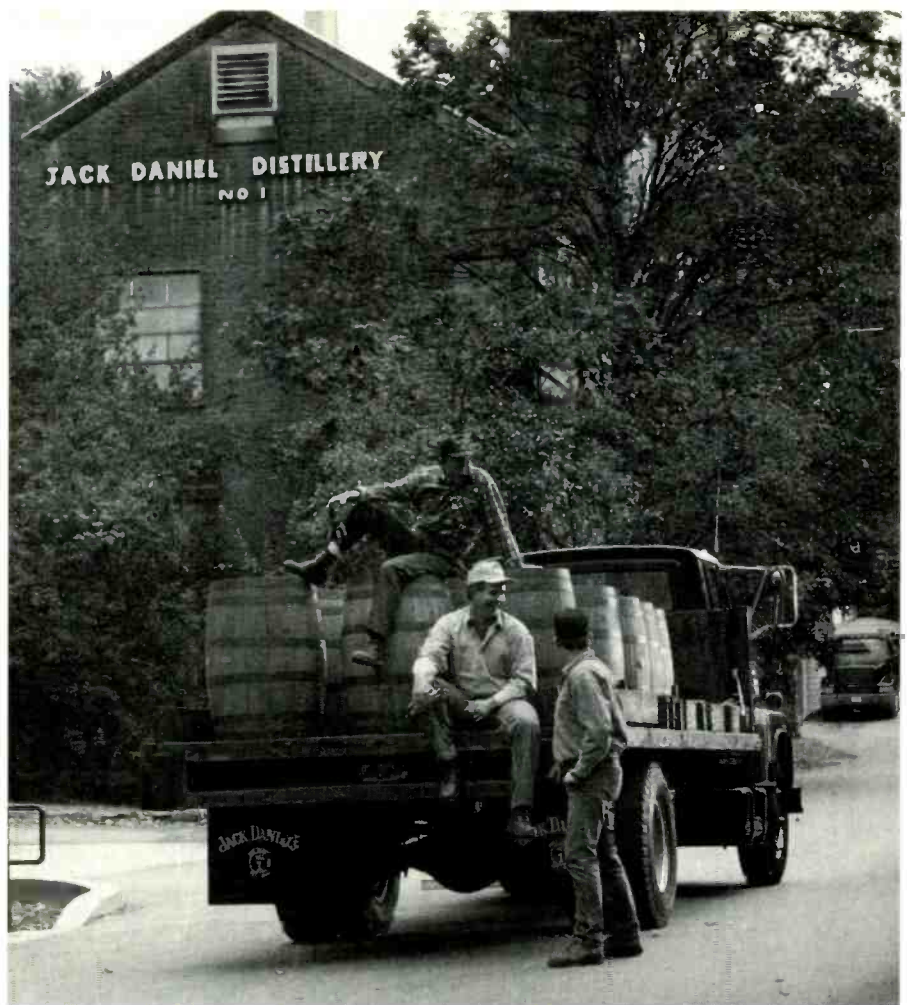
Despite its small drivers, the AP-7 safely handled considerable power inputs. In the middle and upper part of the system's operating range, it absorbed single-cycle tone bursts of 600 watts at 1 kHz and 400 watts at 10 kHz. At 100 Hz the speaker's tiny woofers bottomed audibly at about 100 watts input, though without evident damage.

The test results clearly show that the Digital Phase AP-7 has an unusually wide, smooth, and well-dispersed frequency response. For a small, affordably priced speaker with a pair of 3-inch woofers, such performance is nothing less than amazing. Our listen-

Our tests showed that the Digital Phase AP-7 speaker has an unusually wide, smooth, and well-dispersed frequency response.

ing tests were consistent with the measurements. The full frequency spectrum was there when needed, yet the sound of the AP-7 had strikingly little of the bass coloration, or tubbiness, that is characteristic of so many speakers with a significant low-end response. That was especially evident when listening to male voices, which were reproduced in our listening room with unusual clarity.

In fact, if I had to sum up the sound of the AP-7 in a few words, I would describe it as "balanced, natural, and uncolored." Those adjectives are over-used in the hi-fi world, but they are the right choice for this speaker. I guess another way to put it would be to say that it sounds the way it measures. However you describe it, the Digital Phase AP-7 speakers (and, presumably, the others in the company's lineup) should be heard. They are indeed something different in the highly competitive loudspeaker world. □



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LOOK & LEARN

Cambridge SoundWorks Model Twelve Transportable Music System

JULIAN HIRSCH • HIRSCH-HOUCK LABORATORIES

Although high-fidelity music components and systems have been available for close to fifty years, much of the evolution of hi-fi as we know it has come from the imagination and talent of a relatively small number of people. One of the most innovative and prolific of these is Henry Kloss, a co-founder of Acoustic Research (AR) and KLH, later of Advent and Kloss Video, and currently a principal of Cambridge SoundWorks (CSW). In the early 1970's he designed a compact portable music system, the KLH Model Eleven, that was unique for its time, combining a record changer, an amplifier, and a pair of detachable speakers in a compact carrying case resembling a piece of hand luggage.

A few years ago CSW developed a modern successor to the old KLH Model Eleven, without an integral signal source but retaining the original nomenclature. The CSW Model Eleven (reviewed here in September 1990) has now been superseded by the Mod-

el Twelve, which incorporates a better amplifier and various other design improvements.

The external dimensions of the CSW Model Twelve are slightly smaller than those of the Model Eleven, with the speaker grille located near one end. The molded plastic case, the "BassCase," is sturdily constructed

DIMENSIONS

BassCase: 17½ inches wide, 10½ inches high, 7½ inches deep
Satellites: 4 inches wide, 6½ inches high, 3¾ inches deep (including cable)
Amplifier: 8¾ inches wide, 2 inches high, 5¾ inches deep (excluding knobs and connectors)

WEIGHT

BassCase: 10¼ pounds
Satellite: 2¾ pounds
Amplifier: 2½ pounds
Complete system: 23 pounds

PRICE: \$800

MANUFACTURER: Cambridge SoundWorks, Dept. SR, 311 Needham St., Newton, MA 02164; telephone, 1-800-367-4434

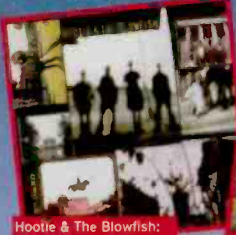
and obviously designed to withstand rough handling. It can fit under an airline seat and is rugged enough to be transported as checked baggage.

The size of the perforated metal speaker grille indicates that the woofer, which operates in the sealed volume of the BassCase, is about 6 inches in diameter. Insulated spring-clip connectors are recessed into one side of the case. The case's interior is compartmented to store a pair of small satellite speakers, an amplifier, a power-supply module, and all connecting cables. The compartment structure also strengthens the enclosure walls. To cushion the components during transport, it is partly covered with foam padding, which may also serve an acoustic role.

The satellite speakers are small two-way units containing what appears to be about a 2½-inch cone midrange driver and a ¾-inch dome tweeter in a sealed box covered with a dark gray suede-like finish. The drivers are protected by a nonremovable perforated black metal grille. On the back of each speaker is an integral 15-foot spool of connecting wire, which can be unwound as required for connection to the system amplifier. Another 15-foot cable is supplied for the woofer connection. All cables have tinned, color-coded ends. The Model Twelve is also furnished with the hardware necessary to fasten the satellites to a wall or other support.

The redesigned amplifier looks better and offers more operating flexibility than its predecessor. Front-panel knobs adjust volume and select the source from among three high-level inputs marked CD, Aux 1, and Aux 2. Smaller center-detented knobs adjust channel balance and the bass and treble tone controls. A toggle switch selects stereo or mono operation, and another chooses either the main source or the input from the amplifier's tape-monitor loop. A front-panel headphone jack disables the speaker outputs when phones are plugged in, and there is a pushbutton power switch for turning the amplifier on and off.

On the back of the amplifier are insulated spring clips for the two stereo speaker outputs and the bass output. A small knob varies the bass level over a wide range (the midpoint is the nominally optimum setting, but the manual encourages you to experiment with the adjustment, and the placement of the bass module, for best sound). Standard phono jacks are used for the signal inputs and the tape-recording inputs and



Hootie & The Blowfish: Cracked Rear View (Atlantic) 05872



Live: Throwing Copper (Radioactive/MCA) 03085



Blues Traveler: Four (A&M) 06046



The Bridges of Madison County/Sdtrk. Dinah Washington, Johnny Hartman, more. (Malpasco) 08709



Batman Forever/Sdtrk. U2, Seal, Brandy, others. (Atlantic) 08915



Dave Matthews Band: Under the Table and Dreaming (RCA) 05998

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- Deborah Cox 00023
- Alabama: In Pictures (RCA) 00083
- Gorecki, Symphony No. 3 Upshaw, Zinman, (Nonesuch) 00110
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- Nanci Griffith: Flyer (Elektra) 05982

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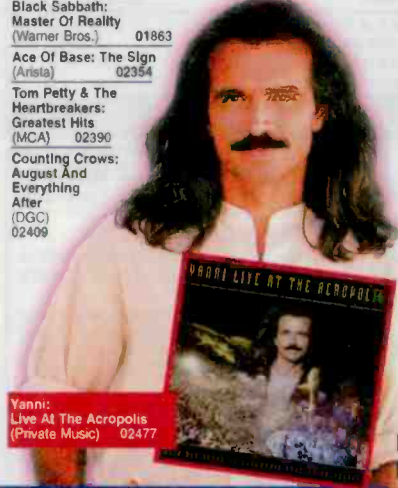
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outputs. There are DC power jacks for the 12-volt input and a 9-volt output whose function is not explained in the instructions.

With a standard 120-volt AC power source, the amplifier normally operates from its furnished 12-volt DC supply module, which has 6-foot AC input and DC output cables. A 220-volt power supply is also available. In a car or boat, the system can be operated directly from a 12-volt DC power source.

Since the CSW Model Twelve has no published system performance specifications or ratings, we tried to measure each of its components as independently of the others as possible, treating the product as an assembly of separate components (which, effectively, is what it is). In addition, we made overall response measurements of the entire system during normal operation.

The amplifier is actually a three-channel unit (stereo left and right plus a separate mono bass channel). A measurement of the loudspeaker impedances indicated that they were nominally 4-ohm units, so we made all of our amplifier measurements with 4-ohm loads, into which the amp delivered clipping levels of 7.3 watts (at 1 kHz) from each of the satellite outputs and 13 watts from the bass output (at 50 Hz).

The stereo amplifier sensitivity for a 1-watt output into 4 ohms was 27.5 mV, and its input overloaded at 2.5 volts, indicating its compatibility with any likely source. Its A-weighted noise level was a low -83 dB referred to a 1-watt output. The frequency response was +0, -0.5 dB from 300 Hz to 20 kHz, rolling off sharply below about 200 Hz because of its built-in electronic crossover circuit. The bass amplifier response peaked at 50 Hz, falling off to -3 dB at about 180 Hz and to -12 dB at about 25 Hz. The treble tone control's action hinged at about 3 kHz, with a maximum range of about ± 8 dB. Bass response was adjustable over about ± 5 to 8 dB at most frequencies below 100 Hz.

The satellite speakers, driven by the system's amplifier, were placed on 26-inch stands for measurement. We averaged the room response from the left and right speakers at a point about 12 feet in front of the left one. The resulting curve was flat within ± 4 dB from 200 Hz to 20 kHz, with maximum output at 2 kHz. The close-miked response of the BassCase was within ± 1

dB from 70 to 120 Hz, with the -3-dB points at 55 and 140 Hz.

A quasi-anechoic MLS measurement of one of the satellites showed a generally uniform response of ± 4 dB or so across the range from 100 Hz to 20 kHz except for a sharp notch at about 4.3 kHz that appeared in varying degrees in curves run at distances from 1 to more than 2 meters. This notch, which may have been caused by cancellation between the drivers near the crossover frequency, did not appear in any room-response measurements, nor was it audibly detectable.

Although the Model Twelve acquitted itself very well in the measurement process, the acid test is always in the listening. For that we set up the system in a couple of rather different rooms and drove it with signals from cassette and CD players. Several things were immediately apparent. For one, the Model Twelve did not sound in any way like a typical portable component. It could hold its own, in respect to quality and volume, with most comparably priced systems using conventional components.

A major plus of this system is the ease with which its performance can be optimized. The instructions are quite clear in their emphasis on experimenting to find the best speaker locations (especially for the bass unit).

Fundamentally, there is little or no difference between the optimum positions for the Model Twelve speakers and those of any other system you might wish to install in a given room. But when you compare the ease of moving the Model Twelve woofer (or its satellites, for that matter) with the labor that would be involved with most conventional systems, the Model Twelve wins hands-down!

Another effective way this system simplifies setup is by integrating the satellites' 15-foot connecting cables with their enclosures. Their length is easily adjusted if you change the speaker placement, yet you never have to cope with messy tangles of wire.

Although the CSW Model Twelve would be perfectly satisfactory for a fixed home installation, its real strength is obviously in temporary setups. It would be hard to imagine a better solution for a motor-home or travel-trailer music installation, for example, or for a college-dormitory system or a vacation home.

Despite the passage of five years and the inevitable inflation, the CSW Model Twelve is priced just \$50 higher than the Model Eleven, yet it has been improved in numerous respects and is even more compact than its predecessor. Overall, it's a very impressive (and highly practical) little system. □



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USER'S REPORT



Marantz Slim Series System

RICH WARREN

The name Marantz has changed hands almost as often as certain movie studios, but the brand's quality and reputation have stabilized under the present owner, Philips. The current Marantz line ranges from the high end of mass market to audiophile, in that sense closely resembling the original Marantz in its heyday of the 1960's.

Marantz is aiming its Slim Series matched components at listeners who desire the operating ease and styling panache of Bang & Olufsen equipment with the sonic values and interchangeability of standard audio components. Manufactured in Japan, the Slim Series consists of the SR1020 tuner/amplifier (\$499), CD1020 compact disc player (\$399), and SD1020 cassette deck (\$399), and for listening I set the system up with a pair of B&W CDM 2 loudspeakers. This immediately points out an advantage of the Marantz system: Unlike the way it is with many other matched systems, the speakers remain entirely your choice. The 45 watts per channel provided by the tuner/amp (receiver) will drive a wide array of good speakers.

The Slim Series units stack easily with other components because of their standard width and depth. Clever styling makes each look even thinner than its 2½-inch height (plus another ½ inch for its large, round feet). When used together they form an attractive trio with nearly identical faces, the champagne (or titanium) finish offering a relief from basic black. Each front panel includes a small, square power button in the upper left-hand corner, a centered dark 3½-inch by 1½-inch display, and a small, silver, vertical touch bar on the extreme right edge. A circular bas-relief graces the right side of the CD player and cassette deck panels, in homage to the volume control knob that protrudes ever so slightly from the receiver panel. When powered up, the displays glow with blue fluorescent characters and symbols, accented with a few red symbols, readable from about six feet away in a daylight room. With power off, the receiver display shows the time of day.

For each component, touching the capacitance-sensing bar on the right lowers the front-panel door, revealing

the controls, neatly arranged and stylish in their own right. Marantz supplies each unit with a remote control, which duplicates most front-panel functions, including opening and closing the panel. You must leave the panel lowered to use the headphone jack.

The receiver's remote doubles as a system remote. Not quite a universal remote, it controls the galaxy of Marantz/Philips/Magnavox products. Its 45 keys vary in shape and size for easy identification. The remotes for the CD player and the cassette deck are smaller but similar, with small rectangular keys. Some functions, such as the Edit function when recording a CD to tape, are possible only with the product-specific remote, not the system remote. The CD manual says "to be sure to use" the remote supplied with the receiver when using the player as part of the Slim Series system. Yet the receiver manual does not document the Edit function as being accessible via one of the receiver remote buttons, and none of the buttons is labeled "Edit," as on the CD remote.

Marantz wanted to have its system and sell components, too. Interconnecting the system can be confusing. You must read the three manuals carefully; the labeling of jacks on the rear panels does not always apply when using the components as a trio. Not only must you connect the remote bus-system cable, which uses standard RCA pin plugs, but you must daisy-chain the audio connections. This includes going from the cassette deck outputs to the CD player inputs (for a moment there, I thought Marantz had shipped me a stealth CD recorder). You must not connect the receiver tape outputs to the cassette deck tape inputs.

The receiver's rear panel includes inputs/outputs for a Digital Compact Cassette deck, as well as two aux inputs and a magnetic phono input. This offers flexibility for using the Slim Series with components of different brands.

The manuals recommend that you stack the components with the cassette deck on the bottom, the CD player in the middle, and the receiver on top. I presume this is to ventilate the receiver, but I tried other arrangements and they worked. However, any erroneous wiring sends the system into apoplexy.

Marantz includes only a single convenience outlet on the receiver, and it is switched. The receiver manual warns against using the outlet for oth-

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USER'S REPORT

er components in the system. This necessitates a rat's nest of AC wires running from these sleek units to an extension cord or AC outlets.

The clock in the receiver functions as a timer to turn on the receiver, CD player, or tape deck for playing from a programmed source. It also will initiate unattended recordings from the tuner, although there's no mention of that capability in the manual. Reading between the lines reveals that you must either program a source (and if tuner, a preset) or make sure there is no disc in the CD player. If you don't program a source, the system will search for the first available one, starting with the CD player. If it finds no disc, it then defaults to the tuner. You must set the cassette deck's timer button to record. Programming the system to record requires the same dedication it took to program a VCR a dozen years ago. Nevertheless, it's probably easier to use the Slim Series components for recording your favorite radio show when you're away than to use conventional components with an external timer.

The eighteen keys and three knobs on the receiver's handsomely laid-out, gun-metal-gray inner front panel can be difficult to operate because they are quite small and close together, but the spacious system remote duplicates most of their functions, including operating a motor that drives the volume knob. Pressing the power key automatically closes the front panel while turning off the receiver.

Speaker connections on the receiver's rear panel are the equivalent of five-way binding posts. Removing a plastic pin in the center makes the post accessible to a banana plug. In addition to the audio jacks, the receiver provides a 75-ohm FM antenna input and dual plastic screw terminals for the supplied AM loop antenna.

The front panels of the CD player and the cassette deck lower to reveal identical control layouts. Both units use drawer loading, which functions very smoothly. Occupying the space behind the front-panel bulge are the mechanical function controls in contoured soft-touch keys shaped like a sliced pie. The cassette deck has three extra switches beneath its drawer for timer mode (off, record, play), Dolby noise reduction (off, B, C), and auto-reverse mode (off, once, continuous). None of the remotes duplicate these functions. The CD player's rear panel includes an optical digital output.

While the specifications printed in the manuals won't impress the discerning eye, the sound of the Slim Series will please the discriminating ear.

In my rural area, the receiver's auto-preset function picked out thirteen strong FM signals; my reference tuner pulls in about seventeen with the same attic antenna. The preset function refused to quit after locating all the strong signals. It continued to allocate each of the thirty slots, retracing the dial and giving stations duplicate (and, in a few cases, triplicate) preset numbers. Obviously this won't occur in urban areas, where more than thirty strong stations crowd the FM dial.

My local classical music station, with a tower located about 35 miles away, sounded clean and full, with satisfyingly low noise. Some of the rock stations tended to splatter, but the fault probably lies with the stations more than with the Marantz tuner. While the

**The Marantz Slim Series
components make
an attractive trio when
used together,
and the sound of the
system will please
the discriminating ear.**

AM section broke no fidelity records, local reception was clean, with plenty of body, sounding better than the AM of many other component receivers.

The Edit function of the CD player, when used with the system's cassette deck, worked splendidly. First it sorted out the tracks to optimally fit the cassette side. Then it spent about two minutes zipping through the average hour-long CD to locate the highest levels, taking another 30 seconds to set recording levels before it began to record. You can specify the length of any cassette, even odd lengths, down to the minute. You can also manually arrange tracks and set the recording level. The system permits programming thirty tracks, but the CD player's crowded front-panel display runs track number and time together, requiring careful observation to sort them out (yet when the tray is empty, you can read "disc" from across the room).

The CD player rates as the MVP of the Slim Series system. Nothing short of an earthquake measuring 10 on the Richter scale will cause mistracking. Pounding and shaking failed to stop the music. And the very smooth sound quality revealed no hint of any so-called "digital harshness" or other unpleasantness.

The cassette deck records with Dolby HX Pro headroom extension, as well as Dolby B or C noise reduction. I recorded the music CD of the two-disc Delos "Sound Spectacular" (DE 3179) with Dolby B, on TDK SA tape, which is recommended in the deck's manual. The result sounded great, low in noise and distortion. The recording retained most of the CD's crispness, as evidenced by the York "Bantu" guitar track. The deck smoothly handled tape at moderate speed, groaning only subtly when reversing. Automatic music scan (AMS) locates and plays the beginning of each selection, and Quick Music Search (QMS) finds selections that you have specified by track number.

Marantz's CD1020 CD player and SD1020 cassette deck would make worthwhile additions to any component system. The SR1020 receiver appears better suited to be the heart of the matched Slim Series system. When buying the complete setup, you pay for three separate remote controls, which are unfortunately necessary. The Slim Series components would be more satisfying if designed expressly as a system, with a single remote and dedicated wiring. B&O crossed this Rubicon several years ago, forsaking separates for systems. Marantz fields a broad line of separate components, so marketing the Slim Series as an integrated system would not leave a void in its product line.

The three manuals try to explain the components as separates and as a system, causing some confusion. It would help if Marantz had included a large, fold-out sheet displaying system setup and connections, like the one provided with the Bose Lifestyle music system. The desirable Marantz system deserves dazzling documentation.

Its few operational quirks aside, the Marantz Slim Series system ingratiates itself, marrying a handsome countenance with serious sound in a package that may lure new converts to audio components. □

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Sherwood XA-5400 Power Amplifier

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I've seen car power amplifiers in just about every color imaginable (except pink), and often wildly decorated with bright splashes of color. But in my book, the only legitimate color for a serious car power amp is black. Apparently, Sherwood agrees — at least in the case of its XA-5400, which sports a handsome, glossy black finish. To maintain appearances, Sherwood even supplies a polishing cloth. In addition, the XA-5400 spares no expense with its heavy-duty extruded-aluminum heat sink. The massive contoured-fin structure appears ready to dissipate even the hottest temperatures generated by the amplifier's four 75-watt channels. Of course, it's relatively easy to build a drop-dead gorgeous piece of equipment. The question is, does the XA-5400's performance match its impressive appearance?

As with most car power amplifiers, controls and connections are located on the ends of the XA-5400's chassis. One end handles all the inputs and controls. The four channels are divided into two pairs, for front and rear, each with two phono jacks for line-level input and a recessed pin connector for a speaker-level input from a powered head unit. When the speaker-level inputs are used, the input signal

appears at the phono jacks, which can serve as outputs to drive additional outboard amplifiers. For each channel pair, there is a slide switch to select stereo or mono operation and a recessed potentiometer to adjust input sensitivity.

The front channel pair also features a high-pass crossover; a slide switch is used to select a 180- or 120-Hz cutoff frequency or to bypass the crossover altogether. The rear channel pair is equipped with a low-pass crossover; a slide switch is used to select a 60- or 120-Hz cutoff frequency or bypass. In addition, the rear channels are linked to a bass equalizer providing a 6-dB boost at 45 Hz; a slide switch turns it on or off.

The other chassis end has two terminal blocks. One block has eight gold-plated screw-type terminals that provide speaker outputs for the four channels. A three-way terminal block

DIMENSIONS: 14 $\frac{1}{8}$ inches wide, 2 $\frac{3}{8}$ inches high, 11 $\frac{7}{8}$ inches deep

WEIGHT: 12 pounds

PRICE: \$299

MANUFACTURER: Sherwood Electronics, Dept. SR, 14830 Alondra Blvd., La Mirada, CA 90638

is used for the power, ground, and remote-turn-on leads. A green LED lights when the amplifier is powered, and a red LED lights when it hits peak power. Two 25-ampere fuses protect both channel pairs. Finally, a small thermostat-controlled fan draws cool air into the chassis interior.

Inside, the XA-5400 is constructed on a large single-sided circuit board that covers the entire base of the chassis. This board contains the MOSFET power supply and amplifier circuitry. The PWM switching power supply is covered by a Faraday shield to minimize radiated energy that might interfere with tuner reception. As with most power amplifiers, the transistors in both the power-supply and audio output stages are attached to the smooth, unpainted surface of the heat sink. The transistors are pressed in place by clamping bars, rather than being screwed directly to the chassis, which can cause them to warp and lift up, breaking the all-important metal-to-metal contact. The main board also contains anti-thump turn-on circuits and thermal shut-down protection circuits. The crossovers are located on two small perpendicular circuit boards; another board contains the input jacks and crossover switches.

Although certainly quite serviceable, this Korean-made amplifier will not win any awards for internal construction quality. The circuit boards have rough edges and use mediocre-grade components. Numerous jumpers are used to convey the signal across the single-sided board, and there are two large wiring strips that untidily run up and over the power-supply shield. In the unit supplied for review, there were also some sloppy solder joints, and many components were secured in place by black glop. In other words, the handsome exterior hides a less than handsome interior. But who's looking?

Before I installed the XA-5400 in my test car, I ran it through a test-bench obstacle course. Signal-to-noise ratio (S/N) at 1 watt measured a solid 83 dBA, total harmonic distortion plus noise (THD+N) at 1 kHz was a reasonable 0.05 percent, and frequency response was very flat to within 0.4 dB. Power output generously exceeded rated specifications when the XA-5400's unregulated power supply was provided with enough voltage to do its job. For example, whereas the amplifier is rated at 75 watts per channel in four-channel mode, it actually deliv-

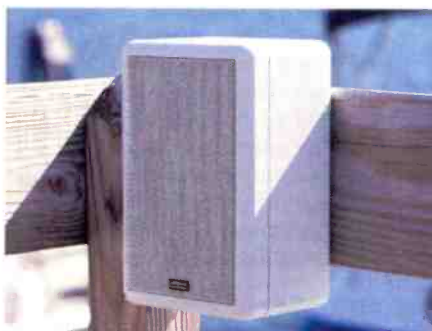
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CAR STEREO

ered 93 watts into 4 ohms with a 14.4-volt supply. Similarly, while it is rated at 150 watts in two-channel mode, it actually delivered 219 watts into 4 ohms. Output power was somewhat less with a 12-volt supply, but still up to spec when driving a 4-ohm load (the de facto standard for car audio components); it delivered 75 and 176 watts into 4 ohms in four- and two-channel modes, respectively (the XA-5400 is not designed to drive 2-ohm loads when in bridged, two-channel mode). The amplifier was completely free of oscillation and did not shut down when driven to levels that produced considerable clipping. Overall, its bench performance was very solid.

Installation

But the best place to test a car power amplifier is in a car. I installed the XA-5400 in the trunk of my test car, securing it with self-tapping screws through the metal flanges on its chassis ends. I ran a fused power cable from my battery to the amp's power terminal and wired up the remote-turn-on lead. Then I connected the amp's ground strap to a bare metal spot on the car's chassis. Next I connected line-level outputs from a CD receiver to the XA-5400's inputs and ran cables to four speakers. I powered

up the system, and adjusted input sensitivity for the two channel pairs. For this review, I configured the amplifier with the high-pass and low-pass crossovers both set at 120 Hz. I elected not to use the bass boost. I checked for any whines or noise, heard none, and headed for the open road.

Road Tests

I started my listening test with fairly subtle musical material, paying particular attention to such nuances as string attack, soundstage, and room ambience. I was generally pleased with the XA-5400's performance in these areas. Transient response, for example, was clean, and imaging was pretty good. I moved on to classical music to judge the amplifier's performance with the massive force of an orchestra. Again I was impressed with the XA-5400; it handled large power demands without sacrificing detail. Even at peak orchestral levels, brass instruments remained clean and smooth, and percussion was tight and crisp.

Changing gears, I stressed the XA-5400 with loud rock-and-roll, to gauge its ability to deliver high sound-pressure levels without distortion or fatigue. I was again impressed; instruments and vocals sounded natural, and bass percussion had lots of punch. As with any amplifier, at some point the watts simply run out, but these four 75-watt channels reached fairly high levels before clipping occurred on peaks. When it did occur, it was gentle, without sudden breakup. Pulling over to the side of the road, in quieter conditions, I auditioned a number of very tasty audiophile discs. The XA-5400 did a good job, lacking only that extra margin of clarity and openness that the very best (read: most expensive) power amplifiers can convey. By the end of the road test, the XA-5400's cooling fan was certainly running hard, but the amplifier was not unreasonably hot to the touch.

In summary, the Sherwood XA-5400 is a very good all-around power amplifier. It delivers plenty of power for many systems, its internal crossovers alleviate the need for external passive crossovers that steal power, and both its sound quality and measured performance are very solid. Although the internal construction of our review unit was somewhat disappointing, its attractive outer appearance makes up for that. Keep the polishing cloth handy; you'll want to keep that glossy enamel shining. □

MEASUREMENTS

Unless otherwise noted, all measurements were made with a 14.4-volt DC power supply with all channels driven into 4 ohms.

OUTPUT AT CLIPPING

(14.4 volts, four-channel/two-channel)
8 ohms 54/164 watts
4 ohms 93/219 watts
2 ohms 128 watts (four-channel only)

OUTPUT AT CLIPPING

(12 volts, four-channel/two-channel)
8 ohms 43/132 watts
4 ohms 75/176 watts
2 ohms 101 watts (four-channel only)

SIGNAL-TO-NOISE RATIO

(A-wtd, re 1-watt output) 83 dB

DISTORTION (THD+N at 1 watt)

at 1 kHz 0.05%
at 20 kHz 0.19%

FREQUENCY RESPONSE

..... 20 Hz to 20 kHz +0, -0.4 dB

CHANNEL SEPARATION

(at 1 kHz) 58 dB

SENSITIVITY

(for 1-watt output) 38 to 380 mV

CURRENT DRAW

(rated output into 4 ohms) 50 amperes

SHUTDOWN TIME (rated output, 100 Hz)

..... did not shut down

Add great sound and powerful bass to your computer, TV, radio, CD player (or anything with a headphone jack)

Now you can add room-filling, high-fidelity sound to almost *any* product you own, at an incredibly affordable price.

Simply plug the award-winning *SoundWorks* amplified speaker system into any headphone jack (on your radio, TV, boom box, portable cassette or CD player, multimedia computer, etc.). Then turn it on. You won't believe your ears.

"Seemingly impossible"

Audio Magazine

SoundWorks' powerful built-in amplifier, twin compact speakers, and subwoofer provide incredible, room-filling sound and powerful bass. Designed by Audio Hall of Fame member Henry Kloss, it may well be his most exciting product ever – and the most affordable.

Never before has so much high quality, wide-range, natural, "big" sound come from such a small, affordable system. It makes it easy for you to have great sound anywhere.

"For the home or office, *SoundWorks* hits the right note."

PC Magazine

SoundWorks' great sound and compact size makes it ideal for many situations or locations where a large, conventional sound system doesn't make sense. It has magnetically shielded satellite speakers, so *SoundWorks* is ideal for use as a multimedia speaker system with your PC or Mac.



SoundWorks works on 110 or 12-volts, so it's perfect for cars, RV's and boats. With our optional carrybag (\$49⁹⁹), it makes an ideal musical traveling companion. You can even play it in the carrybag.



\$219⁹⁹

Complete system with satellite speakers and subwoofer with built-in amplifiers

"More than enough juice to fill an entire room with sound"

MacUser Magazine

It also fits easily into smaller rooms – like kitchens, dens, and bedrooms. Use it with your TV, clock radio, boom box, or Walkman. With a portable CD player, it makes a great sound system for a small apartment or college dorm.

SoundWorks operates on either 120 or 12 volts, so you can also use it in boats, campers and cars. And with our optional carrybag, you can even travel with it.

How it works

SoundWorks consists of a powerful subwoofer and two compact satellite speakers finished in your choice of either charcoal gray, or in "computer-beige." Mini-stands are included, or you can attach the satellites to a computer monitor or TV with the supplied velcro kit.

The shoebox-sized subwoofer reproduces only non-directional bass, so it can be placed under your desk, or in back of furniture. It contains a powerful 3-channel amplifier that's been precisely tailored to match the speaker drivers. Its control panel includes a bass level control to adjust the subwoofer output for the size of your room.

When CD-ROM World magazine tested 20 amplified systems for overall sound quality, *SoundWorks* was rated first – ahead of all other systems. (The second and third place systems cost \$399 and \$699!)

"The sounds that had been held prisoner inside my portable radio and TV were amazing."

Audio Magazine

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SoundWorks is available factory-direct for only 219⁹⁹ with a full 30-day risk-free home audition. Listen to it in your home, with your music. If you aren't completely satisfied, return it within 30 days for a full refund.

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Before you call a contractor or run to the home improvement store, let an Adcom home theater GTP-600 tuner/preamplifier duplicate the dramatic depths of a large listening area. The GTP-600 and an award-winning Adcom power amplifier can instantly create a custom soundstage for your favorite movies or musical events, without physically adding a square foot of space. Providing switching for up to four video sources and four audio sources, the GTP-600 gives you the flexibility to customize your audio/video system for years to come. Composite or S-video connections provide a high definition signal

path for maximum video quality. And with features like Adcom's exclusive Cinema Surround circuitry and Dolby Pro Logic® decoding, the GTP-600 brings cutting edge home theater technology to your fingertips. Logical control groupings and pre-programmed DSP (Digital Signal Processing) modes allow easy, precise adjustments for a variety of custom-tailored, psycho-acoustically correct listening environments. The user friendly "smart" on-



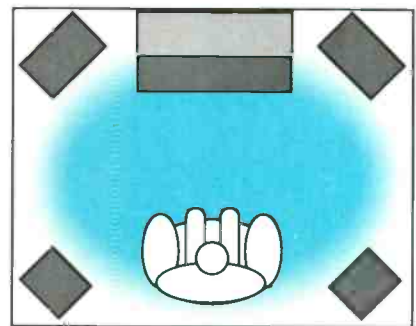
The GTP-600 keeps you in control of the action with an easy-to-use learning remote.

GTP-600: The improvement.



screen display keeps you fully informed and makes system balancing easy and accurate. 🎵 These features couple ideally with the GTP-600's advanced, programmable remote which lets you command up to eight additional system components. This sophisticated combination consistently delivers sound exactly the way you want to hear it. 🎵 And the details? Typically Adcom. Gold plated RCA connectors, precision 1% tolerance Roederstein metal-film resistors and high speed linear gain amplifiers are just a few of the many outstanding design elements that give the GTP-600 its exceptional audio and video quality. 🎵 Now, with Adcom home theater you can build an addition to

your home that you can feel as well as see and hear. Pick up the right tools for the job at your local Adcom dealer today. You'll realize that our state-of-the-art components hit the nail on the head every time.



With the GTP-600's delay modes the rear channels move the walls back simulating the effect of a much larger area.

ADCOM®

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SEPARATES VS RECEIVERS



In the beginning was the vacuum tube, and it was good. (It was costly, inefficient, and fragile, and it ran hot, but never mind — it was good nonetheless). And the tube begat the power amplifier, and the power amp begat the preamp and tuner. And lo! There was music.

Today, the notion of buying a separate component for each of an audio system's multitudinous functions seems almost quaint to many buyers. After all, our era's top AM/FM receivers seem to equal the separates by almost every important performance criterion — and the all-in-ones usually trump all over discrete components in terms of cost, convenience, and space efficiency. Yet separates remain the repository of much of hi-fi's best-performing technology, a state of affairs that, with very few exceptions, owes as much to tradition as to anything else. In the vacuum-tube era, a separate power amp was pretty much required, since the heat produced by its big glass "valves" (and the electromagnetic fields of its power supplies) tended to degrade the performance of delicate tube pre-amplifier and FM-tuner circuitry, causing hum and other problems. That's no longer such an important issue now that we have transistors and integrated circuits, but since enthusiasts have long come to expect separates to outperform combos like receivers or integrated amps, manufacturers are happy to continue to oblige. Selling a preamp, a power

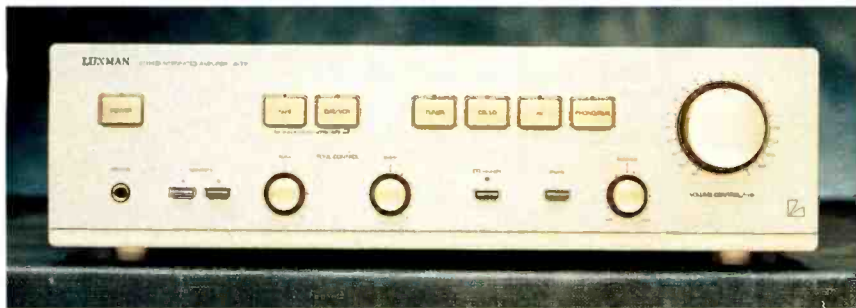
PHOTO BY ROBERTO BROSAN

DECIDING WHICH IS RIGHT FOR YOU

BY DANIEL KUMIN



SEPARATES VS RECEIVERS



The Luxman A-331 (\$449) is a basic, high-quality two-channel integrated amplifier with video switching capability and a power rating of 75 watts per channel into 8 ohms.



Marantz's MM-500 (\$600) is a five-channel power amplifier designed for home theater, rated at 70 watts each to the front three speakers and 35 watts each to the surrounds.



Rotel says its RT-935AX tuner (\$269) is designed to maintain high sound quality under a wide range of reception conditions and to provide good AM, as well as FM, performance.



Denon's AVR-2500 A/V receiver (\$1,000) boasts an RDS tuner, multiple surround modes, and amps rated at 85 watts each to the three front speakers, 25 watts each to the surrounds.

amp, and a tuner makes for a potentially more profitable transaction than selling just a single item, however capable. And, to be fair, it is still easier to deliver truly high-end control, amplification, and radio-reception technology and performance in separate boxes.

Hence, the question persists: Should you shop for a receiver or for a suite of separates? The answer will vary, depending upon just what sort of system you are assembling and on your tastes, the features you're looking for, and, of course, your budget.

The A/V Home Theater

First, the value question: If setting up a good-sounding surround-sound home theater for the lowest practical cost is your goal, look no further than today's A/V receivers. The best examples are exceptional dollar-savers, and their performance compromises are in general remarkably minor — in some respects, nonexistent.

At the high end, the best A/V receivers give up little to separates in terms of power and quality. Technics' \$999 SA-TX1010, for example, combines THX Home Cinema Dolby Pro Logic-based surround decoding with five very capable amplifier channels (120 watts each into 6 ohms for the front three, plus 60 watts each for the two surrounds). The SA-TX1010's "Class H+" power-amp circuitry yields dynamic ability and brute force that substantially blur the lines between separate-amp and receiver expectations. Even among more affordable A/V receivers you can still come up with substantial power: The \$550 VSX-49 in Pioneer's latest Elite line offers 100 watts per channel into 8 ohms across the front trio and 50 watts to each surround speaker. As is standard now for A/V receivers, it also incorporates Dolby Pro Logic surround decoding.

And pretty much any A/V receiver will include a full complement of audio and video inputs and outputs, which makes for a simplified user interface and one-stop keypunching for source selection or audio/video tape dubbing. Most also incorporate additional surround-processing modes for pure-music listening, along with wireless remote control and other convenience-oriented features.

Why, then, would a person putting together a home theater consider anything else? One reason remains power. Though the latest A/V receivers deliver some astonishing surround-sound oomph, the discrete power-amplifier

SEPARATES VS RECEIVERS

THE ONE OR THE MANY: A CHECKLIST FOR CHOICE

Here's a quick checklist for negotiating some common receiver/separates quandaries.

■ High-value home theater?

Look to A/V receivers for the ultimate in audio bang-per-buck. Price-sensitive models provide terrific value, while some "flagship" \$1,000-and-up designs rival more costly separates in almost every important performance category.

■ High-end home theater?

A preamp or tuner/preamp with built-in surround processing can combine much of the convenience of an A/V receiver with the freedom to choose the power amps you want (or to incorporate one you already own). Top-level outboard processors deliver the state of the art in surround performance, but be prepared to spend several thousand dollars for audio gear alone.

■ Basic stereo?

Two-channel receivers are fire-sale values these days — but they're inching toward extinction, so act fast.

■ Serious two-channel audio?

The waning of stereo receivers has opened a niche for "value high-end"

separates. Many fine but relatively affordable amps and preamps are wooing budget-conscious enthusiasts, and sonic performance per dollar has never been better.

■ Add-on home theater?

A simplified, separate-component surround processor plus multichannel power amp, or a combined processor/amplifier, can upgrade a two-channel system to home theater status cleanly and economically.

■ Cost no object?

Write your requirements on the backs of \$100 bills (in pencil, please, using as many bills as necessary — don't skimp on detail) and send them to me for a custom system recommendation.

Seriously, folks, truly high-end separates continue to represent audio's finest, whether in two-channel stereo or surround-sound home theater. Down side: The cost is often literally unchecked. Moreover, high price does not necessarily guarantee high quality. But manufacturers of well-engineered, well-crafted, price-no-object components still deliver the ultimate in performance. — D.K.

you need or want, you will find fewer to choose from.

Many "entry-level" two-channel receivers embody remarkable value. Sherwood's \$225 RX4030, for example, complete with all the AM/FM basics and full remote control, supplies a solid 65 watts per channel, and most other familiar receiver brands offer an equivalent model or two. There are still a few higher-end two-channel receivers remaining, too, such as Denon's DRA-835, which delivers 100 watts per channel, more refined FM performance, and more sophisticated features and display for \$800.

But those are the exceptions. For serious performance in two-channel reproduction, separate components are enjoying a clear renaissance, an unheralded fringe effect of the home theater boom. At one extreme, many such components emphasize simplicity and value, like Adcom's GTP-350, a highly capable but mostly unadorned tuner/preamp that provides fine stereo audio performance and quality FM-only tuning in a livable, \$350 package. And there are plenty of high-value amps to match. Though short on frills, B&K Components' \$398 ST-120 is well made and boasts 60 watts per channel into 8 ohms, to give just one example.

At the other extreme are the truly esoteric components. Back-breaking "monoblock" power amplifiers that sell for \$15,000 each (two are required, of course) and one-knob preamps at \$7,500 are by no means hard to find. But in between is an impressive array of meticulously designed and carefully crafted products that earn legitimate high-end status while still offering an honest nod toward value.

Some of Conrad-Johnson's relatively affordable preamplifiers spring to mind in this context. The company's \$1,795, all-tube PV12L is well regarded among audiophiles and, despite its four-figure price tag, is considered something of a bargain (it's all relative) among high-end hounds. A comparable example on the transistor side would be the remote-controllable Threshold T3, at \$2,250. Similarly pitched power amps are legion. McCormack Labs' DNA-1, an unusual, very-wide-bandwidth solid-state design that is also held in high esteem, offers 185 watts per channel into 8 ohms for \$1,995. And "affordable" tube power amps, for devotees of the breed, are creeping toward ubiquity. VAC's PA80/80 provides 80 watts per channel into 8 ohms for \$2,490.

ply some or all of a surround system's power needs from a single component. Most permit channel pairs to be bridged to form single channels of much higher power, which greatly increases configuration flexibility. A good high-end example of the breed is McIntosh's \$3,000, Home THX-certified MC7106, rated at 100 watts for each of its six channels into 8 ohms, or 160 watts into 4 ohms.

The Stereo System

If, however, an "old-fashioned" two-channel system is what you are amassing, with no thought to whiz-bang surround sound now or in the future, things change rather dramatically — primarily because the two-channel receiver is fast going the way of the eight-track tape. The great majority of today's receivers are multichannel A/V models, so if plain-vanilla stereo is all

Big Speaker Sound...



The typical home theater system consists of a subwoofer, left and right stereo speakers and a center channel speaker. Not hard to spot are they?

without the Big Speaker.



Here's the Polk RM7000 home theater system. The stereo speakers are mounted on the wall. The center channel speaker and the subwoofer are inside the cabinet!

INTRODUCING POLK'S NEW RM7000 HIGH PERFORMANCE HOME THEATER SYSTEM

"As thrilling as home theater is, it's impossible to get excited about the pile of home theater speakers that engulf your TV. I didn't think you should have to sacrifice the look of your home to home theater. So I created a high performance system that gives you what you *really* want . . . big speaker sound without the big speaker." *Matthew Polk*

Wait till you hear the RM7000 system. You'll be astonished. Its true-to-life sound results from the same groundbreaking technology, Dynamic Balance[®], used to create our acclaimed flagship speaker, the LS90. Yet the RM satellites are so small, they fit into your palm. Most importantly, so small they disappear into your room.



The powered subwoofer fits easily into your furniture and, thanks to its revolutionary technology, guarantees more bass in less space.

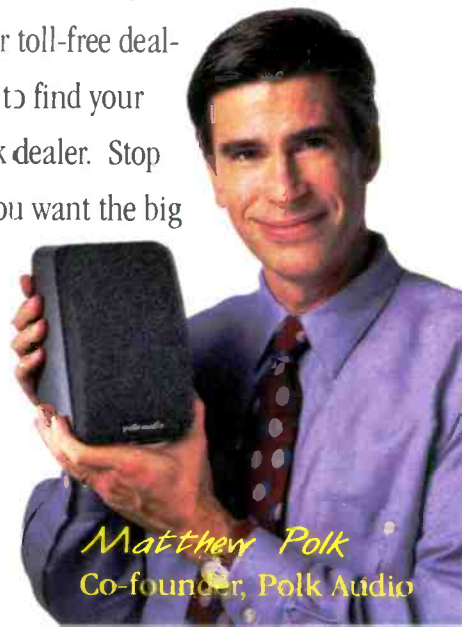
The powered subwoofer, with our newest technology, high velocity compression drive,[™] guarantees you powerful bass in a size that will fit into your furniture. In fact, with the RM7000 we've miniaturized everything but that big, room-filling Polk sound.

For more information on the RM7000 and other Polk home theater speakers, call 1-800-377-POLK or dial our toll-free dealer locator to find your nearest authorized Polk dealer. Stop in and tell them that you want the big speaker sound without the big speaker.

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Matthew Polk
Co-founder, Polk Audio

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SEPARATES VS RECEIVERS



The Arcam Alpha 5 Plus AM/FM tuner (\$399) has twenty-four station presets and allows manual tuning on the FM band in 50-kHz (quarter-channel) steps.



Yamaha's DSP-E580 surround processor (\$699) has built-in 25-watt amplifiers for center and surround speakers to simplify home theater upgrades to existing stereo systems.



Adcom says its MOSFET-output GFA-5500 (\$1,000) stereo power amplifier will pump a hefty 200 watts per channel into 8 ohms or 350 watts into 4 ohms and can handle loads down to 1 ohm.



The Onkyo TX-SV727 A/V receiver (\$749), rated at 80 watts per channel across the front and 30 watts each to the surrounds, uses DSP for all surround processing, including Pro Logic decoding.

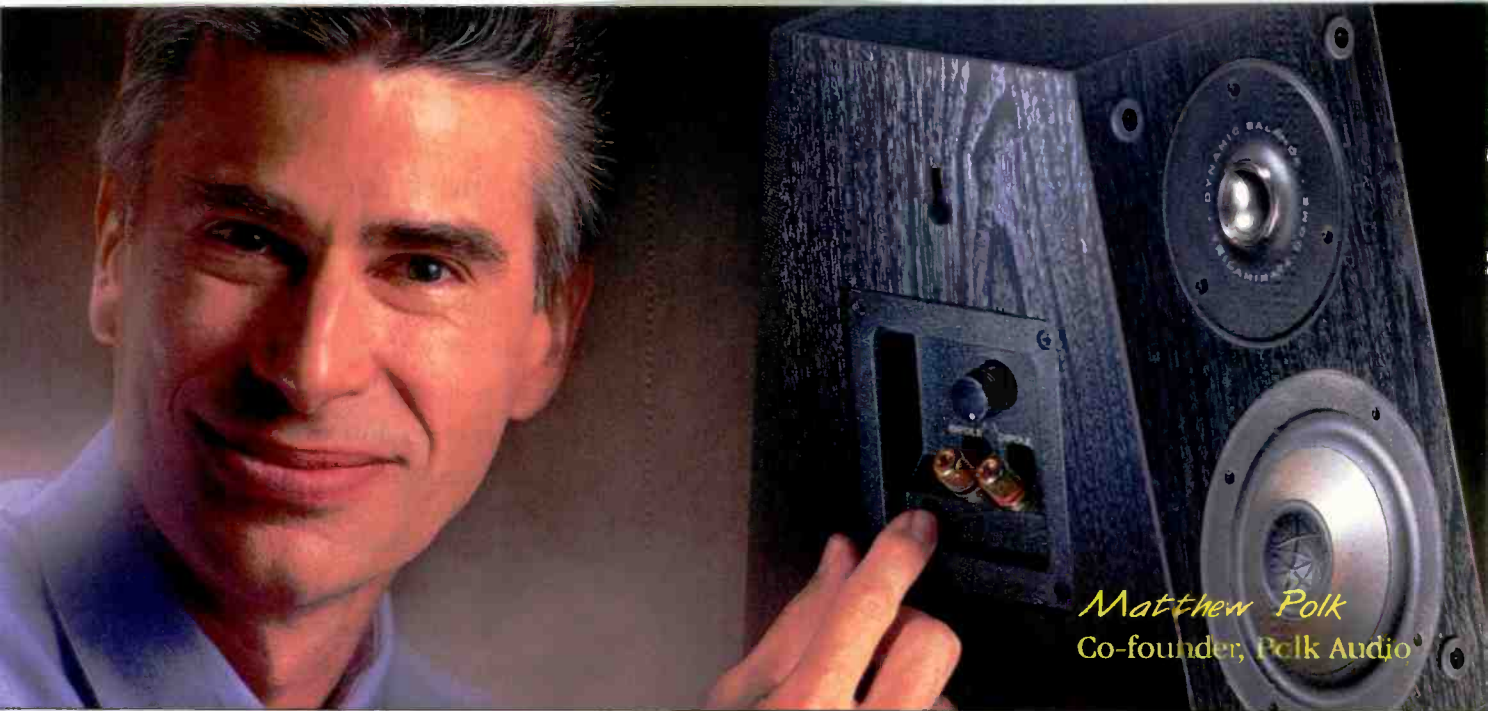
Bridging the Gap

Finally, there is still another class of separates, designed to bridge the gap between two-channel systems and the latest in home theater technology. One example is the surround processor/amplifier, a single component that incorporates everything you need in the way of electronics to transform a two-channel stereo system into a surround-ready home theater audio suite. Adcom's GSP-560 (\$600) is such a component, with simple Dolby Pro Logic decoding circuitry integrated with three power-amp channels tailored to center- and surround-channel duties (80 watts center plus 40 each to the surrounds into 8 ohms).

Another way of accomplishing the same thing is to add two components, a surround processor and a multichannel amplifier. The \$899 Acurus ACT1, an elegant processor that delivers highly accurate Pro Logic decoding and on-screen setup and control menus, is designed to work together with an existing stereo receiver or preamplifier. The matching power amp, the Acurus 200X3, provides three 200-watt channels (into 8 ohms) for \$1,295, and using it for the three front channels would leave an existing receiver or amp ready to drive the surround speakers.

Want the ultimate in home theater reproduction? The high end has alternatives here, too. Proceed's PAV A/V preamp (\$4,195), considered something of a reference standard by many of the most intense home theater aficionados, has Dolby Pro Logic surround decoding and Home THX processing plus a full complement of A/V inputs, outputs, and switching, all delivered with audiophile-grade construction and parts. The same company's Amp2 and Amp3 two- and three-channel power amps, each 150 watts per channel into 8 ohms and priced at \$1,995 and \$2,995, respectively, might logically fill out such a system.

So even in today's receiver-dominated age, while there is no overwhelming imperative to look to separate components to get good, or even great, sound reproduction, there are still plenty of reasons to consider them. Fortunately, the selection is greater than ever, as is the overall value of today's offerings. So you have an excellent shot at finding (and affording) just the separate components you want. □



Matthew Polk
Co-founder, Polk Audio

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"I set out to create the best sounding and most versatile surround speaker in the world. The critics seem to agree that I have succeeded." *Matthew Polk*

"...a rich, warm speaker with bags of bass... a top notch performer... [they] sound excellent and are highly versatile." *Your Own Home Cinema, Great Britain, 1995*

"The initial effect with the Polks was simply staggering. The LS f/x's were the best surround experience I have had in my home." *Audio Video, New Zealand, 1995*

"It's the range of these speakers that thrills. They can make the floor vibrate with their low bass and are excellent for space-ships flying overhead or the growls of moving tanks and cranes, just the stuff of which impressive home cinema is made."

What Hi Fi, Great Britain, 1995

"...a speaker of considerable sophistication... [the LS f/x] can transform the surround channel from a typically flat monochromatic noise to a detached, spacious and coherent soundfield."

HomeEntertainment, Great Britain, 1995

Audition the LS f/x and other outstanding Polk home theater speakers at your local authorized Polk dealer or for information, call us at (800) 377-POLK.



Polk's stylish LS f/x surround speakers mount easily on your wall and are available in black or white to complement your decor.

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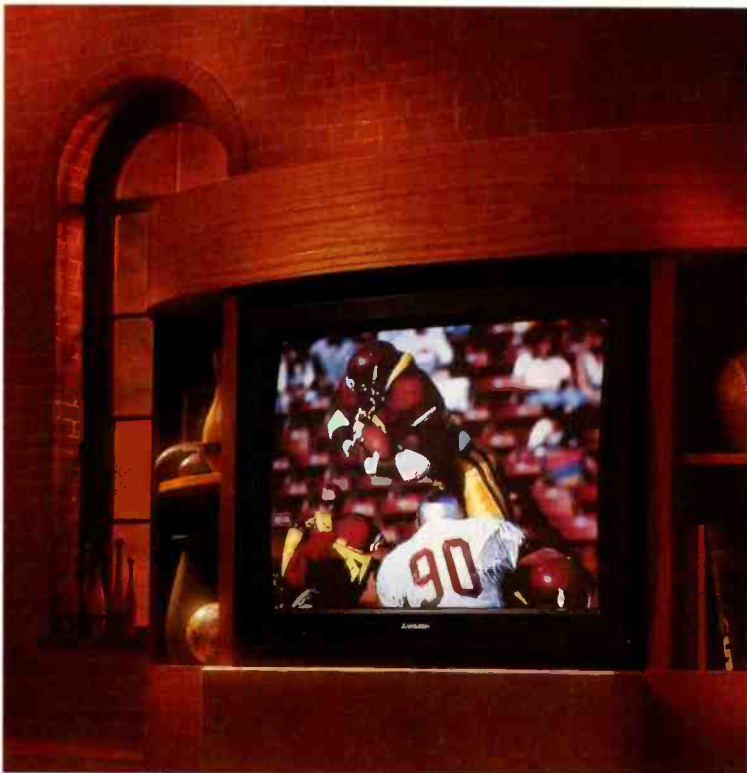
Our 1452-sq. ft. Diamond Vision® Stadium Screen.

My, how they've grown.

Our Diamond Vision Stadium Screen, seen exclusively at 26 of the nation's top stadiums, is among the largest television images ever created (over 50 million sports fans a year watch one, so it helps to be big).

Like its big brother, our 40-inch tube TV is the only one of its kind, and the largest tube TV you can buy, made exclusively by Mitsubishi. With a screen size of 768 square inches—a full 31% bigger than a 35-inch and an overwhelming 120% bigger than a 27-inch—it brings the action from the stadium right into your living room.

Separated at birth?



Our home version, the world's only 40-inch tube TV.

But size is just part of the story. Our 40-inch television also has a brighter picture, higher contrast, and a longer life than just about anything else out there.

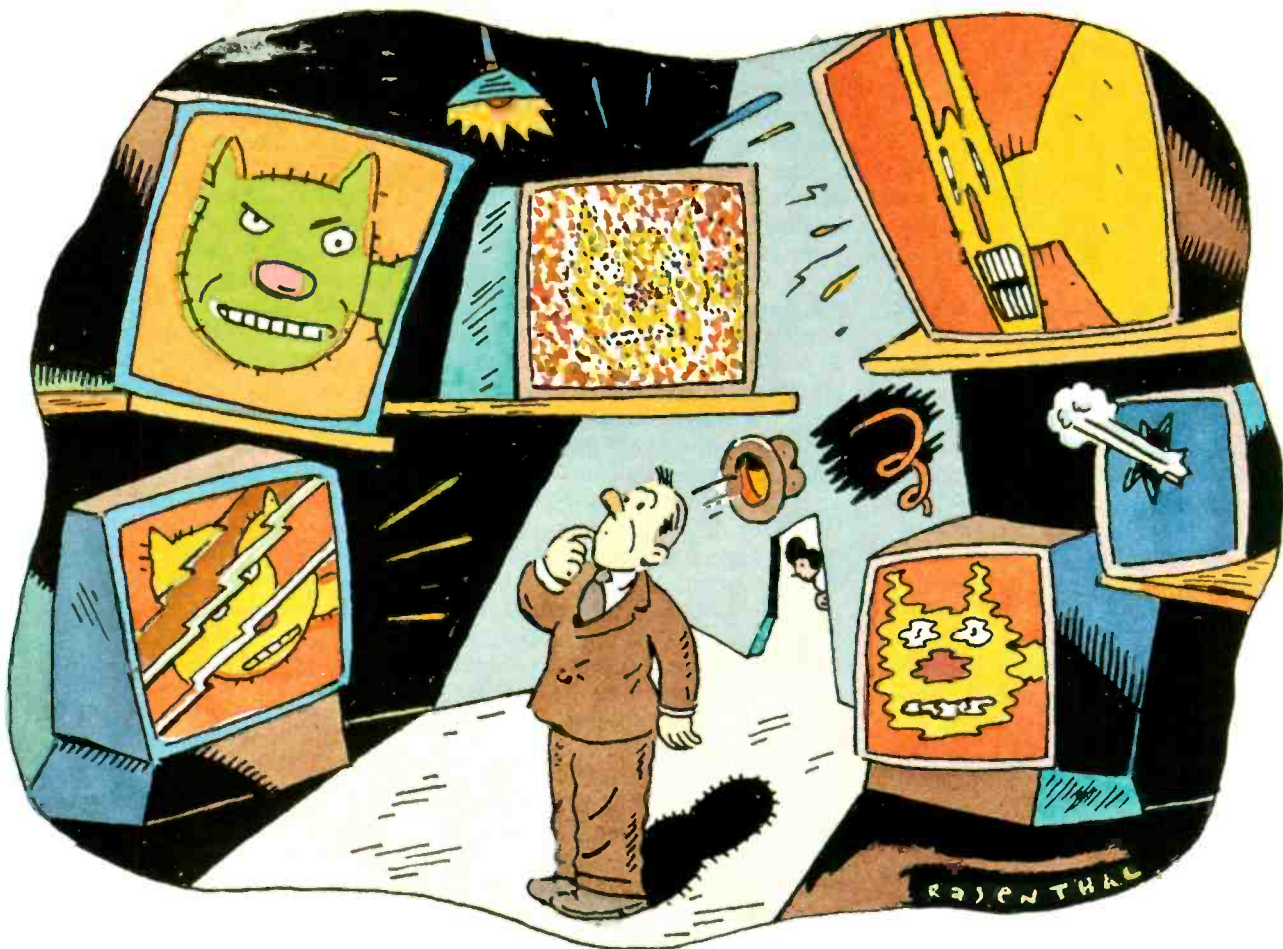
To own a Diamond Vision Screen, you'd have to buy your own stadium. But for considerably less, you can experience Diamond Vision excitement on the world's only 40-inch tube TV.

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10 Tips For TV Shopping

What's home theater without a picture?

Here's how to make the best of it.

BY TOMLINSON HOLMAN

ILLUSTRATION BY MARC ROSENTHAL

In just the last several years, buying a television set has become both more complicated and more critical to the overall viewing experience. The primary reason is the ever-advancing quality of home video sources — a trend that shows no signs of abating, with the CD-size Digital Video Disc (DVD) slated for introduction in less than a year. So to go out looking for a set now means facing the likelihood that many former limiting factors have been (or soon will be) removed, leaving the TV itself as the main determinant of how good a picture you wind up seeing.

Interestingly, TV sound has already undergone a great transformation, as the move away from speakers built into the set (and usually facing the wrong direction!) to high-

fidelity multispeaker systems built around the Dolby Pro Logic format, and now the AC-3 format, has proceeded at a rapid pace. Home theater sound was originally driven by the ability of two-channel media, such as the digital soundtracks on laserdisc, to deliver Dolby Surround soundtracks intact into the home. With the wide dynamic and frequency ranges and low distortion available on the new media, the sound can easily outdistance the picture in conveying the theatrical experience. A parallel development of picture delivery would entail improvements to take advantage of the greater sharpness, improved color rendition, and lower video noise of the new media.

Going into a store to look at television sets can leave you

10 Tips For TV Shopping

disquieted. How do you choose the best picture when all that's on is a basketball final repeated on dozens, sometimes hundreds, of sets? Should you rely on specs, reputation of the manufacturer, low price for best value, high price for best quality, a good warranty, or what?

Take a fairly ordinary specification like horizontal resolution. You would think that 700 lines of resolution would translate to a clearly better picture than 500 lines. Unfortunately, for a variety of reasons, that may not be so. Resolution is only one contributor to perceived sharpness. An interacting attribute is contrast. With lower contrast, no matter how great the resolution, the picture will not appear to be as sharp. Further, a very high resolution specification may be based on measurements performed at an artificially low light-output level, since turning down a set's light output improves its ability to display fine detail. So numbers, while heavily promoted, are not very reliable guides to how sharp one set will look relative to another.

Also, you will notice that the price range for any given screen size is usually quite broad. Although some of the price differences may be attributable to such features as picture-in-picture (PIP), variety of inputs, or construction quality, many of the features that affect picture quality are not so well known. High-voltage regulation, for example, is a factor that has a great impact on the tradeoff between price and performance. In many sets the horizontal-sweep circuitry — the part that makes the electron beam paint out a pattern of regular horizontal scan lines — is also used to produce the high voltage necessary to accelerate electrons, making them strike the faceplate of the picture tube and produce light by interacting with the phosphor coating. Using the same circuit for both functions saves money, but it may make the picture geometry dependent on the picture brightness. And you're not likely to find information on such design details in the manufacturer's literature. So what *can* you look for when you go out to buy a set?

1: Brightness sells.

For many years it has been known that in speaker comparisons, the louder one almost always seems "better" because it is usually perceived as clearer. For fair comparisons of speakers,

competent switchers employ "efficiency compensation," an adjustment for equalizing the loudness of various speaker models. The video corollary of this sound phenomenon is that a brighter picture sells, even at the expense of sharpness and color.

For a fair comparison, make sure the contrast (sometimes called "picture") controls on the sets are adjusted so that they produce pictures of equal brightness. (The contrast control adjusts the luminance level at which whites are displayed; the control labeled "brightness" actually adjusts the level at which black is displayed — how dark the picture can get.) Contrast is almost always set too high in stores to overcome the effects of ambient light. Although that may be a factor at home, too, at least there you have the ability to control the viewing environment, keeping the room dim, turning the contrast down, and enjoying a sharper picture as a result.

Often the best place to look for the interaction between display brightness and sharpness is during fade-outs at the ends of shows and in commercials featuring type on the screen. If the type looks sharper during the fade-out than it looked at full brightness, it is an indication that the set is "blooming" — that is, the electron beam is spreading out when its level is high, squashing detail.

2: Watch out for unequal source quality.

Often you will find many sets in a store fed from a central source through an RF amplifier and a maze of splitters and cable. That creates the potential for inputs of dramatically unequal quality to the various sets, making fair comparisons impossible. If some sets are much "snowier" or have more ghosts than others, you're very likely seeing the bad consequences of such a setup. One remedy in such a situation is to ask to patch a video input directly from a laserdisc player to the set you want to view, bypassing the RF distribution system.

3: If you can, take control.

Some stores allow you to mess around with the controls on display sets, whereas others actively discourage customer adjustment. Adjusting the four main picture controls — contrast (picture), brightness (black level), col-

or, and hue (tint) — can often make the on-screen images dramatically better, and often more alike from set to set. The best way to do this is to adjust to SMPTE color bars by the method given in "Using Color Bars to Improve Picture Quality" (see page 82). Lacking a color-bar source, you will have to do the best you can by eye on ordinary program material. In almost all cases you will want to turn off any factory preset labeled Auto Color (or some other similar name) before adjustment. This procedure alone could easily make a big difference in which set you choose, as many people undoubtedly walk out of the store with the model that happened, whether by accident or premeditation, to be adjusted best on the sales floor!

4: Watch for changes in picture geometry with picture brightness.

Here is where I tripped up in buying a TV several years ago. I didn't realize the severe problem my set had until I got it home and watched it for a few days. Commercials especially show off the problem, with type becoming quite distorted in shape at high intensity and then beginning to look okay about three-quarters of the way through a fade-out. The problem is with high-voltage regulation and is basic to the design of the set. Although it adds considerable expense to make a set free of this problem (especially a large-screen set), I would certainly have paid the difference if I'd known about it before I bought.

5: Look closely for convergence and purity errors.

Walk up to the set and look around high-contrast edges for color fringes, which usually result from convergence errors, where the three color beams that make up the picture do not land precisely together. (Shimmering color around the edges is a different problem, dealt with in Tip 6 below.) You might not notice minor color fringing from across the room, but it may become noticeable if you know it's there, and it has a way of getting worse as the set ages. The best source is white type on a black background, which can be found in many movie end credits.



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Color purity is the consistency with which a single color in the electronic signal is portrayed over the whole screen, which may vary because electrons are not landing entirely on the intended color phosphor but "leaking" into adjacent phosphors. Large sets are more susceptible to outside influences, such as the earth's magnetic field and loudspeaker magnets, and therefore are more prone to purity problems than smaller sets. The best way to look for purity errors is to observe a flat field of color, say behind titles at the end of a commercial.

6: Check for the inclusion (and type) of a comb filter.

Broadcast television combines color (chrominance) and black-and-white (luminance) information into one signal. Separating these elements again is something TV sets do with varying degrees of competence and is a real basis for differentiating among them. Comb filtering is the best way to separate chrominance and luminance, and, all else being equal, a three-line (or "digital") comb filter is better than a conventional two-line one. (Comb filters retain the fine detail sacrificed by the simple notch-filter circuits used in most low-price sets.) The shimmering colors around rolling end-title credits are a consequence of flaws in the chroma/luminance separation, as are the small dots crawling along sharp edges between colors. Look for a set that combines a sharp picture with a minimum of such color artifacts.

S-video connections circumvent color-separation problems by sending the luminance and chrominance portions of the signal independently. But they will be of only limited and sporadic value until high-quality S-video sources become widely available. (Although S-video connections were originally developed for VCR's, which do store chrominance and luminance separately, the basic signal quality is usually too low for it to make much difference.) Laserdiscs store video as a conventional analog composite signal, with chrominance and luminance multiplexed together. A laserdisc player with an S-video jack derives that output with its own comb filter to separate the composite signal on the disc into its constituent elements, so whether that connection or a standard composite-video (RCA-jack) output will be

better depends on which comb filter is better, the one in the player or the one in your set. You can determine that simply by comparing the picture quality with the two types of connections. The Digital Satellite System (DSS) and the advanced Digital Videodisc (DVD) handle chrominance and luminance separately from the beginning, however, so S-video will increasingly come into its own with these sources (the luminance and chrominance have to be combined to supply an ordinary composite-video output from DSS and DVD devices, the opposite of what's done in a laserdisc player). Thus, while S-video connections are often of questionable value today, they will soon be essential to achieving the highest possible picture quality, which means you should look for a set with one or more S-video inputs.

7: Evaluate color and gray-scale rendition.

After contrast, the next most attractive picture-quality attribute is color rendition. That's because we carry around a map in our heads of the colors of things, and the match between that map and the rendering on the screen fulfills or doesn't fulfill our expectations to varying degrees. Television engineers say, however, that "you only have to make skin, grass, and sky right." In other words, nobody knows exactly what color your shirt is, but they have a better idea of what your skin color is likely to be. Some sets manipulate color greatly, to make "better" appearing pictures despite potential errors. For instance, they may make any colors near flesh tones into exactly what they consider a flesh tone to be.

The problem with such auto-color processing is that small gradations of color are lost, so detail in faces may be lessened, for example. The advantage of it is that when picture quality does vary, auto-color can help lessen the deviations. So for watching the news, for instance, where the video quality cannot by its nature be very carefully controlled, such a feature is desirable, but if you're watching a movie on laserdisc or another high-quality source, using an automatic system reduces the color variations that the program producer intended to be seen.

In store displays, people often look at a wall of sets from across the room and pick the one with the "best" color.

Viewing standard-size sets from that far away, with that many in the field of view, gives an advantage to sets with auto-color, and perhaps with overly vivid color, at the expense of sharper sets with potentially truer colors.

Color rendition can be divided into two parts. In the first, the set's electronics decode the signal from video or S-video sources into red, green, and blue component signals. The chroma decoder is what you adjust when you adjust the hue (also called tint or phase) control or the color control (the proper adjustment technique is described in "Using Color Bars to Improve Picture Quality"). In the second, the tube-drive electronics and the characteristics of the tube phosphors determine the final color, and that is where things get sticky.

There is a proper way to display color signals on a screen, but it has been standardized only since 1987, so there is a long history of divergence from any standard, and most manufacturers *do* diverge. Professionals use monitors with standardized phosphors called SMPTE C and set the "color" of white by adding the right amount of the three colors together for a white denoted D65, for 6,500° K. Almost all consumer sets are adjusted for a higher color temperature and are thus technically too blue, but some now have color-temperature switches, and D65, if available, is the right setting to match the color seen at the point of origin. Most such switch settings have labels like "high," "medium," and "low," however, and the lowest setting will invariably be the one closest to D65.

But setting the color of white to the right point does not insure that any other color is correct, because you can make white out of any three colors that are far enough apart spectrally. So a set having SMPTE C phosphors is at a distinct advantage. Although the professional sets used in TV studios, for instance, cost something like \$8,000 for a 19-inch screen, there are industrial sets available from JVC, Panasonic, and Sony that do have SMPTE C Phosphors. A 13-inch set will set you back about \$1,100, though, and a 19-inch set about \$1,700, and these are just monitors, without tuners. On the other hand, they are very sharp, use comb filters, and can display the same colors seen at the originating studio.

If you can, evaluate gray-scale rendition with a test disc such as Reference Recordings' "A Video Standard" or the THX "Wow!" disc. Color should

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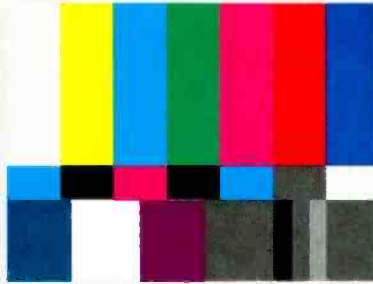
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10 Tips For TV Shopping

Using Color Bars to Improve Picture Quality

The best way to insure that your TV set is delivering the most accurate color it can is to adjust its controls with the aid of SMPTE color bars.

1. Obtain a Kodak Wratten #50 blue filter from a photo-supply shop.
2. Get a source of SMPTE color bars on laserdisc. The most readily available is Reference Recordings' "A Video Standard" (which comes with a proper blue filter). The THX "Wow!" disc (available to owners of Home THX controllers and receivers from manufacturers participating in the "Wow!" disc program) also has color bars.
3. Adjust the contrast (or picture) control to the maximum setting at which good sharpness and geometry are maintained (no bending on bright pictures). This setting is often *below* the control's half-way point.
4. Observe the bars through the blue filter. Adjust the hue, tint, or chroma phase control so that the resulting four large blue bars are equally bright and separated by three black bars, with no "crosstalk" into the dark areas.
5. Continuing to look through the filter, adjust the color control so that the small patches of blue at the bottoms of



the large blue bars match the larger bars in brightness as far as possible.

6. Remove the filter and observe the lower-right dark area of the color-bar display. With the brightness control turned well up, you will see three gray bars of differing brightness levels. Turn the control down just to the point where the darkest and next-darkest bars become indistinguishable. The three bars are at -4 percent, 0, and +4 percent relative to what is known as video black. The idea is to extinguish the difference between -4 percent and zero, so that items that are "blacker than black" are not seen.
- T.H.

remain the same over the full brightness range. There are some pretty dramatic differences in this characteristic. For people looking at television pictures on computers, this can be one of the worst areas of performance, which is why a video monitor is much better at displaying video images than most computer monitors.

8: For projection sets, evaluate coverage.

Be sure to view a projection set from the same angle you expect to use at home. Design of such sets has to emphasize efficient use of light from the tubes, so there are trade-offs. Try deep knee bends and walking left and right in front of these sets to see how good their coverage is. Because of space limitations, many stores stack projec-

tion sets one above another, but that puts the sets up in the air at a severe disadvantage. You may have to borrow a ladder!

9: Sharpness controls.

Sharpness controls (also called detail or aperture controls) can make a noticeable picture improvement or they can produce annoying artifacts, depending on their design and whether they match the tube. Try turning the control up while viewing the edges of type: There should be no bright white border generated around the type, and no ringing, which looks like close-in ghosting or edge-doubling. The picture should just look sharper. Don't be surprised if many sets, especially those with comb filters, look best with their sharpness controls turned way down.

10: Check audio performance.

There are two main audio performance characteristics of significance, assuming you're going to connect the set's audio outputs to an external sound system, and they are difficult to evaluate in a store. The first is the set's susceptibility to what is called intercarrier buzz — an effect resulting from inadequate separation of the video and audio signals, so that high levels of high-frequency video, like lots of sharp type on the screen, cause buzz in the audio. You can listen for intercarrier buzz by turning the volume up while type is displayed on the screen, perhaps at the end of a commercial after the sound has faded out. Any nasty buzz you hear in the store will be a much greater problem when you get the set home and plugged into a good sound system.

The second issue is the performance of the MTS stereo decoder, the largest problem with which is maintaining channel separation. Good audio channel separation and well-matched channels are essential to recovering the amplitude-phase matrix encoding that is at the heart of Dolby Surround and that a Pro Logic decoder needs to operate correctly. A few sets sold as stereo do not provide proper MTS decoding, thereby dooming correct Dolby Pro Logic decoding.

Today television sets are offered at a more than three-to-one range of prices for a given screen size. Higher prices are associated with more features, but also potentially with improvements in performance such as greater sharpness, more accurate gray-scale and color rendition, wider contrast range, reduced geometric error, and better audio performance. By using the tips here, you should be able to tell whether a set offers the kind of performance that would make it worth the money to you and to distinguish the quality differences among sets in the same price range. □

Tomlinson Holman is founder of TMH Corporation and a long-time technical consultant to Lucasfilm, where he originated both the theater and home THX programs. He also teaches courses in film sound at the University of Southern California.



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CIRCLE NO. 78 ON READER SERVICE CARD

The Shanty On the Creek

The greeting on Wayne Sturm's answering machine says that you've reached "the shanty on the creek." Actually, the shanty is a cozy condominium, not the ramshackle bungalow you might have in mind, and the creek is the scenic Gunpowder Lake in Joppa, Maryland, about twenty-five miles northeast of downtown Baltimore. Docked outside the condo is one of



Sturm's two most beloved possessions: a 25-foot Tiara cruiser where he and his wife Bobbie spend many weekends. The other treasure is, of course, his A/V system.

Like so many enthusiasts, the 57-year-old Sturm spent untold hours tweaking the setup and changing components until he found the "perfect" mix, which turned out to be a \$30,000 extravaganza featuring five Carver

power amplifiers and eight Infinity speakers. "I wanted better sound but couldn't quite get it, so I kept switching components," explains Sturm, an ex-musician and avid fan of the blues, jazz, and rock-and-roll. Then he met Richard Marsh, a salesman at a local Circuit City store (he now works for Sound Advice in Florida). "Richard recommended some components and helped put the system together," Sturm says, noting that Ed Dorsey of Baltimore's Soundscape also helped with the component selection.

Before Sturm was able to finalize his dream system, he had to strike a deal with his wife. "If I wanted an entertainment center for my gear, it had to include space for her antique copperware collection," he recalls. So he designed a unit with a built-in display cabinet and took the plans to Augustas Wood Crafters in Baltimore. For \$5,000, owner Greg Butcher built a solid-oak cabinet with tambour doors stained to match Sturm's Infinity Kappa 7 speakers.

The cabinet is brimming with more than twenty pieces of electronic gear, all arranged neatly in four compartments. Video signals reach Sturm's 35-inch Mitsubishi TV via a Pioneer CLD-91 laser-disc/CD combi-player or one of two hi-fi VCR's, a Sony SLV-696HF and a Mitsubishi HS-422UR.

On the audio side, everything is linked to a Yamaha DSP-A2070 integrated amplifier/ambience processor. Source components include a Sony

CDP-C85ES five-disc CD changer and TC-K890ES three-head cassette deck and a Yamaha TX-1000U AM/FM tuner. Before signals hit the power amps, they are massaged by a trio of processors: Audio Control's Richter Scale III subwoofer EQ/crossover, a ten-band Yamaha EQ-550U graphic equalizer, and a dbx 3BX-DS dynamic-range compressor/expander that Sturm says brings out the dynamics of old vinyl recordings (yes, he pulls his turntable out of mothballs every so often).

The Carver power plant includes two TFM-35's, each rated to crank out 250 watts a side into 8 ohms, or 350 watts into 4 ohms: One powers the two main speakers — the Infinity Kappa 7's — the other a modified pair of Kappa 6's (with Dynaudio soft-dome tweeters) in the back of the room, which serve as an extra stereo pair when Sturm wants to rock out to Stevie Ray Vaughan or ZZ Top.

For the center-channel speaker, Marsh loaded a Dynaudio 24W-75 9-inch woofer and D-28 soft-dome tweeter into a vented aperiodic enclosure he made out of 1-inch fiberboard. Because the enclosure sits in a grille-covered compartment beneath the TV screen, he angled its baffle up toward the listening area. Power is supplied by a Carver TFM-25 running in mono.

Taking full advantage of the Yamaha DSP-A2070's seven-channel layout, which provides four surround outputs, Sturm uses four ceiling-mounted Infinity Infinitesimal Four satellites to convey movie sound effects and ambience, two in the front corners of the room and two toward the rear. All are powered by a four-channel Carver AV-634 that's rated to deliver 60 watts per channel into 8 ohms, or 100 watts into 4 ohms.



A Legacy Dual 12 subwoofer, which occupies the space just below Bobbie Sturm's copperware collection, lowers the boom all the way down to 16 Hz. The rumble is so intense with dynamic soundtracks like *Jurassic Park*, even at low volumes, that Sturm glued felt to the copper pieces to prevent them from vibrating off the shelves. The sub, which packs two 12-inch drivers in a vented box, is wired in stereo and powered by a second Carver TFM-25, which pumps out 225 watts per channel into 8 ohms. "You've gotta hear the cannon shots in the *1812 Overture*," Sturm says.

When the Sturms kick back to watch the evening news and don't want to fire up the whole system, sound is delivered via a pair of Radio Shack Optimus Pro-77 speakers on either side of the center speaker and powered by the TV's amplifier. Sturm removed the pod speakers that came with the Mitsubishi TV set so it would fit into the A/V cabinet. "We had to keep the cabinet size down so it



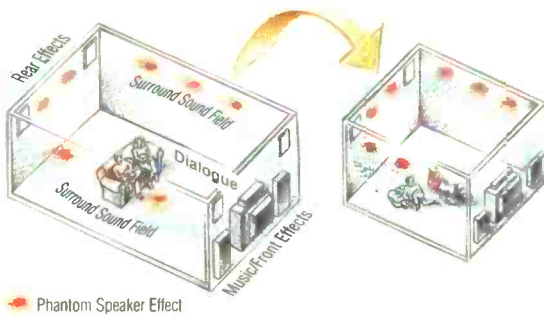
wouldn't block access to our deck," he explains. "It's a dynamite view."

Out on the deck, Sturm mounted a couple of JBL drivers in custom weatherproof enclosures and secured them to the back wall of the condo. The speakers are powered by the Yamaha amp's main channels and turned on and off with a Niles SPS-4 speaker selector. System juice is delivered by two dedicated 20-ampere power supplies, each of which runs through a Tripp Lite LC-2400 voltage regulator/line conditioner.

"What I like most about the system is that it's so clean, regardless of volume," Sturm says. "There's *no* distortion."

But, as you can imagine, there are drawbacks to enjoying such a system in a condo. One of Sturm's neighbors, in particular, has zero tolerance for thumping bass. "When I crank it up, the phone always rings and he says, 'Turn it down!'" So the only time I can really rock and roll is when he's not home."

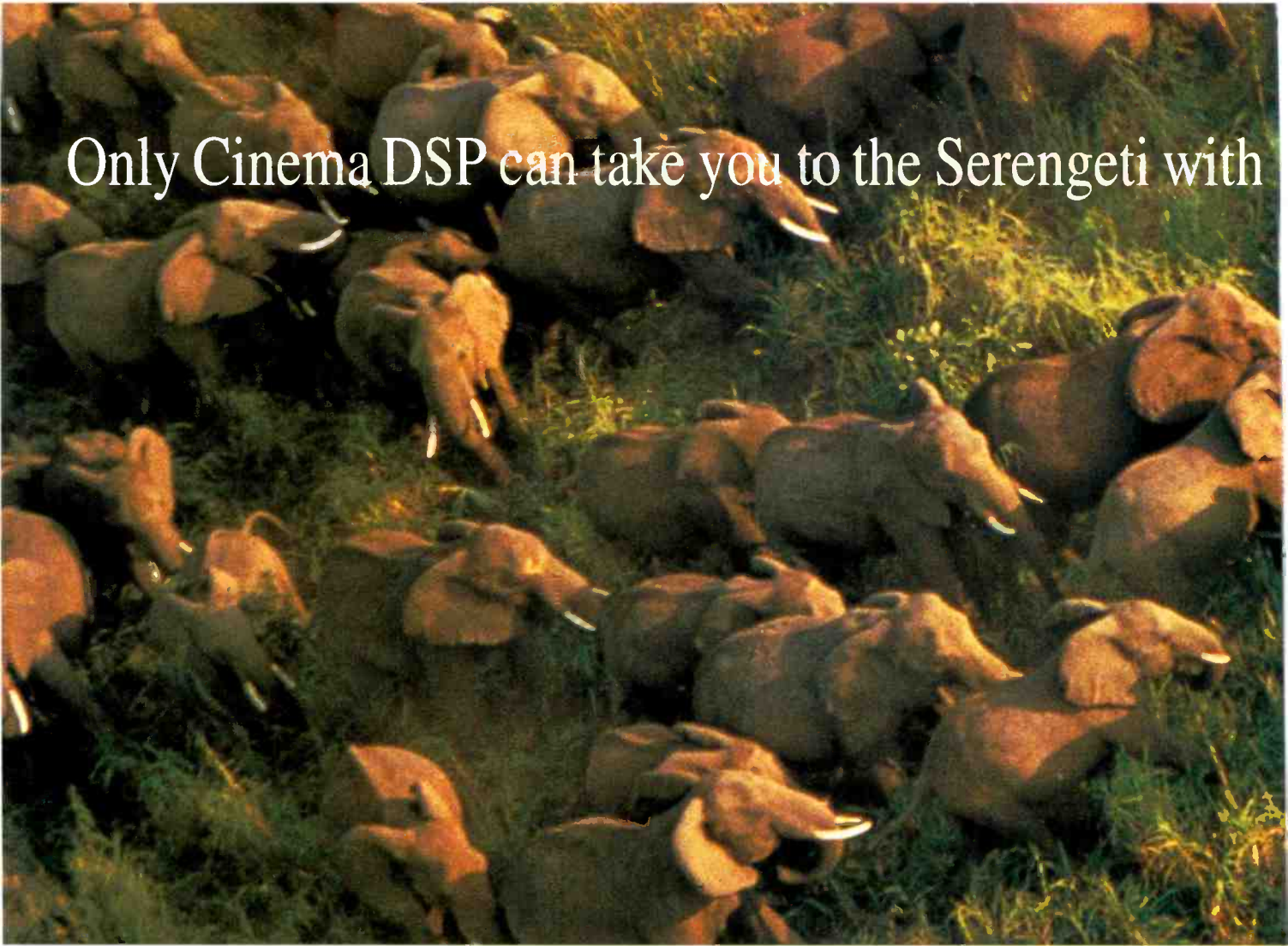
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V-125



A CENTURY OF MUSIC AND TECHNOLOGY

Kubrick's Bone Part 2

BY ERIC SALZMAN

In Stanley Kubrick's *2001*, one of our brutish ancestors beats a rival to death with an animal bone and then, in his murderous euphoria, tosses it up in the air. Suddenly, thanks to the magic of film technology, the eons melt away and what went up as a crude weapon comes down as a spaceship waltzing through the heavens to the strains of *The Blue Danube*. . . .



ILLUSTRATION BY MARGARET RECGEL

BIRDS SING. So do our relatives, the gibbons. The forebears of present-day *Homo sapiens* undoubtedly had music before they had speech. Music has always been associated with our rites and rituals of passage, love, and belief — the social, the sexual, and the divine. It has played an important role in every known human culture, probably from the beginning.

And still does.

But there has been one slight change. For the first 100,000 years music was acoustic; in the last 100 it has turned electroacoustic. For better or for worse, most musical experience now takes place through loudspeakers and earphones. We live in the age of Amplified Music.

This is a revolution of extraordinary proportions, and it has changed musical life and the way we listen to music. All of music, classical, pop, and otherwise, has been transformed in hardly more than a century.

There are some notable landmarks in this history: Alexander Graham Bell's telephone, Thomas Edison's wax cylinders and Emil Berliner's flat discs. Lee DeForest's vacuum tube, and the triple inventions of microphone, amplifier, and loudspeaker. Later came transistors, magnetic tape, the LP, stereo, cassettes, headphones, component high fidelity, noise reduction, sound modification and sound synthesis. And now, of course, computers, digital sound, and the compact disc.

Each of these changes had profound consequences that were not always immediately understood. Music by the numbers is not just the latest fad in a long series of innova-

tions. The digital revolution merges the principles of sound recording into the larger computer revolution and, as a result, puts sound and music right in the center lane of the information superhighway.

Since performers have to compete with or at least sound like their own recordings, technological innovation now dominates live as well as studio music. There is, first of all, the microphone, long an intrinsic part of pop music. Popular singing is largely about singing into the mike, and amplification has made possible intimate and personal styles of singing that would otherwise be unheard a few feet away. In the process, the emphasis has moved away from high, trained voices (the only ones that could be heard in large halls without amplification) to low, untrained ones. Technology has been criticized for making music more "artificial," but microphones have also enabled more "natural" singing styles to be used in larger halls and in the theater. (The impact of sound technology in the theater is a large and controversial topic all by itself.)

Instrumental amplification began with the lower and less loud band members: acoustic guitar and bass. Other instruments began to be routinely miked, and, with the development of more sophisticated gear, mixing boards, sound designers, and sound mixers became essential elements of the band. With each vocalist and instrumentalist on a separate channel, it is possible to compose the sound in live performance in the same way a recording is mixed down. The am-

Kubrick's Bone

plified aesthetic of loud mixed sound has always been important in rock.

As far back as the 1930's, musical instruments were developed that could only be heard through loudspeakers. The best known of these were the Theremin, the Ondes Martenot, and, of course, the Hammond organ. Synthesizers were developed by RCA in response to a recording strike by the musician's union, and one of the first synthesized pieces of music was *A Bicycle Built for Two*. When Hal, the computer intelligence guiding the spaceship in *2001*, is unplugged, he sings *Daisy, Daisy*, in his dying moments. Hal reverts to his childhood.

The first synthesizers were studio instruments used in avant-garde music, but later versions were hooked up to keyboards and turned pop. An electronic pop sound had already been created by the solid-body guitars of electric rock and the electronic pianos and organs of late, unlamented memory. When the synthesizer revolution reached popular music, a new generation of keyboard instruments, originally designed to imitate standard acoustic instruments but capable of considerable sonic originality, began to dominate the field.

With the development of synthesizers, we are on the verge of the digital revolution. Instead of storing sound as the wiggle-waggle of a needle in a groove or as magnetic particles lining up on a tape, the simple logic of circuitry — on or off — takes over. In the binary world of 0 and 1, the rapid developments in computer technology and advanced audio come together. It has long been understood that, in theory at least, any imaginable sound can be synthesized; all that was necessary was the development of computers that were fast enough, capacious enough, and cheap enough. And they were developed.

Computer music, like electronic music, started in the avant-garde but soon moved out of the rarefied realms of university computer studios. Today it is possible to operate even a home computer as a musical instrument via a keyboard and an electronic translator known as MIDI (musical instrument digital interface). Available software offers an immense variety of musical sounds that can be produced or imitated in this way, and it is possible to "sample" sound — record a piece of acoustic music (or, for that matter, any

live sound), digitize it, and use it as the basis for further acoustic patterns. Digital keyboards are the best known and most widely used, but any performance instrument can be adapted to the principle. There are MIDI drums, mallet instruments, and woodwinds that can set in motion any array of sounds desired by using the ordinary playing techniques of these instruments. The electronic/computer premise has merged with the art of live performance.

Digital audio was the logical next step in the evolution of sound recording. Instead of encoding sound in a mechanical form, the technique uses the language of computers to record, store, and retrieve sonic information in its purest form and without unwanted



More music in ever less space: By 1948 the tower of 78's at left could be shrunk down to the armful of LP's at right . . .

noise from the system itself. It takes a very large number of discrete pieces of digital information to encode even a simple piece of music, but the end result is clean and true and easy to manipulate. Digital information is mostly stored in traditional ways: on tape or disc. It can also be stored in computer memory; the amount of memory required is large, but computers have been evolving rapidly in the direction of being able to access more and more information — stored or quickly retrieved — in less and less space and at lower and lower cost.

Storage of lots of quickly retrievable information in a small space is, of course, the secret of the compact disc's success. The CD far exceeds any other medium in ease of tracking,

and its contents can be indexed for almost instant retrieval. Because of the disc's extraordinary search and locate ability, users can locate marked spots almost instantly and even reprogram the order of contents of a disc. It is now easier and almost as cheap to use compact discs instead of tape for sound cues in live performance.

No one was sure if the public would buy into an entirely new system that would make its substantial previous investment in equipment, tapes and records obsolete. And there are those who, from the beginning, have argued that digital sound lacks the warmth and depth of analog sound (just as there are Luddite audiophiles who argue that tube amplifiers produce a more satisfactory sound than transistors). But whatever the differences and possible negatives, public acceptance of the new technology has been remarkably quick and comprehensive.

The CD is one of a long list of new technologies that were pioneered in audio (and largely in classical music) and which later came to be used in other fields. The CD's storage capacities and ease of use led to its adaptation in the multimedia field, which has taken on the very name of the disc: CD-ROM.

The next step? Digital broadcasting — radio and, eventually, television. The new marriage of the visual and the aural through technology is already a reality in MTV, in intermedia (including CD-ROM), in experimental performance and media arts. There is no reason why music and music/video, transmitted digitally on phone lines or cable and suitably hooked up to good playback equipment, should not become a main line on the information superhighway. This will certainly involve more than just the bald transmission of existing musical and musical-theatrical works. New works and performances will give rise to new ideas and forms appropriate to the new media; the very thought itself is challenging and exciting. Whatever the direction turns out to be, it will almost certainly be a function of the continuing merging of audio and digital/computer technologies. It is early to assess the full impact on music and musical life, but impact there will be.

Recorded music now sets the standard and paces virtually every field of music. The contemporary sound of both classical and pop is defined by

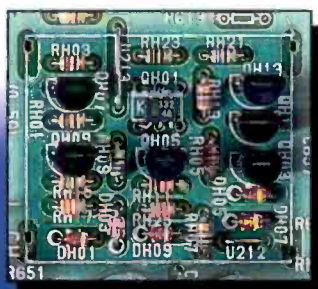
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Stereophile, Vol. 17 No. 11, December 1994

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Kubrick's Bone

recording. We construct concert halls to sound like good audio equipment. The business of music is almost entirely controlled by the business of recording; the music directors of symphony orchestras are now routinely selected for their ability to command recording contracts. Except for traditional folk music, pop hardly exists acoustically; its sound is the sound of loudspeakers and earphones. The entire audible universe is captured on tape and carried into the studio and home, just as the musical experience is taken out of the studio and, via tapes and radios, carried out into the world. Inevitably, the nature of music life and musical experience has been changed.

Is this a good thing?

Even a "good" technology can produce shoddiness, drive out quality goods or services, and throw people out of work, and those effects should hardly be ignored. Old technologies, handcrafted and personalized, do not necessarily disappear; in fact, they are often prized for their very rarity and obsolescence. Where they survive, they tend to be classy, upscale, and expensive. Examples include hand-tailored suits, horseback riding, Old Master paintings, old books, especially if hand-illuminated, handmade or antique anything, and live theater, dance, and opera or any other kind of music.

Let us also admit that few of us are wearing handmade suits let alone hand-woven fabrics. New technologies are (usually) cheaper and suited for the mass market that they help to create. A loss of quality or standards is not always inevitable; sometimes standards may actually improve, and many new technologies actually empower people. To take an obvious example close at hand, computers and e-mail have revived the lost art of letter writing; one computer in particular has tripled my potential writing output, and it enables me to do extensive rewrites almost painlessly and to file lengthy stories transcontinentally or overseas with no delay whatever and at minimal cost.

A commonly expressed fear among musical Luddites — and a fear that should be taken seriously — is that recorded music turns music lovers into passive consumers, leaving music-making to a few specialists and superstars and downgrading its role in the community. I would argue that this has demonstrably not happened. In fact, I

would venture to say that the practice of music at every level and in every branch of the art has burgeoned.

First of all, recordings convey the image of musical sound and musical performance directly, and a whole generation of musicians, popular and classical, has grown up learning music from the sound image itself rather than from its notation. Less sheet music is sold, and people learn music more by ear than by rule, more by rote than by note. But isn't music supposed to be, in the last analysis, the experience of sound, not notation? Against the argument that technology promotes musical illiteracy and musical copycatting, I would argue that modern sound technology actually upholds deeply traditional musical values by putting the



... and today one single-sided CD can hold the Beethoven Symphony No. 9, which required two double-sided LP's.

focus back on sound and the sound experience, by creating a link between generations comparable to the master-pupil relationship of yesteryear, by bringing music back into the home on many levels, and by supporting and creating personalized niche markets for all kinds of musical tastes.

I would argue further that technology has actually taken music out of the hands of arcane specialists and placed it back in the hands of the people! Traditional European musical culture long ago achieved the highest levels of professionalism and specialization, but at a cost: It lost touch with the larger mass of society, and it lost its creative wellspring. It had reached a status quo if not a dead end. With the aid of audio technologies, music has restarted

itself, re-establishing a popular base and opening up to fresh impulses from nontraditional sources (not only Afro-American and Afro-Latin but also experimental movements, world music, and so on). In all this, technology has played a crucial role.

Like anything else, technologies and media are means to an end. The aim of recordings is to transmit the pleasures of music. Does the nature of the recording and the medium influence the music? Of course it does. It may even inspire some entirely new kinds of music, suitable to new media. There may be negatives too, but if the end is useful or desirable and the means are attractive, inexpensive, or socially desirable, we may find the trade-off to be acceptable (at the minimum) or even desirable (in the best case).

If there are problems, they are at least our problems and not the battles of some other time. Critics and defenders of the status quo, like aging generals, tend to replay the last war over and over again. I prefer to try and understand the realities of our own age and to fight the current fight, not the last one.

Perhaps, instead of a piano, we will now have a synthesizer in every home. Perhaps more music will be created for fewer performers playing louder, more versatile instruments. Perhaps Bach keyboard music will become more popular than Tchaikovsky symphonies, Kurt Cobain than Kurt Weill, Philip Glass than Aaron Copland. Perhaps Byzantine chant, recorded by Coptic monks in Addis Abbaba on original ninth-century instruments, will now turn up in the pop bins of record stores everywhere. Next year's pop sensation might be an interactive rap vocalist performing in a synthesized Virtual Harlem or a woman's marimba band from inner Amazonia downloaded from the Internet onto your computer. And so what? I personally do not believe that such developments signify the end of civilization as we know it.

Amplified Music may be the right term to suggest the positive side of technology as it has enlarged our musical horizons even as it has changed the character of musical life and culture. Like a lot of things, Amplified Music has the faults of its virtues and the virtues of its faults. It is still evolving, and whether it oppresses us or liberates us is largely up to us. □

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May 3

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AUTOSOUND

BY JOSEPH



PALENCHAR

A twenty-four-valve V-6 engine will make your car hum, but a good stereo system will make it sing. With a high-power amplifier, strategically placed tweeters, and a subwoofer or two, you can replace a mind-numbing chorus of wind and road noise with a stimulating symphony or a soothing melody. And if you're in the market for a new car with a topnotch autosound system, you might not have to venture much farther than the local car dealership. These days, automakers are as attuned to the advantages of bi-amplification and digital signal processing as they are to dual overhead cams and anti-lock brakes. While there is still plenty of opportunity for customizing a sound system in the car stereo aftermarket, a premium built-in system — often developed by the automaker in conjunction with a big-name audio company — is just the ticket for the many motorists who want first-rate audio performance without the hassles of installing a system.

Built-in sound systems have advanced significantly since AM/FM radios became standard equipment in most vehicles. In the 1996 model year, for example, in-dash dual-format CD/cassette players are standard in at least six vehicles, including the Buick Riviera and Volvo's Platinum Lim-

ited Edition, and an in-dash CD player is standard in the Nissan Pathfinder. As options, dual-format head units are now available in twelve Chrysler vehicles, the Saturn, the Pontiac Grand Am, and all other Volvos. What's more, CD changers have moved out of the trunk and into the passenger compartments of vehicles produced by Chrysler, Ford, Lexus, and

Toyota. And Cadillac is offering its first digital signal processing option, joining Ford in this niche.

Some built-in features aren't even available at aftermarket car stereo shops. One example is a speed-compensated volume control that automatically raises the level as you go faster (and noise becomes more intrusive). It's now available in all Audi cars, all Mercedes-Benz models, and the Chevy Cavalier and Astro and Safari vans, bringing the number of Chevrolets with the feature to twelve. For the convenience-minded, more vehicles

are rolling into showrooms with steering-wheel-mounted audio controls, a feature now offered in the Jeep Grand Cherokee, Buick Skylark, and all Cadillacs. You'll find these and plenty more new-car audio nuggets in the following pages. All power ratings are continuous unless otherwise noted, and prices are given if they were known at press time.

CARMAKERS HIT THE ROAD WITH A ROSTER OF SUPERCHARGED AUDIO FEATURES

AUDI

The A4 sedan, successor to the Audi 90, comes with an optional \$640 factory-installed Bose system that includes an AM/FM/cassette deck with controls for an optional six-disc CD changer. The trunk-mounted changer is installed by the dealer for an additional \$620 (includes \$25 for installation hardware). The heart of the system is a trunk-mounted 100-watt amplifier/parametric-equalizer module that feeds eight speakers. Each front door has a 2-inch tweeter up top and a companion 4½-inch driver below, and the rear doors each have a 3½-inch driver. Frequencies below 300 Hz are handled by a pair of 6½-inch woofers in the rear deck.

For the first time, all Audis offer automatic speed-dependent volume con-

trol and an RDS (Radio Data System) tuner, which displays the call letters of FM stations transmitting an RDS sub-carrier signal, searches for RDS stations by music format, and receives special traffic and weather alerts. Also for the first time, a changer-controlling cassette deck is standard in all Audis; it had been available only with Bose systems, forcing many Audi buyers to settle for FM-modulated changers installed by the car dealer.

BUICK

A dual-format head unit is the centerpiece of the Buick Riviera's standard Concert Sound system, which includes a 5¼-inch coaxial speaker in each door and a pair of 6 x 9-inch speakers in the rear deck, all powered by the head unit's internal



The Eagle Vision sports sedan now offers a CD/cassette head unit as part of a factory-installed Infinity option.





The Bose system available in the Audi A4 sedan features an RDS tuner and a cassette deck that controls an optional six-disc CD changer.

Audio controls are mounted in the steering wheel of the Cadillac Seville Touring Sedan, which is available with an optional Delco/Bose system featuring DSP.

amplifier. A ten-disc CD changer with a wired remote control is optional, and steering-wheel-mounted audio controls are standard.

The Skylark gets steering-wheel controls and a dual-format head unit for the first time. Both are factory-installed options costing \$125 and \$420, respectively. A twelve-disc dealer-installed changer, for about \$490, can be linked to either a \$320 CD receiver or a \$220 cassette receiver.

CADILLAC

For the first time, GM's Cadillac division is offering a digital signal processor (DSP) in all models except the Fleetwood as part of the optional Delco/Bose system or the Active Audio System. The latter system uses only active crossovers to divide the frequency spectrum among its eleven speakers. The processor has two DSP sound-field modes — one simulates the ambience of an intimate listening environment, the other a large auditorium — as well as a digital Focus control that's said to optimize imaging for the driver (but not for individual passengers) and a Talk setting to enhance vocal clarity.

An Active Audio System with DSP is a \$1,064 factory-installed option in the DeVille and a \$790 option in the DeVille Concours. Both include a trunk-mounted twelve-disc CD changer, a changer-controlling cassette deck, and a 160-watt amplifier behind the rear seat. The speaker complement includes a 3/4-inch tweeter and a 5 1/4-inch woofer pair in each of the four doors, a center-channel speaker in the top of the dash, and two 6 x 9-inch rear-deck subwoofers rated to operate from 20 to 80 Hz.

DSP is also part of a \$1,513 factory-installed Delco/Bose option in the Seville, Seville Touring Sedan, Eldorado, and Eldorado Touring Coupe. The system includes a twelve-disc changer, a changer-controlling cassette

deck, and four speakers, each tucked into an enclosure containing a 50-watt amplifier and DSP circuitry.

CHRYSLER/DODGE/PLYMOUTH

Chrysler's first dual-format head unit — a "DIN-and-a-half-size" model that's about 3 inches high (standard DIN heads are about 2 inches high) — is available as a factory-installed option in nine vehicles. (It's also available in three vehicles from Chrysler's Jeep/Eagle division, covered on page 98.) The CD/cassette head unit has been offered in the 1996 Dodge Caravan, Chrysler Town and Country, and Plymouth Voyager minivans introduced last spring and is now also available in Dodge's sporty Avenger and Intrepid sedan and in Chrysler's LHS, luxury New Yorker, Sebring sports coupe, and Sebring JXi convertible. In the 1995 model year, format options in each of these vehicles, except for the Sebrings, were limited to an in-dash cassette receiver or CD receiver. A trunk-mounted six-disc changer was available only in the Sebring. In the 1996 JXi the changer moves out of the trunk and into the console as a factory-installed option. The console changer is also an option in the new Chrysler Cirrus and Dodge Stratus.

In most cases, the dual-format heads and console changers are part of premium sound systems designed in conjunction with Infinity. The JXi's Infinity option includes a 150-watt component amplifier, a pair of 2 1/2-inch tweeters in the instrument panel, two 6 1/2-inch woofers in the front doors, and two 6 x 9-inch coaxials in back.

A changer-controlling cassette deck is a new option in four vehicles: the Chrysler Concorde LX, Dodge Ram van, and Dodge Dakota and Ram pickups. Format options in these models were previously limited to either a cassette receiver or CD receiver.



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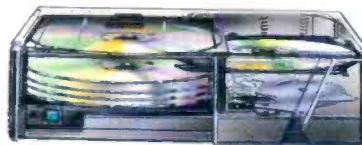
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CIRCLE NO. 3 ON READER SERVICE CARD

FORD/MERCURY

Ford is trumpeting a radical dash redesign whose centerpiece is an oval-shaped panel with integrated audio and temperature controls. Other highlights include an optional passenger-compartment six-disc changer, the availability of changer-



An oval-shaped panel in the Ford Taurus integrates temperature and audio controls, the latter linked to a tuner/amplifier mounted in the trunk.

controlling cassette decks in fourteen vehicle lines (compared to last year's eight), and the return of a Ford/JBL option to the Mercury Sable.

Ford made a lot of noise in the 1994 model year when it became the first automaker to offer a MiniDisc option. And although the option continues, it's available in only three models (for \$681): the Ford Mustang and the Ford Contour and Mercury Mystique four-door sedans. The Ford Taurus, Mercury Sable, and Mercury Villager minivan lose the option because the DIN-size player doesn't fit in their restyled dashes.

Dashboards in the Taurus and Sable boast the new oval-shaped integrated control panel; a digital databus system links the panel's audio controls to a tuner/amplifier mounted in the trunk above the driver-side wheel well. The oval control panel will also appear in the new Ford Escort and Mercury Tracer due out this spring, but in those vehicles the tuner/amplifier will be positioned directly behind the panel instead of in the trunk. Factory-installed options in the Taurus and Sable (except base models) include a changer-controlling cassette deck and a CD changer, both of which are also available in the Escort and Tracer as part of a premium system. Previously, the only multidisc option in those four vehicles was a dealer-installed FM-modulated changer.

In the Taurus LX and Sable LS wagons, the changer-controlling cassette deck is part of a factory-installed Premium Sound System option that was tentatively priced at \$315. (It's available only if you purchase electronic temperature controls for another \$175.) The factory-installed six-disc trunk-mounted changer option adds another \$595. The system includes an 80-watt amplifier, two 5½ x 7½-inch woofers in the bottom of the front doors, a 2-inch tweeter in each sail panel, and two 5½ x 7½-inch drivers in the rear quarter trim.

The changer-controlling cassette deck is also part of a \$500 Ford/JBL option in the Taurus LX and SHO and Sable LS sedans; the changer option is \$595. Its tuner/amp module, rated to deliver about 15 watts into each of four channels, incorporates parametric equalization and feeds a 2¾-inch tweeter in each sail panel, a 5½ x 7½-inch woofer in the lower portion of each front door, and three rear-deck speakers: a powered 6 x 9-inch subwoofer flanked by a pair of 5½ x 7½-inch drivers. The sub amp is rated to deliver 32 watts.

Changer-controlling cassette decks are also offered for the first time in the Mercury Villager minivan and F-Series trucks. In the Villager, the companion six-disc changer goes in a molded bin below the dash to the right of the driver (passenger-compartment changers were introduced in the Lincoln Continental and Ford Explorer last year). The setup is part of a factory-installed "mid-level" audio system tentatively priced at \$680 and a high-level system tentatively priced at \$865. Prices are lower when the systems are purchased in conjunction with preferred equipment packages.

HONDA/ACURA

Unlike most of the dual-format head units offered by other automakers, Acura's first model has controls for an optional dealer-installed CD changer (\$700 including installation accessories). The CD/cassette head is standard in all models in the new Acura TL Series, which replaces the Vigor. Also standard are eight speakers, powered by the head unit's internal 80-watt (peak) amplifier. The speakers include two dash-top tweeters, companion 6½-inch woofers in the front doors, and two 6 x 9 drivers in the rear deck. As in the Vigor, a pair of midrange speakers are mount-

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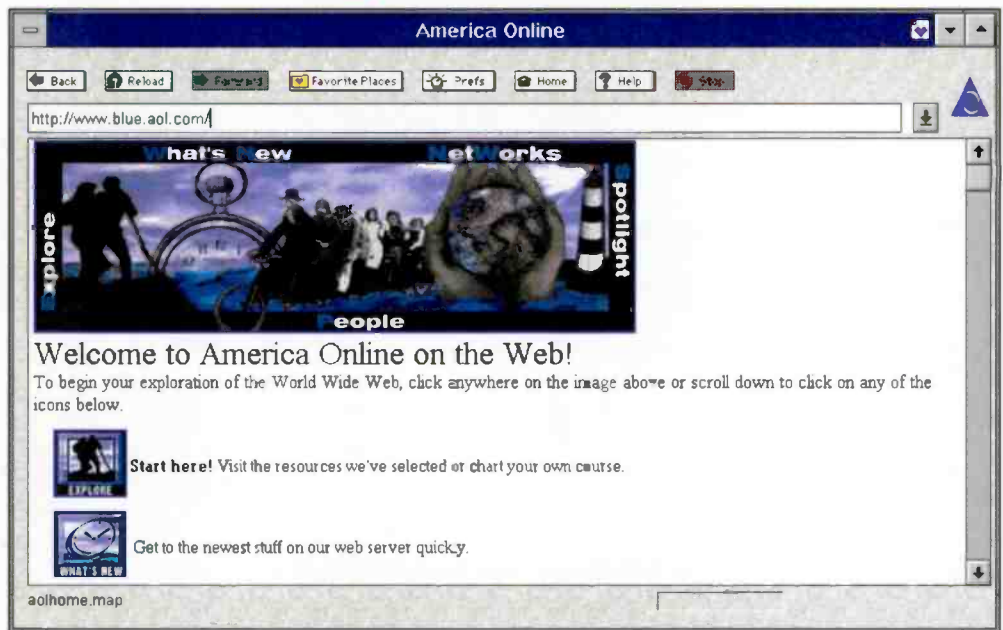
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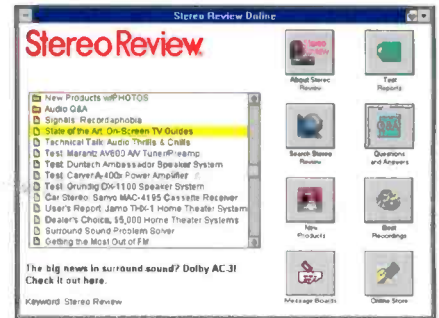
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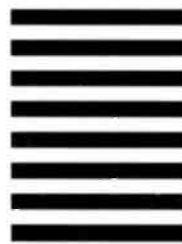
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ed on the ceiling near the overhead map lights. Though barely audible, they are designed to help elevate the sound stage and improve imaging.

Honda hasn't adopted dual-format heads, but it still offers optional changer-controlling cassette decks in all models but the Passport.

JEEP/EAGLE

A DIN-and-a-half-size dual-format head is available as a dealer-installed option in the Jeep Grand Cherokee Limited and Laredo models. The CD/cassette head is also available in both vehicles as part of an optional factory-installed Infinity Gold system, which features a 120-watt amplifier and eight speakers. On the Eagle side, the head is also new to the Vision ESi and TSi sports sedans and to the sporty two-door Eagle Talon ESi, TSi, and TSi all-wheel drives. In these vehicles, it's part of a factory-installed Infinity option.

In the Cherokee Limited, Jeep has cleverly linked the radio's AM/FM presets, the outside mirrors, and the motorized driver's seat to the standard remote-controlled keyless-entry system. Depending on which of the two buttons on the keychain remote are pressed, the mirror and seat positions and radio presets automatically switch to a driver's favorite settings. The Limited is also equipped with steering-wheel audio controls, but in an unusual twist they're located on the *back side* of the steering-wheel hub — although well within reach of the driver's fingertips. The feature is standard.

MAZDA

In the luxury Mazda Millenia line, the flagship Millenia S gets a dual-format head as standard equipment, and this year a Bose system is standard rather than optional. The double-DIN-size CD/cassette head (about 4



inches high) can control an optional six-disc changer that the dealer will install for \$500 to \$600. In another change for the new model year, most Mazdas now come with standard or optional changer-controlling cassette heads, replacing the bulky DIN-size changer controllers and wired remotes offered in the 1995 model year.

In the two-seat Miata roadster, a changer-controlling cassette is part of an optional Mazda Premium Sound System that sports a 1-inch tweeter mounted high in each door and a companion 6-inch woofer down below, all powered by the head's internal 4 x 25-watt (peak) amplifier. A trunk-mounted six-disc changer costs \$500 to \$700.

MERCEDES

The Mercedes E-Class cars, completely redesigned for the 1996 model year, get their first Bose audio system, which is optional in the E 320 and E 300 diesel and standard in the flagship E 420 V8 (scheduled for introduction early next year). With this development, Bose systems are now available in all Mercedes models. As an option, the system's estimated price is between \$600 and \$700. Highlights include a 210-watt amplifier/parametric-equalizer module in the trunk and a total of eight speakers: 2-inch tweeters in the sail panels, 6½-inch woofers in the front doors, 3½-inch drivers in the rear doors, and a pair of 6½-inch woofers in the rear deck. The system's cassette deck has controls for an optional six-disc CD changer, which the dealer installs in the trunk.



Jeep offers this optional dual-format head unit for its Grand Cherokee Limited; audio controls on the back of the steering-wheel hub are standard.



The Bose system in the Mazda Millenia can control an optional six-disc CD changer.



Delco's CD/cassette head and twelve-disc CD changer are dealer- or factory-installed options in several new cars, among them the Buick Skylark and the Oldsmobile Achieva.

The Bose system available in Mercedes E-Class cars includes an amp/parametric-EQ module and a complement of eight speakers.



MITSUBISHI

Mitsubishi's first dual-format head unit is standard in the flagship Montero SR sport/utility vehicle and in a pair of sporty Eclipse turbos, the GS-T and the all-wheel-drive GSX. The double-DIN-size unit, not available in other Eclipse and Montero models, can control as many as four ten-disc changers, which are available as port-installed options. In the Eclipse models, the head is part of a standard Infinity system that includes parametric equalization and a 210-watt (peak) component amplifier, which feeds a pair of 2½-inch dash-top tweeters, two door-mounted 6½-inch woofers, and a pair of 6 x 9-inch coaxials in the rear side panels. The Montero SR's standard system is outfitted with a 6½-inch woofer in each front door, two 4-inch midrange/tweeters in the instrument panel, and a 6 x 9-inch driver in each rear side panel, all powered by the head unit's internal 4 x 25-watt (peak) amplifier.

NISSAN/INFINITI

When the 1996 Nissan Pathfinder rolls into showrooms in January, its standard equipment will include a CD receiver, which can be mated with an optional dealer-installed cassette deck. The 1996 Infiniti I30 luxury sedan, a model introduced last May, features a standard 200-watt Bose system with a 1-inch

tweeter in each A-pillar and a 6½-inch woofer in each front door. The door woofers and same-size rear-deck woofers have enclosures that contain a 50-watt amp and parametric equalizer.

OLDSMOBILE

The Achieva becomes the sixth of nine Oldsmobile lines available with a double-DIN-size dual-format head. It's part of a \$260 factory-installed option that includes six speakers, all powered by the unit's internal amplifier. Component woofers and tweeters are used to create the front soundstage. A dealer-installed twelve-disc changer is also available, but only when you order an optional factory-installed cassette deck that has the necessary changer controls (instead of the dual-format head).

PONTIAC

Audio controls mounted in the steering wheel are standard in all Pontiacs except the Grand Am, where they are available as a \$125 option. The Grand Am is the first Pontiac to offer both cassette and CD playback capability in the dash. A DIN-size CD receiver and companion cassette player are part of an optional factory-installed system that has six speakers, including a pair of sail-panel tweeters. The cost: \$405 to \$600, depending on the other options purchased. A twelve-disc changer is also available as a dealer-installed option.

SAAB

Ten-speaker Harman Kardon system, which Saab introduced last year, is back as standard equipment in the 9000CS four-door hatchback, step-up 9000CSE, and slick 9000 Aero. Highlights include a 6 x 25-watt component amplifier, changer-controlling cassette deck, parametric equalization, and an optional trunk-mounted six-disc changer, which is installed by the dealer.



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Factory-installed options in the Lexus LS400 include a six-CD changer (mounted behind a door above the glovebox) and a Nakamichi head unit with custom EQ.

SATURN

A dealer-installed CD-changer option is available for the first time in Saturn sedans and coupes. It's a twelve-disc model that is mounted in the trunk and controlled by an optional factory- or dealer-installed cassette head unit. The head's \$365 price tag includes two 6-inch coaxial speakers up front and two speakers for the rear deck.

SUZUKI

Suzuki's first CD changer, a six-disc model, is a port-installed option on two sport/utility vehicles, the two-seat X-90 and Sidekick Sport. In the Esteem GLX subcompact and Sidekick, the changer is a dealer-installed option. All four vehicles come with a changer-controlling cassette head unit and four speakers as standard equipment.

TOYOTA/LEXUS

The first in-dash three-disc changer to be offered by an automaker was introduced in the 1995 model year by Toyota, and it's back in all 1996 Toyota models as a dealer- or port-installed option. The price wasn't available at press time, but last year the DIN-size head sold for \$665 as a port-installed option. Toyota and Lexus are carrying over premium sound packages offered in the 1995 models, including a bi-amplified Lexus/Nakamichi system that's a factory-installed



Toyota's in-dash three-disc CD changer is available as an option in all of the automaker's 1996 cars.

option in the flagship LS400 sedan. Both the Nakamichi system and the car's standard Pioneer-made premium system can be supplemented with an optional dash-mounted six-disc changer that's hidden behind a door above the glovebox. It's controlled from the system's cassette player. Key Nakamichi features include a 280-watt (peak) amplifier and custom equalization.

The first Lexus utility vehicle, the LX450, rolls into dealer lots early next year with a six-disc changer mounted in the passenger compartment.

VOLKSWAGEN

Bose and Volkswagen collaborate for the first time with the introduction of a factory-installed Bose-system option in the Jetta GLS and a standard Bose system in the top-line Jetta GLX. The Jetta, described as a "high-line" compact, is the only car in its class to offer Bose audio, according to Volkswagen. As an option that is expected to cost \$300 to \$400, the 100-watt system features a changer-controlling cassette deck, a trunk-mounted amplifier/EQ module, and four 1¼-inch dome tweeters mounted in the instrument panel in an unusual configuration that's said to provide more accurate imaging for front-seat passengers: On each side of the instrument panel, one tweeter fires toward the near seat while a companion tweeter crossfires toward the far seat. The system also features a 6½-inch woofer in the lower part of each front door and a two-way component speaker set in the rear deck. A trunk-mounted six-disc changer is available as a \$495 port-installed option; as a dealer-installed option, the price varies.

VOLVO

Volvo's first dual-format head unit, the SC815, is a double-DIN factory-installed option in all models except the Platinum Limited Edition, where it's standard. The unit controls an optional dealer-installed six-disc trunk changer.

WHEN YOU GO SHOPPING for that new 1996 car, keep in mind that all of the audio options from a given automaker might not be available for audition at some dealerships — it all depends on what was ordered from the factory. If that's the case, try another dealer. Test driving new cars never sounded so good. □

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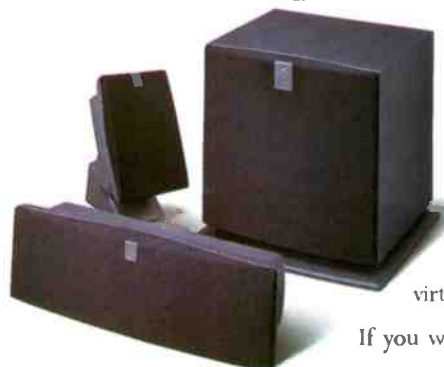


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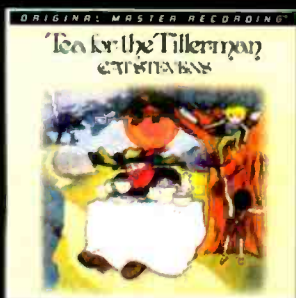
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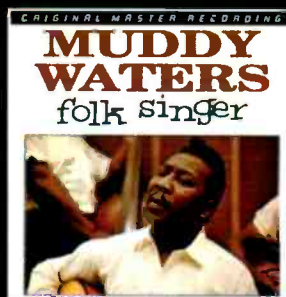


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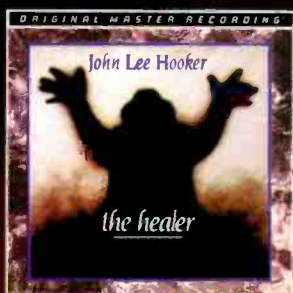


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BEST OF THE MONTH REVIEWS

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Paul Weller: Goodbye to All That

Paul Weller is not quite a household name in America, but he is a hero in his British homeland from his stints as founder and leader of the Jam (punk's answer to Mod culture and the Who) and Style Council (stylistic chameleons who couched political commentary in soulful, percolating grooves). If you haven't discovered Weller yet, then "Stanley Road," his third solo album, is a good place to start.

Not surprisingly, given his previous work, Weller goes for a sound that takes a lot of cues from the middle to late Sixties. His music is crafted, not flashy, an R&B core with melodic embellishments and psychedelic filigrees — not unlike the synthesis of soul and psychedelia realized by Traffic in their finest moments. *The Changingman* opens the album and sets the tone. As Weller breathes new life into a familiar set of changes that invoke some of the darkling constructions of the early Move, he lays out a central theme, forsaking the brash absolutes of youth for a more mature outlook: "The more I see, the more I know / The more I know, the less I understand."

As a musician, Weller is a terrific rhythm guitarist. Like Pete Townshend with the Who, he anchors songs with his sharp, choppy chords, only rarely venturing out to solo for a few bars. There are no lead instruments in his band. Because all the parts are supportive, and because Weller doesn't waste lines in his to-the-point lyrics, his songs are generally tightly constructed vehicles with a lot of horses under the hood — powerful because he knows how to create tension by holding power in reserve. Some of the young-blood alternative bands that tend to fly off in ten directions at once would do well to school themselves on Weller's expertly focused songwriting.

The most musically compelling song here is the title track, a study in propulsive rhythms and modulating keys whose surging momentum specifically calls to mind the kinetic energy of the late Sixties, culturally no less than musically. The track that follows, *Broken Stones*, is exemplary of Weller's "less is more" approach, a taut workout reminiscent of the Muscle Shoals sound. Then there's a cov-



er of Dr. John's voodoo-revenge anthem *I Walk on Gilded Splinters*, an intense song made even more so by a straight-ahead, no-nonsense arrangement.

"Stanley Road" is a most satisfying listen — solid, stick-to-your-ribs stuff by a guy with a heart full of soul. Get it.

Parke Puterbaugh

PAUL WELLER *Stanley Road*

The Changingman; Porcelain Gods; I Walk on Gilded Splinters; You Do Something to Me; Woodcutter's Son; Time Passes...; Stanley Road; Broken Stones; Out of the Sinking; Pink on White Walls; Whirlpool's End; Wings of Speed GO! DISC/LONDON 828 619 (52 min)

Powerful Shostakovich Quartets

Russia's St. Petersburg String Quartet, celebrating its tenth anniversary this year, has brought Sony's mid-price St. Petersburg Classics series to its highest point so far with a generously filled disc comprising the Third, Fifth, and Seventh Quartets of Shostakovich. These are powerful works, and truly beautiful ones, written in a turbulent period (1946-1960) but characterized as much by lyricism as by urgency. The Third Quartet, composed just after the Ninth Symphony, recalls some

of that work's genial motifs but also illuminates some of its less apparent darker qualities. The Fifth seems a more internalized extension of the contemporaneous Tenth Symphony. The Seventh, the shortest of Shostakovich's fifteen quartets, and the most personal, is a lambent requiem for his first wife.

The new Sony disc brings to mind the unforgettable Fitzwilliam Quartet recordings of the entire cycle (reissued on CD in England but not in the U.S.). Like the Fitzwilliam's, the St. Petersburg perfor-



YADIA JECROVSKI/SONY

St. Petersburg String Quartet: commitment and assurance

mances are characterized by great lucidity, fine ensemble, and passionate insight — a sense of being uncontrivedly deep inside the music. I get the feeling that these young Russians understand every unspoken thought behind every half-concealed gesture, but they address the music purely, without gratuitous underscoring of the subtexts. The music is quite dramatic enough, and the St. Petersburgers bring to bear not only unreserved commitment but also technical assurance on the very highest level, which enables them to concentrate fully and confidently on interpretive ends. The effortless brilliance of the prominent pizzicato episodes in all three works, for example, really makes the listener sit up — not just because of the brilliant playing but for the way it registers Shostakovich's expressive points.

The well-balanced recording suits the music and the performances ideally. A very evident low-bass rumble intrudes intermittently in the meditative middle movement of Quartet No. 5, but it does not significantly reduce the irresistible appeal of this altogether exceptional release. Sony has created for itself an obligation to follow up with the rest of the cycle.

Richard Freed

SHOSTAKOVICH:
String Quartets Nos. 3, 5, and 7
St. Petersburg String Quartet
SONY 66592 (74 min)

Jennifer Trynin Moves into the Majors

Trend alert: After the success of Juliana Hatfield and Letters to Cleo, the powers that be seem to have decided that Boston is a hotbed of smart, poppish, female singer/songwriters. And the powers that be at Warner Bros. have made a smart move themselves by snapping up Jennifer Trynin's formerly indie-only "Cockamamie," which would still be one of the year's brighter rock debuts even if Trynin didn't have a trend to ride in on.

There's a lot to like about "Cockamamie," starting with the sarcastic but sensitive tone of Trynin's vocals; a precious waif she ain't. She is her own lead guitarist, fronting a tight and feisty trio, and she apparently loves the nasty sound a guitar makes when you hold a wah-wah pedal in mid-wah. Her songs are all "pop" in that they're catchy and well made, but there's a real punk snarl in

them, too; the 2-minute *All This Could Be Yours*, for example, sounds positively X-ish. Trynin's lyrics show a winningly world-weary view that brings to mind Aimee Mann (who guests here), particularly in the unvarnished sentiment *Too Bad You're Such a Loser*. Elsewhere, Trynin chronicles a lousy relationship about to happen (*Everything Is Different*

Now) and, in *Knock Me Down*, confronts a sadistic partner with a withering "Gimme a break." And just when you've got her pegged as a popster with an attitude, she closes the album with the truly eerie, beyond-the-grave love song *Do It Alone*.

Though a tad too polished to fit into the current punk revival, Trynin proves that punk's energy can sound even better when you add chops and songcraft. Call her a riot grrrrownup. *Brett Milano*

Trynin: a waif she ain't



DANNY CLINCH/WARNER BROS.

JENNIFER TRYNIN
Cockamamie

Happier; Better Than Nothing; Everything Is Different Now; One Year Down; Snow; All This Could Be Yours; Too Bad You're Such a Loser; Knock Me Down; If I Had Anything to Say (Don't You Think I Would Have Said It All?); Beg; Do It Alone
WARNER BROS. 45931 (41 min)

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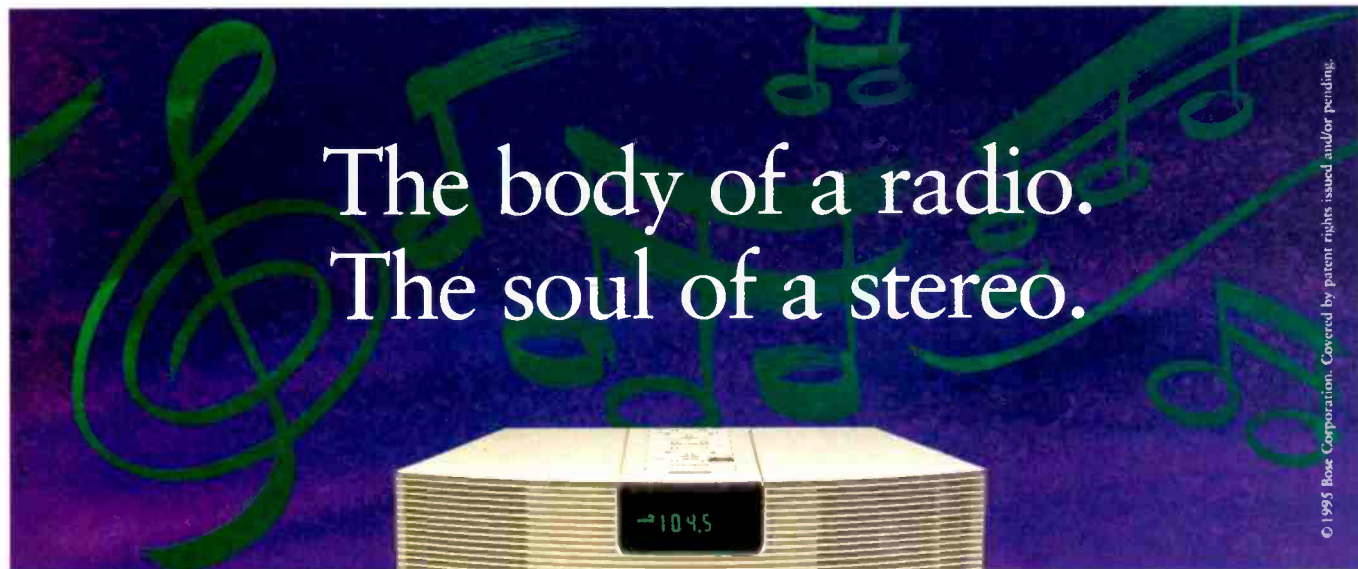


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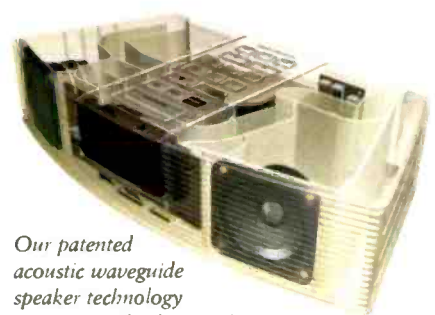
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A Grand "Symphony of a Thousand"

Is Claudio Abbado's new Deutsche Grammophon recording of Gustav Mahler's Eighth Symphony, the "Symphony of a Thousand," its long-awaited definitive recorded realization? A performance of this enormous work — which expresses a cosmic vision of the "masculine" creative intellect reconciled with the "feminine" creative powers of love — resembles a military operation as much as a musical one. The general, the man with the baton, must deploy the vast forces at his command to provide a convincing sonic, intellectual, and emotional experience.

I listened three times to this latest attempt, on both speakers and headphones, and for me it ranks with Georg Solti's 1972 London recording and Klaus Tennstedt's 1986 one on Angel as among the most successful of all. Unlike those versions, Abbado's was recorded live — at a February 1994 concert in Berlin with the Berlin Philharmonic, three choruses, and soloists — and there are the inevitable imperfections, but the sense of occasion lends it a special ambience.

In most of the recordings I have heard, the sonic density of the climactic episodes of Part I — a fiercely driven yet intricate polyphonic setting of the medieval hymn "Veni creator spiritus" ("Come, creator spirit") — is pretty much of a muddle, but thanks to the impressive lateral distribution of the two main choruses in the DG recording, the music comes through with remarkable clarity and impact. The whole movement has both fire and a sense of inevitability. The listener is swept away, not swamped.

Although the vocal soloists have brief but prominent roles in Part I, it is in the nearly hour-long Part II — which sets the redemption scene from the end of Goethe's *Faust* — that they must shine. All eight singers here are stars: sopranos Cheryl Studer, Sylvia McNair, and Andrea Rost, contraltos Anne Sofie von Otter and Rosemarie Lang, tenor Peter Seiffert, baritone Bryn Terfel, and bass Jan-Hendrik Rootering. None to my ears are less than good, and two are really superior — Seiffert in the cruelly taxing role of Doctor Marianus and Rost in the infinitely lovely and telling two lines allotted to the Mater Gloriosa. Other high points include the delightful episodes for the Blessed Boys and Younger Angels and the trio with McNair, Von Otter, and Lang immediately preceding Gretchen's plea to the Virgin Mary for the redemption of Faust's soul. The work of the Berlin Philharmonic is superlative in every department. The brass section, both solo and in ensemble, sings and blazes as the occasion demands. In short, this whole performance got to me.

Any dyed-in-the-wool Mahlerite will, of course, want several versions of this work, but at present I would happily settle for Abbado's. *David Hall*

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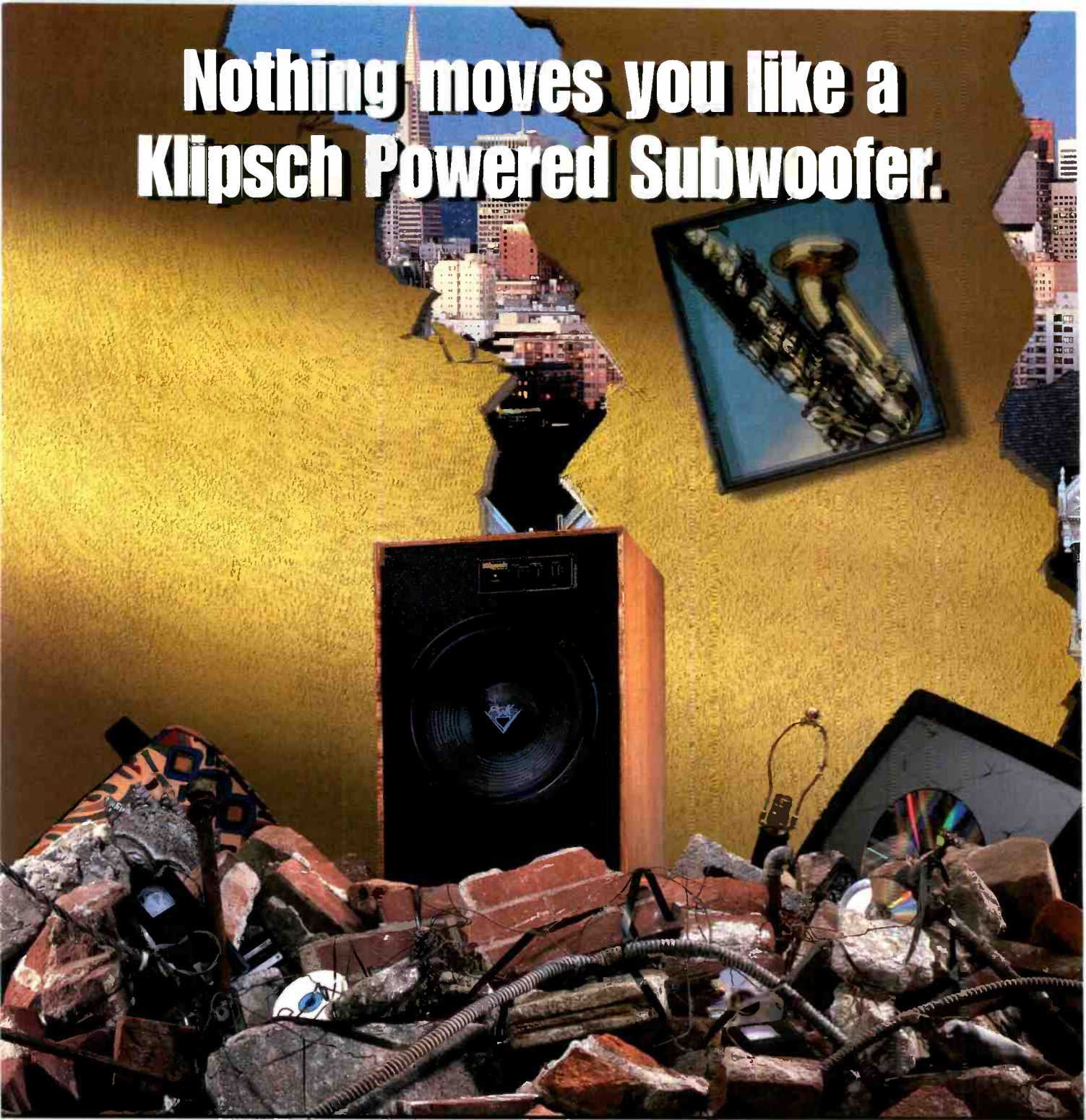
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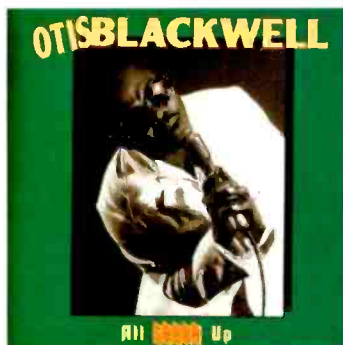
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OTIS BLACKWELL
All Shook Up
SHANACHIE 9204 (47 min)
Performance: Fascinating
Recording: Good

There's both historical and freak appeal to "All Shook Up," Shanachie's reissue of a little-heard 1977 album in which one of rock's seminal writers interprets his own songs, made famous by other artists (*Fever*, *Great Balls of Fire*, *Searchin'*, *Don't Be Cruel*, *Hey Little Girl*, *Handy Man*, the title track). Mostly, the album proves what insiders at Elvis Presley's recording sessions have long maintained — that the King basically aped the demos brought to him. Otis Blackwell often gave "out there" performances, and you can hear some of that in *Great Balls of Fire* as well as in *Back Trail*, where he positively devolves into lunacy. As another rock legend once summed up: most peculiar. Mama. *A.N.*

JUNIOR BROWN
Junior High
MCA/CURB 77783 (44 min)
Performance: Time-warp wonderful
Recording: Good

For the uninitiated, Junior Brown is a 43-year-old, Indiana-bred throwback to Ernest Tubb and his era of no-nonsense honky-tonk. But this is no ordinary slick retro-hick with a hat and a six-ball baritone; Brown is a genuine cult idol in the making. He plays some weird-fangled instrument he calls the guit-steel, a double-necked guitar and steel guitar joined at the body, and he picks the hell out of it in dead-on weepy Forties and Fifties style. Since Brown had the thing made in 1985, he's been tearing up the road. His debut album, "12 Shades of Brown," was released in 1989 and then reissued by Curb last year as Brown com-

pleted his second album, the critically acclaimed "Guit with It."

In "Junior High" (a very funny title, actually, since Junior doesn't look like he even made it to middle school, and I'll bet he's never been high on anything but life), Brown reprises the best cut from "Guit with It," a wacky little ditty called *My Wife Thinks You're Dead*. The new album is filled with such oddball offerings, from *Highway Patrol* (sort of the autobiographical boasting of Broderick Crawford, replete with "si-reen") to *Lovely Hula Hands*, a campy steel-guitar paean to a sensuous young thing who, as Elvis Presley once put it, "really moves her grass around." There's a lot more to recommend, especially the slow shuffle *That's Easy for You to Say* (eat your heart out, Ray Price) and a sparkling rendition of the instrumental *Sugarfoot Rag*.

Some day, we may find out that Junior Brown is actually an insurance salesman with a box full of props, à la Alice Cooper in the Seventies. If so, I, for one, will be brokenhearted. *A.N.*

HELEN DARLING
DECCA 11259 (37 min)
Performance: All over the place
Recording: Very good

Helen Darling is the latest former jingle singer to hit Nashville, and while her press material proudly points up her Cajun-country background, this album of wholly inoffensive country-pop makes her seem from nowhere except Middle-America Shopping Mall, U.S.A. Her supple soprano voice displays nothing distinctive, except the advertising-agency directive to sound as generic, or as much like somebody famous, as possible. Darling manages to hit on both cylinders.

Perhaps because one of her two producers is Michael Omartian, responsible for some of Amy Grant's records, Darling takes on the white-bread blandness of a contemporary Christian singer for much of the program, especially in *With Every Twist and Turn*. Then for the last two cuts — the calypso-blues *Next to Love* and the big, gospel-based ballad *Even God Must Get the Blues* — she becomes a Bonnie Raitt clone. Darling is said to be a protégée of Garth Brooks, who lends his likewise generic voice to the latter cut. If this is a glimpse into the future of country music, it's a boring future indeed. *A.N.*

REISSUE OF THE MILLENNIUM

These days Tonio K. is a commercial pop writer (hits for Vanessa Williams, as well as *Nobody Lives Without Love* from *Batman Forever*). But back in 1979, when he made "Life in the Foodchain" (the first of five LP's for various labels), he was twice as angry as Elvis Costello and six times as funny. A prescient mix of metal and punk, the album (Gadfly 208) comes off like Warren Zevon at 78 rpm. And dig this lover's kiss-off from *H-A-T-R-E-D*: "Well I wish I was as mellow / As for instance Jackson Browne / But "Fountain of Sorrow" my ass, @\$%&c(&*&)\$# / I hope you wind up in the ground." Reviewing "Foodchain" the first time around, I wrote, "Ladies and gentlemen, I give you . . . the greatest album ever recorded!" Now that it's finally available on CD, I stand by that opinion. P.O. Box 5231, Burlington, VT 05402; 802-865-2406. *S.S.*



Tonio K.: angry young mensch

JOE ELY
Letter to Laredo
MCA 3420 (52 min)
Performance: Evocative
Recording: Superior

Enlisting the background help of Bruce Springsteen, Raul Malo (of the Mavericks), and longtime pal Jimmie Dale Gilmore, Joe Ely has made an aurally gorgeous



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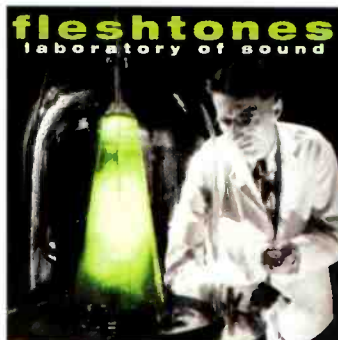
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album set against a South of the Border musical landscape. Rarely has a record throbbled with such instrumental passion — driving percussion, Ponty Bone's soulful (and correctly miked) accordion, and flamenco guitars played by the great Spanish artist Teye, brought up front in intense, lyrical solos. It's as if the musicians were standing in a circle in your living room.

That's the good news. The bad news: In this song cycle about the beautiful losers who populate Ely's border towns and Texas plains, longing for communion with lost lovers and borrowed souls, the songwriting never comes together cohesively to make the album work at full throttle. Ely supplements his own material with that of Tom Russell (a fabulous version of the heart-breaking *Gallo Del Cielo*), Will Sexton, Bruce Gambill, and Butch Hancock (who contributes *She Finally Spoke Spanish to Me*, a disappointing sequel to his classic *She Never Spoke Spanish to Me*). On their own, the songs often vibrate with quite remarkable scenes. But there's no killer story song, no unforgettable rhythm tune — and no real connecting thread either, something that Ely has set us up to expect with his continuity of mood, instrumentation, and players.

In the end, we're left with a breathtaking canvas of lovely images, but one that lacks focus and impact. A shame. *A.N.*



FLESHTONES
Laboratory of Sound
ICHIBAN 24861 (49 min)
Performance: Instant party
Recording: Weird

The **Flestones**, after the Ramones, are the longest-running act to have emerged from the original New York punk/New Wave explosion. Unlike their leather-jacketed colleagues, however, the **Flestones** aren't quite ready to hang up their smelly rock-and-roll sneakers. "Laboratory of Sound" is a testament to why they shouldn't — a loud, funny, kinetic set of Sixties-styled garage rockers without apologies. I'm particularly taken with the exciting and appropriately titled opener, *Let's Go!* (message: get mental), but nearly every song here, particularly the ominous *Nostradamus Jr.*, lives up to its "Nuggets"-era influences, and you have to love a band whose album features a bonus cut (track 69, no less) that's a Hendrix song done as Sixties punk. The only downside to the album is an anemic engineering job by Steve Albini, but doubtless he had some rigorous

alterna-rock theoretical reason for why the sound lacks conspicuous oomph. *S.S.*

JEFF FOXWORTHY
Games Rednecks Play
WARNER BROS. 45856 (51 min)
Performance: Hick shtick
Recording: Good enough

Jeff Foxworthy, the comedian who popularized the phrase "You might be a redneck if . . ." returns with his second live album of cracker wisdom and bull's-eye takes on the Southern mystique. His delivery is often more hilarious than his material, which is mostly one-liners on a theme. Foxworthy has the redneck cadence and run-on words ("in there" is "in'ere") down pat, and with a slight speech impediment that turns his "s" into a kind of geriatric whistle, he can transform fairly pedestrian sketches into memorable stuff — depositing the wrong liquid in the cup at the fertility clinic, for instance, or noticing the lunchroom ladies' 75-metal-hook bras ("and if they blow, somebody's gettin' hurt!").

Still, there's some irony to Foxworthy's presentation: Halfway through, he gripes that Southerners don't get their due as some of the smartest people in the country. Yet in gag after gag (when Atlanta plays host to the Olympics, he expects some good ol' boys will have their shotguns ready for the flying of the doves), Foxworthy perpetuates the Southerner-as-idiot stereotype. If the shoe fits, I guess, wear it backwards. *A.N.*

KRIS KRISTOFFERSON
A Moment of Forever
JUSTICE 2001 (59 min)
Performance: Over the hill
Recording: Good

Kris Kristofferson, who practically revolutionized Nashville with his brand of confessional, literate songwriting in the early Seventies, has had his musical ups and downs through the years, trying to recapture the golden period that produced *Me and Bobby McGee*, *Help Me Make It Through the Night*, and *Why Me, Lord*. For "A Moment of Forever," he enlists the help of producer Don Was, who gave Willie Nelson's career a much-needed shot of vitamin B-12 and who went on to helm noteworthy albums by Waylon Jennings as well as the Highwaymen (Nelson, Jennings, Kristofferson, and Johnny Cash).

But Was can only do so much if the material is substandard, and that's the problem with "A Moment of Forever." Consisting of love songs and political/social commentary, the album tries hard to be profound. But when the title song sounds like something Marlene Dietrich would have performed in *The Blue Angel*, and when *Slouching Toward the Millennium* attempts to link midgets, Waco, Baghdad, and TV coverage of courtroom trials, you know you're in trouble. As a bonus, Kristofferson, who still can't sing worth spit, wins my award for Writer of the Stanza Guaranteed to Produce the Most Guffaws, in a song called *Worth Fighting For*: "When you climb up on a stallion / You are bound to let him / Take you for a ride." which is quickly accompanied by,

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M PEOPLE**Bizarre Fruit**

COLUMBIA 67037 (64 min)

Performance: Uplifting but fun
Recording: Good

The historians of dance music will one day look very closely at the relationship between man and machine. And they will do well to remember that a few women made important contributions, too, usually by singing from the tips of their toes up to

the heavens — or at least to the mirror balls hanging from the rafters.

Among those women who will be scrutinized and accepted for their very human cries of pain, joy, and liberation is Heather Smalls, the voice of M People. In "Bizarre Fruit," as in last year's "Elegant Slumming," Smalls proves she couldn't have been more incorrectly named. The sound that erupts from her throat is deep and throbbing, edged with raw passions or tender mercies. Smalls is larger than life.

Still, there is more to M People than their singer. The lyrics to these tunes may

be dismissable, either for their platitudes or their clunkiness, but the music can be ravishing. While relying heavily on synthesizers for melody and rhythm, the tracks also employ what Graham Parker describes as "basically organic keyboards." Many of the riffs and solos that may have been played on amplified programmed instruments actually sound natural. And the judicious use of such non-electronic gadgets as saxophones and strings, as well as a couple of guitars, helps to lighten the technological accomplishments of the band.

Nothing, however, does as much for "Bizarre Fruit" as Heather Smalls. Hers is the tell-tale heart whose beat matters more than any other. R.G.

SELENA**Dreaming of You**

EMI LATIN 34123 (51 min)

Performance: Slick
Recording: Lush

EMI had planned "Dreaming of You" as Tejano singing star Selena's first crossover album. When it went Top Ten in the wake of her murder, the corporate suits were said to have been surprised. After listening to it, so am I, albeit for different reasons (hey, this is America — death sells). Without meaning to be unkind, the fact is that "Dreaming of You" is hardly the stilled Voice of a Culture. Instead, it's the usual mix of overproduced dance music and ballads. The star herself sings well enough (if without much personality), but that's not the point; the music, divorced from the tragedy that capped it, is forgettable to the max. Note to Talking Heads completists: David Byrne, who sounds as if he's wearing a pith helmet, guests on one track in what may be a misguided attempt to shore up his credibility with the Latin market. S.S.

JANE SIBERRY**Maria**

REPRISE 45915 (69 min)

Performance: Frustrating
Recording: Thin

Want a good example of the difference between eccentric brilliance and sheer self-indulgence? Just compare Jane Siberry's new album, "Maria," to her last one, "When I Was a Boy." The latter was a full-fledged aural seduction, with gorgeous sonic textures, daring lyrics, enticing hints of melody, and a sensual/psychedelic ambience. In contrast, "Maria" is rambling, unfocused, and something of a mess.

What went wrong? For one thing, there are two consecutive songs that quote from that old Paul McCartney standard *Mary Had a Little Lamb*. For another, the textures are flat, relying too heavily on fake-jazz piano and trumpet. Most of all, there's nothing that remotely resembles a tune — a real problem when the average song length is 5½ minutes — and Siberry is now singing in a half-spoken style borrowed from Laurie Anderson, except that it's usually easier to tell what Anderson is talking about. There is one exception: *See the Child* starts out sparse, adds layers of lyric and melodic detail, then draws back again. It's understated and lovely.

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In Siberry's defense, "Maria" might be one of those incredibly deep albums that takes a few dozen listens to absorb. But I don't have the patience to find out. *B.M.*

URGE OVERKILL

Exit the Dragon

GEFFEN 24818 (61 min)

Performance: Yeah!

Recording: Excellent

Imagine Soul Asylum without the truckloads of self-pity. Guided by Voices with a proper recording budget, and Cheap Trick if they were still any good. Throw them all together and you get Urge Overkill's fifth album, which lives up to the Chicago punk/pop outfit's longstanding promise.

Urge's strategy is simple: Pack as many hooks into a song as it can possibly stand, treat the serious lyrics with the same weight as the goofy non sequiturs, add earnest pop vocals, and don't forget to pile on the nifty guitar riffs. Despite having a hit with its *Pulp Fiction* soundtrack version of *Girl, You'll Be a Woman Soon*, the band has neglected to include a Neil Diamond cover this time around, but their own material more than takes up the slack — whether it's a hook-slinging pop number like *Jaywalkin'*, an arena-pounder like the Byrds/Kiss hybrid *Take Me*, a folk-rock diversion like *Somebody Else's Body*, or a surprisingly straight-ahead country ballad, *View of the Rain*. The only track that fails to connect is the long and ominous art-rock finale, *Digital Black/Epilogue*.

The icing on the cake is the production by the Butcher Brothers. They did the last Urge album, "Saturation," but are better known for handling rap acts such as Cypress Hill and Schoolly D. Here, as before, they demonstrate that it makes sense to pair rock bands with rap producers: The proof is in the vivid, cliché-free sound for guitar and drums. *B.M.*

MONTE WARDEN

Here I Am

WATERMELON 1037 (35 min)

Performance: Hey, Buddy!

Recording: Very good

The second solo album from Monte Warden, former leader of the Wagoneers (one of country-rock's more progressive defunct groups), finds him still unduly smitten with the ghost of Buddy Holly. In song after song, Warden seeks to capture Holly's melodic and rhythmic cadences. Much of the time, he comes off as Holly cross-pollinated with Foster and Lloyd, which is not entirely a compliment.

There's a forced synthesis of styles at work sometimes in "Here I Am." The title track shows Warden and his band, the Lonesharks, attempting a Memphis/Muscle Shoals sound, but they're as authentic as the cover band that played your senior prom. In other songs, however, such as the R&B-ish *Wall Around Your Heart* and *Do You Remember* (a sweet ballad of love sustained and cherished), Warden achieves a charming tunefulness. Still, the sum of his two solo outings doesn't equal his Wagoneers work, the dark side of this lightweight, sunny moon. *A.N.*

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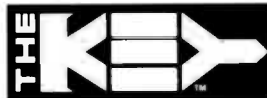


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DALE WATSON

Cheatin' Heart Attack

HIGHTONE 8061 (42 min)

Performance: Bakersfield redux

Recording: Good

In this solid debut, honky-tonk singer/songwriter/guitarist Dale Watson recalls the tradition of hard-edged country music that floated out of California and Texas in the Sixties and Seventies. Backed by his band, Lone Star, and augmented by notable players Jimmy Day on steel guitar and Gene Elders on fiddle, Watson brings a freshness and a raw instrumental feel to commercial country music, as well as a healthy sense of humor. In *Nashville Rush*, he matches a lively tempo with a lament

that the great old stars are being surpassed by youthful, pop-oriented hunks: "Help me, Merle, I'm breaking out in a Nashville rash / I'm too country now for country / Just like Johnny Cash." Elsewhere, he suggests that an old flame ought to be inducted into the Liar's Hall of Fame, apologizes for making "stains on the carpet" during domestic disagreements, and sums up the classic divorce dilemma with "She needs her mama / But Mama don't need Daddy. . . / It's not fair to put her in between." Throughout, Watson and producer Bruce Bromberg trot out thrilling instrumental touches and inject just the right amount of boogie and Texas swing. Pour a longneck, and enjoy. *A.N.*

5 CD's, Riveting VU

"Peel Slowly and See" contains everything you always wanted to hear by the Velvet Underground, even more than an ardent fan with a reasonable life expectancy might find time to digest. In addition to the four original studio albums — "The Velvet Underground & Nico," "White Light/White Heat," the eponymous third album, and the grossly underappreciated "Loaded" — the box set includes a veritable library of rarities.

Of course, those not convinced that every note ever struck by Lou Reed, John Cale, Sterling Morrison, Maureen Tucker, and (later) Doug Yule is indispensable may find some of this a bit much. Even I, a hardcore VU disciple (owner of a mono copy of the first album, with peel-off banana intact), found the first disc in the box somewhat tedious. A 78-minute living-room demo of the band's cornerstone songs, the disc is interesting mainly because it reveals Reed's previously undetected debt to Bob Dylan. Velvets completists will be overjoyed; I lost patience around take twelve of *Wrap Your Troubles in Dreams*.

That quibble noted, the next four CD's of "Peel Slowly and See" are pure, unalloyed brilliance. Each of the original albums appears on a separate disc, surrounded by period outtakes, lost songs, and other archival excavations; among the best of these is *Foggy Notion*, a depraved, uptempo urban blues that ranks as an instant VU classic. Scattered among discs four and five are band ver-

sions of songs that would later turn up on Reed's first three solo albums, such as *Lisa Says*, *I Can't Stand It*, *Satellite of Love*, and *Sad Song*. And the excised "heavenly wine and roses" section is at last restored to the studio version of *Sweet Jane*.

I could go on and on — but special kudos are surely due Bill Levenson, who assembled the box with an

archivist's mentality, and David Fricke, who packs his 25,000-word essay with historical details and fresh, insightful quotes from the principals. Just the sound of the discs is a revelation. Listen to the laser-focused orgy of guitar noise that closes *European Son*, and you'll hear a blueprint for Sonic Youth and their like. Indeed, alternative rock begins with "The Velvet Underground & Nico."

Ahead of their time? The Velvets still are. From the minimalist, improvised fury of *Sister Ray* to the redemptive, unplugged ecstasy of *Beginning to See the Light*, from the coy, streetwise rock blues of *I'm Waiting for the Man* to the anthemic outpouring of a song simply (and definitively) called *Rock and Roll*, it's all here on "Peel Slowly and See" — mandatory listening for anyone who cares about rock and its potential to channel and express the human condition. *Parke Puterbaugh*

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THE VELVET UNDERGROUND

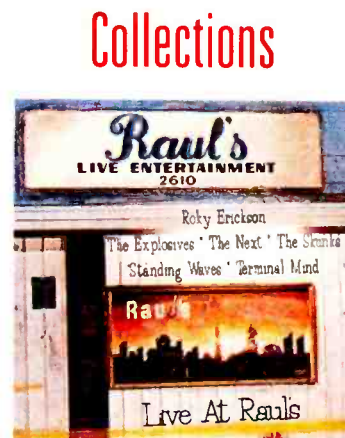
Peel Slowly and See

POLYDOR 52 7887 (five CD's, 382 min)

THE VELVET UNDERGROUND



Andy Warhol



LIVE AT RAUL'S

DEJADISC 3216 (39 min)

Performance: Time capsule

Recording: Not bad

Raul's was a dive of a club that in 1979 was the Austin equivalent of Manhattan's CBGB or Boston's The Rat — i.e., punk central. This live album by the cream of the local talent has been out of print since the initial pressing sold out, and as a result it has taken on the patina of legend. Heard in this remastered version lo these many years later, "Live at Raul's" doesn't amount to much, really — mostly decent second-tier punk and skinny-tie stuff with little originality. Fortunately, two bonus tracks, starring deserved Texas legend Roky Erickson, redeem the package. Backed by a simpatico band, the former Thirteenth Floor Elevator man sings (if that's the word for it) his scary *Don't Shake Me Lucifer* and *Red Temple Prayer* as if his life hung in the balance: these are mesmerizing performances of great rock-and-roll. *S.S.*

TEXANS:

LIVE FROM MOUNTAIN STAGE

BLUE PLATE 304 (51 min)

Performance: Completely satisfying

Recording: Good

Blue Plate's excellent library of performances from *Mountain Stage*, the weekly live radio program, has always been worth a serious listen, but "Texans" is a truly exceptional disc. From blues singer Lou Ann Barton to literate songwriter Guy Clark to country-swing band Asleep at the Wheel, the album amounts to a Texas Who's Who. Sara Hickman mixes folk-pop and country in *Shadowboxing*, Ray Wylie Hubbard paints a sad portrait of one-sided love in *Portales*, Kelly Willis takes a mussed-hair romp through *Whatever Way the Wind Blows*, Billy Joe Shaver (with guitarist son, Eddy) raves through *Georgia on a Fast Train*, and Joe Ely puts a perfect vocal spin on his wry tale of hitchhiking, *I Had My Hopes Up High*. There's an immediacy to these performances, and an atmosphere of spirited fun, that adds excitement to their already throbbing life. Who cares if Jimmie Dale Gilmore sounds like Mr. Haney from *Green Acres*? Anybody who can write such a brutal putdown as "Babe, you're just a wave / You're not the water" is welcome to sit by me anytime. *A.N.*

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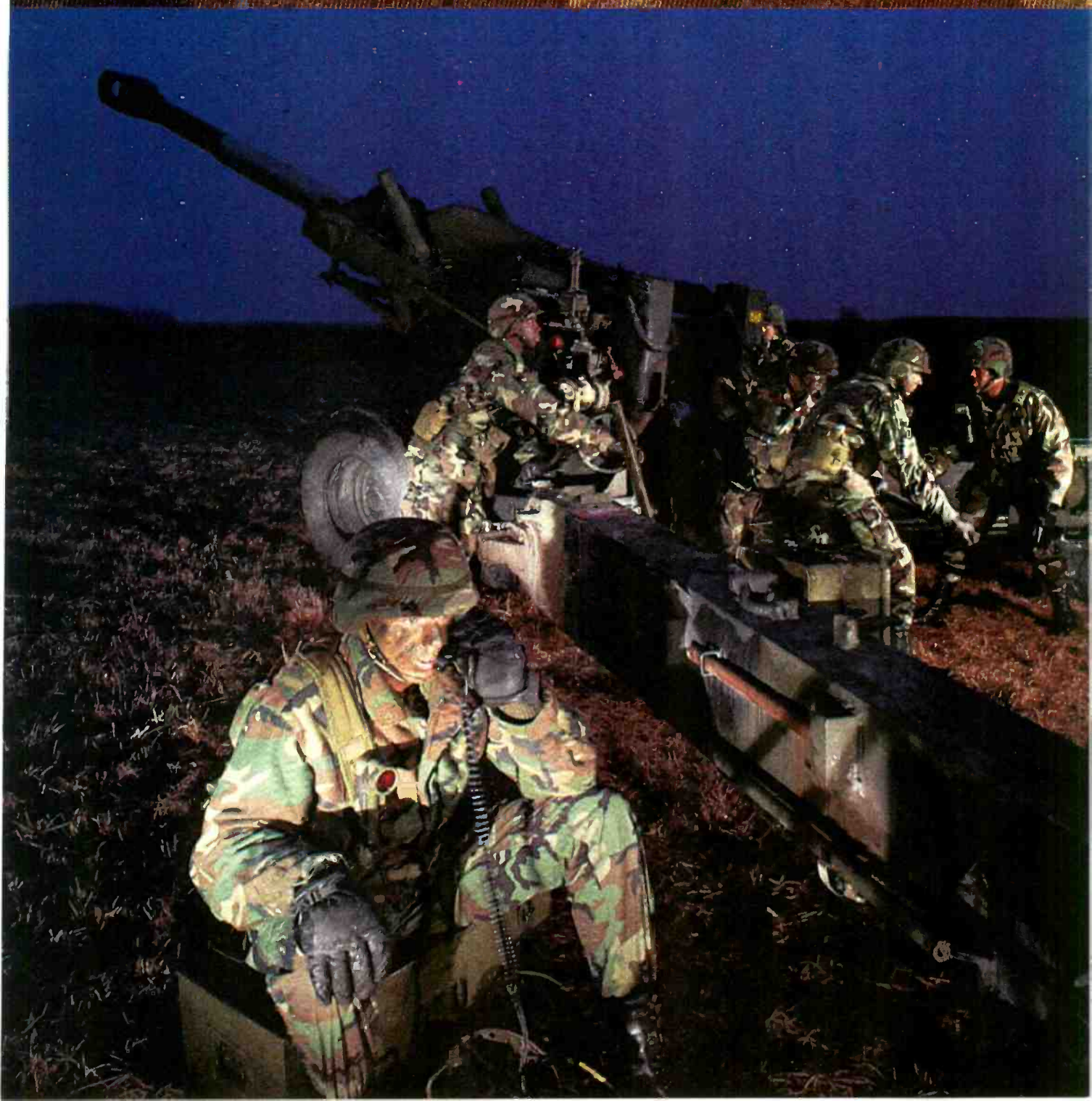
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JAZZ **REVIEWS**

TERENCE BLANCHARD
Romantic Defiance
 COLUMBIA 67042 (52 min)
Performance: Quicksilver
Recording: Excellent

Ten years into his recording career, trumpeter Terence Blanchard is still taking stylistic cues from Miles Davis circa "E.S.P." and Wynton Marsalis circa "Black Codes from the Underground." The similarity is in the Blanchard quintet's coloristic approach to harmony and quicksilver approach to meter. Despite the familiarity of his chosen turf, however, Blanchard emerges as an expressive and distinctive



soloist on "Romantic Defiance," and the variety of moods he's able to conjure while sustaining a medium tempo through the first seven cuts suggests that he has gained from his soundtrack work for Spike Lee and others a savvy that so far hasn't shown up in the soundtracks themselves. These seven tunes fit together like sections of a suite — and far from breaking the spell, the hand-clapping finale, *Morning After Celebration*, appends a most welcome exclamation point. *F.D.*

HENRY COOK
Dimensional Odyssey
 ACCURATE 5012 (63 min)
Performance: Yes, yes, yes
Recording: Swell

The members of Henry Cook's Boston-based quintet may not be household names, but they aren't exactly neophytes either. Cook, who plays flute and saxophone, and drummer Bobby Ward met in trumpeter Billy Skinner's band in the late Eighties. Cecil Brooks's vibrant, often adventurous trumpet style has been heard with Archie Shepp, Marion Brown, and Sun Ra. The pianist is former Parisian Jacques Chancier, and the bassist is Brian McCree, who, like Ward, has a fine reputation among musicians that stretches far beyond Boston. This is in fact a world-class band, a marvelously cohesive group that touches all bases to produce a sound that is strictly its own.

In the aptly named "Dimensional Odyssey," recorded live last year, we hear an

hour of superb interaction. The compositions are by Cook, Ward, and Chancier, except for *Mind's Eye*, a collective improvisation that speaks volumes for the talent of this group. Slip the disc into your CD player and hit the repeat button if you want to treat your ears. *C.A.*

DAVE DOUGLAS
In Our Lifetime
 NEW WORLD/COUNTERCURRENTS
 80471 (72 min)
Performance: Surging
Recording: Exceptional

Roughly Wynton Marsalis's age and no worse than his equal as a technician, Dave Douglas has enlivened recent recordings by John Zorn, Myra Melford, and the group New and Used, among others. The trumpeter's third album as a leader — his best so far and one of this year's most bracing releases — takes its title from an observation on the intricate relationship of art to its own era, made by Walter Benjamin, the author of *Art in the Age of Mechanical Reproduction* and a founder of postmodernist cultural theory. The musical reference point, though, is the largely overlooked legacy of Booker Little, a blazingly inventive trumpeter and composer who died from uremia in 1961 at the age of 23.

Douglas's trumpet solos sting with their lyricism and technical daring, and there are telling contributions by tenor saxophonist and clarinetist Chris Speed, trombonist Josh Roseman, pianist Uri Caine, bassist James Genus, and drummer Joey Baron. In its metrical ambiguity and harmonic compression, this music bears a slight resemblance to that of Wynton and Branford Marsalis during their Miles Davis/Wayne Shorter phase, but it's broader and far more original; my guess is that Douglas's *Three Little Monsters*, for instance, is a scored work, but it unfolds as freely as a piece improvised from scratch. Douglas is a major talent, and this is an important album. *F.D.*

CAROL EMANUEL
Tops of Trees
 KOCH JAZZ 7802 (71 min)
Performance: Inventive
Recording: Excellent

Unlike Corky Hale, Dorothy Ashby, and Alice Coltrane, Carol Emanuel doesn't use her harp to paint waterfalls or twinkling stars. John Zorn's *Tasmanian Devil* — one of ten commissioned pieces on "Tops of Trees" by as many different composers — is intentionally grating, and Emanuel brings an edginess even to ostensibly more tranquil pieces such as Guy Klucsevsek's *Singing Sands* and Wayne Horvitz's *Listening to Robin*. Producer Bobby Previte's *How Long Is the Coast of Brittany?* comes off as a bit overblown, but Marty Ehrlich's *Parallel Play* demonstrates both Emanuel's readiness as an improviser and Ehrlich's growing reach as a composer. The other composers represented are Bill Frisell, Butch Morris, Evan Lurie, Anthony Coleman, and Amy Rubin. Guitarist Marc Ribot, violinist Mark Feldman, and cellist Hank Roberts are among the other musicians coming and going from track to track. *F.D.*

ANDREW HILL
The Complete Blue Note Sessions
 (1963-66)
 MOSAIC 161 (seven CD's, 417 min)
Performance: Compelling
Recording: Very good

Mosaic's boxes are like intelligently curated gallery retrospectives, usually focusing on a crucial period in an artist's development and illuminating contemporaneous trends by implication. Among the latest subjects to receive the Mosaic treatment is Andrew Hill, a still-active pianist and composer who emerged as a kind of after-the-fact transitional figure between Thelo-

Boxing Coltrane

A better name for "The Heavyweight Champion," Rhino's lavishly illustrated and annotated seven-disc set of John Coltrane's complete Atlantic recordings, might be "The Secular Coltrane." The performances date from early 1959 to the middle of 1961, the period just before Coltrane's music took on spiritual connotations. *Giant Steps* and *My Favorite Things* are here, as are Coltrane's encounters with Ornette Coleman sidemen Don Cherry, Char-



lie Haden, and Ed Blackwell. There are no "new" titles, but the sound is better than ever before, and to hear this material (including alternate takes) in chronological order gives a vivid sense of Coltrane's growth during a time when both he and jazz were in a state of flux. As a bonus, the final disc offers previously unreleased session tapes that allow us to hear *Giant Steps* and three other numbers slowly taking shape.

Francis Davis

JOHN COLTRANE
The Heavyweight Champion:
The Complete Atlantic Recordings
 RHINO/ATLANTIC 71984
 (seven CD's, 479 min)

nious Monk and Cecil Taylor in the mid-Sixties. Hill's music during this period was both trim and expansive, hard-swinging even though subverting that day's metrical and harmonic conventions. Eight complete albums are compiled here, including the jolting (to this day) "Point of Departure" with Eric Dolphy, whose angled attack made him Hill's ideal collaborator (too bad they recorded together only once). This continues to rank as Hill's most ambitious and fully realized effort on record, but scattered throughout the box are many individual performances almost as stimulating. And though boiling solos by Kenny Dorham, Joe Henderson, Sam Rivers, John Gilmore, Bobby Hutcherson, and Freddie Hubbard testify to the catalytic qualities of Hill's writing, the most compelling soloist here is Hill himself. Only one of this set's tracks is being issued for the first time, but as usual with Mosaic there are copious alternate takes. (Available by mail order only; phone 203-327-7111.) *F.D.*

MINGUS BIG BAND
Gunslinging Birds

DREYFUS 36375 (71 min)

Performance: *Reincarnation of a Lovebird*
Recording: *Lusty*

The second release by the big band that plays only Charles Mingus music at New York's Time Cafe every Thursday is easily one of this year's most outstanding releases. This Sue Mingus-sanctioned outfit hardly captures the Black Saint's wild

mood swings, musicianship being one thing and manic depression quite another. But everything else rings true, thanks to the ear for detail in the arrangements by Gunther Schuller and Steve Slagel, among others (Slagel, in particular, realizes the value Mingus placed on counter-riffs, and his new arrangement of *Reincarnation of a Lovebird* jumps with what might be described as counter-roars). John Stubblefield takes top honors among the soloists for his moaning tenor saxophone choruses on *Hog Callin' Blues*. There are moments when the Mingus Big Band weighs in as hefty as the large unit Mingus himself might have fronted if economics had permitted. *F.D.*

BUELL NEIDLINGER QUINTET
Blue Chapsticks

K²B₂ 3169 (63 min)

Performance: *Puckish and heartfelt*
Recording: *Excellent*

Every jazz critic's prime example of a great pianist and composer who somehow fell through the cracks (mine, too), Herbie Nichols left behind on his death in 1963 as stimulating and varied a body of work as that of Thelonious Monk, though Nichols's pieces are rarely performed by other musicians and though he himself was given few opportunities to record. Buell Neidlinger, a Nichols disciple thirty-five years ago, has given us in "Blue Chopsticks" a festive and offbeat program of Nichols works arranged for an unusual quintet consisting of Hugh Shick's trumpet,

Marty Krystall's saxophones and bass clarinet, Richard Greene's violin, Jimbo Ross's viola, and Neidlinger's own cello.

Surprisingly, piano isn't missed, though drums frequently are (if only because Nichols used Max Roach's trap set so melodically on their Blue Note albums together). On the other hand, the only thing that shouldn't be here is an occasional touch that smacks of cuteness — the near-hoedown in *The Gig*, for example. In general, however, Neidlinger's stringy, insightful arrangements capture the puckish point/counterpoint in such overlooked Nichols compositions as *Love, Gloom, Cash, Love* and *Step Tempest*. And for the most part, the liberties he takes here don't hurt a bit. *F.D.*

MALACHI THOMPSON
& AFRICA BRASS

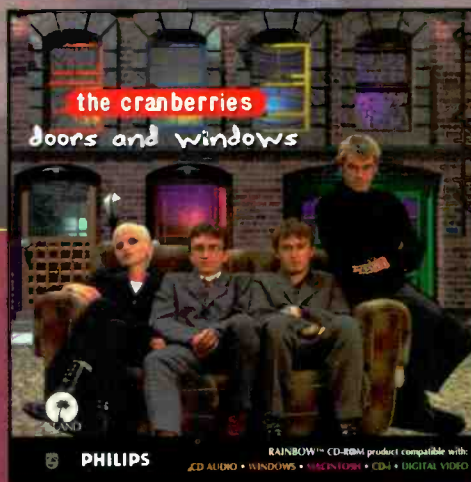
Buddy Bolden's Rag
DELMARK 481 (71 min)

Performance: *Levitational*
Recording: *Excellent*

References to Buddy Bolden, ragtime, and New Orleans second-line notwithstanding, Malachi Thompson's Chicago-based Africa Brass (four trombones and four trumpets, including Thompson's, plus bass, traps, and two hand percussionists) will remind most listeners of Lester Bowie's Brass Fantasy. And as though to cement the connection, Bowie himself guests on three

(Continued on page 126)

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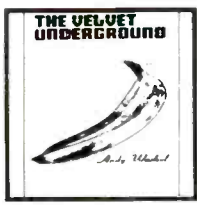
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- Technics SB-LX90-BK •3-way, 15" woofer, black **\$199.95**

In-Wall Speakers



ADVENT
Gallery
In-Wall Speakers
•6.5" woofer •Ferro-fluid-lid'd dome tweeter •Includes mounting templates •White trim baffle may be painted
Mr. List Price \$398.00

Our Low Price **\$199.95/pair** (ADV GALLERY)

- CSI SP-502 •2-way, weatherproof, 5.25" woofer **\$49.95**
- CSI SP-602 •2-way, weatherproof, 6" woofer **\$69.95**
- AudioSource IW One •2-way, 5.25" woofer **\$89.95**
- AudioSource IW Four •Subwoofer, 8" driver **\$99.95**
- AudioSource IW Two •2-way, 6.5" woofer **\$129.95**
- AudioSource IW Three •2-way, 8" woofer **\$159.95**

Center Channel Speakers



ADVENT
Audio Focus™
Center Channel Speaker
•Designed for audio/video applications •Uses 2 dual-cone drivers •Magnetically shielded •10-70 watts RMS •Black cabinet
Mr. List Price \$149.00

Our Low Price **\$79.95/each** (ADV AUDIOFOCUS)

- Yamaha NSA-C2 •Two 5" woofers, 2-tweeters, shielded, each **\$69.95**
- AudioSource VS Two •Amplified, 30 watts, Two 4" woofers, each **\$99.95**
- Advent Audio Cinema •Two 5.25" woofers, shielded, black, each **\$139.95**
- JBL SC305 •Two 5" woofers, shielded, black, each **\$149.95**
- Cerwin-Vega HT-CTR •Two 6.5" woofers, shielded, black, each **\$199.95**
- Celestion Centre 2 •Two 4.5" woofers, shielded grey, each **\$224.95**

Subwoofers

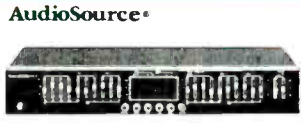


Cerwin-Vega HT-12D
Subwoofer
•Front-firing 12" driver in ported enclosure •Built-in passive crossover •150 watts maximum power handling •30-125Hz •Black
Mr. List Price \$445.00

Our Low Price **\$249.95/each** (CRV HT 12D)

- Aiwa TS-W5 •Powered, 35 watts, shielded, each **\$149.95**
- Design Acoustics PS-SW •10" driver, 130Hz high-pass filter, black, each **\$159.95**
- Cerwin-Vega HT-110 •Mono Subwoofer, 10" driver, black, each **\$199.95**
- Technics SB-AS60 •Powered, 100 watts, 6.75" driver, each **\$259.95**
- AudioSource SW Four •Powered, 150 watts, variable crossover, each **\$399.95**
- Cerwin-Vega HT-210C •Subwoofer w/built-in center channel, each **\$399.95**

Equalizers

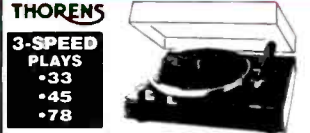


AudioSource®
AudioSource EQ-8/II
10-Band Graphic Equalizer
•10-bands per channel •LED illuminated sliders •Audio/video inputs •Spectrum analyzer display •EQ record switch •Tape monitor switch •EQ-defeat switch
Mr. List Price \$159.95

Our Low Price **\$99.95** (ASO EQ8/II)

- TEAC EQA-110 •10-bands/channel, +/- 12dB range **\$69.95**
- TEAC EQA-220 •10-bands/channel, spectrum display **\$89.95**
- Technics SH-8017 •7-bands/channel, LED indicators **\$89.95**
- AudioSource EQ-11 •10-bands/ch., tape dub, spectrum display **\$119.95**
- Technics SH-GE70 •7-bands/ch., 12-preset EQ memory curves **\$189.95**
- AudioSource EQ-12 •10-bands/ch., analyzer with microphone **\$199.95**

Turntables



THORENS
3-SPEED PLAYS
•33
•45
•78
Thorens 180
3-Speed Belt Drive Turntable
•33, 45, 78 r.p.m. •Automatic shut-off & auto-retract •Synchronous motor •Adjustable anti-skating •External power supply •Includes Stanton cartridge
Mr. List Price \$429.95

Our Low Price **\$299.95** (THN 180)

- TEAC P-595 •Semi-auto, belt-drive, with cartridge **\$89.95**
- Gemini XL-BD10 •Semi-auto, belt-drive, pitch, w/cartridge **\$109.95**
- Aiwa PXE850 •includes cartridge & built-in preamp **\$119.95**
- Technics SL-BD20 •Semi auto, belt-drive **\$119.95**
- Technics SL-BD22K •Semi-auto, belt-drive, pitch control **\$139.95**
- Gemini XL-1800QII •DJ Pro, direct-drive, quartz, manual, pitch **\$299.95**

DJ Equipment



gemini
Gemini PDM-6012
Digital DJ Mixer
•12 second digital sampling rate •Speed control for sampling playback •7-band per channel EQ •2-phonos/5-line/2-mc inputs •Cue •Talkover •LED meters •19" rack mount

Our Low Price **\$344.95** (GMI PDM6012)

- Ness UL36 •Pin Spot Light, includes lamp & bracket **\$29.95**
- Gemini PMX-15A •Scratchmaster Mixer, 2-phonos/2-line/1-mc in **\$109.95**
- Gemini FG2000 •Pro Compact Flogger, 800 watts, 30 ft. remote **\$129.95**
- Gemini MB-470 •Disc Speaker, 15" woofer, on wheels, each **\$199.95**
- Audio Technics AM400 •DJ Mixer, EQ, Voice Changer, rack-mount **\$199.95**
- Ness Prisma Beat •Dichroic multi-colored beams w/reflector **\$259.95**

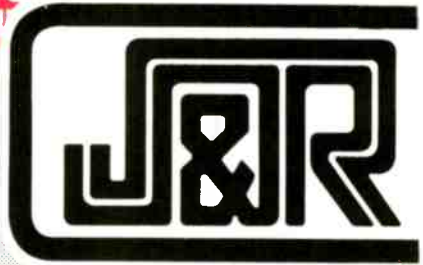
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CIRCLE NO. 30 ON READER SERVICE CARD



CD Portable Stereo

Sharp WQ-CD66
AM/FM, CD, Dual Cassette
Portable Stereo

- CD player with auto program search • CD repeat playback • Dual cassette • Auto record level control • 4" full range speakers

Our Low Price **\$79⁹⁵** (SHA WQCD66)

Sony CFD-9
• AM/FM, CD, cassette, includes headphones... **\$99⁹⁵**

Aiwa CSD-EX220
• AM/FM, CD, cassette, wireless remote... **\$109⁹⁵**

Panasonic RX-DS15
• AM/FM, CD w/16-track programming, cassette... **\$119⁹⁵**

Sony CFD-510
• AM/FM, CD, cassette, detachable speakers... **\$129⁹⁵**

Panasonic RX-DS550
• AM/FM, CD, cassette, 3-band EQ... **\$149⁹⁵**

Panasonic RX-DT610
• Digital AM/FM, CD, dual cassette, EQ... **\$169⁹⁵**

CD-Changer Portable Stereo

Aiwa CA-DW700M
7-Disc CD Changer/Radio/
Dual Cassette System

- Digital AM/FM tuner with 32 presets
- 3-position preset graphic EQ • Karaoke mic mixing • 2-way speakers

Our Low Price **\$249⁹⁵** (AIW CADW700M)

Sharp WQ-CH900
• 5-CD Changer, AM/FM dual cassette, EQ... **\$179⁹⁵**

JVC PC-XC10
• 3-CD Changer, AM/FM, cassette, wireless remote... **\$229⁹⁵**

Sony CFD-626
• 6-Disc CD Changer, digital AM/FM, cassette... **\$279⁹⁵**

JVC PC-XC50
• 6-Disc CD Changer, digital AM/FM, dual cass... **\$299⁹⁵**

Panasonic RX-DS790
• AM/FM, 3-Disc CD Changer, cassette, remote... **\$329⁹⁵**

Sony CFD-777
• 6-CD Changer, digital AM/FM dual cass, remote... **\$349⁹⁵**

Portable CD Players

SONY
Sony D-345
Discman with Super ESP

- 10-sec. electronic shock protection (Super ESP) • 12 hr. playback with 2 AA batteries (not included, ESP off) • Digital Mega Bass
- 22-track programming • 1-bit D/A converter

Our Low Price **\$169⁹⁵** (SON D345)

RCA RP-7913
• 20-track programming, AC adaptor, headphones... **\$79⁹⁵**

Panasonic SL-S160
• 24-track programming, headphones, AC adaptor... **\$89⁹⁵**

Sony D-143
• 22-track prog., rechargeable battery, headphones... **\$99⁹⁵**

Sony D-247
• Electronic shock protection, rechargeable batteries... **\$139⁹⁵**

Panasonic SL-S295
• Anti-shock memory, rechargeable batteries, AC adaptor... **\$149⁹⁵**

Panasonic SL-S490
• 10-sec. anti-shock memory rechargeable batteries... **\$189⁹⁵**

This Month's

Christmas Favorites On VHS



Harry Connick Jr.
Christmas Special

\$15⁹⁹
VHS

Tony Bennett: Family Christmas... **\$17.99**
Perry Como's Christmas Concert... **\$17.99**
A GRP Christmas Collection... **\$17.99**
Christmas With Pavarotti... **\$9.49**
John Tesh:
A Romantic Christmas... **\$13.99**

Headphones

SENNHEISER
SPECIAL
50th ANNIVERSARY
LIMITED EDITION

Sennheiser HD414 50th Anniversary Open-Aire[®] Headphones

- The headphone that broke the comfort barrier returns, in a special signed edition (by Dr Sennheiser) • Lightweight comfort for hours of fatigue-free listening with crystal-clear sound

Our Low Price **\$49⁹⁵** (SEN HD414CLASSI)

Sony MDR-84
• Turbo Headphones, uni-match plug... **\$24⁹⁵**

Sennheiser HD330
• Wide-response Supraural, for home & portables... **\$69⁹⁵**

Sony MDR-V600
• Studio Monitor Series, folding... **\$79⁹⁵**

Sony MDR-V900
• Circumaural Digital Monitor... **\$179⁹⁵**

Sennheiser HD565
• Digital Circumaural, with velvet ear cushions... **\$229⁹⁵**

Sennheiser HD580
• Audiophile, TOP HATED, circumaural... **\$279⁹⁵**

Audio Add-Ons

NILES
Niles SVL-6
Speaker Selector/Volume Controller

- Holds up to 6-pairs of speakers • 12-step attenuation • Handles up to 100 watts per channel • Constant/ selectable impedance

Our Low Price **\$299⁹⁵** (NIL SVL6)

Terk FM-2000
• FM Antenna, Directional/omni-directional... **\$99⁹⁵**

Target BT1
• Wall Speaker Bracket, tilt/swivel... pair... **\$299⁹⁵**

Speco SSB5
• Speaker Switching Box, holds 5 pairs... **\$399⁹⁵**

Wood Technology E810
• Speaker Stands, black... pair... **\$529⁹⁵**

Plateau MA4
• Audio Rack, Hi-tech design, black... **\$1499⁹⁵**

BELL'OGGETTI AR-880
• AV Cabinet, heavy duty, 5 adjustable shelves... **CALL**

TV/Laser Disc Players

SHARP
Sharp 13G-M100
13-Inch Color TV

- English/Spanish on-screen display • Front panel audio/video inputs • Chic view limiter • Remote control

Our Low Price **\$149⁹⁵** (SHA 13GM100)

Samsung TXC2516
• 25" Stereo TV, on-screen display... **\$299⁹⁵**

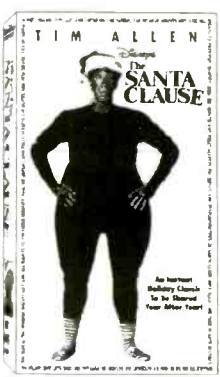
Sony KV-20V50
• 20" Stereo Color TV, surround sound... **CALL**

Sony KV-32S16
• 32" Stereo Color TV, 1-tuner picture-in-picture... **CALL**

Panasonic CT-27SF12
• 27" Superflat[™] Stereo Color TV... **CALL**

Panasonic LX-H670
• A/V auto-reverse Laser Disc Player... **\$399⁹⁵**

Panasonic LX-900
• Laser Disc Player, auto-rev play jog/shuttle... **\$769⁹⁵**



available Oct. 27, 1995

\$15⁹⁹
VHS

A Charlie Brown Christmas... **\$10.99**
How the Grinch Stole Christmas... **\$10.99**
Miracle On 34th Street (colorized)... **\$6.49**
The Nightmare Before Christmas... **\$13.99**
Rudolph The Red Nosed Reindeer... **\$10.99**

Hi-Fi Stereo VCRs

Panasonic
Panasonic PV-4562
VHS Hi-Fi Stereo Recorder

- 4-heads • VCR Plus+ programmer • Program Director[™] • English, Spanish & French on-screen programming • Universal remote

Our Low Price **\$329⁹⁵** (PAN PV4562)

Samsung VR8705
• Tri-lingual programming, univ. remote... **\$229⁹⁵**

JVC HR-J620
• 1-year/8-event timer, Shuttle Plus... **\$299⁹⁵**

Panasonic PV-4564
• VCR Plus+, tri-lingual programming... **\$369⁹⁵**

Aiwa HV-MX1
• Multi-system comast, record & play... **\$599⁹⁵**

Sony SLV-740HF
• Shuttle control, auto-station ID... **CALL**

Sony SLV-940HF
• VCR Plus+, shuttle control, univ. remote... **CALL**

Camcorders

SONY
Sony CCD-TR400
Hi 8mm Camcorder

- SteadyShot[™] Image Stabilization • Hi-Fi stereo with built-in stereo microphone • 12:1 zoom • A/V digital fader • Flying erase head

CALL (SON CCDTR400)

Samsung SCX804
• 8mm, 8:1 power zoom, 2-lux... **\$399⁹⁵**

Sharp VL-E32
• VIEWCAM, 8mm, w/3" LCD Color Screen... **\$749⁹⁵**

Sony CCD-FX730V
• 8mm, 3" LCD monitor built-in w/speaker... **\$749⁹⁵**

Panasonic PV-1Q505
• VHS-C, color viewfinder, digital EIS... **\$779⁹⁵**

JVC GR-AX900
• VHS-C, high-res. color viewfinder... **CALL**

Canon ES2000
• Hi-8mm, 20x optical zoom • Optical Image Stabilizer... **CALL**

Video Add-Ons

JVC
JVC JX-S700
Remote Audio/Video Switcher

- 7-inputs/4-outputs/1-monitor out • Compatible with Super VHS • Built-in Y/C separator & mixer circuits • Dual operation mode allows 2 different input signals to be routed independently

Our Low Price **\$499⁹⁵** (JVC JXS700)

Recoton V-900SX
• "Room Service" Wireless Video Sender... **\$79⁹⁵**

Elite EL-217
• TV Stand, Holds 27" to 32" TV, swivel base... **\$99⁹⁵**

JVC JX-ED11
• Video Editing Controller, wireless... **\$99⁹⁵**

Recoton TV-1000 BullsEye
• Amplified Indoor/Outdoor TV/FM Antenna... **\$99⁹⁵**

Sima SFX4
• Special Effects Editor/Stereo Sound Mixer... **\$199⁹⁵**

Videonics AB1 Edit Suite
• A/V Roll Edit Controller, works w/GPI-compatible mixer... **\$699⁹⁵**

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\$69.99
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- The History of Rock n Roll \$109.99
- The Beatles Collection (includes 1st U.S. visit, A Hard Day's Night, Help! & Magical Mystery Tour) \$74.99
- Marsalis On Music \$74.99
- The Mind's Eye Experience \$47.99

Laser Disc



The History of Rock n Roll

\$169.99
LASER

- Abbott & Costello Collection \$89.99
- Absolutely Fabulous Box Set \$89.99
- Breakfast At Tiffany's, Collectors Edition LTX, \$69.99
- The Sound Of Music, Collectors Edition THX, LTX, \$99.99
- Star Wars Trilogy THX, LTX, CAV, \$199.99

Cameras



Nikon Lite-Touch® Outfit Ultra-Compact 35mm Camera Kit
 •Quartz data back •28mm f/3.5 lens & built-in Panorama mode •Auto-focus/exposure •Red eye reduction & slow sync •Case •wrist strap, Kodak Gold film & lithium battery •Nikon USA warranty

Our Low Price **\$119.95** (MKN LITETQDKIT)

- Olympus Stylus \$129.95
- Yashica T4 \$149.95
- Olympus Stylus Zoom \$189.95
- Minolta Z105EX \$249.95
- Nikon Lite-Touch Zoom 105 \$279.95
- Minolta Zoom 140EX \$349.95

SLR Cameras



Nikon N50™ Outfit: Autofocus SLR Camera Kit
 •Simple & advanced modes •Auto-exposure •Built-in flash •3-D matrix meter •Includes AF Zoom Nikkor 35-80mm lens, strap, Kodak Gold film & lithium battery •Nikon USA limited warranty

Our Low Price **\$579.95** (NKN NSOKIT)

- Minolta Maxxum 400si \$349.95
- Olympus IS2 \$399.95
- Canon EOS Elan \$499.95
- Minolta Maxxum 700si \$649.95
- Nikon N70 \$699.95
- Canon EOS A2E \$799.95

Electronic Reference

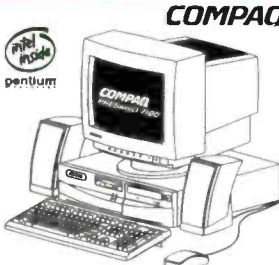


Psion Series 3A Pocket-Size Computer
 •Spell checker & Thesaurus built into ROM •2MB RAM with 2 SSD memory card drives •80-character/18-line screen •Word processor spreadsheet •Database with auto dialing •Schedule/time management •World times •Password protection

Our Low Price **\$599.95** (PSN SER130220)

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- Rolodex EL-31128 \$79.95
- Franklin BES-840 \$99.95
- Casio SF-7900 \$119.95
- Sharp YO-610 \$149.95
- Sharp OZ-9520 \$399.95

Compaq Computer



Compaq Presario 7170 High Power Intel Pentium® Processor 90MHz Multimedia Desktop
 •8MB RAM •840MB hard drive •Internal quad-speed CD-ROM drive •Stereo speakers •16-bit stereo sound card with FM synthesis •1MB VRAM •14.4K bps data/fax modem •Built-in phone answering machine •Monitor not included

Our Low Price **\$1696.95** (CPQ 7170)

Acer Computer



AcerAcros 9137 Intel Pentium® Processor 100MHz Multimedia MiniTower
 •16MB RAM •1.2-GIG hard drive •Quad-speed CD-ROM drive •Sound Blaster™ compatible 16-bit sound with speakers •28.8K bps fax modem •1MB video memory •Software bundle •Monitor not included

Our Low Price **\$2299.95** (ACE 9137)

Apple Computer



Apple® Macintosh® Performa® 6116CD 8/700/CD
 •PowerPC 601 60MHz RISC Processor •8MB RAM •700MB hard drive •Double-speed CD-ROM •External 14.4K bps fax/modem •16-bit stereo sound •14" high-resolution color display •Extended keyboard & mouse •Software bundle

Our Low Price **\$1849.95** (APP M4094LLA)

Apple® Color StyleWriter® 2200
 •Smooths edges of text & line art using 720 x 360-dpi resolution, prints color or gray-scale pages at 360 x 360-dpi resolution •0.33-pages per minute in color. 5-ppm B/W •Built-in 30-page sheet feeder

Our Low Price **\$399.95** (APP M3474LLA)

Creative Labs



Creative Labs Sound Blaster Discovery CD New Edition
 •Popular multimedia kit includes Sound Blaster 16 sound card, double-speed CD-ROM drive, speakers & 18 applications for adults & kids •Software titles include The Grolier Multimedia Encyclopedia, Wing Commander II & Eagle Eye Mysteries •Internal version

Our Low Price **\$249.95** CREATIVE (CLN INTDISCNEW)



Creative Labs Sound Blaster Value CD
 •Add high-performance multimedia technology to your PC •Includes Sound Blaster 16 sound card, double-speed CD-ROM drive, stereo speakers & 12 software titles, include The Grolier Multimedia Encyclopedia & Aldus PhotoStyler •Internal version

Our Low Price **\$299.95** (CLN INTVALIE4X)

U.R. Robotics Modems



U.S. Robotics V.34 Sportster 28.8 Fax/Modem External Version
 •Supports true ITU-TV 34 & V.F2 at 28,800 bps, ITU-TV.32 bis at 14,400 bps •42/MNP 2.4 error control & V.42 bis MNP 5 data compression •Throughput up to 115,200bps •V.17 Group III fax at 14,400bps •Includes integrated QuickLink II FAX communication/fax software for DOS & Win dows

Our Low Price **\$199.95** (USR E>TSP28BV34)

U.S. Robotics V.34 Sportster 28.8 Fax/Modem Internal Version

Our Low Price **\$189.95** (USR IN >SP28BV34)

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CIRCLE NO. 30 ON READER SERVICE CARD

QUICK FIXES

ALABAMA

In Pictures

RCA 66525 (38 min)

If you don't already have an Alabama record to do your aerobics and weekly ironing by, this is the one. *A.N.*

MAIRE BREATNACH

Angel's Candles

BLIX STREET 10018 (43 min)

In the current vogue for Celtic music, Maire Breatnach represents the traditional strain, updating it with electronic keyboards and a few other modern touches. Her pure voice and clearly articulated Gaelic in a few tracks add immensely to the CD's authenticity and beauty. This is one to replay often. *William Livingstone*

BRYNDLE

MUSICMASTERS 65125 (63 min)

Seventies Linda Ronstadt collaborators Karla Bonoff, Kenny Edwards, Wendy Waldman, and Andrew Gold in a band? Together? Obviously. Jean Paul Sartre was right: Hell is other people. *S.S.*



JAN & DEAN

Teen Suite

VARESE SARABANDE 5590 (55 min)

Jan & Dean are usually remembered as surf-music luminaries, but years earlier (1958-1962) these two Angeleno wiseguys crafted some of the best bubblegum/novelty singles of pre-Beatles rock. The canny anthology "Teen Suite" collects all of them, goofily endearing relics so unlike anything in current pop that they might as well be from the Pleistocene. *S.S.*



LOVE

Love Story 1966-1972

RHINO/ELEKTRA 73500

(two CD's, 149 min)

Love was the first great Los Angeles underground band of the Sixties, and hands

down the most original: Their music, mostly by brilliant frontman Arthur Lee, is a (still) forward-looking mix of proto-punk, folk, blues, soul, orchestral pop, and psychedelia. Rhino's new anthology is pretty much definitive. The early work is in mono (as nature intended), and the gorgeous "Forever Changes" album is presented, sonically spruced up, in its entirety. Essential listening. *S.S.*

SANJAY MISHRA/JERRY GARCIA

Blue Incantation

AKAR/RAIN DOG 098 (47 min)

Jerry Garcia's collaboration with the young Indian guitarist Sanjay Mishra becomes a beautiful and treasurable souvenir of the late lamented Grateful Dead guru. East and West *do* meet here and produce a beguiling fusion of Indian subtlety and laid-back Western sensuality, spiced with overtones of languid Latin American tropical music. One of the year's best. *W.L.*

ROBERT MITCHUM

Calypso — Is Like So . . .

SCAMP/CAROLINE 9701 (38 min)

A legendary, long-out-of-print 1957 album in which the coolest guy in Hollywood history unaccountably croaks unlistenable versions of Harry Belafonte songs. Sublime bonus track: Mitchum's self-penned theme from the movie *Thunder Road*, anticipating Bruce Springsteen by nearly two decades. *S.S.*

JON PARIS

Rock the Universe

FOUNTAINBLEU 21002 (48 min)

A Manhattan fixture who has backed Johnny Winter (among others), guitarist/singer Paris goes solo with a set of roadhouse blues and boogie that recalls Dave Edmunds on overdrive, particularly in a shrewd cover of the Stones' rarely revived *It's Not Easy*. Rowdy fun. *S.S.*

VIVA SATURN

Brightside

RESTLESS 72909 (42 min)

The Rain Parade's Stephen Roback and Matt Piucci, two veterans of the Eighties paisley underground, return with a well-crafted slice of retro-psychedelic pop-rock. Pick hit: a feedback-drenched remake of Tony Bennett's *One for My Baby* that sounds as if it was phoned in from Dante's Disco Inferno. *S.S.*

YELLOW PILLS VOL. 3

BIG DEAL/CAROLINE 9023 (64 min)

Another fab-gear collection of power pop for the Nineties by bands both well-known (the seemingly ubiquitous Material Issue) and should-be-well-known (the Rock Club, who all but steal the album with their meltingly Beatlesque *Time Will Tell On You*). There's a welcome return by Records frontman John Wicks, whose first new music in ages is the ineffably winsome *Her Stars Are My Stars*. Terrific stuff, and bring on Vol. 4. *S.S.*

numbers. But the best comparison might be to Dizzy Gillespie's big band of the late Forties. It isn't just a matter of the levitational cross-rhythms, either — there's a spirit of adventurousness that recalls the innovations of the bebop era. The ensemble playing is both rugged and crisp. Thompson and Bowie battle good-naturedly, and the album swings like the dickens. *F.D.*

LARRY VUCKOVICH

Deja Vuk

MUSETTE 9402 (59 min)

Performance: Engaging
Recording: Superb

Yugoslav-born pianist Larry Vuckovich came to this country when he was 14 and settled in San Francisco, where he has been a part of the jazz scene since the mid-Sixties. A fine technician whose musical ideas are as well grounded as they are eclectic (he studied with pianist Vince Guaraldi and saxophonist John Handy), Vuckovich has performed here and in Europe but remains largely unknown. That may change thanks to this wonderful solo album. The title is an acknowledgement of the pianist's varied approach; besides familiar tunes, you'll recognize a number of familiar jazz styles, but Vuckovich weaves his influences together in a most engaging way, adding occasional strokes of Balkan music. Through it all, however, one influence prevails: blues. Vuckovich obviously has an affinity for the form, and he treats it with utmost care. Another striking aspect of his playing is the lyricism with which he imbues such songs as Gershwin's *The Man I Love* and a couple of Strayhorn pieces, *Passion Flower* and *A Flower Is a Lovesome Thing*. All in all, "Deja Vuk" is a CD well worth hearing and re-hearing. *C.A.*

Collection

THE LOST GROOVES

BLUE NOTE 31883 (71 min)

Performance: Fusty funk
Recording: Okay

Blue Note, America's oldest jazz label, was founded in the late Thirties and soon became synonymous with jazz of the highest order. That's how it remained for two decades, until the company changed hands in the late Sixties. The new regime, who did not share the dedication of the founders, soon hopped on the funk bandwagon that was slowly leading jazz astray. Since then, the label has again changed hands, and Blue Note president Bruce Lundvall has worked hard to restore the old integrity. However, someone seems determined to have the past haunt us, as witness "The Lost Grooves," a grim reminder of how bad things got as we approached the fusion-afflicted Seventies. These hitherto unreleased performances by Reuben Wilson, Grant Green, Lou Donaldson, and others also painfully demonstrate how even first-class musicians downgraded their artistry to placate the masses. How I wish these boring tracks had stayed lost. *C.A.*

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JAMES, GEORGE JELLINEK,
ERIC SALZMAN, AND
DAVID PATRICK STEARNS**

BACH: Duo and Trio Sonatas

Boston Museum Trio
CENTAUR CRC 2198 (61 min)

**Performance: High-level
Recording: Attractive**

An odd feature of this recording is that the musical quality and interest grow as the CD goes along, with the best saved for last: the glorious Trio Sonata in G Minor for violin, viola da gamba, and harpsichord (BWV 1029). Virtually a concerto, it's a masterpiece by any standard and is vividly realized here.

Bach produced a lot of chamber music for strings and harpsichord in his days as a court musician and as the music director of a Leipzig concert series in a coffee house, original works as well as arrangements of his own and other people's music. One work recorded here started life as the bass line of an Italian piece to which Bach added new upper parts (one of his sons later made still another piece out of it by altering the upper parts once again). One of his duo sonatas for viola da gamba and harpsichord is a version of a sonata for two flutes and bass; here it's "retro-arranged" for violin, harpsichord, and gamba.

These pieces, particularly the trio sonatas with both violin and gamba, are very virtuosic in a late-Baroque suite-and-concerto style that puts the lie to the myth that Bach was hopelessly old-fashioned. I don't know about the musicological justification for the arrangements, but the proof is in the very effective performances by the Boston Museum Trio: violinist Daniel Stepner, harpsichordist John Gibbons, and gambist Laura Jeppeson, all mainstays of the strong early-music performance movement in the Boston area. *E.S.*

BARTOK: Violin Concertos

Sitkovetsky; Philharmonia
Orchestra, Pesek cond.
VIRGIN 45118 (64 min)

**Performance: Well-considered
Recording: Excellent**

Although Bartok's two violin concertos have become a natural coupling, few recordings differentiate their performance styles as perceptively as these by the violinist Dmitri Sitkovetsky and the conductor Libor Pesek. The First Concerto is essentially a child of the nineteenth century with its influences from Wagner and Strauss, and it is performed accordingly, with the sort of tempo flexibility that was common in that period and gestures that would be sentimental if they were any bigger. The Second Concerto is much straighter, leaner, and

JOYCE TENNESON/SONY CLASSICAL



Soprano Kathleen Battle

The Diva Gets Down

"For many years I have wanted to present . . . my favorite songs in a style that was not strictly classical," Kathleen Battle writes in a note with her latest Sony CD. "So Many Stars," released in September, allowed her "to expand the boundaries of my musical expression and challenged me to discover a freedom and simplicity in these lullabies, love songs, and spirituals."

While her difficulties with operatic colleagues are legendary, Battle seems to be in a mellow mood here with jazz musicians Grover Washington, Jr. (soprano sax), Cyrus Chestnut (piano), Christian McBride (bass), James Carter (bass clarinet), and Brazilian guitarist Romero Lubambo. So if *bel canto* was never your bag, you might want to check out this diva's jazzy new act.

brainier, and each variation in the middle movement is polished so as to reveal its specific character. This may well be the most satisfying pairing of these two concertos in the catalog. *D.P.S.*

BRITTEN: Variations on a Theme of Frank Bridge; Simple Symphony; Prelude and Fugue; Lachrymae; Elegy

Tomter (viola); Norwegian Chamber
Orchestra, Brown cond.
VIRGIN 45121 (78 min)

**Performance: First-rate
Recording: Excellent**

This generous program gives us all of Benjamin Britten's works for string orchestra and spans just about all of his creative life. He composed the Elegy for unaccompanied viola when he was only sixteen, and the orchestral setting of the *Lachrymae*, his Dowland variations originally written for viola and piano in 1950, was actually the last score he completed before his death in 1976. Violist Lars Anders Tomter plays both pieces with enormous conviction, a fine level of intensity, and the hauntingly dark tone that defines the instrument's individual character.

The three remaining works are all early ones. The well-known *Simple Symphony*, based on juvenilia, was composed in 1934

at the age of twenty. The brilliant and witty (and too seldom heard) variations on a piece for string quartet by Britten's beloved teacher, Frank Bridge, was written (in ten days!) for the Boyd Neel Orchestra to per-



form at Salzburg in 1937. The powerful and concise (and hardly ever performed) Prelude and Fugue came six years later, when Britten was still under thirty, in celebration of the Boyd Neel's tenth anniversary.

The performances are without exception polished, vital, and compassionate, filled with affection for the music and relish for the opportunities the composer provided for both expressiveness and the most golden of

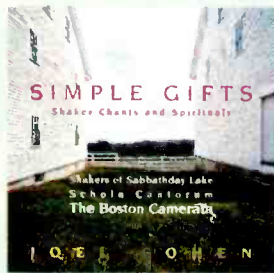
string sonorities. This release is, in short, the sort of thing we've come to expect from conductor Iona Brown (and in particular from her and the Norwegian ensemble for which she's been responsible the last fourteen years) as well as from Norway's Simax label, which originated the recording. Recommended. *R.F.*

HINDEMITH: Symphonic Metamorphosis of Themes by Carl Maria von Weber; Nobilissima Visione; Mathis der Maler, Symphony
Philadelphia Orchestra, Sawallisch cond.
EMI 55230 (71 min)
Performance: A bit tame
Recording: Good

"Hindemith's greatest hits" would seem to be an appropriate title for this program, including as it does the *Mathis der Maler* Symphony from 1934, the *Nobilissima Visione* ballet suite, and the popular four-movement romp on themes from Weber's four-hand piano pieces. The Philadelphia Orchestra's playing has all its customary elegance and aplomb, with the solo winds in particularly fine form. The recorded sound is rich, wide-ranging, colorful, and remarkably consistent considering that two different locales were involved — Memorial Hall for the Symphonic Metamorphosis and *Mathis* and New Jersey's Collingswood Theater for *Nobilissima Visione*.

Shaker Gifts

The Boston Camerata, directed by Joel Cohen, is perhaps most associated with medieval, Renaissance, and early Baroque music, but recently the ensemble, which records exclusively for Erato, has been exploring the music of early America. Its latest CD, "Simple Gifts," released in September, is a



collection of Shaker songs performed with the Schola Cantorum of Boston as well as six members of the last existing Shaker community, at Sabbathday Lake, Maine. The thirty-four unison, unaccompanied songs include some that have not been performed in more than a hundred years as well as others, like *Simple Gifts*, that are widely known.

The theater's sonics seem a shade cleaner; some hall coloration is evident in the mid-range percussion passages in the *Turandot* movement of the *Metamorphosis*.

For all the polish and fine detail of the performances, however, including conductor Wolfgang Sawallisch's sensitive phrasing, there is an odd lack of drive and rhythmic zest. Everything seems a bit on the slow side — foursquare if not actually sluggish. In short, this is a wonderful program but a near miss in terms of execution. *D.H.*



MOZART: Don Giovanni

Gilfrey (Don Giovanni), Organasova (Donna Anna), Margiono (Donna Elvira), James (Zerlina), Prégardien (Don Ottavio), D'Arcangelo (Leporello), others; Monteverdi Choir; English Baroque Soloists, Gardiner cond.
DEUTSCHE GRAMMOPHON ARCHIV
445 870 (three CD's, 178 min)
Performance: Elegant
Recording: Acceptable

John Eliot Gardiner has a fluid, swinging conducting style and a precise approach to musicianship, a combination that fits Mozart perfectly. His new *Don Giovanni*, a live recording of a performance at the Ludwigsburg Festival in 1994, is a worthy companion to his admirable recordings of the other Mozart-Da Ponte operas. Given the crisp conducting, the spring and snap of the strings and the mellow bloom of the period brass might cure you of ever wanting to hear the piece played on modern instruments again.

Gardiner has created an excellent ensemble of singers for these recordings. Initially I resisted baritone Rodney Gilfrey in the title role. He is a fine singer with uncommonly good diction, but he seems almost lightweight compared with his Leporello, bass Ildebrando d'Arcangelo, who is a real find. By the end, however, I was won over; Gilfrey's performance in the banquet scene is positively gripping. Donna Anna is a role in which it has become almost a tradition to cast dramatic sopranos, but I found Luba Organasova rather too heavy for the part. The other women are delightful, especially Eirian James as Zerlina, who turns in an exquisite "*Batti, batti*."

The recorded sound is quite good for a live recording — and that's meant to sound like a left-handed compliment. Still, for all the occasional muffling and foot-thumping, the set gains a powerful sense of immediacy. The recording presents the Vienna version of the score, with an appendix of music written for the alternative version per-

formed at the opera's world première in Prague. Other recordings of *Don Giovanni* do the same, but this set is the easiest to program on the CD player — even to the point of having Don Ottavio's aria "*Dalla sua pace*" be the last track on the first disc, to make it easier to omit for the Prague version. Tenor Christoph Prégardien sings the number so splendidly, however, that only a purist would want to skip over it. *J.J.*

MUSSORGSKY: Songs and Dances of Death; The Nursery; Six Songs
Sergei Leiferkus (baritone); Semion Skigin (piano)
CONIFER/BMG 51229 (66 min)
Performance: Vivid and powerful
Recording: Excellent

Whatever reservations one may harbor about Sergei Leiferkus in Italian opera, they are likely to vanish when it comes to Mussorgsky, with whose highly individual and hauntingly evocative songs the baritone is in his element. To the *Songs and Dances of Death* he brings communicative power and endlessly varied colors; the approach is strongly theatrical but without exaggeration. He carefully balances lyricism and declamation in the *Lullaby*, makes the *Serenade* more sinister than sentimental, understates the dance element in the *Trepak* in highlighting the compassion, and builds *The Field Marshal* to a terrific but well-controlled climax.

The Nursery is something of a problem for male interpreters. Leiferkus succeeds by lightening his tone and following the fanciful probing into a child's mind provided by Mussorgsky's lyrics. Still, when the text calls for a dialogue (Songs Nos. 5 and 6), he cannot help sounding like a stern father instead of a nanny.

The six individual songs are all unconventional. In *The Puppet Show* Mussorgsky satirizes his critics inventively but at excessive length. *Forgotten* is a tragically evocative masterpiece about war's horrors. *The Seminarist* hilariously captures a conflict between outward piety and erotic urges, and *The He-Goat* offers a sardonic view of love among the bourgeoisie. There is, of course, the inevitable *Song of the Flea* for a rousing end. Pianist Semion Skigin is a perfectly attuned collaborator. *G.J.*

PROKOFIEV: Violin Concerto No. 1
TCHAIKOVSKY: Violin Concerto
Rachlin; Moscow Radio Symphony.
Fedoseyev cond.
SONY 66567 (58 min)
Performance: Poetic
Recording: Quite good

Young Julian Rachlin's recent debut recording of the Sibelius Violin Concerto with Lorin Maazel and the Pittsburgh Symphony, also on Sony, introduced yet another certifiable *Wunderkind* of the violin, though the final movement struck many as somewhat underanimated. There's nothing underanimated in either of the Russian concertos here, recorded live at the Moscow Conservatory in February of last year, when Rachlin was nineteen. If his approach is conspicuous more for its breadth than its drive, he goes to the emotional core of both

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works, especially the Prokofiev, with its fairy-tale aura and gossamer textures; he conveys even the central scherzo as a sort of dream episode without in the least slighting its vitality or its diabolic edge.

The slow movement of the Tchaikovsky, too, breathes an air of rapt intimacy and timelessness, even though it moves at a proper Classical andante. As in the outer movements of the Prokofiev, Rachlin achieves this intimacy in part by keeping the music moving, as if floating on air. It is the Tchaikovsky's own outer movements that are marked by expansiveness here.

They are by no means overdeliberate or lacking in vigor, but Rachlin gives the music room to breathe, allowing for something close to poetry in the discursive portions of the opening movement and insuring that the finale really dances instead of merely erupting in spurts.

While the orchestral contribution is more than adequate in the Prokofiev, in the Tchaikovsky it ranges from lackluster to a little scrappy. Rachlin's remarkably communicative playing alone may carry the day for some listeners; others may seek elsewhere for an orchestral presence closer to the so-

loist's own level. The recording itself is quite good in both works. *R.F.*

**RAMEAU: Nais, Suite;
Le Temple de la Gloire, Suite**

Philharmonia Baroque Orchestra,
McGegan cond.

HARMONIA MUNDI 907121 (71 min)

Performance: Big-time French Baroque
Recording: Excellent

The orchestral suites here are made up of music taken from two pastoral operas written to celebrate events of the War of the Austrian Succession in the mid-eighteenth century. Both have striking and colorful big numbers (overture, chaconne, passacaglia) alternating with a series of delicate and wistful pastoral dances. Rameau's original large orchestrations are performed without harpsichord continuo — which, it is plausibly claimed, could never have been heard and was, in any case, never used at the Paris Opera for big numbers — by a California-based Baroque orchestra recorded at Skywalker Sound.

The overtures, especially the one for *Nais*, are quirky and brilliant. The dancing airs are all charming in the faux-rustic, let's-all-dress-up-and-pretend-we're-shepherds mode that was popular at the time, although I eventually found the seemingly endless parade of elegant pastoralism a little cloying. While self-contained, varied, inventive, and individually beautiful, these dances were not meant to be heard in such long sequences without vocal numbers in between. *E.S.*

RIMSKY-KORSAKOV:

Scheherazade; Capriccio Espagnol

London Philharmonic, Jansons cond.

EMI 55227 (62 min)

Performance: Splendid
Recording: Exceptional

EMI seems to be consistently surpassing itself in the richness and detail of its orchestral recordings with Mariss Jansons, and on this disc the conductor and the recording engineers seem almost equal partners in demonstrating how much of both substance and excitement can still be found in these thrice-familiar pieces. All the freshening-up is accomplished without a hint of eccentricity or stunts of any kind; it's essentially a matter of being true to the sound and the spirit of what is, after all, marvelously inventive and appealing music.

Jansons lets the music breathe and blossom, finding a natural momentum that allows the melodies to shape themselves — which is to say, in large part, that he allows the splendid violinist Joakim Svenheden and the various other soloists in both works all the freedom they need to achieve an effect of rhapsodic, flowing spontaneity, while unostentatiously maintaining the impeccable balance that enables their contributions and Rimsky's countless other imaginative touches to register fully. Where power is called for it is delivered without bluster; warmth, tenderness, and humor as well arise directly out of the music.

The recording keeps everything in place without unnatural spotlighting. The harp glissandos in the final movement of *Sche-*

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herazade don't leap out the way they do in the frisky old Leinsdorf recording (also on EMI), but their presence is felt more than in most others. There is even greater firmness in the horns in the *Capriccio Espagnol's* variations here, and the strings are silken. This disc is a joy through and through. *R.F.*

SCHUBERT: Lieder

Barbara Bonney (soprano);
Geoffrey Parsons (piano)
TELDEC 90873 (73 min)

Performance: Affectingly sensitive
Recording: Fine

Barbara Bonney employs her light but admirably produced soprano to lovely effect in this well-chosen and tastefully programmed recital of mostly familiar Schubert songs. The purity of her voice enhances the uncluttered simplicity of his profuse melodic invention, and the clarity of her German brings unusual meaningfulness to the poetry of these pieces. Each of the seventeen selections, from the sweet *Ave Maria* to the despairing *Gretchen am Spinnrade*, is accorded textual and musical care and sung with unaffected simplicity. The four *Mignon Lieder*, *Die Forelle*, *Auf dem Wasser zu Singen*, and *Du Bist die Ruh* are particularly noteworthy.

Geoffrey Parsons is one of the world's most distinguished piano accompanists, and his collaborative artistry has never been finer than it is here. Sharon Kam's clarinet is heard in the final selection, *Der Hirt auf dem Felsen*. *R.A.*

SIBELIUS: Symphonies Nos. 1-7

Finnish Radio Symphony, Saraste cond.
FINLANDIA 99963 (three CD's, 219 min)

Performance: Very good
Recording: Okay location job

The Finnish Radio Symphony Orchestra under its principal conductor, Jukka-Pekka Saraste, previously recorded the Sibelius symphonies for RCA Victor, but they were spread over seven CD's that also included the major orchestral tone poems and smaller works. This Finlandia set offers all seven on only three discs, recorded over as many days at concerts in Philharmonia Hall in St. Petersburg, Russia.

As in the RCA set, Saraste's readings here tend toward moderation rather than melodrama. He takes a taut view of the First Symphony, but with ample attention to its lyrical aspects. The slow movement seems a bit faster than usual, but not objectionably so. The opening of the Second Symphony strikes me as just right, a true allegretto that provides a proper sense of flow, but I would have liked more dramatic contrast in the slow movement. The wind-swept schezso comes off with great brilliance, and the finale emphasizes sumptuous lyricism rather than high drama.

Saraste takes the opening of the Third Symphony at an unusually fast clip. The quasi-waltz slow movement is a lovely affair, and the bird-call textures in the first half of the finale are beautifully realized. The challenge of the Fourth Symphony is well met on the whole, although I could use

THOMAS MILLER/TELDEC



Soprano Barbara Bonney

a higher-voltage treatment of the generally well-paced first movement. No complaints about either the scherzo or slow movement — the latter's coda is deeply moving. The finale is as chilly and gusty as one could ask, but the glockenspiel coloration is too faint.

Symphony No. 5 gets a well-judged reading, with a very well-gauged transition from the moderate to the fast sections of the

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first movement, and Saraste is at his best in evoking the chiaroscuro elements that abound in the elusive Symphony No. 6. The Sixth and Seventh Symphonies are the best realized of the lot. Tempos are nicely judged throughout, and I like the way the famous trombone theme in No. 7 emerges out of the sonic texture.

While the orchestral playing is consistently excellent, the winds are somewhat overprominent in the recording balance. Compared with the other major Sibelius cycles, this set holds its own interpretively but is decidedly outclassed sonically. *D.H.*

JOHANN STRAUSS: The Gypsy Baron
Lippert (Barinkay), Coburn (Saffi).
Hamari (Czipra), Holzmaier (Homonay). Oelze (Arsena) others: Arnold Schoenberg Choir.
Vienna Symphony. Harmoncourt cond.
TELDEC 94555 (two CD's, 150 min)
Performance: Accomplished but tame
Recording: Very good

It seems that when *The Gypsy Baron* (*Der Zigeunerbaron*) was introduced in 1885, the performance did not include all of Johann Strauss's music. After studying the autograph score and assorted manuscripts, conductor Nikolaus Harmoncourt and his

associate Norbert Linke came up with a comprehensive edition that contains more than 40 minutes of music not heard previously. This live recording derives from Viennese concert performances in 1994.

We are getting too much of a good thing here. The restored passages do help improve the continuity and accord heretofore marginal characters greater participation. On the other hand, few of the reinstated musical numbers are of significant merit. In fact, after the splendid overture, the first act takes a long time getting started, and the second-act finale is decidedly overextended.

The orchestra and chorus are outstanding, but I don't think Harmoncourt is a born operetta conductor. His pacing is too broad (Saffi's Gypsy Song is sleep-inducing), and the momentum frequently sags. The singers are more than capable, however. Herbert Lippert is an engaging lyric tenor who could be an exciting Barinkay with a more animated conductor. Soprano Pamela Coburn renders much of Saffi's music affectingly, and mezzo Julia Hamari marshals her waning resources into a flavorful characterization of Czipra. Homonay's dashing Recruiting Song is a bit strenuous for baritone Wolfgang Holzmaier's lieder-oriented tones, but Christiane Oelze shines in Arsena's high soprano part, and the various character roles are in good hands. *G.J.*

TCHAIKOVSKY: Symphony No. 2
("Little Russian"); *Romeo and Juliet*;
1812 Overture

St. Louis Symphony, Slatkin cond.
RCA VICTOR 68045 (68 min)

Performance: Wonderful "Little Russian"
Recording: Demo quality

Romeo and Juliet gets top billing on the CD cover (with a near-salacious photo under it), but it is Leonard Slatkin's infectiously zestful reading of the "Little Russian" Symphony that gets my enthusiastic nod. His treatment of the slow introduction is interesting — an imperceptibly gradual *accelerando* that has the effect of lending extra impetus to the ensuing first-movement allegro — and his searching out of contrapuntal detail in the horn parts adds special charm to the delectable march that follows. The Berliozian scherzo is as rhythmically sharp as can be, with lots of fine woodwind work along the way. The finale, with its dazzling treatment of the folk tune *The Crane*, is an absolute knockout.

No complaint about *Romeo and Juliet*: This is as good a performance as any, with the advantage that the opening Friar Laurence chorale for a change doesn't sound funereal. The woodwind benediction at the close is lovely. The *1812 Overture* goes splendidly, with the cannon shots dead on target. The recorded sound is A-1. *D.H.*

VERACINI: Overtures

Musica Antiqua Köln, Goebel cond.
DG ARCHIV 439 937 (71 min)

Performance: High excitement
Recording: Grand

Francesco Maria Veracini (1690-1768) — not to be confused with Vivaldi, Viotti, Tartini, Pugnani, Corelli, or Paganini — hailed from Florence and was accounted

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the greatest violinist of his day. He toured all over Europe with great success and was particularly big in England, where his operas (he was also a successful composer) were hits. He was a kind of Baroque all-purpose superstar with a reputation of being difficult and temperamental: stories of his eccentricities followed him around and were standard gossip fare (and you thought things were different in those days).

During a stint in Dresden, from about 1712 to 1722, Veracini wrote six hefty *ouvertures*, or suites, in the Franco-Italian style that seem ready at any moment to turn into symphonies. As with the parallel works of his contemporary Johann David Heinichen, the music is all very grand but not merely grand; it is stuffed with invention and superb wit, the very thing for a king, in this case the Elector of Saxony, who appointed both Heinichen and Veracini to positions in Dresden that Bach and Vivaldi had craved.

Five of the six *ouvertures* are included here, and, as in their album of Heinichen's Dresden concertos, the Musica Antiqua of Cologne musicians under Reinhard Goebel perform them with exceptionally high energy and tension. There is no letup to the excitement; every pause, tonal twist, or oddball counterpoint is treated as an extraordinary discovery, every phrase taken over the top. The effect is endlessly electrifying — although, as one grand *ouverture* follows another, ultimately exhausting. These pieces were not written to be listened to in a row.

Is Veracini as extraordinary as he sounds? Probably. This recording is a kind of Baroque revival meeting that serves the bizarre imagination and high technical prowess of one of the true oddballs of music history. If Veracini sounds like the latest pasta dish to you, listen to these performances — preferably one at a time — and you will come away with a very different view. *E.S.*

Collections

GORI WOMEN'S CHOIR

Archaica

SONY 66924 (62 min)

Performance: Endlessly fascinating
Recording: Excellent

One of the most vigorous trends in contemporary Eastern European music is folk-based, a *cappella* choral composition in which things ancient and elemental become startlingly modern. "*Le Mystère des Voix Bulgares*," which has been passed off as genuine folk music, is the most famous example, but this new recording by the Gori Women's Choir under the direction of Shalva Mosidze goes well beyond it in sophistication.

The music here, by several modern composers from the former Soviet republic of Georgia, none hitherto known in the West, abounds in dizzying chord constructions that are grounded in earnest texts, often about social protest. There's great variety, ranging from tone clusters reminiscent of Ligeti to earthy, descriptive pieces that use

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pure sound to suggest the experience of mountain hiking. All of these techniques come together in *Five Funeral Songs* by George Tchladize, with shimmering micro-tonal drones over which improvisatory melodies unfold along with hypnotically repeating glissandi. Some passages barely seem like music, so abstract are the evocative vocalizations.

The packaging is the only thing wrong with the CD: Sony has not provided texts, translations, or even synopses in some cases. This music is not designed simply to wash over you. It is very precise and considered in its expression, and it deserves and repays close listening. *D.P.S.*



HEIGH-HO! MOZART

DELOS 3186 (56 min)

Performance: Tongue firmly in cheek
Sound: Bright

The concept of this novelty album is so tacky that it almost couldn't fail to be amusing on some level: tunes from Disney classics arranged in the styles of classical composers. Thus the Seven Dwarfs' *Heigh-Ho!* is tarted up like a Mozart flute quartet, the Three Little Pigs' *Who's Afraid of the Big Bad Wolf* becomes a pizzicato polka à la Johann Strauss, and *When You Wish upon a Star* (from *Pinocchio*) finds new life as a lushly scored, if brief (under 5 minutes) tone poem that might have been written by Richard Strauss. Donald Fraser's arrangements are adroit, matching the originals with styles that fit them like Mickey's glove. The parodies are often shallow and obvious, but caricatures aren't supposed to be deep.

The orchestral numbers are performed nimbly by the English Chamber Orchestra, conducted by Fraser. The Shanghai String Quartet plays a faux-Brahms version of *Feed the Birds* (from *Mary Poppins*), and members of the quartet and flutist Eugenia Zukerman are responsible for *Heigh-Ho!* The Voices of Ascension pour their collective heart and soul into a plausible motet in the style of Thomas Tallis based on that rare liturgical text, *The Second Star to the Right* (from *Peter Pan*). Other selections feature such artists as pianist Carol Rosenberger, harpsichordist Anthony Newman, the Los Angeles Guitar Quartet, and the Millar Brass Ensemble.

"Heigh-Ho! Mozart" is a bright and cheerful piece of fluff, recorded with appropriate lightness, that observes the most important rule of parody by moving things along at a brisk pace. *J.J.*

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BEETHOVEN: Piano Trio No. 7 ("Archduke")

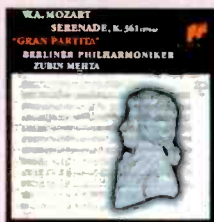
BRAHMS: Piano Trio No. 1
Previn; Mullova; Schiff
PHILIPS 442 123 (75 min)

André Previn enjoys a fine rapport with his new partners, the violinist Viktoria Mullova and the cellist Heinrich Schiff, in a strikingly vital performance of the Brahms, charged with intensity and conviction in the especially mellow adagio as well as the fast movements. Their curiously understated "Archduke" is far less compelling, but it, too, exhibits a heartening level of musical interaction, and the recording is well balanced in both works. *R.F.*

BRUCKNER: Symphony No. 8

NDR Symphony (Hamburg), Wand cond. RCA 68047 (two CD's, 88 min)
The tempos in Günter Wand's third recording of the colossal Bruckner Eighth, derived from concerts in Hamburg's acoustically fine Musikhalle, are marginally slower than in his earlier readings. The orchestral strings sound wonderfully rich, but I find the brass a bit gritty. Overall, I still prefer Herbert von Karajan's Vienna recording, as

well as Wand's own more dynamic 1988 version taped in the Lübeck cathedral. *D.H.*



MOZART: Serenade for Winds in B-flat Major ("Gran Partita," K. 361)

Members of Berlin Philharmonic, Mehta cond. SONY 58950 (50 min)
Mozart's so-called "Gran Partita" serenade has not been without distinguished representation on CD, but Zubin Mehta and his thirteen associates from the Berlin Philharmonic Orchestra are very persuasive, and Sony has done an outstanding job of recording them. *R.F.*

SUK: A Summer's Tale

Royal Liverpool Philharmonic, Pesek cond. VIRGIN 45057 (52 min)
A Summer's Tale is a large-scale programmatic work by Dvorak's son-in-law, Josef Suk (1875-1935). Its five movements add up to a gorgeous display of post-Romantic symphonic style replete with tinges of

Richard Strauss, Russian orientalism, and Debussy. Lovely playing by the Royal Liverpool Philharmonic under Libor Pesek and very fine recorded sound. *D.H.*

OLGA BORODINA Songs of Desire

Larissa Gergieva (piano) PHILIPS 442 780 (54 min)
The well-planned program concealed under this CD's sexy title offers twenty-six songs of the Mighty Five — Rimsky-Korsakov, Borodin, Cui, Mussorgsky, and Balakirev. Warm and velvety tones of remarkable evenness characterize mezzo-soprano Olga Borodina's singing. Aside from some suspect intonation in *forte* passages, her work is admirable, and she is well supported by Larissa Gergieva's pianism. *G.J.*

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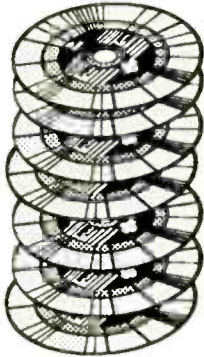
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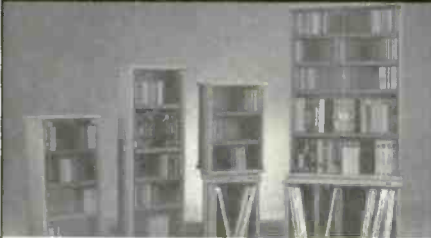
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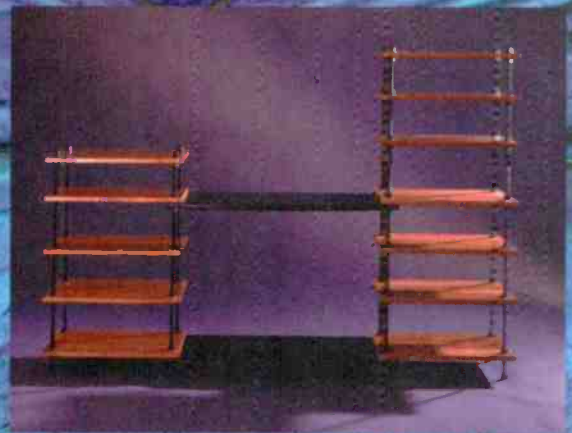
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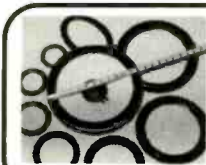
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THE HIGH END

PETER W. MITCHELL

The Car as Acoustical Laboratory

The phrase "high end" is often used to describe the best living-room and home-theater systems but is not often heard in the context of car stereo. This is not a question of money; the autosound industry has become a giant business. Nowadays consumers spend billions of dollars annually for car audio systems, much more than for the stereo equipment in their living rooms and dens.

As a listening environment, the automobile has severe drawbacks. Subtle aspects of sound are obscured by the high level of ambient noise at highway speeds. (In car-stereo competitions this problem is avoided by listening with the car parked and the engine turned off.) And since car speakers are usually located at the listener's sides, in the doors, a well-focused stereo image is difficult to obtain. Sounds that should be imaged at stage-center are often reproduced with a wide, unstable, or off-center image.

For my daily commute I walk to my home office, so I don't have an elaborate audio system in my own car. But in the course of testing many automotive speakers and subwoofers, I have found the car environment to be an interesting acoustics laboratory. Some aspects of loudspeaker performance in the car are dramatically superior to normal living-room stereo.

To discover some of these differences for yourself, listen to familiar recordings through a good home audio system, then listen to the same recordings through a high-quality car installation. A typical result is that recorded hall ambience seems particularly spacious and enveloping in the car, while individual voices and instruments are vividly clear, intimate, and detailed. In these respects the sound from a topnotch car system often resembles that of headphones, or of the "near-field" listening arrangement that I discussed here in August.

Perhaps the most dramatic advantage of car audio is its potential for deep bass that combines vivid clarity with gut-massaging impact. Note that I am specifically *not* talking about "boom" cars whose bass waves vibrate the car's sheet metal and annoy neighbors a block away. I'm talk-

ing about bass reproduction that goes extremely deep and is very accurate, with pressure waves that you can actually feel on your skin.

A 10-inch woofer in a 2-cubic-foot box, when measured outdoors or in an anechoic chamber, typically produces uniform output down to about 50 Hz. At lower frequencies its response rolls off at 12 dB per octave. In a living room the woofer's response is altered by standing waves that produce 10-dB peaks and valleys at common bass frequencies. If you put the same 10-inch woofer in a car it becomes a subwoofer: Standing waves create peaks and dips from about 100 to 500 Hz, but the low bass, instead of rolling off, remains strong to below 20 Hz.

What causes this difference? The car

in the negative half of its next cycle, resulting in a cancellation.

At frequencies lower than the fundamental eigentone, the room is smaller than a half-cycle of the wave. The wavelengths are so long that there simply isn't enough space in the room for the pressure waves to propagate freely through the air. At these low frequencies the behavior of a woofer can be understood most clearly in terms of hydraulics rather than acoustics. When the woofer cone moves forward into the room, it produces a positive increase of pressure throughout the room. When the cone moves back, it produces a rarefaction, or a reduction of pressure, throughout the room. Thus, the sound pressure in the room corresponds directly to the woofer cone excursion.

Let's translate that into actual speaker behavior. A woofer cone is a direct radiator. When the frequency of the input signal is halved, the cone moves only half as fast and only half as far. If a driver is designed to produce flat response in free air, it makes up for its slower motion by quadrupling its cone excursion with each halving of frequency. Most speakers behave this way in the flat part of their range.

If we design an ideal woofer to deliver flat response down to 20 Hz in free air, and place it in a small room, something interesting happens at frequencies below the fundamental eigentone. Since sound

According to traditional hi-fi myth, small rooms don't support low frequencies.

The truth is just the opposite: Small rooms actually boost the deepest bass.

environment. The passenger cabin of an automobile is a small room, with major dimensions of 6 feet or less. According to a traditional hi-fi myth, small rooms don't "support" low frequencies whose wavelength is longer than the room. But the truth is just the opposite: Small rooms actually boost the deepest bass.

In any closed room the rules of room acoustics apply down to the frequency of the lowest standing wave, or "eigentone." (This is approximately 100 Hz in a car, or about 30 Hz in a living room.) At this frequency each pressure wave produced by the woofer travels the length of the room, bounces off the opposite wall, and returns to the woofer just in time to be reinforced by the next cycle of the waveform. This reinforcement produces a standing-wave peak at the fundamental eigentone frequency; other peaks occur at whole-number multiples of that frequency. At intermediate frequencies, the reflected positive pressure wave returns when the woofer is

pressure corresponds directly to cone excursion, the quadrupling of cone excursion in each octave would cause the low-frequency response to rise at 12 dB per octave. In effect, the "acoustic transfer function" for an ideal speaker in any closed room includes a bass rise below the frequency of the lowest eigentone. Many speaker designers are not familiar with this phenomenon, because in a living room the boost may be significant only below about 20 Hz. But in a car the entire deep-bass range is boosted.

This may seem to be a complex story, but its practical effect is easy to sum up. A woofer's response normally rolls off below resonance, but in a car this rolloff is neatly compensated for by the small-room bass rise. If the woofer is designed to have a gradual and well-controlled low-bass rolloff in the lab, its response in a car can remain strong to below 20 Hz.

Next month: group delay, a measure of bass quality. □

3 THE AR VALUE STORY

(Acoustic Research's invention of the modern home loudspeaker in 1954 truly revolutionized the audio industry, by making high-fidelity sound suddenly affordable for all of America to enjoy. Today, AR loudspeakers continue this tradition of unprecedented sonic value by engineering loudspeakers with only the fundamental speaker technology essential to reproducing music as accurately and beautifully as the original source.)

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(AR believes the real value of a quality loudspeaker is best defined by how well it performs in real-world use. For this reason, AR loudspeakers' dispersion patterns are designed to interact with the pre-existing boundaries in your room (walls, bookshelves, furniture, etc.) for optimum performance and easy placement. AR's *Exposed Dome Driver Technology* disperses sound more evenly over a wider listening area for a more natural sound and proper tonal balance from more listening positions in the room.

Different listeners have different tastes, so AR 3-way loudspeakers' left and right cabinets incorporate a mirror-imaged Vertical Symmetry Array design. When placed with the drivers along the inside edge, the speakers deliver a tightly focused sound. When reversed, they produce a more open, spacious sound - providing even greater listening flexibility.)

Flexibility

(Flat frequency response. Low distortion. High power handling. Exceptional bass extension. Musicality.

Uncompromised sonic accuracy has been an AR value for more than 40 years. AR's primary method of attaining sonic accuracy remains to this day *True Acoustic Suspension Technology* and *Exposed Dome Driver Technology*.

Unlike more common designs, *True Acoustic Suspension Technology*, an AR invention, utilizes the natural elasticity of air sealed inside the cabinet enclosure to more precisely and evenly control the excursion (back and forth movement) of the woofer. Utilizing high compliance surrounds, rigid felted paper cones and long-throw woofers, *True Acoustic Suspension Technology* is responsible for AR's exceptionally tight, controlled bass, excellent power handling capability, minimum distortion, and thunderous bass from remarkably small cabinet enclosures.

Midrange and high frequencies are more accurately reproduced due to *Exposed Dome Driver Technology*, another AR innovation. Although the exposed dome driver functions electrically in the same manner as a more traditional cone transducer, the radiating element is a domed surface which is less prone to distortion at high frequencies and offers smoother response throughout its operating range. Additionally, the dome driver's inherently larger voice coil offers increased power handling, dynamic range and detailed response.)

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