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Music is the universal religion. *Be sure to build a*



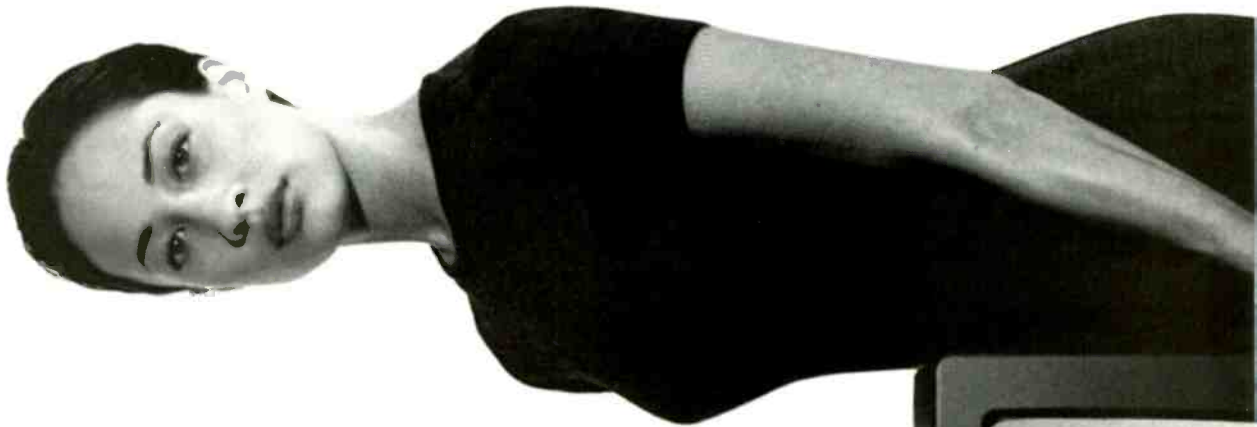
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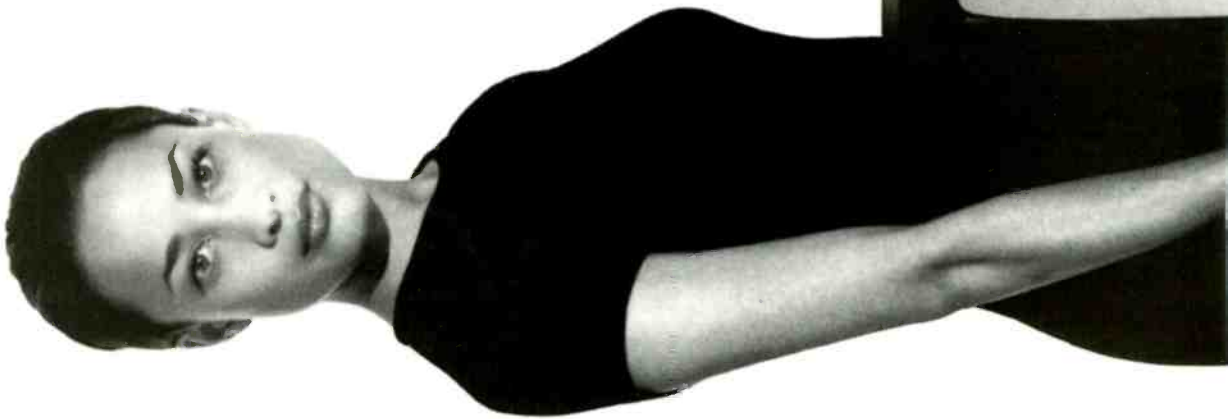


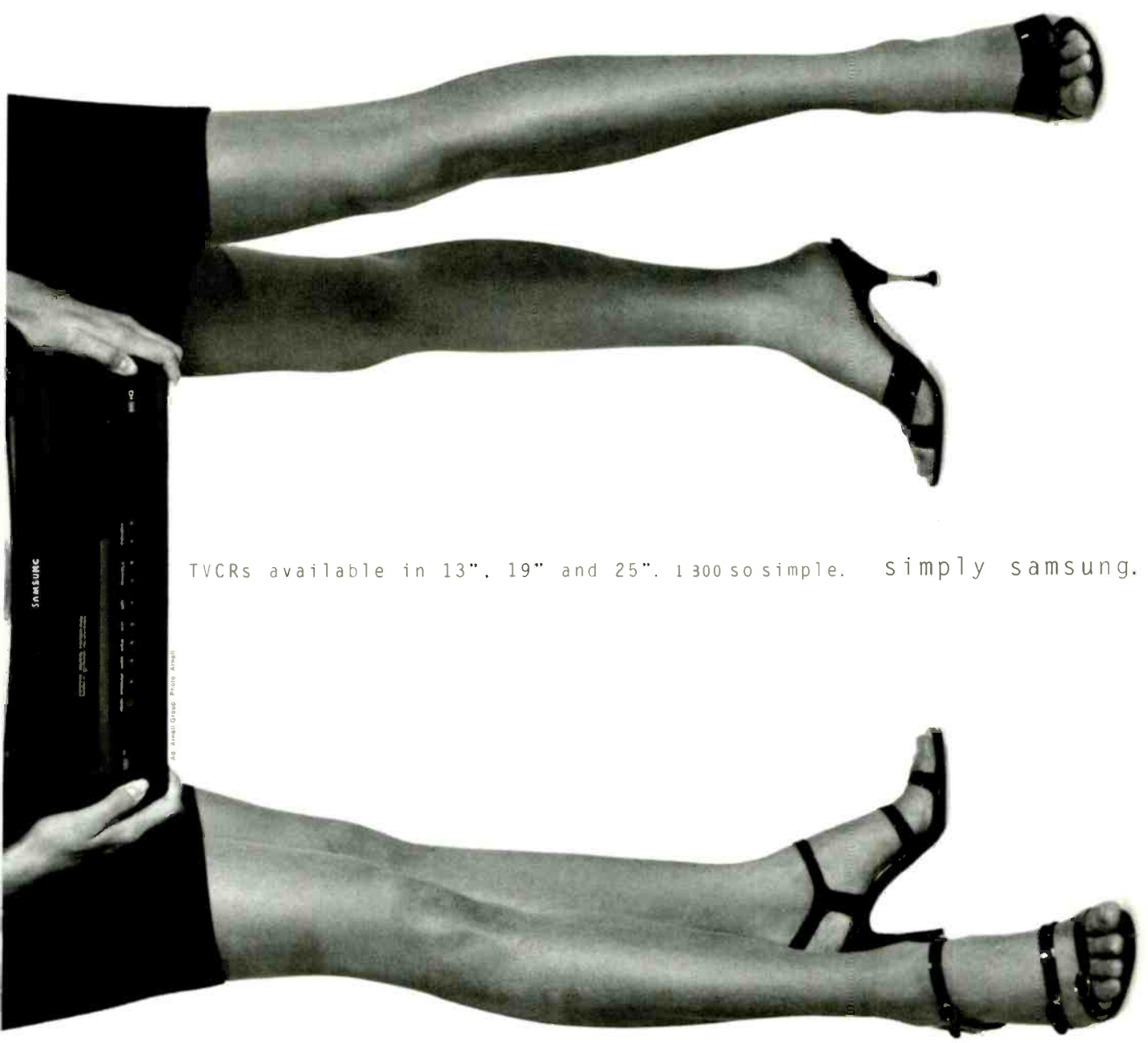
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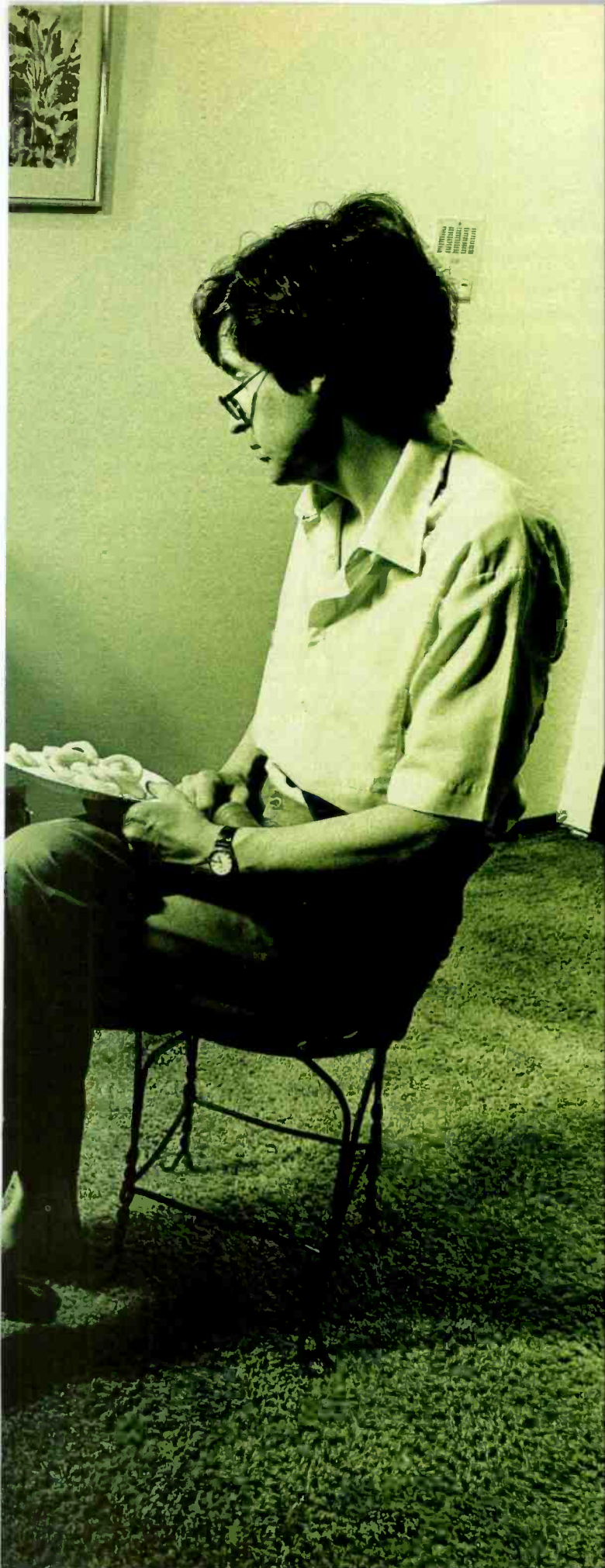
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Video Review...**



S-100B

#### S-90

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"If you also have a home theater and need very high-performance speakers, the M&K system is one of the best. I recommend it."—*Audio*

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"Extremely clear, with lots of detail and ambience"  
"A" for Sound Quality"—*Sound and Image*

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★★★★★ (five stars)

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The Onkyo TX-SU424 could be the receiver for you, or another model might suit you better. See page 60 for advice on choosing a receiver.

Photograph by Dan Wagner

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# Stereo Review

INCORPORATING HIGH FIDELITY

January 1996

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Unforgiven (1992)	*1084003
Disclosure	*1371004

## CLUB FAVORITES

Legends Of The Fall	*1371301
Interview With The Vampire	*1364405
Mary Shelley's Frankenstein (1994)	*1363803
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True Lies	*1327105
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The Prince Of Tides	*0847103
Jaws	*0844605
Star Trek I: The Motion Picture	*0203505
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Star Trek VI: The Undiscovered Country	*1001007
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The Last Of The Mohicans (1992)	*1071406
The Hunt For Red October	*0825000

Backdraft	*0559005
Cliffhanger	*1149301
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Maverick	*1297209
Dragonslayer (Remastered)	*1352103
Junior	*1364504
Robin Hood: Prince Of Thieves	*0976803
Drop Zone	*1364306
Wolf	*1314905
Darkman	*1375609
Darkman II: The Return Of Durant	*1372101
I.Q.	*1381904
Paper Moon (Dir.'s Series)	*1382209
The Piano	*1237809
Ren And Stimpy: The Essential Collection	*1411206
Circle Of Friends	*1381102
Philadelphia	*1251404
Demolition Man	*1199306
Pink Floyd: The Wall	*1293802
E.T.: The Extra-Terrestrial	*0681106
The Silence Of The Lambs	0805309

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Total Recall	*1286103
Bram Stoker's Dracula	*1102904
Nighthawks	0101105
The Bodyguard	*1105907
The Brady Bunch Movie	*1381003
Under Siege	*1077908
On Deadly Ground	*1251909
Tank Girl	*1389600
Little Women (1994)	*1372903
The Hunted	*1422807
Major Payne	*1411404
Murder In The First	*1371103
Bridge On The River Kwai (Restored)	*1143809
A Clockwork Orange	*1355005

## NEW RELEASES

Ferris Bueller's Day Off	*0427302
French Kiss	*1439603
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Just Cause	*1386408
Kiss Of Death (1994)	*1422906
A Little Princess (1995)	*1404201
Losing Isaiah	*1413400
New Jersey Drive	*1428903
The Quick and the Dead (1995)	*1411107
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Legend	0218008
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# BULLETIN

BY BOB ANKOSKO & WILLIAM LIVINGSTONE

## A/V ON THE WEB

Fisher Audio/Video is one of a growing number of companies spending big bucks to create home pages on the Internet's World Wide Web. The site (the address is <http://www.audvidfisher.com>) offers product information with a dealer locator, entertainment bits, and lots more against a backdrop of "quick-load" color graphics. Other A/V companies on the Web include Mitsubishi, DirecTV, Philips, RCA/Thomson, Sony, TDK, and Toshiba.

## GROUNDBREAKERS

Mission's M-time home theater system packs a preamp, a Dolby Pro Logic decoder, an AM/FM tuner, a multichannel power amp, a center speaker, and two powered subwoofers into an elegant TV platform/cabinet measuring only 19 x 28 x 16 inches. The \$3,995 system should be appearing in stores by the time you read this. . . . Kenwood puts a new spin on the A/V controller with its KC-Z1, which mates a preamp, a tuner, and a Dolby Pro Logic/AC-3/THX surround processor in a high-styled component featuring a unique LCD touch-screen remote control that attaches to the front panel. The \$2,800 system is slated to hit store shelves in March along with a \$1,200 companion power amp.

## MORITA HONORED

The 1995 Japan Society Award for outstanding contributions to better U.S.-Japan understanding has been given to Akio Morita, cofounder and Honorary Chairman of Sony Corporation. With such products as the Walkman personal stereo and the CD, Morita led Sony to become a leading high-tech innovator. Accepting the award for Morita (who is recovering from a stroke), his wife, Yoshiko Morita, said he has loved America and particu-

larly admires its frontier spirit. She added: "Akio will continue to contribute all he can to the U.S.-Japan relationship, to world peace, and to helping the young people of the next generation."

## ALL ABOUT FM RADIO

The sixteenth edition of Bruce Elving's *FM Atlas*, a 224-page softbound guide for travelers, hi-fi radio listeners, and media hobbyists, contains text, maps, and listings for 8,500 FM stations in the United States, Canada, and Mexico. Order from *FM Atlas*, P.O. Box 336, Esko, MN 55733-0336. Price: \$18 postpaid.

## HALL OF FAMERS

Jazz singer Ella Fitzgerald has been inducted into the U.S. National Women's Hall of Fame. . . . Newly chosen for induction into the Rock and Roll Hall of Fame are Jefferson Airplane, David Bowie, Little Willie John, Gladys Knight and the Pips, Pink Floyd, the Shirelles, and the Velvet Underground.

## MILESTONES

On January 19, country singer Dolly Parton turns 50. . . . Founded in 1895, the Pittsburgh Symphony Orchestra is celebrating its centennial this season, under its music director Lorin Maazel. . . . Observances of the 100th anniversary of the birth of composer Carl Orff (1895-1982) have included the video documentary "Carl Orff: A Portrait" (BMG Classics 68056), two digitally recorded CD's of his *Schulwerk* (Celestial Harmonies 13104/5), and a recording of the rarely performed chamber version of his most popular work, *Carmina Burana* (Bis 734).

## RECORD BUSTERS

"Cracked Rear View" (Atlantic), the debut album of Hootie and the Blowfish, has reached sales of 10 million units in only 22 months, according to the



## ENHANCED CD'S: POISED FOR ACTION?

Now that one in three households owns a computer, record companies are hoping that music lovers will embrace a new breed of CD, which in addition to music provides a multimedia experience when run on a computer with a late-model CD-ROM drive. The so-called enhanced CD can include lyric sheets, discographies, photos, video clips, video games, and even a link to a Web site on the Internet.

The Rolling Stones' "Stripped" on Virgin (\$17.98) features performance footage and backstage jams. Soundgarden's "Alive in the Superunknown" (\$15.98), developed by nu.millennia for A&M, includes new music, photos, concert footage, and a variety of "surreal" interactive environments. In the Cranberries' "Doors and Windows" on Philips Media (\$24.99), users navigate through the band's favorite pub to access videos, interviews, and more. And Bob Dylan's "Greatest Hits Vol. 3" on Columbia (\$22.98) contains lyrics and credits for songs recorded between 1972 and 1989.

The downside: Experts estimate that half of the currently installed CD-ROM drives won't be able to play some of the enhanced CD's, which is why some record labels are setting up toll-free support lines or providing a diagnostic disc. Most enhanced CD's should play on CD-ROM drives bought in the past two years, however.

Recording Industry Association of America (RIAA). . . . The RIAA has also certified U.S. sales of 10 million for the soundtrack to *The Lion King*, making it Disney's best-selling soundtrack to an animated film. . . . The best-selling album by an all-female group is TLC's "CrazySexyCool" on LaFace Records, which has sold 6 million copies.

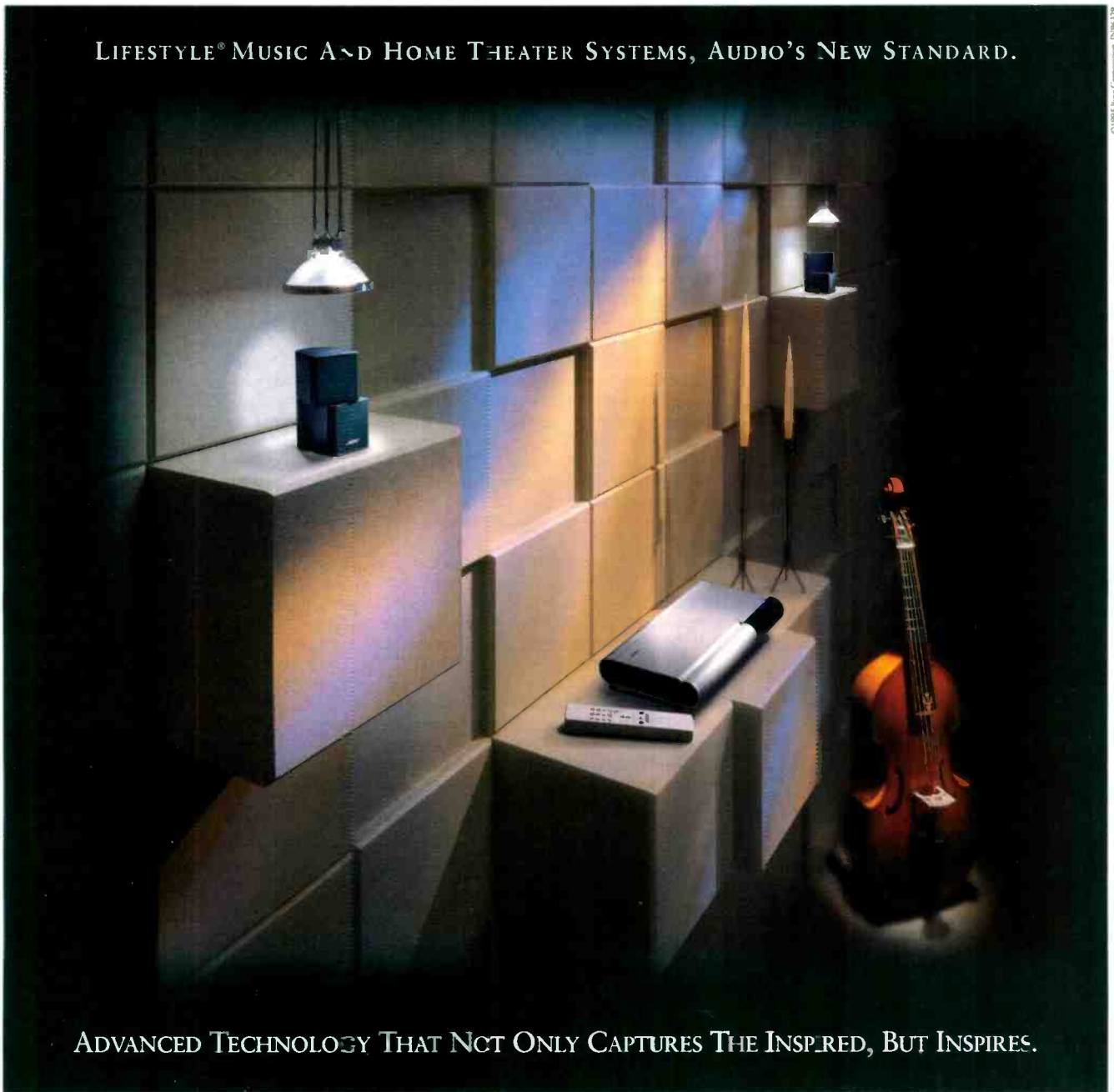
## BOOKS

Amadeus Press has published *The Great Tenor Tragedy: The Last Days of Adolphe Nourrit* (\$22.95) by Henry Pleasants, STEREO REVIEW's London Editor. Pleasants describes it as "the love child" of his career. . . . Cabaret singer Michael Feinstein has an autobiography out, *Nice Work If You Can Get It* (Hyperion, \$24.95).

ILLUSTRATION BY BOB SCOTT

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# LETTERS

## The Digital Videodisc

Ken Pohlmann's "The Dogs of War" (October "Signals"), about the competing formats for a digital videodisc (DVD), was very discouraging. The thought of another VHS/Beta or MiniDisc/DCC war truly sickened me. For a consumer, it was a no-win situation.

The idea of true, high-quality digital video makes my mouth water. I am very happy that in September the competing conglomerates agreed to compromise on a single set of standards for DVD. The unification of standards avoids consumer confusion and makes possible a healthier competition based on quality and features.

ROSS SELBY  
Hampton, VA

Now that the two DVD camps have compromised, will they be releasing a recordable DVD, too? If so, will it be record-once, rerecordable, or both? Ken Pohlmann said that the system will be compatible with CD players. Does that just mean that DVD players will be able to play CD's, or will CD players be able to play the audio tracks of DVD's? It would be great to be able to play a DVD concert in the car, and the extended playing time would be great for recording your own music CD's.

FRANK D. MICKEY  
Bellbrook, OH

*The DVD machines slated for introduction late this year will not be able to record; they will be able to play conventional audio CD's in addition to the CD-size all-digital videodiscs, most of which will contain movies. That's not to say that future DVD machines won't offer a recording feature — they probably will. When is another question. While the DVD standard will include provisions for both a write-once and a rewritable disc, manufacturers have not indicated when they might bring such a product to market. The new DVD's will not be playable on standard CD players.*

## The Listening Environment

Julian Hirsch's "Is Concert-Hall Realism Possible in the Home?" (October "Technical Talk") was right on the money. My experience over the years certainly confirms his point that the listening environment is critical in reproducing recorded music.

Even though most of us can't afford to build an acoustically neutral room, some things can be done to help reduce the effects of the listening room. You can eliminate many room-boundary interferences by simply moving your speakers away from the walls and moving your listening position closer to the speakers. How close should be dictated by your personal preference, but don't be afraid to get really close! If moving the speakers is not an option for you, then move just the listening position. While

the effect will not be as dramatic, it should still be very noticeable.

E. RAVEN ELLIS  
Eden, NC

## AC-3 Upgrade

Would using the Carver Corporation's Z-5 adaptor (described in October's "Watts Playing," page 78) to turn a Dolby Pro Logic receiver's speaker outputs into line-level outputs make it possible to add an AC-3 decoder to the system?

PAT FRALEY  
Huntington Beach, CA

*No. To add AC-3 decoding capability, the receiver must have enough line-level inputs to receive the six channels of output from an AC-3 decoder. Changing the receiver's output levels has nothing to do with it. At this writing, Yamaha's RX-V2090 is the only A/V receiver with enough inputs for an out-board AC-3 decoder. The add-on situation probably won't get much better in the future since most new products will contain built-in AC-3 decoders.*

## Reproducing Soprano Vocals

Based on Julian Hirsch's review of the Pinnacle 650 speakers a number of months ago, I purchased a pair. With orchestral music, they sound fine. With soprano voices, however, it is a completely different matter. On loud or high notes the sound has a sharp, grating edge (distortion, echo, ringing, beaming, over-miking?).

Armed with four of my latest all-digital CD's of operatic sopranos, I made the rounds of several local high-end stores and auditioned a slew of speakers from other manufacturers. Lo and behold, they all sounded the same as my Pinnacle 650's, give or take a little harshness, or whatever it is I am hearing. At one of the establishments the salesperson volunteered that the problem is not at all uncommon, especially with two-way speaker systems, and said that the only speakers free of it are those with ribbon midrange drivers. What's the scoop?

A. REISMAN  
Raleigh, NC

*Julian Hirsch replies: Since a wide variety of speakers show the same effect, I wonder if the recordings are at least partly to blame. Personally, I find some soprano voices grating to my ears even when heard live, but I doubt that all two-way speakers would make them sound worse. I have no opinion on ribbon drivers as a solution except to be somewhat skeptical about it.*

## TV Shopping Tips

Since I am in the market for a new large-screen TV set, I read "10 Tips for TV Shopping" by Tomlinson Holman (November) with much interest. While the article was

# She got the house, the car, and the furniture.

(And you're still married.)



With all due respect to your better half, perhaps it's time you balanced things out a little. Well, a Pioneer® Cinema Wide Television certainly would be a great way to start. It simply gives you more



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very good — informative and thorough — it is next to impossible to carry out many of his suggestions, such as "Watch out for unequal source quality" (Tip #2) or "Watch for changes in picture geometry with picture brightness" (Tip #4), in 95 percent of the retail stores out there. If Mr. Holman had been in many retail stores lately he would know that even getting such basic information as whether a set has a comb filter and what type it is (Tip #6) is an unrealizable goal. And if you do get an answer from

a salesperson, the chances that the information is correct are very slim indeed.

DREW DAUBENSPECK  
Temple, TX

*Shopping for a TV can indeed be a frustrating experience, which is why it makes sense to narrow the playing field before you even step foot in a store. The easiest way to do that is to call a handful of the major TV companies (consult the manufacturers' directory at the back of Video magazine's*

*1996 Buyer's Guide, now on newsstands) and request a catalog, which should provide such basic information as what type of comb filter a given set has. As for the other recommended areas of investigation, at least you now know what kinds of picture anomalies to keep a watch for. To get the best source quality, ask the salesman to play a laserdisc through the set you're interested in; most stores should be set up to do that, and a salesman will probably try to accommodate you if the store's not too busy. But no one ever said shopping for a TV was easy.*

## The Best Review We Ever Read!

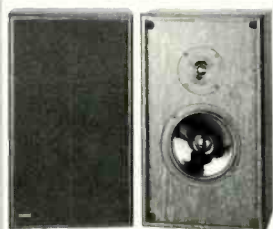
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Stereo Review December 1994



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### Putting Down Selena

What was the point of running Steve Simels's review of Selena's "Dreaming of You" (November "Popular Music") other than to get another of his hipper-than-thou put-downs into print? If Mr. Simels had some consideration for his readers, he'd have said something about Tejano music and Selena's place in it. Instead, he flaunted his contempt for this music and insulted her fans. Having decided the music was worthless, Mr. Simels had to come up with a reason for the album's sales. Since it *couldn't* be because so many people like the music, it had to be their morbid interest in Selena's murder.

I wouldn't slam a door that hard.

ALLEN WATSON III  
Sunnyvale, CA

### Assisted Hearing

I have been tested and told that I need a hearing aid. Will I be able to hear high-fidelity music from my system while using the aid? Or would I be better off not to wear it when listening and to use an equalizer to boost the sound in the range where I am deficient (the mid to high range)?

RONALD E. ADKERSON  
LaVergne, TN

*If you didn't know you needed a hearing aid before your test, your hearing loss is probably slight and there's no reason to compensate. But if things weren't sounding right all along, check out the various hearing aids containing K-AMP circuitry developed by Erymotic Research (61 Martin Lane, Elk Grove Village, IL 60007). This circuitry was designed for high-fidelity compensation for moderate hearing losses.*

### Correction

The GLW 5600 CD rack shown in November "New Products" (page 20) and stated to be available from Progressive Designs has been renamed the Curvare CD Sculpture and is now available for \$230 (plus shipping) from Butta Designs, Dept. SR, Suite 506, 2517 W. Fullerton, Chicago, IL 60647; phone, 312-252-3801. □

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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CIRCLE NO. 32 ON READER SERVICE CARD

# TIME DELAY

## 30 YEARS AGO

In the January 1966 issue, our music critics offered their picks for the best recordings of the year just passed. As in previous years, no individual album received a flurry of votes. Most-mentioned classical composer, conductor, and performing force: Igor Stravinsky, Karl Böhm, and the Berlin Philharmonic. Most-mentioned pop/jazz artist: a tie between Ray Charles (whose "Live in Concert" did garner two votes), Bob Dylan, and



Thelonious Monk. In music features, guitarist/author Donn Pohren traced the origins and intricacies of flamenco, and William Seward chatted with rising opera star Montserrat Caballé in the diva's first official encounter with the American press.

New products this month included Kenwood's TK-50 transistorized 60-watt receiver (\$219.95), Sonotone's RM-0.5 acoustic-suspension speaker (\$39.75), and Sony's Model 660 four-track stereo open-reel tape recorder



Stanton 581EL cartridge, 1965

with autoreverse (\$575). In test reports, Hirsch-Houck Laboratories examined the Stanton Model 581EL phono cartridge with a built-in record-cleaning brush, concluding that the cartridge "is just about as good as they come, and that is very good indeed."

We call 'em as we see 'em: Morgan Ames informed readers that the tunes on "Licorice Stick" by New Orleans jazzman Pete Fountain "are executed properly and in the order listed on the label."

## 20 YEARS AGO

And wait till you play it backwards: Technical Editor Larry Klein, in his January 1976 news column, reported on a Columbia LP by Israeli psychic and spoon-bender Uri Geller. The vinyl record itself, Klein observed, "seems to be responsive to Uri's reputed control over the shape of physical objects: it is one of

Loggins and Messina, 1975



the few discs to come into my office *absolutely* unwarped!"

In Best of the Month, George Jellinek was wowed by Sir Georg Solti's version of Tchaikovsky's *Eugene Onegin* on London, while a perspiring Peter Reilly found that Tina Turner's "Acid Queen" was "enough to set off an early January thaw anywhere south of Point Barrow." Elsewhere, Noel Coppage dismissed Loggins and Messina's roots-rock album "So Fine" as "proof that hanging's too good for the son of a bitch who invented nostalgia."

Among new products were the ESS Phase 1 headphones (boasting a frequency response of 20 Hz to 50 kHz), the first application of the ESS-Heil Air-Motion Transformer to headphones. Julian Hirsch reviewed the Technics SA-



5550 receiver ("in every respect . . . first-rate"), Leslie's DVX dipole speaker system, and Pioneer's PL-15D-II turntable, a semi-automatic model whose performance "we could not fault."

It loses something in the translation: Reviewing "Mother Focus" by yodeling Dutch art-rockers Focus, Peter Reilly declared that one of the tracks possessed "surely the title of the year": *I Need a Bathroom*.

## 10 YEARS AGO

"Do All CD Players Sound the Same?" was the instantly controversial question posed

by a January 1986 feature that gave the results of listening tests conducted by David L. Clark, as reported by Ian Masters. The conclusion, based on six players from Carver,



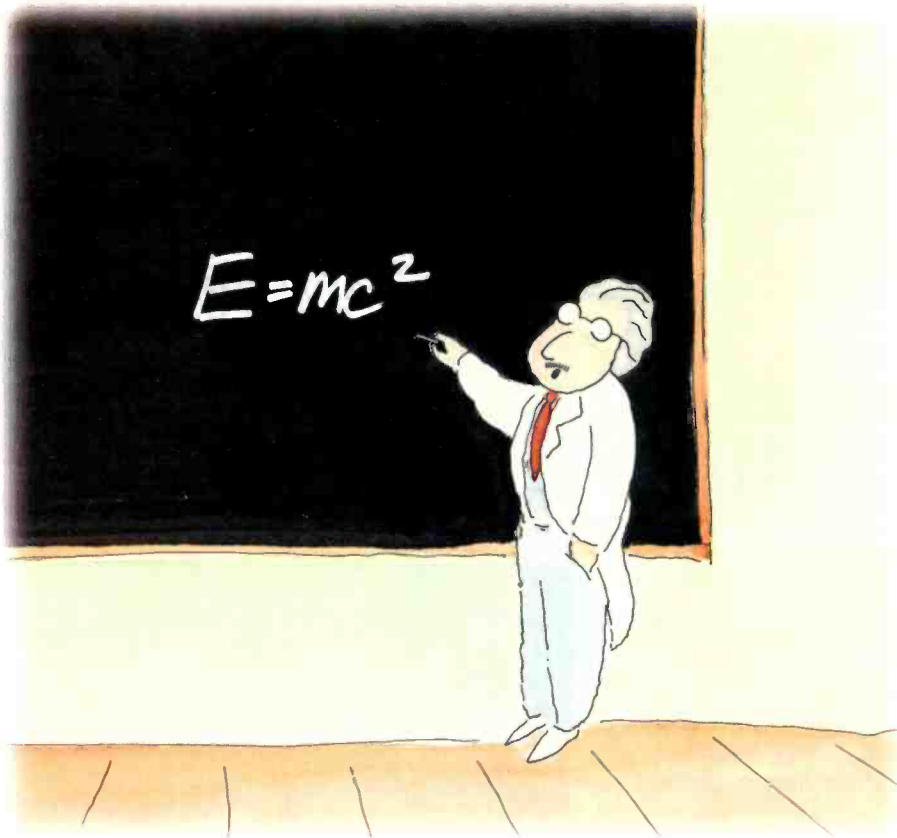
Emerson, Meridian, Sony (two models), and Technics, ranging in price from \$400 to \$1,400: "Audible differences do exist, but they don't matter unless you think they matter." In less contentious areas of the magazine, Julian Hirsch tested the Thiel CS2 speaker system, which at \$1,350 a pair was "worth every cent of its price." And Ann Ferrar profiled the reunited English pop band Squeeze, whose keyboardist Jools Holland told her, "We may split up. . . . But once we're together we have the consciousness of one being — not necessarily one *deep* being."

Dumb, dumber, and . . . : Reviewing "The Heart of the Matter" by Kenny Rogers, Alanna Nash bestowed upon one song, *Tomb of the Unknown Love*, "my personal Conehead Award for Dumbest Record of All Time."

— Steve Simels



Thiel CS2 speakers, 1985



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**Anthony H. Cordesman**  
on Adcom's GFA-5800, *Audio Magazine*

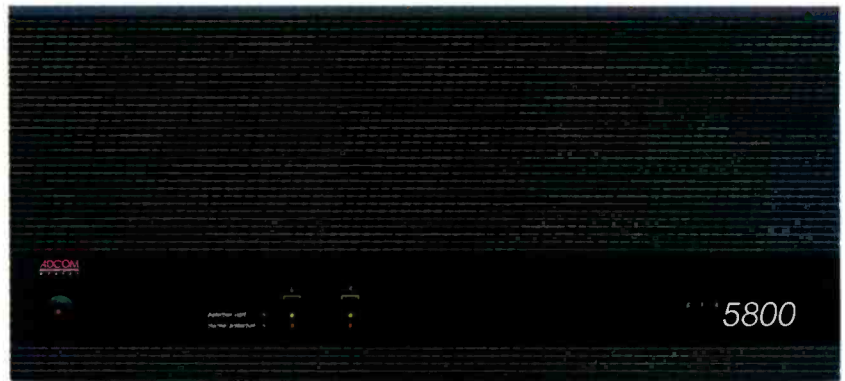
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**Anthony H. Cordesman**  
on Adcom's GFA-5800, *Audio Magazine*

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CIRCLE NO. 55 ON READER SERVICE CARD

# NEW PRODUCTS



## ▲ CONTINUUM

Continuum's Audio Window preamplifier (top, \$1,450) has three inputs, separate processor and tape-monitor loops, and both balanced and unbalanced operating modes. The Audio Stage power amp (bottom left, \$1,750) is rated to deliver 200 watts per channel, and the Model

4-3-2 amp (\$1,750) is rated at 100 watts x 4, 100 watts x 2 plus 400 watts, or 400 watts x 2. Both power amps are Class A/AB designs. All are covered by a five-year limited warranty. Continuum, Dept. SR, 9941 Horn Rd., Unit A, Sacramento, CA 95827.

• Circle 121 on reader service card



## ▲ SHERWOOD

The RV-5050R A/V receiver from Sherwood has thirty AM/FM presets, five audio and four video inputs (including one on the front panel for a camcorder), preamp outputs for the front, center, and surround channels, a Dolby Pro Logic decoder, and a remote with center- and rear-level controls.

The unit is rated to deliver 70 watts into 8 ohms to each of the front three channels and 25 watts to the surrounds, or 90 watts per channel in stereo operation. Price: \$499. Sherwood, Dept. SR, 14830 Alondra Blvd., La Mirada, CA 90638.

• Circle 123 on reader service card

## ▼ NILES

Designed for multiroom audio systems, the Niles SVL-4AB combines a speaker selector, an amplifier selector, and a four-way volume controller in one low-profile component. It lets you connect four pairs of speakers to two amps (or receivers) and select whether amp "A" or

"B" feeds a given speaker pair, each of which is governed by its own twelve-step volume control. Impedance-protection circuitry is said to prevent the amps from overloading. Price: \$380. Niles, Dept. SR, P.O. Box 160818, Miami, FL 33116.

• Circle 120 on reader service card



## ▼ AUDIO-TECHNICA

Add a TV and a stereo VCR to Audio-Technica's Cinema Sound CS2000 system and you have a basic home theater. The package includes three 8 x 5½ x 5-inch front speakers, a powered/wireless surround speaker, and a bass module with an 8-inch woofer, a Dolby Pro Logic

decoder, a 900-MHz transmitter for the surround, and four amps rated to deliver 80 watts to the woofer and 20 watts to each front speaker. A remote is included. Price: \$600. Audio-Technica, Dept. SR, 1221 Commerce Dr., Stow, OH 44224-1760.

• Circle 122 on reader service card



# NEW PRODUCTS



## ◀ FULTRON

The Aria AR-CS60 car component speaker set from Fultron includes a pair of 6½-inch mica-filled polypropylene woofers, two 1-inch aluminum-dome tweeters, and two 18-dB-per-octave crossover modules with tweeter-protection circuitry. System sensitivity is given as 90 dB, maximum power handling as 100 watts, and low-frequency limit as 50 Hz. A tweeter-mounting kit that accommodates surface, flush, or angled options is supplied. Price: \$260. Fultron, Dept. SR, 122 Gayoso, Memphis, TN 38103.

• Circle 124 on reader service card



## ▲ DANIELS AUDIO

The Zero-One CD player from Daniels Audio is a Philips player that has been modified to deliver improved frequency and phase response; maximum phase linearity is given as  $\pm 1^\circ$ . The player features a DC-coupled analog section, a 192-times oversampling bitstream D/A converter, separate analog and

digital power supplies, and a four-pole analog low-pass filter. User highlights include thirty-track programming and a remote control. Available factory direct for \$749 (plus shipping) from Daniels Audio, Dept. SR, 178 N. Ridgeland, Oak Park, IL 60302; phone, 708-383-3319.

• Circle 125 on reader service card



## ◀ CANON

Designed to be mounted in a corner, Canon's V-100 is described as a wide-dispersion utility speaker suitable for surround applications. Its 13-inch-tall plastic enclosure (also available in white) has a detachable bracket and houses a 5-inch woofer, a ½-inch tweeter, and overload protection circuitry. Price: \$500 a pair. Canon Audio, Dept. SR, One Canon Plaza, Lake Success, NY 11042.

• Circle 126 on reader service card

## ALLEN PRODUCTS ▶

The CT-200 Headliner CD Tower from Allen Products Co. holds 200 CD's while occupying only 1 square foot of floor space. The 5-foot metal rack is finished with textured black paint (a white finish can be special-ordered). Available factory direct for \$199.95 (plus shipping) from Allen Products Co., Dept. SR, 2454 Rosemead Blvd., El Monte, CA 91733; phone, 1-800-729-1251.

• Circle 127 on reader service card



## ▲ PROBE AUDIO LABS

Probe's two-piece Jayde speaker consists of a vented subwoofer module containing an 8-inch woofer and a quasi-dipole "satellite" containing a 6½-inch midrange driver, a 1-inch tweeter, and a rear-firing ¾-inch tweeter designed to enhance spaciousness. The low-frequency

limit is given as 35 Hz and sensitivity as 92 dB. The 46½-inch-tall combined cabinet is available with a light or black oak-veneer finish. Price: \$3,300 a pair. Probe Audio Labs, Dept. SR, 10223 N.W. 53rd St., Sunrise, FL 33351.

• Circle 128 on reader service card





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 AND COMMENTS LIKE  
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# NEW PRODUCTS

## ▼ JVC

JVC's HR-IP820U VHS Hi-Fi VCR is the first deck to incorporate Gemstar's Index Plus+ tape management system. When you record a program, an ID number and information about the show (including title and length) are stored in a memory chip in the VCR. Details for up to 400 indexed programs can be recalled without

having to reinsert a tape. When an indexed tape is inserted into the VCR, you highlight the show you want to watch on an on-screen directory, and the VCR automatically finds it and starts playback. Price: \$600. JVC, Dept. SR, 41 Slater Dr., Elmwood Park, NJ 07407.

• Circle 129 on reader service card



## ▲ PRECISION POWER

The ArtSeries A600.2 car power amplifier from Precision Power is rated to deliver 150 watts per channel into 4 ohms or 300 watts a side into 2 ohms; bridged-mono output is 600 watts into 4 ohms. It has a regulated power supply, which is said to insure that full rated power is delivered over a wide range of input voltages (11

to 15 volts DC), and a low-impedance protection circuit. The amp is available in a "designer white" or subdued "classic black" finish and is covered by a three-year limited warranty. Price: \$649. Precision Power, Dept. SR, 4829 S. 38th St., Phoenix, AZ 85040-2964.

• Circle 130 on reader service card

## ▲ STINGER

Ideal for custom installations requiring concealed wire runs under carpeting, Stinger's SSW416BLK2 flat speaker wire combines four 16-gauge oxygen-free-copper conductors in a PVC jacket with polarity identification. The wire is less than an eighth of an inch thick and about 7/8 inch wide. Price: 75 cents a foot. Stinger Electronics, Dept. SR, 13160 56th Ct., #502-508, Clearwater, FL 34620.

• Circle 131 on reader service card



## ▶ B & W

B&W's CDM1 bookshelf speaker combines a 6½-inch woofer (with an oversized 1¼-inch voice coil) and a 1-inch alloy-dome tweeter in a 14½-inch-tall ported cabinet finished in black or red ash veneer. The tweeter is mounted in its own enclosure to reduce diffraction effects. The low-frequency limit is given as 46 Hz. Price: \$550. B&W, Dept. SR, 54 Concord St., North Reading, MA 01864-2699.

• Circle 132 on reader service card



## ▲ SOUND DYNAMICS

The Sound Dynamics THS-10 powered subwoofer — a 16-inch cube containing a 10-inch driver, a 100-watt amplifier, and a two-way crossover — is rated down to 35 Hz. It accepts both speaker-level and line-level inputs and has an 18 dB-per-octave low-pass filter, adjustable from

50 to 150 Hz, and automatic on/off switching. The cabinet, which has a forward-firing vent, is finished in black ash vinyl and has a black grille. Price: \$450. Sound Dynamics, Dept. SR, 3641 McNicoll Ave., Scarborough, Ontario M1X 1G5.

• Circle 133 on reader service card

## CBGB's New York City

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A Harman International Company



# NEW PRODUCTS

## ▼ RADIAL ACCESS

Radial Access's RA100 CD rack is about the size of a lunchbox yet holds 100 CD's (with booklets). Available factory direct for \$49.95 (plus shipping) with an oak (shown), walnut, or black base. Radial Access, Dept. SR, 1776 Mentor Ave., Suite 119, Cincinnati, OH 45212; phone, 1-800-260-9884.

• Circle 134 on reader service card



## ▲ ENGINEERED

Speaker Sneakers from Engineered elevate speaker cabinets off the floor to reduce boomy bass response — without making dents in the carpeting. A set of six (providing three Sneakers per speaker) is available factory direct for \$119.70 (plus shipping) from Engineered, P.O. Box 314, Chandler, AZ 85244; phone, 602-786-8100.

• Circle 135 on reader service card

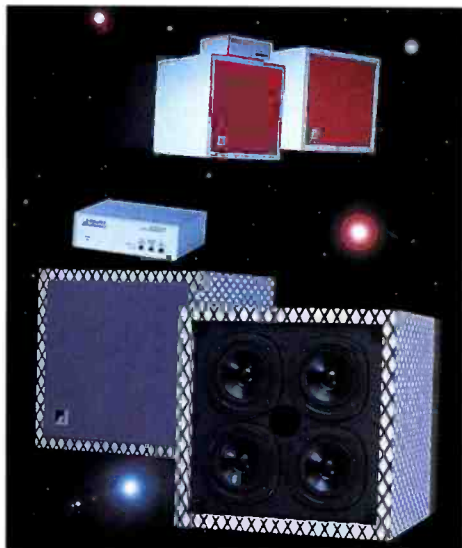
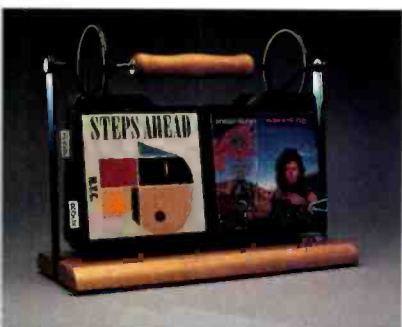


## ▲ DCM

The DCM KX-212 speaker, designed to produce high sound-pressure levels and "bone-rattling" bass, packs two 12-inch woofers, a 6-inch midrange, and a 3/4-inch horn tweeter in a 45 1/2-inch-tall enclosure featuring a modified transmission-line design. Low-frequency limit is

given as 25 Hz, sensitivity as 104 dB (measured with a 1-watt input at a distance of 1 meter), and nominal impedance as 4 ohms. Finish is black woodgrain. Price: \$399. DCM Loudspeakers, Dept. SR, 670 Airport Blvd., Ann Arbor, MI 48108.

• Circle 136 on reader service card



## ▲ AMBIANCE ACOUSTICS

The California Cube system from Ambiance Acoustics comprises two 13 5/8-inch-square vented speakers, each with four 4 1/2-inch drivers, and an active equalizer. Rated down to 30 Hz, the system has no crossover and uses identical drivers to avoid phase-shift, impedance-matching, and

SPL-matching problems. Italian-laminate and painted finishes are offered. Available factory direct for \$1,995 (including shipping in the U.S.) from Ambiance Acoustics, Dept. SR, P.O. Box 27115, San Diego, CA 92198; phone, 619-485-7514.

• Circle 137 on reader service card



## ▲ PIONEER

With Pioneer's CLD-V860 multi-format player you can sing along with Laser Karaoke discs or play a CD, a CD with graphics (CD+G), or a movie laserdisc. To assist the budding Elvis (Presley or Costello) in you, the player has digital echo and key-shift controls. Among its other

features are a three-mode (theater, karaoke, music) DSP surround processor, dual-side play so you don't have to manually flip a laserdisc, and an omnidirectional microphone. Price: \$1,100. Pioneer New Media Technologies, Dept. SR, 2265 E. 220th St., Long Beach, CA 90810.

# 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 (\$49<sup>99</sup>), it makes an ideal musical traveling companion. You can even play it in the carrybag.



\$219<sup>99</sup>

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

You can buy *SoundWorks* direct from Cambridge SoundWorks, or at cost-efficient Best Buy stores.



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*SoundWorks* is available factory-direct for only 219<sup>99</sup> 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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CIRCLE NO. 6 ON READER SERVICE CARD

# THE TWELFTH ANNUAL RODRIGUES CARTOON CAPTION CONTEST

**N**ow is the time for all good readers to enter the Rodrigues cartoon caption contest. For the twelfth time our tireless artist Charles Rodrigues has given us a zany drawing without a caption. The editors of STEREO REVIEW invite you to enter the contest by submitting suitably zany captions for the cartoon at right.

The person who sends in the caption that is judged to be the funniest will win valuable prizes: the signed original Rodrigues drawing, US\$100, and the glory of having his or her name printed with the winning caption when the contest results are announced in the June or July issue.

Anyone may enter, and there is no limit to the number of times you may enter, but each caption submitted must be on a separate sheet of paper that also contains the clearly legible name and address of the person who sends it in. Entries that have more than one caption per sheet will be disqualified. All entries must be received no later than March 1, 1996.

In addition to Charles Rodrigues himself, the transcontinental panel of judges will include members of STEREO REVIEW's editorial staff and the winners of the eleven previous contests: Thomas Briggie (Akron, OH), Michael Binyon (Weaverville, CA), Bruce Barstow (Philadelphia), Matt Mirapaul (Evanston, IL),

Marc Welentychik (Richmond), Douglas Daughhete (Birmingham), Kelly Mills (Raleigh), Diane Sullivan (Grand Falls, New Brunswick), Brian Hoffman (New York City), Ron Haynes (Nashville), and Douglas Alderman (Novato, CA). Entries will be judged on the basis of originality, appropriateness, and hu-

mor. The decision of the judges will be final, and we don't wanna talk about it.

Why are that elephant and that customer kicking the amplifier, and what are the service personnel saying about it? Kick your ideas around! Be creative! Be funny! Enter today! No DNA test is required! You could be the winner! □



**SEND ENTRIES TO:**  
**Rodrigues Contest**  
**Stereo Review**  
**1633 Broadway**  
**New York, NY 10019**

No purchase is necessary. Anyone may enter except the staff of *Stereo Review* and its parent company (Hachette Filipacchi Magazines, Inc.) and their immediate families. All entries become the property of *Stereo Review*; and none will be returned. If you wish to be notified of the results of the contest by mail, send a stamped self-addressed envelope to the address at left. In the likely event of duplicate entries, the one received first will be considered the winning entry. The names of the winner and a few runners-up will be published in *Stereo Review* and may appear in promotional literature for the magazine. Submitting an entry will be deemed consent for such use.

*Stereo Review* will arrange the delivery of the prize; any tax on it will be the responsibility of the winner.

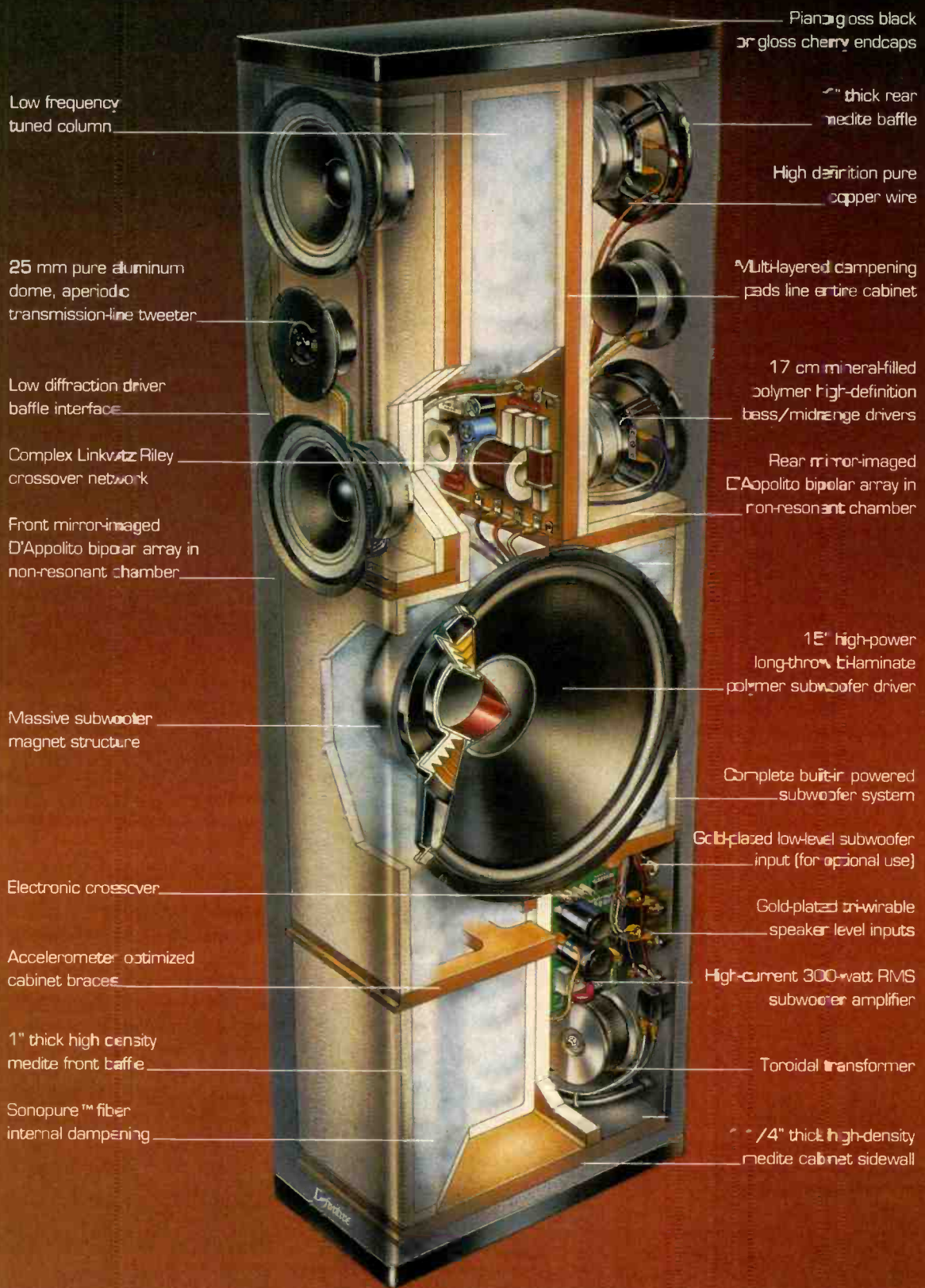
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# Inside Definitive's Revolutionary BP2000



Low frequency tuned column

25 mm pure aluminum dome, aperiodic transmission-line tweeter

Low diffraction driver baffle interface

Complex Linkwitz Riley crossover network

Front mirror-imaged D'Appolito bipolar array in non-resonant chamber

Massive subwoofer magnet structure

Electronic crossover

Accelerometer optimized cabinet braces

1" thick high density medite front baffle

Sonopure™ fiber internal dampening

Piano gloss black or gloss cherry endcaps

1" thick rear medite baffle

High definition pure copper wire

Multi-layered dampening pads line entire cabinet

17 cm mineral-filled polymer high-definition bass/midrange drivers

Rear mirror-imaged D'Appolito bipolar array in non-resonant chamber

1E" high-power long-throw binate polymer subwoofer driver

Complete built-in powered subwoofer system

Gold-plated low-level subwoofer input (for optional use)

Gold-plated tri-wirable speaker level inputs

High-current 300-watt RMS subwoofer amplifier

Toroidal transformer

3/4" thick high-density medite cabinet sidewall

**"Definitive's new BP2000 absolutely kills most more-expensive speakers!"**

—Brent Buterworth, *1997 Theater Technology*



# Definitive's New BP2000 Brings You the Ultimate Listening Experience!

*"The first speaker I have been able to audition in my own familiar surroundings that has given me that special thrill that usually costs ten or more times its price to obtain."*

—Julian Hirsch, *Stereo Review*

*"Frankly, if circumstances allowed, I would choose these speakers for myself."*

—Julian Hirsch, *Stereo Review*

## Speaker of the Decade

Now, with the BP2000, Definitive literally reinvents the loudspeaker. We have combined a six-driver dual D'Appolito bipolar array with a built-in (side-firing) 300-watt powered 15" subwoofer. (Yes, a complete powered subwoofer built into each speaker!) The result is extraordinary sonic performance beyond anything you've ever heard.

Both music and movies are reproduced with unequalled purity, transparency and lifelike realism. And the astounding high resolution imaging and awesome bass impact totally envelop you in sonic ecstasy. They are an amazing achievement!



Each revolutionary bipolar BP2000 (\$1499 ea.) has a built-in 300-watt RMS powered 15" subwoofer for ultimate performance.

## The Ultimate Home Theater

In addition to being an audiophile's dream, the BP2000s are also the main speakers in Definitive's AC-3 ready Ultimate Home Theater System. This astonishing system is absolutely the finest sounding available. It recreates a "you are there" spatial reality that actually puts you into the soundspace of the original cinematic action.

The complete system combines BP2000s with a C/L/R 2000 center (\$650 ea.) and a pair of BPX bipolar surrounds (from \$399 ea.). Of course, the dual 15" powered subwoofers are already built into the sleek BP2000 towers. Truly the ultimate listening experience! Visit your Definitive dealer today.

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CIRCLE NO. 15 ON READER SERVICE CARD

See our dealers list on page 32



# AUDIO Q & A

IAN G. MASTERS

## AC-3 Logic

**Q** I have seen advertisements for receivers featuring Dolby AC-3, dubbed "the future of digital home theater sound." Assuming that lots of AC-3-encoded movies will soon be available, will I still be able to get any surround effect from them using my current Dolby Pro Logic receiver, or will I have to buy a new receiver?

MARK P. ANGELIDES  
Rye Brook, NY

**A** You'll have to buy a new AC-3-equipped receiver only if you want to be able to experience the surround enhancements (better separation and so on) offered by AC-3-encoded soundtracks. You'll still be able to enjoy conventional Dolby Surround playback because all AC-3-encoded movies also contain a Dolby Surround soundtrack. By the same token, all AC-3 decoders (whether stand-alone or built into a receiver or other component) also perform Dolby Pro Logic decoding, so any tapes or discs you now own won't become obsolete. For the time being, AC-3 is only available on laserdiscs, but it will be included in future digital delivery systems, including high-definition television (HDTV) and possibly the digital videodisc (DVD) system due out late this year.

## Adding a Center Channel

**Q** In our attempt to create a perfect surround-sound system, we seem to have made a grave mistake. The core of the system is an A/V receiver that does not include Dolby Pro Logic or a subwoofer output. We feel that our main speakers put out enough bass that we can do without the subwoofer, but we would like to add a center-channel speaker. What do we have to do to achieve this without spending too much more?

GIL HAWKINS  
Sun City West, AZ

**A** There's really no way to derive a center-channel signal if the surround decoder in your present receiver doesn't provide one; the best solution is to upgrade to a receiver that has Dolby Pro Logic decoding. Fortunately, that need not be all that expensive these days — such receivers start at about \$300 or so.

Of course, that's assuming you really need a center speaker. The center-channel output provided by Dolby Pro Logic is very effective at anchoring things like dialogue at the location of the screen, even for listeners sitting off-axis, but it's not always necessary. If the main viewing positions are reasonably close together on the center line of the screen, normal imaging with its "phantom"

center might well be enough, and you may find the improvement obtained by adding Pro Logic an unjustifiable expense.

## Stereo Bass?

**Q** My surround-sound system includes a pair of powered subwoofers, but my receiver only has a mono subwoofer output. Is there something I can buy that would give me stereo bass so that I can connect both of my subwoofers?

CHARLES F. WELLS  
Lansing, MI

**A** Don't worry about "stereo bass" — it doesn't exist in many recordings. Practically all of the low bass in a movie soundtrack is recorded in mono, and even if it weren't, low frequencies are mainly nondirectional. I suggest using a simple Y adapter to feed your receiver's single bass output to both subwoofers. If you really insist on separate feeds for the few occasions when there is a difference in bass between the left and right channels, feed the subs from the main speaker outputs of your receiver; virtually all powered subs have speaker-level inputs.

## The Sound of Videotape

**Q** My hi-fi VCR is capable of audio-only recording. When I use this feature, can the type of videotape I use be a factor in the sound quality I achieve? Could the tape speed affect the sound quality as well?

RANDALL COLLINS  
Omaha, NB

**A** Generally, as long as the tape has a certain minimal integrity (stick with name brands), it won't affect the recording quality. The enemy is dropouts, which can affect the sound by interrupting it; a tape has to be pretty bad for that to be much of a problem, however. By the same token, taping at slower speeds is also slightly more prone to physical disruptions, but if that's not a problem, the sound should be just as good as at higher tape speeds because the "writing speed" of the spinning head is the same regardless of the linear speed of the tape. I've made lots of superb recordings on drug-store-grade tapes at the slowest speed.

## CB Terror

**Q** A neighbor of mine has purchased a CB radio with a rooftop antenna. Most of my equipment is unaffected by the transmissions from this setup, but my receiver conducts all of my neighbor's conversations loud and clear. I've tried shielded speaker wire, extra grounding, and moving the re-

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The Leader in High-Performance Loudspeakers...

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- AL: Cohen's Electronics; Montgomery; Kincaid's TV; Tuscaloosa; Likis Audio; Birmingham.
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- AZ: Jerry's Audio Video; Phoenix, Tucson.
- CA: Access to Music; Larkspur; Accurate A/V; S. Lake Tahoe; Audio Concepts; Long Beach; San Gabriel; Bay Area Audio; San Jose; Christopher Hanson; West LA; Coast Satellite; Atascadero; Santa Maria; Creative Stereo; Santa Barbara; Ventura; David Rutledge Audio; Palm Desert; DB Audio; Berkeley; Digital Ear; Tustin; Larson & Redding; Monterey; Monterey; Pacific Coast A/V; Newport Beach; Paradise; Sacramento; Performance Audio; San Francisco; Sound Co.; Escondido; San Diego; Speaker; G. H. Rivers; Systems Design; Redondo Beach; Videotek; Westminster; Westchester TV; Bakersfield; Wilson A/V; Woodland Hills.
- CO: Listen Up; Denver; Boulder, Colorado Springs.
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- DC: Suburbs; Audio Buys.
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- FL: Absolute Sound; Winter Park; Audio Advisors; West Palm Beach; Audio Center; Deerfield Beach; The Audiohouse; Vero Beach; Cooper for Stereo; Clearwater.
- HO: Stereo; Jacksonville; Palm Audio; Destin; Sensuous Sound; Tampa; Sound Components; Coral Gables; Sound Ideas; Gainesville; Sound Insight; Ft. Pierce; Stereotypes; Daytona Beach; Stereo World; Ft. Myers; Naples; Stuart A/V; Stuart.
- GA: Audio Warehouse; Savannah; Ken's Stereo Jct.; Macon; Laser Disc Enterprises; Atlanta; Merril TV; Columbus; Stereo Connections; Valdosta; Stereo Festival; Atlanta; Stereo Shop; Martinez.
- HI: Audio Center; Honolulu.
- IL: Archer Audio Video; Ft. Dodge; Audio King; Cedar Rapids; Des Moines; Audio Video Logic; Des Moines; Audio Visions; Sioux City; Camera Corner; Davenport; Hawkeye A/V; Iowa City; Waterloo.
- IN: Ultimate Electronics; Boise; Wise Buy; Idaho Falls.
- IA: United Audio Ctr.; Chicago & Suburbs; Camera Corner.
- IL: McCormick's Cars & Stereo; Rockford; Jon's Home Ctr.; Quincy; Sd Forum; Crystal Lake; Select Sd; Naperville; Sundown A/V; Springfield.
- IN: Audio Video Lifestyles; Fort Wayne; Ovation Audio; Clarksville, Indianapolis.
- KS: Accent Sound; Overland Park; Advance Audio; Wichita; Audio Junction; Junction City, Manhattan.
- KY: Ovation Audio; Lexington, Louisville.
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- MA: Cookin'; Chestnut Hill; Saugus; Goodwins Audio; Boston; Shrewsbury; Nantucket Sound; Hyannis.
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- MI: Cookin'; Portland.
- MI: Pecar's; Detroit; Troy; Classical Jazz Holland; Classic Stereo; Kalamazoo; Grand Rapids; Front Row A/V; Flint; Court St. Listening Room; Midland; Saginaw.
- MI: Audio Designs; Winona; Audio King; Minneapolis & Suburbs; Rochester; St. Cloud; Audio Perfection; Minneapolis.
- MO: Independence A/V; Independence; Sound Center; St. Louis.
- MS: McLelland TV; Hattiesburg; Players A/V; Ridgeland.
- MT: Car & Home Stereo Ctr.; Billings; Rocky Mt. Hi-Fi; Great Falls.
- NC: Audio Video Systems; Charlotte; Audio Visions; Wilmington; Now Audio Video; Durham; Greensboro; Raleigh; Winston Salem; Audio Lab; Wilmington; Tri City Elect.; Conover.
- NE: Custom Electronics; Omaha, Lincoln.
- NH: Cookin'; Nashua; Manchester, Newington, Salem, S. Nashua.
- NJ: Hal's Stereo; Trenton; Monmouth Stereo; Shrewsbury; Wall Sound Waves; Northfield; Woodbridge Stereo; West Caldwell, Woodbridge.
- NM: Ultimate Elect.; Albuquerque; Sound Ideas; Albuquerque.
- NM: Ultimate Elect.; Las Vegas; Upper Ear; Las Vegas.
- NY: Audio Breston; Manassas; Audio Den; Lake Grove; Audio Expressions; Newburgh; Audio Junction; Watertown; Clark Mus.; Albany; Syracuse; Stereo Erchie; Manhattan; Newark; Hart Elect.; Ithaca; Vestal; Innovative Audio; Brooklyn; Listening Rm; Scarsdale; Rose Camera; Rochester; Sound Mill; Mt. Kisco; Yorktown Hts.; Speaker Shop; Amherst; Buffalo.
- OK: Contemporary Sounds; Ok. City; K Labs Premium Audio; Tulsa; Photo World; Bartlesville; Ultimate Electronics; Tulsa.
- OH: Audio Cral; Akron, Cleveland, Mayfield Hts., Westlake; Audio Etc.; Dayton; Paragon Sound; Toledo; Threshold Elect.; Heath.
- OR: Bradford's Hi-Fi; Eugene; Chelsea A/V; Portland; Beaverton; Kelly's Home Ctr.; Salem; Larson's; Medford, Roseburg; Stereo Plant; Bend.
- PA: Audio Junction; Pittsburgh; Gary's Elect.; State College; GNT Stereo; Lancaster; Hart Elect.; Blakely; Kingston; Hi-Fi House; Abington, Broomall, Camp Hill, Harrisburg; Listening Post; Pittsburgh; Palmer Audio; Allentown; Stereoland; Natrona Heights; Studio One; Erie; The Stereoshop; Greensburg.
- RI: Stereo Discount Ctr.; Providence.
- SC: A/V Design; Charleston; Custom Theater & Audio; Myrtle Beach; Uptons Audio; Columbia.
- SD: Audio King; Sioux Falls.
- TN: Collaps; Hi-Fi Chattanooga; Hi-Fi Buys; Nashville; Now Audio Video; Knoxville; Modern Music; Memphis; New Wave Elect.; Jackson; Sound Room; Johnson City.
- TX: Home Entertainment; Dallas; Houston, Plano; Audio Tech; Temple; Waco; Audio Video; College Station; Brock A/V; Beaumont; Bunkley's Sd. Systems; Abilene; Bjorn's; San Antonio; High Fidelity; Austin; Krystal Card; Dallas; Marvin Electronics; Ft. Worth; Sd. Box; San Angelo; Sd. Quest; El Paso; Sd. Systems; Amarillo; Sd. Towne; Texarkana.
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- VA: Audio Buys; Arlington, Fairfax, Falls Church, Manassas; Audio Connection; Virginia Beach; AudioRings; Roanoke; Home Media Store; Richmond; Stereo Type; Charlottesville.
- VT: Audio Video Authority; S. Burlington.
- WA: Definitive Audio; Bellevue; Seattle; Evergreen Audio; Silverdale; Pacific St. & Se.; Wenatchee; Tin Ear; Kennewick.
- WI: Sound Post; Princeton.
- WI: Audio Emporium; Milwaukee; Absolute Sd. & Vision; Sheboygan; Hi-Fi Heaven; Appleton, Green Bay; Sd. World; Wausau.
- Canada: A & B Sound; Calgary, Edmonton, Kelowna, Vancouver & Suburbs, Victoria; Advance Electronics; Winnipeg; Bay Bloor Radio; Toronto; Centre Audio Charest; Trois Rivières; CORA; Quebec City; Digital Dynamics; Clearbrook; Great West Audio; London; Kebecson; Montreal; Lipton's; New Market Ontario; Peak Audio; Halifax; Sound Room; Vancouver; StereoLand; Windsor; Treble Clef; Ottawa.
- Mexico: Contact Grupo Volumen; Mexico City.

# “All Definitive’s Bipolar Towers Deliver Astounding Sound for Music & Movie Perfection”

*You must hear the superiority of Definitive’s remarkably affordable BP6, 8, 10 & 20 and experience the miracle of bipolar technology!*

## “Truly Outstanding”

— Stereo Review

**A**bsolute sonic superiority and unexcelled value have made Definitive the leader in high-performance loudspeakers. It’s no wonder experts agree that Definitive’s critically acclaimed bipolar towers (priced from \$299 ea.) dramatically outperform the competition.

Our exquisitely styled, American-made, advanced technology bipolar (front and rear radiating) systems are the critics’ choice. They combine lush spacious sound-staging, lifelike depth-of-field, razor-sharp resolution and pinpoint 3-D imaging with powerful subwoofer-quality bass (to below 20 Hz), high efficiency and ultra-wide dynamic range. The result is superb music and movie reproduction so real that it has been called “an incredible sonic miracle.”



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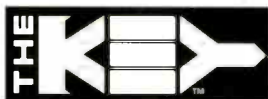
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Photo by Matt Group Agency

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ceiver to another room, but nothing works. Both the receiver's manufacturer and the FCC told me to move to another neighborhood. How can I get rid of this interference?

IRVING L. JACOBS  
San Diego, CA

**A** You may not be able to without changing equipment (or moving). As long as the CB radio is operating properly, its owner is not liable for how your equipment reacts to it. Your receiver's tendency to pick up the transmissions may be a quirk of the particular unit you own, or it may be a design shortcoming, but since you have tried all the usual "fixes," I think your only hope is to replace the receiver. When you do, make sure your dealer offers a generous return policy so that you can replace the new receiver if it misbehaves the same way. But properly designed (read: shielded) components should be immune to such interference.

## Analyzing the Spectrum

**Q** Several years ago I purchased a graphic equalizer that came with no instructions. Now I would like to set up my system properly using the equalizer's pink-noise generator and a microphone. How do I go about it?

SAM BURRELL, JR.  
Elyria, OH

**A** If you have access to a spectrum analyzer, the procedure is quite simple. Place the microphone at your regular listening position and connect its output cable to the analyzer. Play the equalizer's pink noise (which will sound like the hiss between radio stations) through your system, and adjust the controls for the flattest response, especially in the midrange (you may not be able to flatten the frequency extremes completely). The fine tuning you've achieved is really correct only for that one position, but the overall response should be somewhat better throughout the room.

If you can't get your hands on a spectrum analyzer, there is an alternative method that's quite effective. Again, place the mike in your listening position, but feed its output to a component with level meters — a cassette deck with mike inputs, say, or a mixer. Using a test CD with a number of spot frequencies, adjust the equalizer so that all the frequencies read the same on the meters; it's best if the test frequencies correspond to the center frequencies of the equalizer's bands, but that may not be possible. This method is quite time-consuming but can yield considerable improvement if done carefully.

Whichever method you use, however, be wary of any adjustments that require boosts or cuts of more than a few decibels. Extreme EQ adjustments are likely to make the sound worse rather than better, and the need for them may indicate serious problems with the other equipment in your system.

**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.**

# “Hands Down, Definitive Offers the Most Bass for the Buck!”

—Video Magazine

*Our award-winning \$699 PF15 subwoofer has a 15" woofer, 185-watt RMS amp and floor-shaking 18 Hz response that will ignite your system.*

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— Stereo Review

We set out to build the world's finest sounding, most powerful subwoofers. And we have. Our PF15 subwoofer is amazing. Our Audio Video Grand Prix winning PF1500 (15" w/ 250-watt amp) is even more spectacular. And our Critic's Choice top 5-star rated PF1800 (18" w/ 500-watt amp) is absolutely nuclear.

All three Definitive powered subwoofers feature our monocoque cabinets, high-power high-current amplifiers, fully adjustable electronic crossovers and massive 15" or 18" drivers. Best of all, experts agree that we have achieved the perfect synergy of powerful, earth-shaking bass for home theater combined with superb transient response and a refined expressive musicality.



*Definitive's subwoofers combine explosive power with refined musicality to achieve the ultimate in bass performance.*

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## Awesome Bass for Your System

To ensure optimum performance in your home, all our subwoofers have superb built-in electronic crossovers with high and low level inputs and outputs, adjustable high pass, low pass and volume controls (plus phase controls for the PF1500 and 1800) to guarantee perfect blending with any system and superior bass response in any room. All are Dolby AC-3 ready.

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## SIGNALS

KEN POHLMANN

### A Sound Career

**Y**ou were happily floating in dreamland when your alarm clock went off, playing its synthesized version of *Für Elise*.

You climbed out of bed and flicked on the TV, half-listening to the news. During the commute into school you listened to a little radio and a few CD tunes. Note: Stop by Midas later for a new muffler.

Nothing worse than a large lecture hall at 8:00 a.m. Well, maybe there is — the hall's PA system makes the professor sound like Darth Vader; he grades like Darth Vader, too. After class you made a few phone calls, then slipped into the computer lab to take a look at a multimedia CD on the French Revolution. With the day winding down, you checked out the latest video game at the mall, caught a movie, then headed to the club for an evening of great music.

Not a bad day — thanks to a lot of very talented audio engineers. You see, your day, like all our days, is filled with audio technology. Audio engineers designed your synthesized music alarm clock, microphoned and mixed the TV news, helped design the TV, built the radio-station studio and your radio. They recorded the CD and designed the CD player, amps, and speakers. They engineered your car's noise and vibration characteristics. They wired up the university's PA system, installed the telecommunications equipment, built the computer's sound card, designed the video game's sound and music, recorded and post-produced the film's sound, and engineered all that great rock-and-roll music.

The most important technologies are the ones we routinely overlook because they're so embedded in everyday life. Audio technology affects almost every aspect of our lives. The technological audio infrastructure that surrounds us is the creation of hundreds of thousands of audio engineers. These bright women and men, in fact, have some of the coolest jobs around. Moreover, there's always room for more bright young engineers, and if you're searching for a career path, there may be none better than this one.

If you like the idea of a sound career, let me offer a few words of advice. I've been working in audio for twenty years, and as a professor of music engineering at the University of Miami I've eased hun-

dreds of students into audio careers (no, I don't grade like Darth Vader). From Madonna to Motorola, from Fox Television to the FBI, from Disney to Dolby, they've hired my former students.

As an educator, my first piece of advice is simple: Get a good education. If you're inclined toward music recording and production, consider a Bachelor of Music degree at a school of music with a program in music engineering. There are at least a dozen universities with excellent programs — for example, Peabody Conservatory, Indiana University, and the University of Colorado/Denver. You'll combine your musical talent as a performer with solid engineering skills. After graduation, if you're persistent and talented, you'll be hauling in Grammys in no time. But be aware that, like every other part of the music business, audio engineering is a very competitive field, and it's a tough

**Audio engineers have some of the coolest jobs around, and there's always room for more bright young engineers. If you're searching for a career path, there may be none better than this one.**

climb to the top. You'll be lucky to make \$20,000 in your first year. On the other hand, if you make it big, you might soon be making \$200,000 a year, or even more.

For others, the technical aspects of the industry are most attractive. In that case, seek out a high-caliber college of engineering and a Bachelor of Science degree in electrical engineering from a school such as the University of Illinois, Stanford, or MIT. You'll start with calculus in your freshman year and wind up programming digital signal processing (DSP) chips in your senior year. Audio manufacturing companies are eager to interview and hire bright young engineers. In a world of temp workers and dwindling benefits, engineers can still command golden employment packages and starting salaries of \$40,000 and up.

No matter what your undergraduate degree, if you're a good student you should go to graduate school and pick up a master's degree. Consider that you've been

going to school for about seventeen years; two more years of study will give you an advanced degree and an edge over all those lowly undergraduates. You owe it to yourself, and your future employer will reward you with a higher salary and a faster career track. Alternatively, many companies are anxious to amplify the value of their employees and will cover your costs to attend graduate school.

No matter what your educational path, or its duration, you should consider that the audio industry is constantly reinventing itself. It is fast-paced and fast-moving, and it will chew you up and spit you out in ten years if you stay static. In other words, once you sign on for a career in audio, be prepared to be a student for the rest of your career. For example, you'll have to read voraciously (ten to twenty magazines and journals every month). You should also join the Audio Engineering Society. This is the premier professional society for audio engineers; the *AES Journal* runs commentary from the outposts of cutting-edge audio. Its section meetings, conferences, and conventions will help keep you intellectually fit, and the networking is simply fabulous.

The audio industry is fast-moving because it is powered by a colossally forceful engine. Specifically, it is computer-driven. Vacuum-tube power amplifiers and phono cartridges are quaint, but today's audio engineers speak in binary.

Their recorders are digital, their telephone lines are fiber-optic digital, their hardware circuits and PC boards are designed and laid out on a computer, and software processing controls it all. To be successful in today's and tomorrow's audio engineering world, you must be intimately comfortable with computers. Even better, you should be a computer monster. And that doesn't mean noodling around with "Doom II." Learn to program. Go out and buy the book *Teach Yourself C in 21 Days*, and then buy a new programming book every month. In a year or two, companies will be falling over themselves asking you to work for them to help design "Doom III."

Audio engineering and its associated fields offer some of the most exciting professions available. If you're thinking about audio as a career path, go for it. As any music engineer will tell you, it's a great opportunity to play hard and work hard. And say hello to Madonna for me. □

# “...this SRS processor is one of life’s experiences that must be heard to be believed.”

Richard Maddox, *Home Theater* April 1995



## Music to Your Ears

“...Talking about it seems to exaggerate its capabilities. Yet there is no denying that no matter how simple the SRS process is, it works remarkably well on any audio source, mono or stereo, and on any system from the cheapest boombox to a stereo TV set to high-end Dolby Pro Logic surround systems. And it does it without having to be pre-encoded on the audio material.” Richard Maddox, *Home Theater*, April 1995.

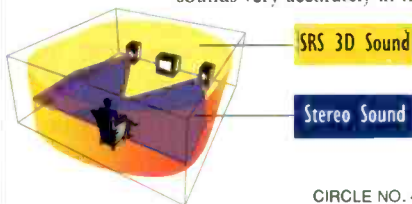
We’re flattered by Richard Maddox’s comments and every day we hear testimonials from users about how they are amazed by this technology. SRS (●) technology has won numerous accolades and has been granted several patents from various countries. Now through NuReality, the power of SRS 3D sound technology can be conveniently and inexpensively brought into your home with the Vivid 3D Theater.

## How it Works

You only have two ears, yet you hear in three dimensions. Patented SRS technology is based on a natural psychoacoustic phenomenon, known as Head Related Transfer Functions or HRTFs, that have been largely ignored by modern sound reproduction technologies. HRTFs allow your brain to localize sound because the spectral characteristics, or frequency response, of the sound varies. These “spatial cues” supplied primarily by the outer ear, or pinna, are

transferred to the brain—enabling you to position sounds very accurately in three-

Stereo processing creates flat, two-dimensional sound, whereas SRS processing fills an entire room with lifelike, three-dimensional sound.



CIRCLE NO. 42 ON READER SERVICE CARD

dimensional space. SRS technology essentially mimics these diffractive effects of the pinna by extracting information from a recording that originally came from the sides and rear. This ambient information gives you a sense of acoustic space. SRS then uses HRTF-based corrections to cause the ear to perceive these sounds in their original spatial relationships. The result is that the sense of realism you perceive from reproduced sound is dramatically enhanced.

## Enhance your System

The Vivid 3D Theater easily connects to your existing system with standard audio cables, which are included. Within minutes you’ll be immersed in dynamic 3D surround sound. Like Richard said, SRS technology works remarkably well on any audio source, mono or stereo, as well as surround sound technologies such as THX® and Dolby Pro Logic®.

## The Holy Grail of Audio

The audio holy grail is to make the speakers sound invisible and to eliminate the sweet spot. We feel we’ve achieved this goal with SRS technology and the Vivid 3D Theater. Call today and discover what NuReality products can do for you. Experience SRS Technology for yourself with our free\* Demo CD.



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\*This specially recorded CD recreates the experience of 3D sound from any CD player and is available for a \$5.95 shipping and handling charge which is fully credited toward the purchase of a Vivid 3D system. This offer applies only to Vivid 3D products purchased directly from NuReality. Freight charges, duty or VAT are not included for International orders. All rights reserved. NuReality and the NuReality logo are registered trademarks of NuReality. SRS and the SRS logo are registered trademark of SRS Labs. All product names are trademarks or registered trademarks of their respective holders. © 1995 NuReality, 2907 Daimler St. Sanca Ana, CA 92705 714-442-1080



## TECHNICAL TALK

JULIAN HIRSCH

# Speaking of Shapes

**H**ave you ever thought about the shape of a typical loudspeaker? It would be easy to conclude that the simple rectangular box is the natural shape of a speaker enclosure, since the vast majority follow that pattern. Actually, things are a bit more complicated than that.

Most of the earliest speakers (in the 1920's) were essentially un baffled. A cone was supported on a frame and typically driven by a magnetic armature (the voice coil, as we know it today, made its appearance a little later). As a matter of fact, "fidelity" in its current audio sense was unknown in those days, despite the inevitable hype associated with the miracle of transmitting sound via radio through the "ether." Mere intelligibility was a sufficient achievement in the 1920's. The program material was generally AM broadcasts of limited bandwidth, with distortion levels that would drive a modern listener to despair. Phonograph records, whether recorded (and reproduced) acoustically or electrically, were pretty dismal by today's standards, although, as now, a notable performance could go a long way toward compensating for these deficiencies.

The dynamic speaker, similar in basic design to today's drivers, was also available in the 1920's, although for many years (well into the late 1940's, as a matter of fact) the speakers in home radios were typically operated in open-backed cabinets that severely limited their bass extension and response flatness.

High fidelity, as we know it today, came onto the scene shortly after the end of World War II, in the mid-1940's. By that time a fledgling hi-fi industry had hatched, and there was a widespread awareness of the importance of clean, extended low-bass response, which remains a staple in today's hi-fi world.

For good bass, it is necessary to isolate the sound radiated from the rear of the woofer cone from the front radiation; otherwise, the two would cancel and reduce the total bass output. The closed-box speaker, one of the major components of most modern stereo systems, is still probably the simplest (and cheapest) means of achieving extended, relatively undistorted bass reproduction.

Roughly similar bass performance can

be achieved with a ported enclosure, such as the well-known bass-reflex design and numerous variations on it. The port, an opening that is usually on the rear or front of the enclosure, actually enhances the bass output over a range of low frequencies, thus yielding a higher efficiency over that frequency range.

In general, a ported enclosure looks just like a sealed-box enclosure except for its port, which is usually concealed by the grille cloth if it is not on the rear panel of the box. There are numerous variations on this theme that involve internal partitions within the enclosure. These may form resonant cavities that modify the system response in certain frequency ranges, or in some cases (so-called "acoustic labyrinth" enclosures) create a long path for the rear radiation from the bass driver to an exit port on the front or rear of the speaker.

Although rectangular boxes have traditionally dominated the speaker world,

**Although rectangular boxes have traditionally dominated the speaker world, several other shapes have appeared from time to time, including some truly weird ones!**

several other shapes have appeared from time to time. Usually these are intended to improve the spatial imaging characteristics of the system. Examples include boxes with a trapezoidal or triangular cross-section, usually with the narrowest side facing forward. This shape can enhance the horizontal dispersion of the sound at high frequencies (low frequencies are inherently broadly dispersed).

Another variation is a cylindrical enclosure, essentially a column. Although the column is fundamentally the same (in an acoustical sense) as a rectangular box, it may, like the triangular enclosure, offer advantages in improved cabinet rigidity.

Most speaker systems, including all the types I have mentioned so far, are basically similar to each other, although they may differ in their bass and midrange sound qualities. Keep in mind that, whatever the shape and internal structure of

the system may be, the loudspeaker drivers themselves are frequently the limiting factors in the overall system sound.

Loudspeaker shapes are by no means limited to those I've mentioned, either. I have seen some truly weird speakers over the years. I recall a spiral enclosure, resembling a giant snail, that I tested way back when (fortunately, it never reached the marketplace!). Several years ago a German-made system that resembled several globes of different diameters stacked vertically turned up at a Consumer Electronics Show. It sounded much better than it looked, but it was a bit pricey in addition to its bizarre styling. And for a while Design Acoustics manufactured a globular enclosure containing eleven drivers that radiated omnidirectionally. As it happened, the speaker sounded very good indeed, although its price and unusual appearance may have contributed to its rather short life.

Full-range horn-loaded speakers are about as far from a box as one can imagine. The venerable Klipschorn, probably the best-known horn speaker designed for home use, and still available after almost fifty years, is totally unlike any box-enclosed system in appearance and performance. This large, heavy, and highly efficient speaker was designed to operate correctly *only* in a corner, which posed problems when stereo came onto the scene. Many people did not have two available corners in their listening rooms, to say nothing of the Klipschorn's price

— on the order of \$800 to \$1,000 each in the 1950's. At today's price of \$5,000 a pair, they are almost a bargain!

There are also several makes of planar speakers, both magnetic and electrostatic. Frequently large and expensive, planar speakers somewhat resemble floor-standing screens, sometimes of considerable size. As a class, they tend to have a distinctively smooth and effortless sound character that has given them an enthusiastic following. The larger (and costlier) planar speakers can have a surprisingly good bass response because of their large radiating area. Smaller units often have a separate cone driver for the lower frequencies, which may also serve a non-acoustic function as a supporting base for the planar speaker panel.

All things considered, however, it should be pretty clear that there is more to any speaker than meets the eye! □



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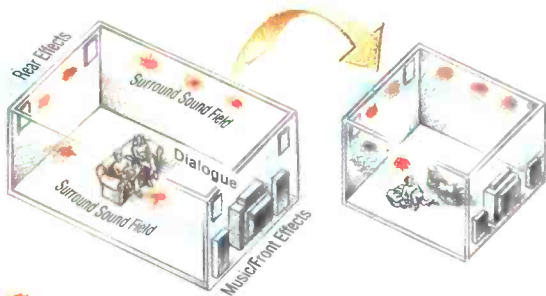
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out a passport, map or shots.



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## Aiwa AD-S950 Cassette Deck

**CRAIG STARK • HIRSCH-HOUCK LABORATORIES**

**T**he AD-S950 is Aiwa's top-of-the-line analog cassette deck. With a three-head, dual-capstan design, the AD-S950 incorporates Dolby HX Pro headroom expansion together with the full complement of Dolby B, Dolby C, and the more sophisticated Dolby S noise-reduction systems. In addition to automatic selection of bias and equalization for the different tape types, the AD-S950 provides the manual bias-optimizing and tape-sensitivity controls required by Dolby S.

Separate record and playback heads in the AD-S950 allow users to compare the incoming signal directly with the recorded result. The heads are mounted in a common case and use pure-copper coils to minimize residual noise. The two capstans are belt-driven by a DC servomotor. A second DC motor handles the reel drive and shifts the heads and pinch-roller assembly into position.

The window in the cassette-well door of the AD-S950 is rather narrow, and while the relative amount of tape

on each reel can be gauged by eye, the labels are not visible. The inner side of the door contains a spring-loaded tape-stabilizer mechanism to damp vibrations that might muddy the sound. The door is not removable, however, which makes cleaning the heads and demagnetizing the heads and capstans somewhat awkward.

When a cassette is inserted, the machine initially emits four loud mechanical thumps, which can be unnerving. These are caused by the operation of the automatic tape-tensioning system, however, and are nothing to worry about.

A calibration button switches in the

bias fine-tuning circuit, which uses adjustment tones of 400 Hz and 10 kHz. To optimize performance the user has only to adjust the bias control for equal indications on the signal-level display and then turn the sensitivity trimmer so that the display deflects to a designated mark. After switching the calibration circuit off, the tape must then be rewound to the start of the procedure so that the test tones will be erased at the beginning of a new recording.

Signal levels are shown on a fifteen-segment-per-channel peak-reading fluorescent display, which is calibrated from -35 to +10 dB. Dolby level is marked at -2 dB, but it measured at -4 dB with our calibrated tape. Tape position is read out in minutes and seconds on a four-digit elapsed-time display that automatically blinks when approximately 3 minutes remain on the side. In conjunction with the counter reset, a Zero Return button helps you find a given place on the tape during fast-wind modes.

Light-touch solenoids operate the usual tape-transport functions, which also include cue and review. An MPX button activates a filter to prevent any residual stereo-multiplex components from affecting the accuracy of the noise-reduction systems while record-

**DIMENSIONS:** 17 inches wide, 5 $\frac{1}{4}$  inches high, and 12 $\frac{1}{4}$  inches deep

**WEIGHT:** 11 pounds

**FINISH:** Black

**PRICE:** \$599

**MANUFACTURER:** Aiwa, Dept. SR, 800 Corporate Dr., Mahwah, NJ 07430

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*Matthew Polk*  
Co-founder, Polk Audio

*The SRT system consists of 35 active drive units housed in seven enclosures (including two 300 watt powered subwoofers) and a Control Center with wireless remote.*

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The Speaker Specialists

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CIRCLE NO. 43 ON READER SERVICE CARD

# TEST REPORTS

ing from FM radio. The usual pause and record-mute buttons are also provided, as is a switch for turning on the deck with an external timer. The wireless remote-control unit supplied with the AD-S950 permits controlling its transport functions from a distance and dimming the control display.

Small front-panel knobs control the bias and record sensitivity along with record channel balance and headphone playback level. A single large knob sets the overall record level. The deck's rear panel carries the record and playback jacks.

As is clear from the accompanying graph, the measured playback response of the AD-S950 was very good. With our ferric and CrO<sub>2</sub> IEC-calibrated BASF tapes, response fell by less than 3 dB at 18 kHz and only 1 dB at 31.5 Hz. Between those points the variation was less than ±0.5 dB.

On an overall record/playback basis, response with our metal tape (TDK MA) was extraordinarily flat — within



±1 dB from 20 Hz to 20 kHz — at the usual -20-dB recording level. Our ferric (TDK D) and chrome-equivalent (Maxell XL-II) samples dropped slightly (2 to 3 dB) at the 20-Hz bass end and more appreciably in the top half octave. At a level of 0 dB the ex-

treme treble range ran into the usual saturation problems, but with Dolby S and metal tape the loss was only 1.5 dB at 18 kHz.

Signal-to-noise ratio (S/N) was very good, ranging from 66.6 dB (ferric tape, Dolby B, A-weighting) to an excellent 82.5 dB (metal tape, Dolby S, CCIR weighting). Wow-and-flutter was 0.085 percent (rated 0.1 percent) on the IEC peak-weighted basis, and 0.046 percent wrms (rated 0.035 percent) on the JIS standard. Dolby tracking error measured only 0.5 dB with our chrome-equivalent tape, and the worst-case error was 2.7 dB, using Dolby S with ferric tape, better figures than we normally obtain.

The AD-S950, if slightly boxy in appearance, was easy to use, and its calibration feature worked perfectly with a variety of tapes we tried on it. Except for its initial thumps whenever it adjusted the tension for a newly inserted cassette, the deck ran quietly and without fuss. The controls are well laid out and well marked, and the display is crystal clear.

With both prerecorded cassettes and those we made ourselves, we found the sonic qualities of the AD-S950 to be very good indeed. Frequency response was broad and smooth, noise was audible only at extremely high playback levels, and wow-and-flutter was inaudibly low.

The Dolby S noise-reduction system is designed to give cassette users the same audible performance they can get from CD's, and in the AiwA AD-S950 this hope is very nearly realized. Tape users still without Dolby S are well advised to try it on a deck like the AD-S950: Record a cassette with no input signal and play it back at a very high volume level while successively switching from no Dolby to Dolby B, Dolby C, and, finally, Dolby S. At each stage the unwanted noise components will shrink dramatically, with Dolby S knocking out the last remaining low-frequency "grunge."

No analog copy is absolutely perfect, however, and we found that we could — barely — distinguish the original from the copy, at least with solo-piano recordings. There was also a very slight loss of definition and ambience-produced soundstage width. That's a small price to pay for extending the enjoyable life of a medium long dear to music lovers, and I'm happy to recommend the AiwA AD-S950 to anyone looking for solid value in a medium-price cassette deck. □

## MEASUREMENTS

**FAST-FORWARD TIME (C-60)** . . . . . 65 seconds  
**REWIND TIME (C-60)** . . . . . 65 seconds  
**SPEED ERROR** . . . . . +0.77%

**DOLBY TRACKING ERROR (worst cases)**  
 Dolby B . . . . . +0, -2 dB  
 Dolby C . . . . . +0, -2.5 dB  
 Dolby S . . . . . +0, -2.7 dB

**WOW-AND-FLUTTER**  
 IEC peak-weighted . . . . . 0.085%  
 JIS wrms . . . . . 0.046%

**LINE INPUT FOR INDICATED 0 DB** . . . 100 mV

**LINE OUTPUT AT INDICATED 0 DB** . . . 440 mV

**METER INDICATION AT IEC-STANDARD 0 DB** . . . . . 0 dB

### TDK D (TYPE I, FERRIC)

**IEC 0-DB DISTORTION** . . . . . 0.95%

**METER INDICATION AT 3% THD+N** . . . +2 dB

**SIGNAL-TO-NOISE RATIOS (in decibels)**

	Unwtd.	A-wtd.	CCIR/IARM
NR off	51.3	56.8	53.3
Dolby B	57.3	66.6	64.0
Dolby C	59.3	73.2	73.1
Dolby S	54.7	71.9	76.5

### MAXELL XL-II (TYPE II, CHROME-EQUIVALENT)

**IEC 0-DB DISTORTION** . . . . . 1.4%

**METER INDICATION AT 3% THD+N** . . . +2 dB

**SIGNAL-TO-NOISE RATIOS (in decibels)**

	Unwtd.	A-wtd.	CCIR/IARM
NR off	51.9	58.1	54.9
Dolby B	55.7	67.3	65.5
Dolby C	57.4	73.7	74.3
Dolby S	54.8	73.5	77.7

### TDK MA (TYPE IV, METAL)

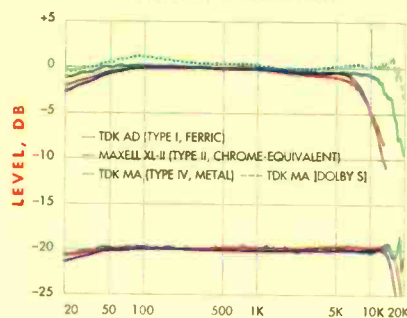
**IEC 0-DB DISTORTION** . . . . . 1.3%

**METER INDICATION AT 3% THD+N** . . . +4 dB

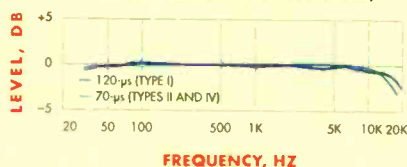
**SIGNAL-TO-NOISE RATIOS (in decibels)**

	Unwtd.	A-wtd.	CCIR/IARM
NR off	56.5	62.8	59.6
Dolby B	60.7	71.8	70.0
Dolby C	62.5	78.3	78.5
Dolby S	59.0	78.7	82.5

### RECORD/PLAYBACK FREQUENCY RESPONSES



### PLAYBACK-ONLY RESPONSES (IEC-STANDARD BASF TEST TAPES)



**SPECIAL  
SALE OFFER!  
ACT NOW!**



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

**Melissa Etheridge:**  
Yes I Am (Island) 35501

**Empire Records/Sdtrk.**  
Gin Blossoms, Cranberries,  
Edwyn Collins, others.  
(A&M) 03457

**Freedom  
from the long  
commitments  
you hate about  
other clubs..**

**Deborah Cox (Arista) 00023**

**Take That: Nobody Else  
(Arista) 00024**

**Raekwon: Only  
Built 4 Cuban Linx  
(Loud Records) 00061 #**

**Ty England (RCA) 00070**

**Alabama: In Pictures  
(RCA) 00083**

**Zhané: Pronounced Jah-  
Nay (Motown) 00115**

**R.E.M.: Automatic For The  
People (Warner Bros.) 00121**

**Billie Holiday: Billie's Best  
(Verve) 00135**

**Sheryl Crow: Tuesday  
Night Music Club  
(A&M) 03061**

**RCA Victor Greatest Hits  
Series: Tchalkovsky  
Greatest Hits  
(RCA) 00952**

**Vivaldi Greatest Hits  
(RCA) 00956**

**Faith Hill: Faith  
(Bad Boy/Arista) 00968**

**Stone Temple Pilots:  
Core (Atlantic) 00981**

**Michael W. Smith:  
I'll Lead You Home  
(Reunion) 00989**

**Michael Bolton: The Early  
Years (RCA) 01193**

**Tina Turner: Simply The  
Best (Capitol) 01195**

**Ugly Kid Joe: America's  
Least Wanted  
(Mercury) 01204 #**

**Kate Bush: The Whole  
Story (EMI) 01244**

**The Best Of Blondie  
(Chrysalis) 01245**

**James Taylor: Sweet Baby  
James (Warner Bros.) 01249**

**The Best Of Joe Cocker  
(Capitol) 01338**

**P.M. Dawn: The Bliss  
Album...? (Island) 01353**

**Creedence Clearwater  
Revival: Chronicle: 20  
Greatest Hits (Fantasy) 01520**

**The Best Of Culture Club  
And Boy George: At  
Worst... (SBK) 01575**

**Blackhawk (Arista) 01588**

**Harry Nilsson: All-Time  
Greatest Hits (RCA) 01630**

**Al Jarreau: Tenderness  
(Repnse) 01650**

**Blind Melon: Soup  
(Capitol) 01667**

**Yellowjackets: Dreamland  
(Warner Bros.) 02231**

**Warren Zevon: Excitable  
Boy (Elektra) 02311**

**Ace Of Base: The Sign  
(Arista) 02354**

**John Michael Montgomery:  
Kickin' It Up  
(Atlantic Nashville) 02402**

**Musical! 15 Hit Songs  
From Classic Musical  
Shows Songs from  
Showboat, Anything Goes,  
more. (Angel) 02408**

**Faith Hill: Take Me As I Am  
(Warner Bros.) 02425**

**Andrew Lloyd Webber: The  
Premiere Collection Encore  
(Polydor) 02446**

**Tori Amos: Under The Pink  
(Atlantic) 02460**

**Etta James: Mystery Lady  
(Songs Of Billie Holiday)  
(Private Music) 02561**

**Holly Cole: Temptation  
(Metro Blue) 02024**

**The Best Of Joy Division:  
Permanent  
(Qwest/Warner Bros.) 02031**

**Paul Simon: Still Crazy After All These  
Years (Warner Bros.) 02065**

**Tom Waits: The Heart Of Saturday  
Night (Elektra) 02093**

**Grover Washington Jr.:  
Anthology (Elektra) 02097**

**Angus/Sdtrk.  
Green Day, Weezer, others.  
(Reprise) 02134**

**Faith Hill: It Matters To Me  
(Warner Bros.) 02190**

**The Best Of Michael  
Jackson (Motown) 02213**

**Yellowjackets: Dreamland  
(Warner Bros.) 02231**

**Warren Zevon: Excitable  
Boy (Elektra) 02311**

**Ace Of Base: The Sign  
(Arista) 02354**

**John Michael Montgomery:  
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**Paul Simon: Still Crazy After All These  
Years (Warner Bros.) 02065**

**Tom Waits: The Heart Of Saturday  
Night (Elektra) 02093**

**Grover Washington Jr.:  
Anthology (Elektra) 02097**



**Fourplay: Elbir  
(Warner Bros.) 02142**



**Dave Matthews Band:  
Under The Table And  
Dreaming (RCA) 05998**

# Freedom of choice

# 11 CDs

**For the Price of  
NOTHING MORE  
TO BUY, EVER!**

**Holly Cole: Temptation  
(Metro Blue) 02024**

**The Best Of Joy Division:  
Permanent  
(Qwest/Warner Bros.) 02031**

**Paul Simon: Still Crazy After All These  
Years (Warner Bros.) 02065**

**Tom Waits: The Heart Of Saturday  
Night (Elektra) 02093**

**Grover Washington Jr.:  
Anthology (Elektra) 02097**

**Angus/Sdtrk.  
Green Day, Weezer, others.  
(Reprise) 02134**

**Faith Hill: It Matters To Me  
(Warner Bros.) 02190**

**The Best Of Michael  
Jackson (Motown) 02213**

**Yellowjackets: Dreamland  
(Warner Bros.) 02231**

**Warren Zevon: Excitable  
Boy (Elektra) 02311**

**Ace Of Base: The Sign  
(Arista) 02354**

**John Michael Montgomery:  
Kickin' It Up  
(Atlantic Nashville) 02402**

**Musical! 15 Hit Songs  
From Classic Musical  
Shows Songs from  
Showboat, Anything Goes,  
more. (Angel) 02408**

**Faith Hill: Take Me As I Am  
(Warner Bros.) 02425**

**Andrew Lloyd Webber: The  
Premiere Collection Encore  
(Polydor) 02446**

**Tori Amos: Under The Pink  
(Atlantic) 02460**

**Etta James: Mystery Lady  
(Songs Of Billie Holiday)  
(Private Music) 02561**

**Crash Test  
Dummies: God  
Shuffled His Feet  
(Ansta) 02593**

**Grammy's Greatest  
Moments Vol. 1  
Bonnie Raitt, Sting, others.  
(Atlantic) 02594**

**Grammy's Greatest  
Moments Vol. 2  
Billy Joel, Mariah Carey,  
others. (Atlantic) 02595**

**Acoustically Speaking  
(Atlantic Jazz) 02889**

**Heart: The Road Home  
(Capitol) 02967**

**Incognito: Positivity  
(Verve/Forecast) 02989**

**Frank Sinatra: Duets  
(Capitol) 03039**

**Pam Tillis: Sweetheart's  
Dance (Arista) 03050**

**Tchakovsky, 1812  
Overture Gothenburg  
Orch./Järvi. (DG) 00060**

**Górecki, Symphony No. 3  
Upshaw, Zinnman.  
(Nonesuch) 00110**

**Handel, Water Music  
(Complete) Orpheus  
Chamber Orchestra.  
(DG) 00865**

**Tchakovsky, Suites  
from Swan Lake &  
The Sleeping Beauty  
Charles Mackerras  
conducts. (Telarc) 01309**

**Pavarotti And Friends  
(London) 01451**

**Opera's Greatest Moments  
(RCA Victor Red Seal)  
02581**

**The Impressionists:  
A Windham Hill  
Sampler  
(Windham Hill) 02617**

**Ray Lynch:  
Deep Breakfast  
(Windham Hill) 02634**

**Bonnie Raitt:  
Longing In Their  
Hearts  
(Capitol) 02742**

**John Scofield &  
Pat Metheny: I Can  
See Your House  
From Here  
(Blue Note) 02744**

**Green Day: Dookie  
(Reprise) 02753 #**

**The Very Best Of  
Glen Campbell  
(Liberty) 02782**

**Strictly Commercial:  
The Best Of  
Frank Zappa  
(Rykodisc) 02851**

**Tracy Lawrence:  
Live & Unplugged  
(Atlantic) 02877**

**Alerald Albright:  
Acoustically Speaking  
(Atlantic Jazz) 02889**

**Heart: The Road Home  
(Capitol) 02967**

**Incognito: Positivity  
(Verve/Forecast) 02989**

**Frank Sinatra: Duets  
(Capitol) 03039**

**Pam Tillis: Sweetheart's  
Dance (Arista) 03050**

**Chant: The Benedictine  
Monks of Santo Domingo  
de Silos (Angel) 02957**

**Beethoven, Symphonies  
Nos. 5 & 6 "Pastorale"  
BPO/Karajan.  
(DG 4D "Karajan Gold") 03127**

**Mad About Angels  
Choral classics. (DG) 03188**

**Handel, Suites For Keyboard  
Keith Jarrett, piano.  
(ECM New Series) 03189**

**The Joy Of Bernstein  
(DG) 03212**

**Back For Breakfast  
Leisurely way to start your  
day. (Philips) 03236**

**Vanessa-Mae: The Violin  
Player (Angel) 03269**

**Anonymous 4: The Lily &  
The Lamb Medieval English  
music. (Harmonia Mundi) 03514**

**Beethoven, Symphony No.  
9 "Ode To Joy" Georg Solti  
conducts. (Telarc) 03847**

**Cecilia Bartoli: Mozart  
Portraits (London) 04923**

**Van Cliburn In Moscow  
Rachmaninov & Brahms.  
(RCA Victor Red Seal) 05748**

**Puttin' On The  
Ritz: Capitol  
Sings Irving Berlin  
(Capitol) 03055**

**Hello Young Lovers:  
Capitol Sings Rodgers  
& Hammerstein  
(Capitol) 03058**

**Sounds Of Blackness:  
Africa To America  
(A&M) 03066**

**Elton John: Goodbye  
Yellow Brick Road  
(Polydor) 03076**

**Elton John: Greatest Hits  
(Polydor) 03077**

**Elton John: Greatest Hits:  
Volume Two  
(Polydor) 03078**

**The Crow/Sdtrk. Stone  
Temple Pilots. Rage  
Against The Machine,  
Nine Inch Nails, others.  
(Atlantic) 03173**

**Blackhawk:  
Strong Enough  
(Arista Nashville) 03183**

**Martina McBride: Wild  
Angels (RCA) 03241**

**Crystal Waters:  
Storyteller  
(Mercury) 03263**

**All-4-One  
(Atlantic) 03267**

**Huey Lewis & The  
News: Four Chords  
& Several Years Ago  
(Elektra) 03274**

**Norman Brown:  
After The Storm  
(MoJazz) 03282**

**Collective Soul:  
Hints, Allegations & Things  
Left Unsaid  
(Atlantic) 03309**

**Jon Secada:  
Heart, Soul & A Voice  
(SBK) 03323**

**Lena Horne:  
We'll Be Together Again  
(Blue Note) 03327**

**The Royal Philharmonic  
Orchestra: The Music Of  
Pink Floyd  
(RCA Victor) 03347**

**The Very Best Of Cream  
(Polydor) 03385**

**Blues Traveler  
(A&M) 03386**

**Vanessa Rubin Sings!  
(Novus) 03411**

**Alex Bugnon:  
Tales From The Bright Side  
(RCA) 03426**

**The Police: Every Breath  
You Take, The Classics  
(A&M) 03515**

**Sammy Kershaw:  
The Hits/Chapter 1  
(Mercury Nashville) 03522**

**Morrissey: Southpaw  
Grammar (Reprise) 03530**

**The Lion King/Sdtrk.  
(Walt Disney) 03533**

**Boney James: Seduction  
(Warner Bros.) 03549**

**Orff, Carmina Burana  
McNair, St. Louis/Slatkin  
(RCA Victor Red Seal) 05954**

**James Galway:  
Wind Of Change  
Tears In Heaven, more.  
(RCA) 05960**

**Kronos Quartet: Night  
Prayers (Nonesuch) 06084**

**Fiedler and Friends  
Boston Pops.  
(RCA Victor Gold Seal) 06139**

**Vladimir Horowitz: The  
Private Collection Vol. 1  
(RCA Victor Red Seal) 06189**

**Pavarotti: The Early Years,  
Vol. 1 Recorded live!  
(RCA Victor Gold Seal) 06200**

**Vision: The Music Of  
Hildegard von Bingen  
(Angel) 06215**

**Alicia de Larrocha:  
Mompou, Spanish Songs  
and Dances  
(RCA Victor) 06469**

**Luciano Pavarotti:  
Pavarotti In Central Park  
(London) 06096**

**Kronos Quartet Performs  
Philip Glass (Nonesuch) 08150**

**Travis Tritt:  
Greatest Hits -  
From The  
Beginning  
(Warner Bros.) 03557**

**Edwin McCain: Honor  
Among Thieves  
(Atlantic/Lava) 03608**

**Terril Clark  
(Mercury Nashville) 03609**

**Down: Nola  
(EastWest) 03808**

**Solo  
(Perspective/A&M) 03819**

**David Sanborn: Pearls  
(Elektra) 06324**

**The Very Best Of The  
Everly Brothers  
(Warner Bros.) 03826**

**Rod Stewart:  
A Spanner In The Works  
(Warner Bros.) 03827**

**Shania Twain  
(Mercury) 03851**

**The Drifters' Golden Hits  
(Atlantic) 03859**

**The Manhattan Transfer:  
Tonin' (Atlantic) 06175**

**Eric Clapton:  
From The Cradle  
(Warner Bros.) 06025**

**Freedom to  
explore all  
kinds of music.**

**Dream Theater: Change Of  
Seasons (EastWest) 03937**

**The Best Of Peter, Paul And  
Mary (Warner Bros.) 04131**

**Carpenters: The Singles  
1969-1973 (A&M) 04393**

**Herb Alpert & The Tijuana  
Brass: Classics, Vol. 1 (25**

The Best Of Woodstock  
(Atlantic) 04908

Pet Shop Boys:  
Discography: The  
Complete Singles  
Collection  
(EMI) 05605

Dave Brubeck Quartet:  
Late Night Brubeck;  
Live At The Blue Note  
(Telarc) 05665

Ella Fitzgerald: The Best  
Of The Songbooks: The  
Ballads (Verve) 05713

Jimmy Scott: Dream  
(Sire) 05717

Take 6: Join The Band  
(Reprise) 05718

The Tractors  
(Ansta) 05721

Dizzy Gillespie:  
Verve Jazz Masters 10  
(Verve) 05737

Everette Harp:  
Common Ground  
(Blue Note) 05768

David Ball:  
Thinkin' Problem  
(Warner Bros.) 05791

Joshua Redman:  
Mood Swing  
(Warner Bros.) 05845

Neil Young &  
Crazy Horse:  
Sleeps With Angels  
(Reprise) 05860

Brooks & Dunn:  
Waitin' On Sundown  
(Ansta) 05888

Amy Grant: House Of Love  
(A&M) 05902

Anita Baker:  
Rhythm Of Love  
(Elektra) 05980



All-4-One:  
And The Music Speaks  
(Atlantic/Blitz) 08917

Nanci Griffith: Flyer  
(Elektra) 05982

Joe Sample And  
The Soul Committee:  
Did You Feel That?  
(Warner Bros.) 05984

Gerald Levert: Groove On  
(EastWest) 05986

Barry Manilow:  
Singin' With The Big Bands  
(Ansta) 05989

Keith Whitley-A Tribute  
Album Lorrie Morgan,  
Alan Jackson, others.  
(BNA) 05995

Alabama: Greatest Hits.  
Vol. III  
(RCA) 05996

Hiroshima: L.A.  
(Reprise/Qwest) 06024

Red Hot & Country  
Mary Chapin Carpenter,  
Patty Loveless, Johnny Cash,  
others (Mercury) 06045

Bebe & Cece Winans:  
Relationships  
(Capitol) 06061

Najee: Share My World  
(EMI) 06141

Clint Black: One Emotion  
(RCA) 06155

Little Texas: Kick A Little  
(Warner Bros.) 06163

R.E.M.: Monster  
(Warner Bros.) 06164

Karyn White:  
Make Him Do Right  
(Warner Bros.) 06166

Jeff Foxworthy: You Might  
Be A Redneck If...  
(Warner Bros.) 06173



The Cranberries:  
No Need To Argue  
(Island) 06258



Seal (1994)  
(Warner Bros./Sire) 05907



Blues Traveler: Four  
(A&M) 06046



Annie Lennox: Medusa  
(Arista) 03678



Bon Jovi: Cross Road  
(Greatest Hits)  
(Mercury) 06183

Barry White:  
The Icon Is Love  
(A&M) 06185

The Best Of Emerson, Lake  
& Palmer (Victory) 06248

Tom Petty: Wildflowers  
(Warner Bros.) 06260

Brandy (Atlantic) 06266

Bryan White  
(Asylum) 06267

Jason's Lyric/Sdtrk. LL Cool  
J, Tony/ToniToni, others  
(Mercury) 06268

Frank Sinatra: Duets II  
(Capitol) 06269

The Best Of David Sanborn  
(Reprise) 06274

Barbra Streisand:  
Hello Dolly  
(Philips) 06314

Benny Goodman:  
Verve Jazz Masters 33  
(Verve) 06318

Arthur Fiedler and the  
Boston Pops Orchestra:  
Salute To Disney  
(DG) 06329

Vanessa Williams:  
The Sweetest Days  
(Mercury) 06335

Madonna: Bedtime Stories  
(Maverick/Sire) 06356

The Best Of Sting  
1984-1994: Fields Of Gold  
(A&M) 06357

The Unplugged Collection,  
Vol. 1 Rod Stewart,  
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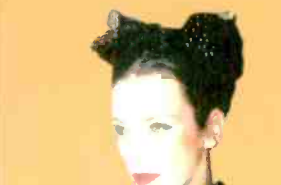
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2.  COUNTRY Alan Jackson Shania Twain
3.  HARD ROCK Bon Jovi Van Halen
4.  SOFT ROCK & POP Elton John Hootie & The Blowfish
5.  CLASSICAL<sup>(1)</sup> Luciano Pavarotti Evgeny Kissin
6.  JAZZ Fourplay David Sanborn
7.  METAL Pantera AC/DC
8.  R&B/DANCE TLC Boyz II Men
9.  ALTERNATIVE The Cranberries Green Day

4.  Mr.  Mrs.  Ms. (PLEASE PRINT) First Name Initial Last Name

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- Phil Collins: Serious Hits...Live! (Atlantic) 00324
- Genesis: Live: The Way We Walk, Vol. 1/The Shorts (Atlantic) 02033
- Yanni: Live At The Acropolis (Private Music) 02477
- Bryan Adams: Live! Live! Live! (A&M) 06497
- Dwight Yoakam: Dwight Live (Reprise) 08713
- Santana: Sacred Fire: Live In South America (Polydor) 24892
- Elvis Presley: Live At Madison Square Garden (RCA) 30070

## ABSOLUTELY LIVE

- Kansas: Live At The Whiskey (Intersound) 33961
- U2: Under A Blood Red Sky (Live At Red Rocks) (Island) 53598
- George Thorogood & The Destroyers: Live (EMI) 54652
- Allman Brothers Band: The Fillmore Concerts (Polydor) 01159
- Van Halen: Live: Right Here, Right Now (Warner Bros.) 01165
- The Police: Live (A&M) 08551
- Phish: A Live One (Elektra) 08922
- Grateful Dead: Europe '72 (Warner Bros.) 53931
- David Bowie: David Live (Rykodisc) 64369
- The Doors: In Concert (Elektra) 93427

LS FADAL MS 507

## TEST REPORTS



# Cambridge SoundWorks Ensemble IV Three-Piece Speaker System

**JULIAN HIRSCH • HIRSCH-HOUCK LABORATORIES**

**T**he Cambridge SoundWorks catalog describes the new Ensemble IV speaker system as "the most compact, most affordable subwoofer/satellite speaker system ever designed by Henry Kloss." Considering that Kloss is one of the most talented and prolific speaker designers of our time (and definitely not given to exaggeration), it would be reasonable to infer that the Ensemble IV is somewhat special.

Decide for yourself. It is a three-piece system with two small, roughly cubical satellite speakers and a compact common-bass "subwoofer." The bass module has a single long-throw 5 $\frac{3}{4}$ -inch driver with a dual voice coil to radiate frequencies below about 150 Hz through a single 2 $\frac{1}{4}$ -inch port. The bass driver operates in a sealed cavity, firing into a second cavity that serves as a tuned band-pass filter in order to

exclude unwanted higher frequencies from its output.

Each satellite speaker is barely large enough to contain a single long-throw 3-inch cone driver whose response extends down to 150 Hz. The satellites, which have perforated metal grilles, are finished in dark gray Nextel, but

#### **DIMENSIONS**

Bass module: 6 $\frac{1}{2}$  inches wide, 8 inches high, 12 inches long  
Satellites: 4 inches wide, 4 inches high, 3 $\frac{1}{2}$  inches deep

**WEIGHT:** Bass module, 7 $\frac{3}{4}$  pounds;  
Satellites, 1 $\frac{3}{4}$  pounds

**FINISH:** gray Nextel

**PRICE:** Ensemble IV, \$250; Ensemble IV Home Theater, \$400

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

they are also available primed for painting in a color of your choice.

Cambridge SoundWorks is also somewhat unconventional in supplying all the "extras" needed to install its systems. The Ensemble IV comes with a 100-foot roll of insulated, color-coded speaker wire, a wire cutter/stripper, and full instructions for installation. It is also available with three additional satellites for use in home theater systems, as the Ensemble IV Home Theater, making it ideal for enjoying home theater at minimal cost when combined with an inexpensive A/V receiver, a TV, and a VCR.

We measured the performance of the bass module and the satellites both separately and together as a system. The averaged room response of the system was effectively flat above 400 Hz, within 2 dB overall up to about 10 kHz. The satellite drivers' cone resonance produced a 4-dB peak at 12 kHz, but the system's overall output response in our listening room (including boundary effects) was  $\pm 5$  dB from 50 Hz to 20 kHz.

A quasi-anechoic MLS frequency-response measurement showed an extremely flat response ( $\pm 1$  dB) from 300 Hz to 2 kHz, a 3-dB level rise from 2 to 3 kHz, and a  $\pm 2.5$ -dB variation from 3 to 9 kHz. The satellite cone resonance produced a 7-dB rise between 9 and 12 kHz, followed by a steep drop that reached the original reference output level at about 16 kHz. A close-miked measurement of the satellite's output showed an impressively flat response of  $\pm 1.5$  dB between 160 Hz and 1 kHz.

We measured the frequency response of the bass module with the microphone at its port. Its response was even more impressively flat than that of the satellites, varying less than  $\pm 1$  dB from 65 to 170 Hz.

The system's sensitivity was 88 dB sound-pressure level (SPL) at 1 meter with a 2.83-volt pink-noise input. Driving the bass module with 3.56 volts (equivalent to a 90-dB reference SPL), we measured the distortion in its output as between 1 and 4 percent over the range from 1 kHz to 100 Hz, rising to 10 percent at 60 Hz. Although the output fell off at about 20 dB per octave below 60 Hz, the bass distortion did not exceed 20 percent down to 20 Hz.

Neither the system impedance rating nor any other performance specifications of the Ensemble IV are given in the accompanying literature and in-



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## **TEST REPORTS**

stallation instructions (which are otherwise exceptionally detailed and informative). Our measurement of the impedance of the complete system showed a minimum of 3 ohms at 200 Hz and between 3 and 4 ohms from 180 Hz and 1 kHz. The *maximum* impedance was only 9 ohms at 50 Hz, with another rise to 8 ohms at about 1.2 kHz. Single-cycle burst tests at 1 kHz and 100 Hz indicated that the drivers of the Ensemble IV can take just about any conceivable input (at least for brief periods) without damage. Our amplifier reached its limits (at about 1,200 watts!) without any damage to the speakers.

In listening tests, this remarkable little system lived up to its measurements. The tiny satellites generated a clear stereo soundstage that belied their size and weight (although small size is desirable from the standpoint of generating a spatial image). The bass

**In our listening tests,  
the remarkable  
little Ensemble IV sub/sat  
speaker system from  
Cambridge SoundWorks  
lived up to its impressive  
measurements.**

module is both visually and audibly inconspicuous, but putting your ear close to its port leaves no doubt that it is doing its job.

Once you become accustomed to the size of this system, its balance and listenable quality become apparent. As it happened, the only other system we had available for comparison at the time was vastly larger and more expensive. Although the two systems certainly didn't sound alike or look alike, they were both perfectly listenable, and the Ensemble IV never gave a hint of its minuscule dimensions and price tag to match.

I have a minor cavil with calling the bass module a "subwoofer." It is a *woofer*, and a very effective one for its size and weight. But that is mere nit-picking, and I would have to agree with Henry Kloss that this system is one of the top bargains in today's market. Hearing is believing! □

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BOOK P. LEUNG

## Pioneer Elite PDR-99 Compact Disc Recorder

**KEN C. POHLMANN • HAMMER LABORATORIES**

I've worked with a number of professional compact disc recorders and several computer-peripheral CD recorders, but this is the first time I've gotten my hands on a consumer CD recorder. I am happy to report that the Pioneer PDR-99 is light years away from first-generation CD players in terms of its playback capabilities, and it successfully shatters the recordability barrier. Pioneer has overcome a multitude of political hesitations and at last introduced an affordable consumer product designed to play CD's and record CD-R's (write-once CD blanks).

A quick glance at the PDR-99 reassures you that it belongs in Pioneer's Elite series. Its glossy black front panel and rosewood side panels, richer looking than a Rockefeller (or even a Gates), suggest a largesse of expert engineering inside. At first glance, though, you might mistake the PDR-99 for a simple player. All of the expected controls are there: power on/standby, drawer open/close, play, pause, stop, forward and reverse track search (audible manual forward and reverse scan when held down), and headphone level at the front-panel jack.

Closer inspection reveals the PDR-99's more revolutionary aspects. An

Input Selector button is used to select a fiber-optic or electrical (coaxial) digital input or a line-level analog input. When the Digital Synchro button is used for recording, the deck senses digital input signals, automatically enables recording, and pauses the recorder when the selected source program ends. Either individual tracks or all tracks can be dubbed from a CD or DAT; in either case, track numbers are automatically preserved in the recording. For nonsynchro recording, you start and stop the process manually using the pause button. A record-mute button inserts 4-second silent segments between recorded tracks. Two potentiometers, marked Record Balance and Record Level, are used only to set analog input levels; they don't operate with the digital inputs.

**DIMENSIONS:** 18 inches wide, 5¼ inches high, and 11¼ inches deep

**WEIGHT:** 13 pounds

**FINISH:** glossy black with rosewood side panels

**PRICE:** \$2,000

**MANUFACTURER:** Pioneer, Dept. SR, P.O. Box 1540, Long Beach, CA 90801

There are two track-number buttons, marked Auto/Manual and (Manual) Write, and a small red LED associated with them. When you hit the Auto/Manual button, the LED lights up; you then press the (Manual) Write button whenever you want to insert a track number. If you hit the Auto/Manual button again, the LED goes out and the track numbers are automatically updated and recorded in sequence.

There are three track-skip ID buttons, marked Skip Play On/Off, Set, and Clear, that can be used to instruct a CD player to permanently skip over unwanted or spoiled tracks. The Skip Play On/Off button activates the skip function, then you use the track-search buttons to select the track to be skipped and the Set button to insert a skip marker for it. The Clear button cancels skip commands. Skip ID's are stored permanently by pressing the disc-drawer open/close button. The Finalize button is used to write a Table of Contents so that a disc can be played on any CD player.

A large fluorescent display shows typical information, such as track numbers and timing, as well as specialized data for recording. For example, there are two bar-graph level meters, displays for sampling frequency, copy prohibition, and input type, and indicators that light when a pre-finalized CD-R disc is played and when recording is enabled. The display also helpfully flashes a large lexicon of messages such as INPUT CD, NEW DISC, REC FULL, PRO DISC, and FINAL? The Display Off button can be used to deactivate the display except

# AC-3 really gives speakers a workout. Luckily, we've had time to train.

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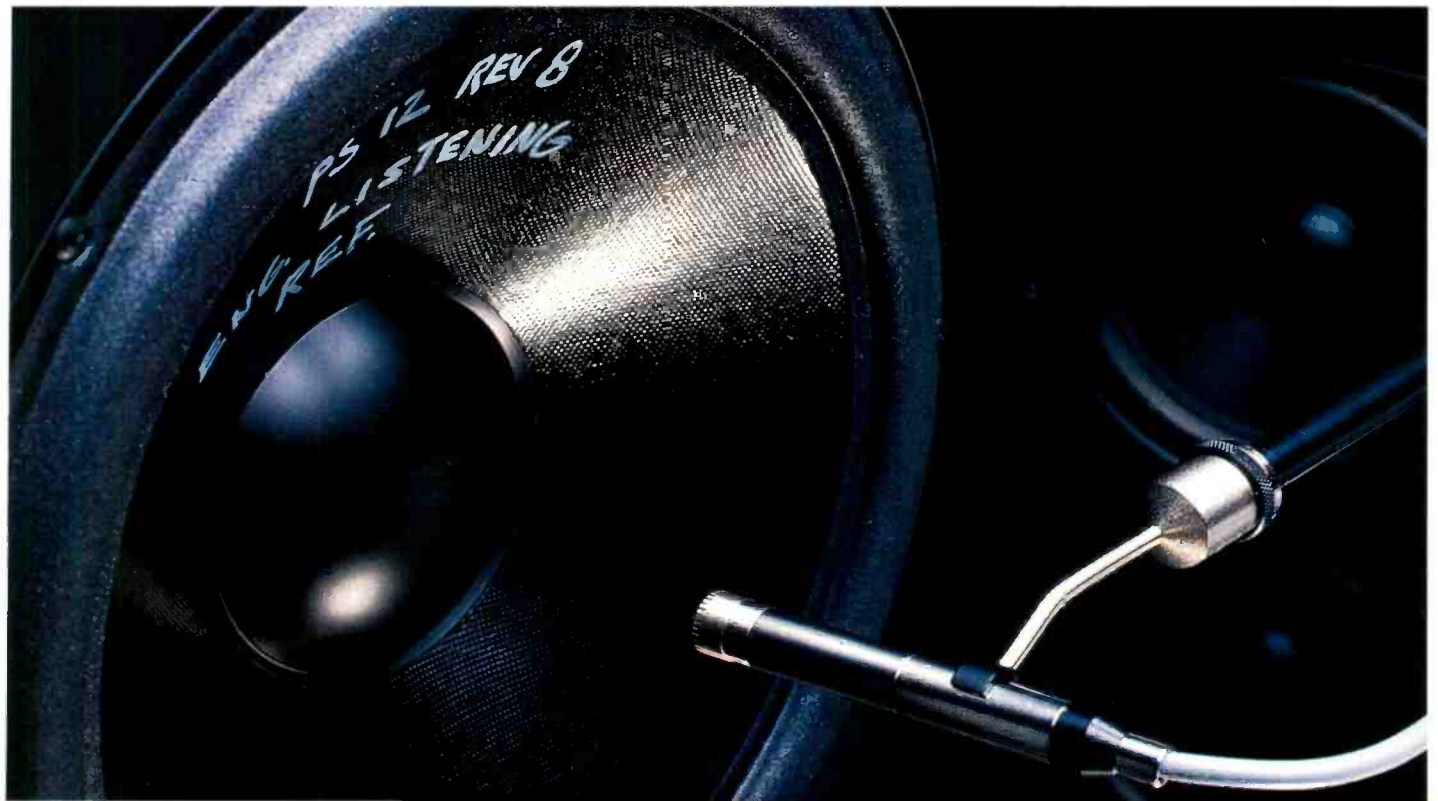
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Another AC-3 consideration: Since all speakers may be fed bass extending to 80Hz, centers and surrounds must play low. Good thing our VR10 and VR12 center channels and new Lynnfield VRS Pro surrounds were built to handle this very spec. Finally, a subwoofer must cleanly reproduce five discrete bass channels, plus AC-3's thunderous LFE (low frequency effects) channel – something our new VR2000 300-watt powered subwoofer can do without breaking a sweat. Get the whole scoop on our new AC-3-capable speaker system. Call 617 592-9000. Just remember to do some stretches before dialing.



This Lynnfield VR system includes our award-winning VR40 mains and VR12 center channel, plus our new VRS Pro surrounds and VR2000 300-watt powered subwoofer. (This system reproduces 21–20,000Hz  $\pm$ 3dB and an astounding 105dB at normal listening position.)

**Boston**Acoustics

70 Broadway, Lynnfield, MA 01940. Dolby and AC-3 are registered trademarks of Dolby Laboratories, Inc.

# TEST REPORTS

when an operation button is pushed. Conveniently, if you hit the button during recording the remaining recording time is displayed.

All connections except the headphone jack are on the rear. There are four phono jacks for analog input and output. There are also two pairs of digital connectors, a pair of Toslink optical jacks (Digital 1) and a pair of coaxial jacks (Digital 2). A rear-panel control must be switched on to use either digital output and off to use the analog outputs. A pair of miniplug jacks can be used to connect a control cable between the PDR-99 and compatible Pioneer components, thereby allowing a remote-control signal received by one unit to be conveyed to other components in the sound system.

The supplied remote control duplicates many primary front-panel controls and adds a few extra features, including a button that initiates a 5-second fade-in or fade-out. The Program button can be used to set up a twenty-four-track playback sequence, and the Program Check and Clear buttons verify or delete programmed tracks. A time button displays elapsed and remaining time. There are also the random-play and repeat-play buttons that you'd find on any CD player as well as a numeric keypad.

It was with great expectation that I connected the PDR-99 to my home stereo system and started to learn its operation. As with other CD-R-format (Orange Book) recorders, the PDR-99 can play back all standard audio CD's and all CD-R's, even discs without the final Table of Contents. Tracks can be added (up to No. 99) to a partially finished disc until disc space runs out. In addition, skip ID's can be set or cleared only before a recording is finalized. After the TOC is written, extra tracks cannot be added, and discs without a TOC cannot be played on an ordinary (Red Book) CD player. Once the TOC is written, the finalized disc can be played on any player. Because finalized and nonfinalized discs look the same, the PDR-99 has a CD-R indicator that lights when it's playing a disc that is not finalized.

The PDR-99 automatically converts input sampling frequencies of 32 or 48 kHz to the CD standard of 44.1 kHz. The analog-to-digital (A/D) converter employs 1-bit technology, the approach used almost universally in today's digital components; it gives better results than all but the most expensive multibit converters. The 1-bit dig-



ital-to-analog (D/A) converter employs Pioneer's Legato-Link Conversion S circuitry, which is said to psychoacoustically restore frequency content lost in digital recording. A newly developed three-beam pickup with differential push-pull circuitry is also employed. The transport uses Pioneer's stable-platter design, in which the disc rests entirely on the platter surface to minimize vibrations, and a motor that is said to reduce rotational fluctuations. Because of that design, discs must be loaded label-side down.

The PDR-99 was righteous on the test bench during both recording and playback. I measured playback re-

sponse using standard test discs. The Legato Link circuitry tinkers with the frequency response, in this case resulting in a designed dip in playback response to  $-0.88$  dB at 10 kHz, rising to  $-0.26$  dB at 20 kHz. Measurements of dynamic range and signal-to-noise ratio (S/N) verified that noise was quite low — roughly 90 dB below full scale with A-weighting. Distortion levels were pretty good, and the D/A linearity error was reasonably low. The pickup was excellent at tracking through errors and successfully negotiated the largest (4,000-micrometer) defect on my test disc.

I measured record/playback response by recording test signals through the A/D converters. (Clearly, copying my test discs through the digital inputs would have simply produced clones of the discs, resulting in numbers identical to those found in measuring playback response.) The A/D converters were quite good. Dynamic range and S/N approached 90 dB, and THD+N was similar to the playback measurements except that it rose somewhat at  $-20$ -dB levels. The A/D to D/A linearity error remained low at  $+1.3$  dB. The maximum interchannel phase shift and de-emphasis error were also low. In other words, the trip through the A/D converters did not pose significant problems. (Still, you'd want to use the digital inputs whenever possible.)

## MEASUREMENTS

### CD PLAYBACK

<b>MAXIMUM OUTPUT LEVEL</b> . . . . .	2.52 volts
<b>FREQUENCY RESPONSE</b> (ref. 1 kHz) 20 Hz to 20 kHz +0.0, $-0.88$ dB	
<b>DE-EMPHASIS ERROR</b> (at 16 kHz) . . .	+0.4 dB
<b>CHANNEL SEPARATION</b>	
100 Hz . . . . .	63.3 dB
1 kHz . . . . .	81.9 dB
20 kHz . . . . .	81.5 dB
<b>SIGNAL-TO-NOISE RATIO</b> (ref. 0 dB)	
A-weighted . . . . .	92.0 dB
unweighted . . . . .	66.5 dB
<b>DYNAMIC RANGE</b> (A-wtd) . . . . .	90.2 dB
<b>QUANTIZATION NOISE</b> . . . . .	90.3 dB
<b>DISTORTION</b> (THD+N)	
1 kHz, 0 dB . . . . .	0.070%
1 kHz, $-20$ dB . . . . .	0.47%
20 kHz, 0 dB . . . . .	0.60%
<b>LINEARITY ERROR</b> (at $-90$ dB) . . . . .	+1.1 dB
<b>MAXIMUM INTERCHANNEL PHASE SHIFT</b> (at 20 kHz) . . . . .	0.4°
<b>DEFECT TRACKING</b> (Pierre Verany #2 disc) . . . . .	>4,000 $\mu$ m
<b>IMPACT RESISTANCE</b> . . . . .	top and sides, A

### RECORD/PLAYBACK

Recorded through A/D converters.	
<b>MAXIMUM OUTPUT LEVEL</b> . . . . .	2.43 volts
<b>FREQUENCY RESPONSE</b> (ref. 1 kHz) 20 Hz to 20 kHz +0.0, $-0.64$ dB	
<b>DE-EMPHASIS ERROR</b> (at 16 kHz) . . .	$-0.03$ dB
<b>CHANNEL SEPARATION</b>	
100 Hz . . . . .	59.7 dB
1 kHz . . . . .	80.9 dB
20 kHz . . . . .	73.6 dB
<b>SIGNAL-TO-NOISE RATIO</b> (ref. 0 dB)	
A-weighted . . . . .	89.5 dB
unweighted . . . . .	66.0 dB
<b>QUANTIZATION NOISE</b> . . . . .	88.1 dB
<b>DYNAMIC RANGE</b> (A-wtd) . . . . .	89.6 dB
<b>DISTORTION</b> (THD+N)	
1 kHz, 0 dB . . . . .	0.079%
1 kHz, $-20$ dB . . . . .	0.92%
20 kHz, 0 dB . . . . .	0.67%
<b>LINEARITY ERROR</b> (at $-90$ dB) . . . . .	+1.3 dB
<b>MAXIMUM INTERCHANNEL PHASE SHIFT</b> (at 20 kHz) . . . . .	0.4°



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For less than what you probably spent on your VCR, the HTS-1 system produces an incredible surround-sound experience. It's the only system that doesn't require buying a new amp for the rear channels, although it has extra amp outputs for upgrading later. Smart. It goes further, too. In a movie theater, one speaker is centered behind the screen. To get the same dramatic effect with your Chase system, the HTS-1 decoder can send the center-stage sounds to the Chase Dialog, a special powered center channel speaker. Even the Dialog is priced right—only \$75.



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# Change The Way You Look At Sound! 1-800-531-0631

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## TEST REPORTS

Anyone who has made an analog cassette or DAT recording can make a CD-R recording. For example, it's easy to make a digital-to-digital recording of a track from another CD. Before starting a recording, the PDR-99 automatically makes a short test recording to determine the correct laser power level for writing to the disc (this test is made on an inner part of the disc and cannot be played back by the user). To record, you hit the Input Selector to choose a digital input, hit the Digital Synchro button once, and start the source player. The recorder automatically starts recording at the beginning of the source playback and stops when the track ends. If you hit the Synchro button twice, the entire source disc is recorded and track numbers are entered automatically. When you are finished recording a disc you will want to be able to play on another machine, you hit the Finalize button twice; the finalization process typically takes about 4 minutes. In other words, making a CD-R is as easy as recording a

The permission/inhibit condition of any source can be checked by pressing either the Input Selector or Record button.

It's also important to note that although the PDR-99 will *play* any kind of audio CD, it will only *record* a certain kind of CD-R blank. There are two kinds of blank discs: those intended for computer data or use by audio professionals, on which no royalty is paid, and those intended for consumer audio recording, on which a royalty *is* paid. Both types of disc come in jewel boxes. Consumer discs are labeled either "for consumer" or "for music use only," but some computer and professional discs are not clearly marked — so buyer beware.

The PDR-99 will not record on computer or professional-use blanks, although computer-peripheral and professional audio recorders can freely use them to record either data *or* music. The PDR-99 will only record on consumer audio-only blanks, which are priced higher than computer/pro-

difficult to make comparisons, but a few observations may be useful. Professional recorders (similar in design, but with professional inputs and outputs) are more expensive. Peripheral CD-R recorders are somewhat less expensive, selling for as low as \$1,000. The PDR-99 lies in between price-wise, and thus is uniquely affordable among consumer audio CD recorders. Its record and playback sound quality would be superior to that of a computer-peripheral recorder in which analog signals may pass through a sound card with low-quality A/D and D/A circuitry. That it is a real-time-only recorder will not bother most buyers. It is an audio product, not a computer product, and its buyers will probably not want to fool around with software menus and hard drives. On the other hand, the 63-minute limitation is a serious shortcoming.

In a world increasingly populated by CD recorders, the PDR-99 follows in the great lineage of other fine audio recorders, eschewing a computer-based approach in favor of good old button-pushing. That, in fact, is its great advantage. It is extremely easy to use and insures that your recorded discs will have state-of-the-art digital audio fidelity. Its input signal path and A/D converters are clearly superior to those found in most computer sound cards, and its playback capability is outstanding. I listened to both recorded and prerecorded discs and absolutely liked what I heard. Although I'm not a big fan of the frequency-response tinkering done by Pioneer's Legato Link circuit, I did not detect its effect (I did not try a direct A/B comparison with a non-Legato Link player). Instead, I simply enjoyed the great sound quality. In fact, I could be persuaded to buy the PDR-99 even if it was a player only. In that respect, its recording ability is simply a gift. And what a gift it is! Once you have a CD recorder, you'll wonder how you survived this first CD decade without one. If only the industry would see reason and make 74-minute consumer blanks available . . .

Polemics aside, I freely confess that I eagerly awaited the opportunity to review the PDR-99, immediately fell in love with it when I opened its box, had a blast using it, and just might refuse to send it back to Pioneer — for at least a couple of weeks. After all, I've been waiting a decade to record my own high-quality audio CD's, and I've got a lot of recording to do. □

**Once you have a compact disc recorder like the Pioneer PDR-99, you'll wonder how you survived this first CD decade without one.**

DAT or analog tape — simply select an input and hit record. The difference is that if there is a false start with tape, you can rewind and start over. With a CD-R, although the false start can be marked with a skip ID, the disc space will be lost. There is one caveat here: Some CD players, especially older ones, are unable to recognize skip ID's, which means they will play marred tracks instead of skipping over them.

It is probably worth mentioning that it is imperative not to bump the PDR-99 while making a recording; any mis-tracking would ruin that part of the recording. Also, any blank or unfinalized disc should be treated with care and kept clean and free of fingerprints, which could affect its recordability. It's probably also worth noting that the PDR-99 is an audio-only recorder. It cannot record (or play) CD-ROM or other computer data discs. And all discs it records are marked with the Serial Copy Management System (SCMS) subcode so that subsequent digital copies cannot be made. For example, a source CD-R disc cannot be digitally copied to another CD-R disc.

fessional blanks and are limited to 63 minutes of recording rather than 74 minutes — an artificial limitation imposed to discourage rerecording of commercially recorded music CD's, which often run longer than 63 minutes. But CD-R drives are booming in the computer world, and in a short time many new computers will contain CD-R drives (instead of playback-only CD-ROM drives) that can play and record data, audio, and video programs. In light of that competition, the audio industry may be forced to rethink its 63-minute policy.

Another consideration is recording speed. The PDR-99 records in real time, so a 60-minute recording takes 60 minutes. Many computer-peripheral recorders now offer 2x, 4x, or even 6x recording speeds — with 6x speed, a 60-minute recording from a digital source can be made in 10 minutes with complete data integrity.

Although there are a number of professional-audio and many computer-peripheral CD recorders on the market, there are only a handful of consumer CD-R decks available. It is thus

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*Stereo Review* said "Cambridge SoundWorks manufactures loudspeakers



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## TEST REPORTS



# AudioSource Project One Indoor/Outdoor Speaker

JULIAN HIRSCH • HIRSCH-HOUCK LABORATORIES

**T**he AudioSource Project One is a small loudspeaker designed for indoor or outdoor use in a variety of applications. Its drivers are housed in a molded plastic enclosure (ours were white, but they are also available in black and platinum), with an integral pivoted tripod stand that enables the speaker's orientation to be adjusted across a 90-degree arc. The speaker can be placed on any flat surface or mounted on a wall or ceiling.

The "woofer" of the Project One is a 4-inch driver whose rubber surround allows a considerable cone excursion. Above it is a  $\frac{3}{8}$ -inch dome tweeter with a nominal crossover frequency of 2.5 kHz. A small vent is located below the woofer.

The speaker's impedance curve showed maxima of 10 and 15.5 ohms at respective frequencies of 50 and 130 Hz. Although there was a broad rise to 6 ohms at 6 kHz, the impedance

was 3 ohms (or slightly less) over most of the range below 1 kHz. In a larger speaker that might be operated at fairly high levels this could present a problem for some amplifiers, but we found no evidence of such incompatibility during the listening phase of our evaluation.

We did have a few bad moments, however, when making single-cycle power-handling tests on one of the speakers at low frequencies (100 Hz) and relatively moderate levels (under 50 watts). With no prior warning, the

**DIMENSIONS:** 9 inches high, 7 inches wide, 7 inches deep

**WEIGHT:** 6 pounds

**FINISH:** White, black, or platinum plastic

**PRICE:** \$300 a pair

**MANUFACTURER:** AudioSource, Dept. SR, 1327 N. Carolan Ave., Burlingame, CA 94010

speaker's output became seriously distorted, and we feared that the woofer had been damaged.

Since this condition persisted for several minutes, we retired the speaker and proceeded more cautiously with the other one, which was not exposed to such harsh treatment. Subsequent listening tests revealed that there was no permanent damage, and both Project One units measured and sounded identical.

These events suggested that the Project One's woofer might be protected by a self-resetting device such as those used in some other speakers, but the manufacturer tells us this is not the case. To confuse matters further, the speaker's power-handling is rated (on the rear of its case) as 100 watts, with an 8-ohm impedance. Curious to see what was inside, we opened up the enclosure and found nothing in it but the two drivers and a modest amount of acoustic damping material, plus a 3.3- $\mu$ F capacitor in series with the tweeter serving as a crossover network.

The Project One's woofer (which weighs a solid 2 pounds) has a large, heavy magnet structure seemingly out of keeping with its cone size. There was no nondestructive way to determine what, other than an obviously potent magnetic system, was hidden within the magnet structure. But the magnetic system was very well shielded, with a remarkably low external field of less than 2 gauss around the magnetic assembly. So we had to leave the mystery of the speaker's remarkable recovery from a dramatic overload unsolved — though the experience certainly provided good evidence of the system's ruggedness.

Otherwise, we encountered no unpleasant surprises in testing and using the Project One speakers. They are designed for use in sheltered outdoor locations, such as porches or patios, where environmental ruggedness can be more important than audio quality. Besides weatherproofing, the AudioSource Project One speakers evidence a level of construction quality not typical of small, comparably priced home speakers. The plastic case is sturdy and well finished, and the connectors are dual binding posts on standard  $\frac{3}{4}$ -inch centers.

The system's room response (average of the left and right speakers) was quite uniform, within  $\pm 4$  dB from 80 Hz to 2.5 kHz. A close-miked measurement of the woofer response produced a very smooth, flat curve, with-

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have always loved music but feel lost in the contemporary recording glut, I was skeptical. But I met with Steve and Martin anyway. They impressed me with their desire to create a vehicle that would appeal to people who have given up on radio's boring formats but don't have Beavis and Butthead's

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sound, breaking the boundaries of rigid Top 40. It was The Golden Age of Free Form Progressive Radio—it lasted about two minutes. Once the suits and the salesmen saw the dollar signs on the wall they quickly put a stop to our romp through the airwaves. It was, "Goodbye free form fun, hello playlist hell!"

■ **Which brings me to GROOVES.** When these two guys from Time Life Music called and asked me to get involved in creating a CD and magazine that would serve as a sampler of contemporary "adult" rock 'n' roll geared to people who

taste either; people who would naturally love an Aimee Mann or a Son Volt if only they had the opportunity to hear them. The missionary in me could not resist signing on as Editorial/Music Director of GROOVES.

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with staying power—whether veterans like David Byrne and the Band or newcomers like Lisa Loeb.

The key word here is independent. We are not dictated to by Time Life—it's just me, Steve and Martin calling the shots. We are not an extension of the record industry's promotional machine. We pick the music and license the right to use it here. We follow our ears, hearts and instincts in picking our music (the same way I've approached programming my radio show for 27 years).

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Specs compiled by theMAG, CC-300, ADP-150, PS-1000

## TEST REPORTS

in  $\pm 4$  dB from 90 Hz to 6 kHz, which is at least an octave beyond the nominal 2.5-kHz crossover frequency. Our quasi-anechoic MLS measurement showed an excellent, smooth response from its lower limit of 300 Hz to nearly 2.5 kHz, where there was a sharp null of about 20 dB, followed by a ragged response all the way up to 20 kHz and beyond.

The woofer distortion with a 1-watt input of 2 volts into its nominal 4-ohm impedance was low (under 2 percent) above 300 Hz but increased at lower frequencies, rising to 10 percent at 100 Hz and continuing to climb at still lower frequencies (not surprising, considering the woofer's small size and limited enclosure volume).

Besides their weatherproofing, the AudioSource Project One speakers evidence a level of quality in construction that is not typical of small, comparably priced home speakers.

Listening tests proved to be much more encouraging than the measurements (and the unrealistic power and impedance ratings on the case) would seem to suggest. The sound of the Project One speakers, mounted on 26-inch stands about 7 feet apart, was clean and musical, with a distinct but pleasant brightness. Their imaging was precise, and the overall sonic balance was as listenable as one could expect from inexpensive speakers that were obviously never intended for use in a conventional indoor home music system.

The Project One speakers should be well suited to many secondary listening applications, whether indoors or out, but especially in exposed areas. Although we did not evaluate their environmental characteristics, they are certainly affordable, rugged, compact, and versatile in installation — and they are as easy on the eyes as they are on the ears. □



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



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# In Search Perfect

**A**t first, selecting a receiver can seem pretty straightforward: Figure your budget, check the sales flyers, and choose the model with the looks you prefer. After all, you've heard, there's really no difference between a Brand X receiver and a Brand Y receiver at any given price/power level.

There's actually a grain of truth to that bit of hyperbole. The receiver has achieved virtual commodity status, which means that the furiously competitive market assures you an impressive measure of performance and value, almost regardless of which brand you buy. But just the same, there are some very real differences between the scores of available models, in both features and performance.

Perhaps the best way to get a handle on a receiver is to break it down to its

**by Daniel Kumin**

classic hi-fi constituents: power amplifier (voltage and current amplification to speaker-driving levels), tuner (radio-receiving circuitry), and preamplifier and user controls. Then again, there's an even more fundamental issue to address first: two channels, or more? Today, the plain-vanilla stereo receiver is fast going the way of the full-sized spare tire. The overwhelming majority of available receivers, including almost all of those above entry-level pricing, are audio/video designs that go beyond two-channel stereo models in two important ways. First, A/V receivers include surround-sound circuitry and extra amplifier

channels to reproduce the four-channel soundtracks of Dolby Surround programs on TV and video. Second, they provide inputs and outputs (and switching) for video as well as audio, so that you can enjoy your home theater with simplified and centralized source selection and control.

## EVERYONE'S GONE TO THE MOVIES

Do you want the A/V upgrade? If you don't plan to expand into home theater — which requires at least three additional speakers, a video source, a suitable TV, and a room to accommodate all of the above — the likely answer is no. And two-channel receivers, dying breed that they are, offer some outstanding values these days: For \$250 you can buy a competent model with 50 or even 75 watts per channel and plenty of features. On the other hand, the home theater experience can be a siren song. Many buyers, once they've undergone a topflight A/V demo, are hard pressed to resist the surround-sound call. Yet, whichever way you turn, the fundamentals of performance and quality remain the same.

Multichannel designs do have some fringe benefits: Most models incorporate surround modes designed purely for music listening, to add a more or less realistic sense of ambience to stereo's relatively two-dimensional reproduction. Many models driven by digital signal processing (DSP) even let you dial in specific virtual spaces, such as Concert Hall or Jazz Club.

Still, the bread and butter of A/V receiver surround is Dolby Pro Logic, the consumer equivalent of the Dolby Stereo process employed by commer-

cial cinemas. Pro Logic decodes the Dolby Surround soundtrack found on almost all movie videocassettes and laserdiscs into three front channels (left, center, and right) and one surround channel reproduced by two speakers in parallel, located toward the rear of the listening room. Dolby Pro Logic decoders are universal among A/V receivers these days, but performance can vary a bit.

One thing to check for is channel leakage. With the receiver set to Wide mode, play a movie scene that is principally dialogue but incorporates some ambience, soft effects, and music — and disconnect the center speaker. Some dialogue will leak to the other front (and rear) speakers, but what you hear should be much, much softer than with the center speaker connected; more important, it should be relatively constant in level, with only controlled, low-level "spitting" of "t" and "p" sounds to the sides. Try a few different receivers to get a feel for the range of performance.

Another useful check is for noise. The surround modes will always be a bit noisier than two-channel stereo reproduction, but this must not intrude. Play a well-produced CD at a solid, realistic level in Pro Logic mode. In even the quietest passages, surround-channel noise shouldn't be audible from the listening position; if it remains undetectable when you pause the disc, even better.

## THE LOCOMOTION

Next up on most folks' receiver checklist is amplifier power. For A/V models, this is specified both for two-channel operation and for Dolby Pro Logic operation. How much electrical oomph is enough? Easy: If a given re-

PHOTO BY DAN WAGNER

# of the Receiver

**IT'S A JUNGLE OUT THERE!**



**WHAT YOU  
NEED TO KNOW  
BEFORE YOU  
GO SHOPPING**



## In Search of the Perfect Receiver



Harman/Kardon's HK3550 (\$529) caters to those listeners who prefer a solid two-channel receiver. Delivering 50 watts a side, the model includes a phono input, two tape monitors, output terminals for two speaker pairs, and thirty AM/FM presets.



The STR-G3 A/V receiver from Sony (\$1,000) features the company's VisionTouch system, which enables control of a home theater by means of an on-screen TV display and a single-button remote. The system can also control a 100-disc CD changer.



Luxman's multiroom-capable RV-371 (\$1,749) includes S-video jacks and offers digital signal processing of Simulated Stereo, Hall-1, Hall-2, and Stadium modes, in addition to Dolby Pro Logic. Discrete amplification is provided for each of the receiver's five channels.

ceiver plays your speakers as loudly as you like with full musical clarity and with no sense of harshness, strain, or dynamic "squishing" on big musical transients like percussion, then you've got enough.

That's no definitive answer, of course, but the fact is that power requirements depend entirely on speaker sensitivity, room size and furnishings, and personal taste. In truth, a solid, real-world 50 watts in each of two channels is ample for most people, with most speakers, in most rooms. But there are plenty of exceptions. Speakers that are only a bit less sensitive than the common 89 or 90 dB SPL at 1 watt/1 meter, or a room a bit bigger than usual, or a taste for aggressive rock played *loud* — all will demand more power. And by more I mean *much* more: Doubling amplifier power delivers only a 3-dB increase in net loudness, a noticeable but by no means overwhelming gain in volume. Making the sound subjectively "twice as loud" while retaining full dynamic clarity requires five to ten times as much power. The bottom line: More power is always better. (It's also safer, since overdriven distortion, rather than clean wattage, is what usually damages speakers.)

In the surround-sound world, you have five channels of amplification to worry about. Today, almost all A/V receivers deliver equal power to the front speaker trio, and this is good because the center speaker is actually more important than the left and right. Front-channel power specs for surround sound are usually a little lower than the two-channel stereo specs, since the receiver's central power supply must service five speakers instead of only two. But not to worry: Since in Dolby Pro Logic mode you have three main speakers working for you (plus the surrounds, of course, and possibly a subwoofer), the net result is usually more acoustic potential rather than less.

Most current A/V receivers deliver from one-quarter to one-half the power of the three front channels to the two surround speakers. In the real world, this is almost always adequate. Yet there are cases when surround-power limitations can be audible, as with low-sensitivity surround speakers, large listening rooms that impose distant surround-speaker placement, or highly active, broadband surround

recordings. Especially with the advent of the Dolby Surround AC-3 Digital system (see "AC-3 for All" on page 64), greater surround power is likely to become more popular. In very high-end home theater systems, equal power all around is almost standard — and it seems only a matter of time before every flagship-model A/V receiver will be approaching or hitting that mark.

Speaking of greater power, it may be worthwhile to check out your receiver candidates' potential for expansion. A stereo receiver that provides preamp-out jacks can, with the addition of a more powerful stereo amp, function as a preamp/tuner down the road — a potentially useful upgrade when speakers, room, or budget limits change. Similarly, an A/V receiver that includes center- and surround-channel preamp outputs lends itself to power upgrades.

### WITH THE RADIO ON

A primary job of any receiver, of course, is to receive radio signals — hence the name. FM radio remains an important part of most Americans' leisure listening, so depending on where you live, a topflight tuner could be key. If you reside in a major metropolitan area and listen exclusively to the top two or three big-market, 50-kilowatt commercial pop/rock stations, don't fret: Virtually any receiver you buy should tune these just fine, using only the cheesy dipole antenna that comes packed with it.

If you live 40 miles equidistant between two major cities, however, FM tuner performance becomes a considerable factor. First, don't overlook the fact that \$150 spent on a good rooftop FM antenna will yield a vastly greater improvement than \$150 spent on a more costly receiver. That said, real differences in FM performance do exist among receivers. Unfortunately, on-paper FM specs can be notoriously poor predictors of real-world results. The best approach is to conduct an at-home trial of the receiver you've settled on. If it is capable of delivering the stations you want with clear, steady, and musical stereo sound, using whatever antenna you have available, it's the ticket.

Nevertheless, a couple of FM specs may be worth a glance. A *stereo* sensitivity spec for 50-dB quieting can be a rough indicator of a receiver's ability to pull in weak signals. The spec is given in decibels above 1 femtowatt



Marantz's SR-82mkII (\$899) delivers 110 watts a side in two-channel stereo operation. Power output for surround sound is rated at 75 watts for each speaker in the front trio and 35 watts per channel in the rear. Features include dual FM inputs, a built-in timer, and a learning remote.



Surround credentials of the Technics SA-TX1010 (\$1,000) include THX certification by Lucasfilm as well as a Theater Effect function for more natural panning among the front channels. Proprietary Class H+ circuitry aims to reduce heat generation and improve dynamic headroom.



Another THX receiver, Kenwood's top-of-the-line KR-X1000 (\$1,200), has preamp outputs for all surround-sound channels, including a subwoofer, allowing for flexible system expansion. Five video inputs are provided, as well as five audio inputs (including phono).

## In Search of the Perfect Receiver

(dBf) of antenna signal strength, an incredibly tiny signal, and a lower spec is theoretically better here; most receivers fall in the range of 29 to 36 dBf. Capture ratio, in decibels, can help predict a receiver's rejection of multipath distortion, the dirty, fuzzy sound of weak stereo broadcasts

(caused by signal reflections, like TV "ghosts"). Most receivers quote from 1.5 to 2 dB here; again, lower is better. But please don't read sensitivity and capture ratio as bellwethers of FM performance. Without careful, competent engineering, which may or may not be reflected in other FM specs,

they won't mean a thing. Try before you buy whenever possible.

As for AM radio reception . . . well, most buyers simply don't care. Which is a good thing, as today's receivers are generally pale performers on the AM band, with reception and clarity easily eclipsed by that of the cheapest

## AC-3 FOR ALL

**T**he latest home-theater wrinkle is the Dolby Surround AC-3 Digital system, which delivers digital audio via six separate channels: left, center, right, discrete left and right surrounds (Dolby Pro Logic's surround signal is monaural), and a dedicated, bass-only Low-Frequency Effects (LFE) channel. An A/V receiver such as Yamaha's RX-V2090 has inputs for an outboard AC-3 decoder, while top-of-the-line receivers from Pioneer and other

Associates, Denon, and Enlightened Audio Designs have built-in decoding. More products are undoubtedly in the wings from additional makers. All of these models incorporate a special AC-3 input for connection to an AC-3-capable laserdisc player, plus the electronic wizardry for decoding and converting to analog the new format's data-compressed digital signal.

The advantages of AC-3, as I've heard them in initial trials, are manifold. First, even clearer, more intelligible, and more natural

dialogue in the center channel (and Dolby Pro Logic has been no slouch in this regard). Second, a more spacious and realistic sense of ambience, largely thanks to AC-3's discrete stereo surround channels. Third, "hard-panned" surround effects that Pro Logic cannot deliver (an AC-3 disc allows you to hear a *Star Wars* Imperial Star Destroyer fly over precisely from front-right to left-rear). Fourth, a concrete gain in dynamic range, particularly in the surround channels, which are clearly quieter than Pro Logic's surround.

In addition, AC-3's LFE channel holds the potential for greater deep-bass dynamics in systems with dedicated subwoofers. Comparing the AC-3 soundtrack to the Dolby Surround audio on the same disc often gives the impression of better, deeper, or at least different bass. Then again, since the AC-3 and Dolby Surround tracks involve entirely different mixes, this impression could be rather subjective.

Still, AC-3 is clearly a technological advance with worthwhile sonic consequences. But there are drawbacks. Expense is one: The current A/V receivers with AC-3 cost about \$2,000 (though prices are likely to fall at least a little in the coming year). Also, AC-3 program material is available only via a relatively few newer laserdisc titles — and you need a laserdisc player equipped with an AC-3 RF output (or a \$350 conversion) to exploit these discs. And while AC-3 will be part of the U.S. HDTV system and is likely to be found on the upcoming digital videodisc (and possibly in future small-dish satellite systems), nearly all first-generation AC-3 components provide only the AC-3 laserdisc input.

The new AC-3 receivers are top-performing A/V models in all other regards, too. That means high-end Dolby Pro Logic decoding, lots of power, great tuners, and plenty of features. And since their prices are generally only a few hundred dollars or so above similar-performing non-AC-3 receivers, early adopters can still enjoy good value. —D.K.



For Dolby Surround AC-3 Digital operation, an outboard decoder can be plugged into Yamaha's RX-V2090 (\$1,499), which provides processing of ten surround modes and delivers 100 watts to each of the three front channels and 35 watts to each of four surround channels.



The Elite Series VSX-99 from Pioneer (\$2,100) has built-in AC-3 decoding. The receiver uses an Accurate Imaging System to send 100 watts to each of its five discrete channels, as well as an Intelligent System Control to simplify A/V operations via an on-screen TV display.

Fifties-era vacuum-tube table radios. AM is mostly an afterthought these days, so if normal AM listening or if "DX-ing" distant, late-night shows is important to you, a home trial with whatever AM antenna you plan to use is critical.

### UNDER YOUR THUMB

Golden ears aside, the sonic performance of preamplifiers in today's receivers is not much of a factor. Virtually any receiver includes preamp circuitry that is quiet, clean, and broadband. The genuine differences among preamps are made manifest in two areas: ergonomics and input/output facilities.

On the ergonomics front, the ballooning complement of features today — especially in A/V receivers — is a double-edged sword. On one hand, your new receiver probably can do just about anything (including making waffles); on the other hand, finding and using all of the controls can be quite a challenge. And some of these features may be pure puffery — cool technology at first look, but of little long-term utility.

Old-fashioned intuitive knobs are fast going the way of the crystal radio, and densely button-packed front panels and obscure graphics don't help matters much. There's little concrete advice to give here, save this: Try a receiver in the store and get a feel for its "human factor." Are all the controls self-evident? Can you select the CD or tuner input quickly and easily, without hunting over the entire front panel? Can you figure out how to engage Dolby Pro Logic? Is the display easy to read from across the room, and does it convey the most helpful information? Is the remote control easy to use (and easy to read in dim lighting)? Over the years, these and a dozen other ergonomic factors will prove far more important than whether a particular receiver has forty radio presets rather than thirty, or 75 watts per channel rather than 65.

Inputs and outputs matter only insofar as your receiver offers enough of them, and the types you require. Today, not every receiver includes a phono input (though the large majority do), so if you still listen to LP's, plan accordingly. Most receivers include CD and auxiliary inputs and at least one tape-deck input/output set, which is plenty for most users. If you want to



The Digital Acoustics Processor built into JVC's top-of-the-line RX817VTN (\$630) renders sound-field modes for Theater-1, Theater-2, Headphones, Dance Club, Hall, Live Concert, and Pavilion. Four-character station naming is available for the forty AM/FM presets.



NAD's AV-716 (\$749) facilitates system integration by offering two A/V input/output sets, another A/V input, and four audio inputs, including one for a turntable. A fully independent A/V record selector permits any source to be recorded while viewing any other.



Intended to clarify multichannel playback, the Dynamic Discrete Surround Circuit-A of Denon's AVR-900 (\$430) processes the main signals of the three front channels in their original analog form, to preserve their high dynamic range, while the surround signal is processed digitally.

## In Search of the Perfect Receiver



The TX-SV424 (\$410), a Dolby Pro Logic receiver from Onkyo, has discrete, high-current amplifiers that are designed to drive demanding speaker loads for full clarity on video soundtracks. Adjustable digital delay and a Hall mode are also provided.



Sherwood simplifies the front panel of its entry-level RV-4050R (\$399) by locating volume, bass, treble, and balance controls in one large rotary knob and by assigning selection of Dolby Pro Logic, Dolby 3 Stereo, or two-channel stereo operation to a single pushbutton.

use two tape decks, or a dual-well unit, and you want the ability to copy tapes easily from either source to the other, look for a receiver with two-way tape dubbing — not all models supply this convenience.

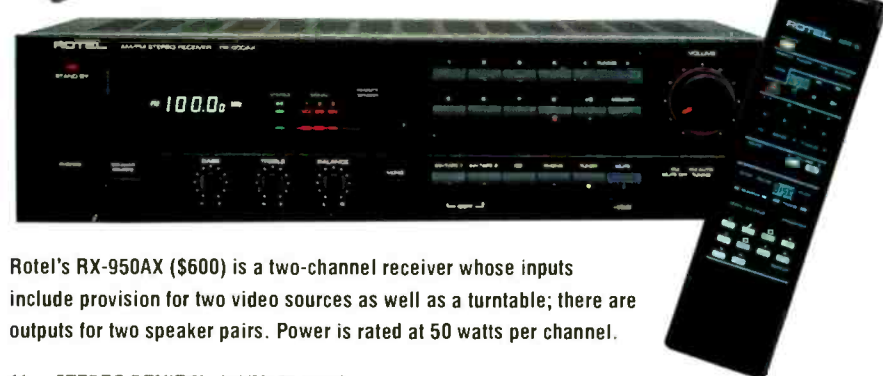
A/V receivers include video inputs and outputs integrated with corresponding stereo audio ports; this makes selecting an A/V source a one-step affair. Most receivers provide A/V input sets for a VCR and a laserdisc player, plus a Video-Aux input that is often located on the front panel for camcorder convenience. Once again, if you'll need more — for two VCR's, for instance, or for a gaming system or a satellite receiver — make sure there are enough jacks. Not all A/V receivers provide two A/V in/out sets, so if copying videotapes two ways (such as camcorder to VCR and back again) is important to you, check the convenience factor.

Most higher-end A/V receivers include S-video jacks for some or all video inputs (and outputs). These jacks, developed for Super VHS (S-VHS) VCR's, keep the color and black-and-white portions of the video signal separate and will enable better picture quality from S-VHS (and ED Beta and Hi8) machines. In some cases, an S-video laserdisc hookup will improve the image, but outside of the "Super" formats an S-video connection is generally no big deal; composite-video (RCA) jacks are usually just as good.

The Optimus STAV-3470 (\$500) delivers 150 watts a side in two-channel stereo operation; switched to Dolby Pro Logic mode, it sends 110 watts equally to the left front, right front, center, and surround channels.

**J**ust where on the receiver food chain should you shop? Let your conscience (and bank account) be your guide. Decide which features are most important to you and begin your search. It is true that the higher-end flagships can sound better than many entry-level models, especially in FM quality and in power-amp aplomb at high levels or with low-sensitivity, "difficult-load" speakers. On the other hand, many mid- to low-price receivers offer incredible value and will deliver plenty of oomph in an average-size room.

One final bit of advice: Don't forget to plan for the future. If you think more power or AC-3 surround may be in the cards for you, concentrate on receivers that have preamp outputs or discrete-channel inputs for an outboard AC-3 decoder. Doing so will help ease the transition to bigger and better things in years to come. □



Rotel's RX-950AX (\$600) is a two-channel receiver whose inputs include provision for two video sources as well as a turntable; there are outputs for two speaker pairs. Power is rated at 50 watts per channel.



# THE ROMANCE OF THE RECORD

**If CD is so good, why  
are some people still  
in love with vinyl?**

**I**n 1994, Americans bought 348 times as many CD's as LP's. In marketing terms, vinyl is dead. But LP sales actually increased in 1994 compared to the previous year. Sales of very expensive record-playing components are up, and some audio writers still maintain after all this time that the LP is sonically superior to its digital cousin.

What are these people talking about? Don't they realize that the compact disc duplicates the sound of the original master tape with no audible distortion, flutter, or change in frequency balance? Why do they keep putting up with dust and dirt, warps, off-center holes, surface noise, phono-preamp noise, cartridge response errors, inner-groove distortion, and all the other problems that plague the old LP? Could they be hearing things the rest of us are missing? And why does the achievement of what appeared to be a long-sought ideal — the delivery to the consumer of a replica of the master tape — sometimes fail to satisfy us?

As a recording engineer and producer, I converted with great enthusiasm to digital tape mastering in 1980, and I welcomed the CD when it appeared in 1983 because I feel that it does deliver the sound of my master tapes — digital or analog — faithfully to the customer. It is a genuine relief not to have to worry about the vagaries of LP mastering, pressing, and playback.

All the same, occasionally I prefer the LP version of a recording to the corresponding CD, and the differences I hear often mirror the descriptions of the analog partisans: The LP may sound smoother, more delicately detailed, rounder, gentler, and more accessible — more musical, if you will — than a CD release of the same recording. Now, there is very good evidence that such differences come not from defects in the digital en-

PHOTO BY MICHAEL GRAND

**BY**

**E. BRAD MEYER**



# THE ROMANCE OF THE RECORD

coding (in other words, it's not something wrong with digital audio as we know it today) but from euphonic effects of the analog record/playback chain. But what are these effects, and are they worth pursuing?

I first wrestled with the LP-versus-CD question back in 1983, when I was researching an article for *High Fidelity* magazine. There was a recording of that era whose LP version I preferred, Dire Straits' "Love Over Gold." The song *Industrial Disease* is a dense mix with aggressive percussion and a hard, bright vocal sound that on vinyl was not only less unpleasant but also more intelligible. (The improved intelligibility gives the subjective impression of greater detail on the LP.)

Careful measurements of the frequency response of the phono playback system, which contained an audiophile-approved moving-coil cartridge, revealed a broad, distinct rise (about 1 dB) in the lower midrange and bass, a dip of 2 dB or so in the mid-treble (around 6 kHz), and a rising response at the very top.

To assess the effects of the cartridge's response, I used an equalizer to impose the same response onto the CD. That turned out to be doable, though it took many minutes of adjustments to get it right, and no control was moved more than a fraction of an inch from its center position. (Such a curve is impossible to generate with normal tone controls, or even with an equalizer, unless you have high-resolution measuring equipment and lots of time.) With this "correction," the equalized CD's harshness was diminished and the sound was friendlier and more accessible. I preferred the equalized CD's sound slightly to that of the LP, and by a wider margin over that of the unequalized CD, even though the result was a less accurate rendition of what was on the master tape.

Sharp-eyed readers will have realized that this experiment assumes that the CD and LP versions were made from the same master tape and that the LP was mastered without added equalization. These conditions are rarely met: my "correction" curve worked less well, and less predictably, in other CD/LP comparisons.

LP mastering — the last stage before mold plating and record manufacturing, during which the physical grooves are actually cut into a lacquer disc — is an art with a long history and complex practices. Traditionally, the sound of a record was actually finalized at this stage by the mastering engineer, usually working in conjunction with the producer or artists. In the early days of CD this step was often bypassed, especially for rereleases of old recordings, and "master" tapes (some just safety copies, produced with less than exquisite care) were being transferred directly onto CD and released, warts and all. Nowadays, many of the same engineers are back in the loop, helping to prepare the final digital tape for CD mastering.

During the intervening decade, too, engineers and producers have rethought the way that they record and process sound for CD release. Acoustic recordings on CD tend to sound less bright and harsh now that ordinary home playback equipment can be counted on to reproduce the upper octaves faithfully and consistently. And, of course, the mechanical constraints that prevented LP's from carrying high-level deep-bass signals have been removed; for example, the 1991 Dire Straits release "On Every Street" contains bass extending down to 28 Hz.

## Searching for the High-End LP

Analog partisans may counter at this point that their playback equipment has continued to improve and that a modern high-end record-playing system still sounds better than even the most expensive CD player. So I went looking for a really good LP system to do some fresh comparisons.

My first discovery was that it's hard to find a good turntable setup, even in a big audio town like Boston, where I live. Most stores, even those selling very expensive gear, now do all their demonstrations with CD's. But a new place in a nearby town maintains a high-end record-playing system, and the proprietor was willing to let me come and listen. (My thanks to Alan Goodwin of Goodwin's High End in Waltham for his generous assistance.)

The system comprised a huge, elegant Basis turntable with a Graham Research arm; the cartridge and electronics were by Spectral Research; for speakers I used both Avalon Radians and the Wilson Audio WATT/Puppy

combination. The suggested retail price for the turntable, arm, and cartridge alone — including the phono cables — is \$13,800, and the total system price is more than \$70,000.

Besides listening at Goodwin's store, I dubbed both the LP and CD sources through the analog input of my DAT mastering recorder so I could listen at home and make some measurements. I did a brief comparison between the original LP source and the digitized-and-reconverted DAT output. Though I did not have time to get conclusive results, the tape sounded close enough to the vinyl source that it was hard to tell one from the other even on this very high-resolution system.

My first and most important com-

## THE MYTH OF FRAGMENTATION

**S**ome vinyl fans still argue that digital audio, reconstructed from discrete samples, sounds raw and ragged, while analog, being "continuous," sounds smoother and more natural. A corollary of this theory is that digital recording fails to capture small sonic details and room sounds, while analog preserves them.

This discussion is really a subject for another article, but, briefly, that theory simply isn't true. The analog output of a digital audio device — which is what we actually listen to — is a perfectly continuous and exact replica of the original audio signal; as long as the sampling rate is more than twice the highest signal frequency, sampling does not result in the loss of any information. As for small, detailed sounds and reverberation, any recording system is limited in its ability to reproduce these things by its noise floor — the name given to a plot of the medium's noise level versus frequency. In this regard, the CD is very distinctly superior to the LP.

It is true that unless the analog-to-digital (A/D) converter in a digital recorder is properly dithered — involving the injection of a minute amount of noise into the input — very small signals may be lost. Some very early converters were not properly dithered, but the problem does not exist in hardware made after about 1986 unless something is broken. Meanwhile, the vast majority of earlier recordings were dithered adequately by the noise in the microphone preamps or in the recording venue.

— E.B.M.

parison was between the LP and CD versions of an organ recording made by me and STEREO REVIEW columnist Peter Mitchell. Being very familiar with both the sound of the original music and the sound of the recording on my monitor system, I found the digital version to be distinctly truer to the source. Not only was the timbre more correct, but the stereo image was more specific and precise in the placement of individual organ pipes, and though the LP had plenty of the spaciousness for which it is well known, both the reverberation and the low-level sounds of stop changes and the room came through more faithfully on the CD, with less noise and more clarity.

Still, the cutting and pressing of my own LP was merely competent for its time (1980), and it contains a full 46 minutes of music. The best-sounding audiophile LP's are shorter, allowing higher signal levels, and are cut directly to disc, or mastered at half-speed or at 45 rpm, and are pressed on exceptionally quiet virgin vinyl. I have early pressings of some of the famous Sheffield direct-to-disc recordings. The one of the James Newton Howard group proved to have clearly better impact and immediacy than the CD version, and so did my near-mint copy of Sheffield's "Drum Record."

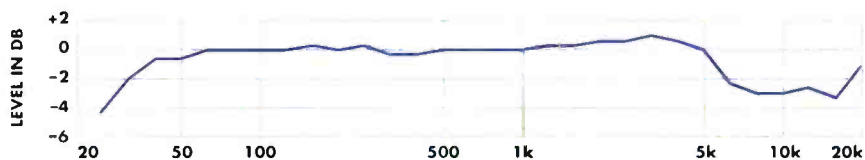
Those productions are unusual today in that they were originally meant to be released only as direct-cut LP's; the CD's were an afterthought, made from analog back-up tapes that were not state-of-the-art masters even for their day. That is evident from the frequency response of the James Newton Howard recording, shown in Figure 1.

The measurements for that graph were made with a one-third-octave analyzer using a long averaging time; about a minute each of the same music from the LP and the CD are stored, and one curve can be subtracted from the other, giving the response of one passage using the other as a reference. In this case, the LP was Sheffield's presumed ideal, so the CD's response is plotted with reference to the LP, showing that by comparison the CD version has a slight lower-treble rise and a clearly audible lack of top-end sparkle and detail.

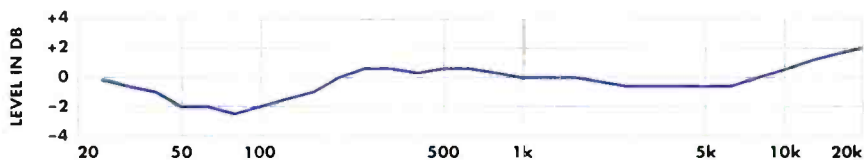
Next, I redid the old Dire Straits comparison, this time using the CD as the reference in the response graph, on the assumption that it was more likely to be faithful to the master tape. The results in Figure 2 show the changes wrought by the LP system. Unlike my

1983 LP system, the modern high-end setup did not boost the bass, but the graph does show a very slightly recessed lower midrange and the expected boost above 10 kHz. Subjectively, both the Avalon and Wilson speaker

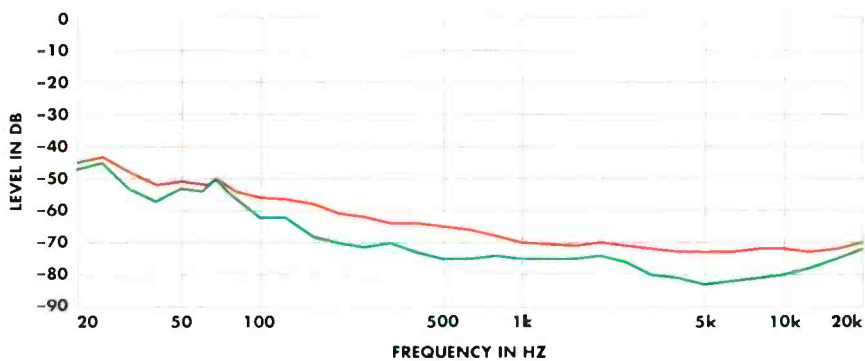
systems were kinder to both versions of *Industrial Disease* than my own monitor speakers (Snell Type A-III's with custom subwoofers). Overall, the LP had a slightly more attractive timbre but somewhat less bass impact.



**Figure 1.** A real-time analyzer with long-term averaging was used to sample 1 minute of the CD and direct-to-disc LP releases of a Sheffield recording featuring James Newton Howard. The analyzer can subtract one curve from another and print the difference. Here we see the CD's response referred to that of the LP, with the LP response assumed to be perfectly flat, since Sheffield proclaimed the latter to be the reference. On that basis, the CD, mastered from an analog tape recorded in parallel with the direct-cut LP, shows a slight rise in the lower treble and a larger rolloff at the top; subjectively, the CD version lacks sparkle and impact.



**Figure 2.** Here the CD release of a Dire Straits recording (see text) has been used as the reference, so what we are seeing is the comparative response of the LP as played back on our high-end phono system, with the CD assumed to be perfectly flat (the inverse of the comparison in Figure 1). Unlike some earlier setups, the LP playback system we used attenuates the bass slightly. It also softens the upper midrange and lower treble and adds a bit of sheen and air at the very top of the audible range.



**Figure 3.** The music on the CD and the LP of a Reference Recordings wind-ensemble recording was adjusted for equal loudness. Then the noise floors of the recordings were plotted in one-third-octave bands relative to the output at the standard LP reference level of 3.54 cm/second. Although not plotted, the noise floor of a digital recording processor like that used for the CD recording would be below -80 dB across the entire frequency range. The overall, A-weighted noise levels were about -56 dB for the LP and -62 dB for the CD; the noise on the CD is predominantly microphone and room noise, as the A-weighted noise level of the recorder itself would be around -76 dB on this scale, or about -91 dB referred to digital full-scale (0 dB). The digital version is audibly quieter all across the band except at 60 Hz, where a bit of hum in the recording setup appears at equal levels on it and the LP.



# THE ROMANCE OF THE RECORD

Remember that in the original Dire Straits comparison I found it easier to understand the words on the LP, even if that wasn't true in the rematch. Proponents of the LP assert that it captures low-level detail lost by digital recording systems; they claim that in the treble at least, vinyl actually has lower noise. The next comparison reveals the truth of the matter. I played the LP and CD versions of the Reference Recordings production of William Walton's *Façade*. I matched the music levels of the two recordings and then captured background-noise curves, including the room sound, during a silence between tracks.

Figure 3 contains two curves, representing the noise floors of the LP, played on the high-end setup at Goodwin's, and the CD. Remember that this is during a musical silence that contains room sound (that is, the recorder was not turned off); for most of the frequency range, it is that acoustical background that dominates the CD's noise floor, shown by the lower curve. I also measured the noise floor of a digital processor similar to the one used for the CD version of the Walton

recording and found that it was below -80 dB across the entire spectrum, so the noise contribution of the recorder itself would have been negligible.

With A-weighting, which roughly approximates human hearing sensitivity at low levels, the LP's noise is 6 dB higher overall than the CD's, and the differences are greatest in the upper frequency regions, where the LP is alleged to provide greater detail. Technically, the antidigital claim is roundly contradicted by the data and by the even greater superiority of the digital system's inherent noise floor, which is 20 dBA lower than the LP's.

But what about the subjective difference between the two sources? It's how the music sounds that counts. This was the most interesting comparison of all, because even in its complications it illustrates both sides of this argument so well. The complication is that the CD I used was made from a digital tape master, whereas the LP was mastered from recording engineer Keith Johnson's analog tape recorder. I measured segments of the music, as before, and found the main difference to be in the upper treble and the lower bass; the combination of analog master, LP transfer, and LP playback resulted in a boost of about 3 dB at both ends of the spectrum. That gave the LP more sparkle in the cymbals and percussion, and a more airy room sound, which was actually augmented

by the analog version's higher noise. (That a little hiss creates the impression of more treble has been well known since the early days of analog noise reduction.)

The final score? I found things to like in both versions. I enjoyed the airiness of the LP, even though I was occasionally distracted by small surface imperfections in the quiet parts and by a slight residual hum in the phono preamp. The CD was free of those imperfections, but when switching back to it from the LP, I missed the latter's pleasing airiness, and no matter whether it was audible in the recording hall. The vinyl's added top end gave the cymbals and percussion a seductive sheen that in a direct comparison made the digital recording seem to be lacking in life and, subjectively at least, in detail.

Bear in mind that this was vinyl at its best, with a great recording, careful cutting and pressing, and no expense spared in the playback equipment. Under those conditions I can understand what the LP's proponents are talking about, even if it's a less faithful rendition of the master tape. Under more ordinary circumstances, the LP's noise, scratches, off-center holes (which produce wow that is painful to me now that I'm accustomed to digital's rock-steady speed), and distortion at high levels and from inner grooves almost always make the CD preferable. □

## THE MECHANICS OF VINYL

**A**n LP is cut from a master tape into an acetate (lacquer) or metal blank, from which molds are made in a three-step process similar to the casting of metal parts. Record mastering, plating, and stamping are mature arts that have been perfected over forty years. Not only do mastering houses know how to work around the limitations of vinyl, but many engineers and producers of the old school still record their original tapes with vinyl in mind.

The LP-mastering process has always included adjustments of equalization and level that reflect the physical realities of this process. Low bass has to be limited because it is hard for cartridges to track and because the wide swings of the groove take up too much space on the record. As the groove approaches the center of the record, high-frequency signals generate such sharp curves in the groove wall that the stylus,

whose edges must be rounded so it won't wear out the groove, can't track them, producing losses in the upper treble. The skillful LP cutter compensates for these losses slightly.

Cartridges and styli affect the LP's sound in playback. The stylus cantilever should for lowest distortion be as long as the analogous part on the cutter, or  $\frac{3}{4}$  inch; but a cantilever that long would flex so much that the highs would be sharply attenuated. The usual  $\frac{3}{8}$ -inch cantilever length still produces a treble sag between about 3 and 8 kHz in almost all cartridges, including costly moving-coil models. The resonance formed by the mass of the stylus and the springiness of the vinyl, meanwhile, typically causes a rise above about 10 kHz.

These frequency-response errors turn out to be crucial to the LP's "musicality." Many links in the recording chain, including the

microphones, were designed with LP's in mind, so many master tapes are too bright in the upper midrange or lower treble. The LP system tends to tame that hardness. Otherwise, the sound is always mildly irritating, and the listener is slightly but consistently repelled, making it very hard to relax and enjoy the music!

The high treble, meanwhile, is not only lightly enhanced – which adds a sense of "air" to upper overtones – but quite thoroughly scrambled in phase both within and between the two channels as the stylus and cantilever flex and twist. The randomization of phase contributes further to the sense of spaciousness in the sound. Strictly speaking, these are all colorations, but, depending on the recording, they may often be pleasant and natural-sounding ones. (My thanks to John Bubbers for technical background on these interesting issues.) – E.B.M.

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## SPECIAL TEST REPORT

# Polk Audio SRT Home Theater Speaker System

BY DAVID RANADA

In the introduction to the manual for Polk Audio's Signature Reference Theater (SRT) speaker system, the company's chairman, Matthew Polk, says that he told his design team he wanted a system "of such effortless power and clarity that, as you turn up the volume, it literally scares you." The team succeeded in its mission. The sound was very clean and extremely powerful. I was scared.

The system that prompted such a reaction — and not only from me, I might add — costs \$8,500 and comprises nine separate components, some handheld, others quite massive. Simplest are the two LS f/x surround speakers, which have been available as sepa-

rate products for a while (\$600 a pair). Their driver complement is two 4½-inch woofers crossing over at 2 kHz to two 1-inch tweeters. The drivers are switchable between dipole (in-phase) and bipole (out-of-phase) operation. Nominal impedance is 4 ohms, and sensitivity is given as 89 dB sound-pressure level (SPL). The LS f/x speakers, which come with wall-mount facilities, weigh about 9 pounds each and measure 11 x 6½ x 9 inches.

Next simplest is the SRT center-channel speaker. Designed for horizontal use, the center weighs 40 pounds and measures 26½ x 6 x 17½ inches. The cabinet shape, with its sloping upper-rear edge, implies set-

PHOTO BY ROBERTO BROSIAN

The components of Polk's SRT system range from the small trapezoidal LS f/x surround speakers, shown at near right with the larger, horizontal center-channel speaker, the Control Center, and the supplied sound-level meter, to the massive, two-part main speakers.

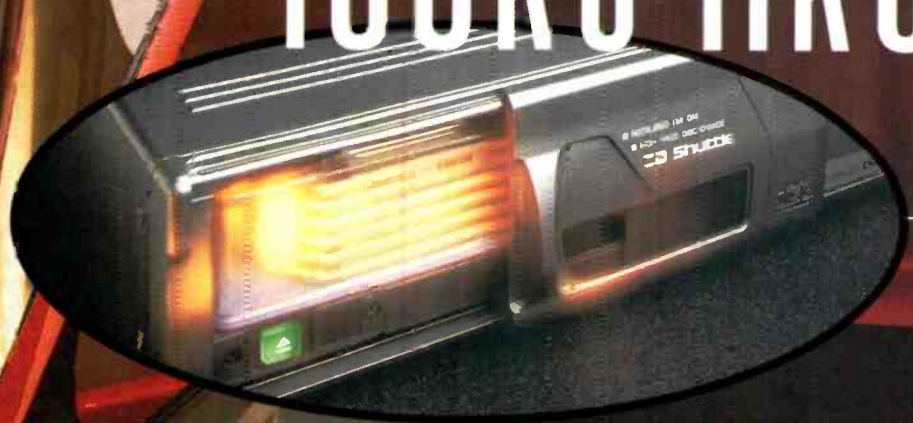






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# COMPARISON TESTS

# POWER PLAY

## SIX MULTICHANNEL POWER AMPLIFIERS STRUT THEIR STUFF

BY JULIAN HIRSCH

**N**ot too long ago, the concept of a "home theater" was beyond the imagination of most people, including audiophiles whose music systems sometimes did a passable job of simulating a concert hall. Nowadays, unless you have been marooned on a desert island for the past several years, you can hardly be unaware of the rapid growth of home theater. Until quite recently, home theater was affordable only for the relatively affluent, but advances in technology have led to the creation of a consumer market for home theater (A/V) components that promises to surpass that of home audio (if it has not already done so).

Going beyond the two independent audio channels required for stereo audio reproduction, today's most popular home theater format, Dolby Pro Logic, calls for at least *four* sound channels and at least five speakers. In addition to the

PHOTO BY RAULI MASUULO



## COMPARISON TESTS

familiar stereo speaker pair, you also need two surround speakers toward the rear of the room to convey the spatial effects encoded into the program and a center speaker that is close to and either above or below the TV screen. And full appreciation of the bass impact available in some movie soundtracks calls for a subwoofer. The new Dolby AC-3 format makes use of five discrete wide-range channels, plus a subwoofer.

Thus, the old two-channel home stereo system has to be upgraded to five or six channels to reproduce the full sonic impact of many films. While this can be achieved by adding one or more two-channel stereo amplifiers to an ex-

number of mono-block (single-channel) amplifiers.

For this report we tested a representative group of A/V power amps having from three to six channels and power ratings of 30 to 105 watts per channel into 8 ohms. Their prices range from \$699 to \$1,150, and all are solidly constructed, relatively compact units weighing between 25 and 50 pounds.

### ACURUS 100X3

The Acurus 100X3 (\$899) from Mondial Designs, the smallest and lightest of the group, has only three channels (the others have five or six channels). Mondial explains this decision by

tages in reduced weight, heat, and bulk compared with a comparably rated amplifier with five or six channels. For a fully equipped system with six channels (including a subwoofer), two Acurus 100X3 amplifiers can do the job easily.

Unlike most of the other amplifiers in this group, the Acurus is *not* designed to be bridged (a common method of obtaining more power from a multichannel amplifier). The manufacturer points out that bridged amplifiers typically deliver their increased power only into loads with a high and relatively constant impedance (generally 8 ohms). In real-world operation, a speaker's impedance can vary considerably and may at times fall well below its nominal (rated) impedance (usually 8 ohms or 4 ohms). Therefore, a nonbridged amplifier may be able to drive speakers with less distortion than a comparable bridged unit whose power rating is higher.

The Acurus amplifier is built with fully discrete (not integrated) circuit components, metal-film resistors, and an overall high standard of mechanical assembly. Its front panel contains only a rocker-type power switch with an integral green pilot light. More than half of the entire rear apron is occupied by a full-width finned heat sink. Below it are three gold-plated input connectors and three pairs of multiway binding posts, which accept dual banana plugs as well as wires and lugs.

### B&K AV5000

The B&K AV5000 (\$1,098) is a large, heavy, and full-featured five-channel amplifier. Like most of the amplifiers in this survey, its front panel contains only a single rocker-type power switch. The heat sinks are internally mounted, leaving the rear apron well populated with groups of input jacks, individual knob-operated level controls for each channel, and a row of alternating red and black binding-post output terminals. The spacing of the binding posts prevents the use of dual banana plugs, but single banana plugs and stripped wire ends can be used.

The B&K AV5000 makes extensive use of discrete circuits together with a Class A pre-driver stage and a Class AB MOSFET output stage. According to the manufacturer, it has limited protection against damage from output short-circuits, and the inputs are said to be balanced to minimize noise pickup, although the connectors appear to

### ACURUS 100X3 (\$899)



**CHANNELS:** three

**RATED OUTPUT:** 100 watts per channel

**DIMENSIONS:** 17 inches wide, 5 inches high, 12 inches deep

**WEIGHT:** 25 pounds

**MANUFACTURER:** Acurus, Dept. SR, Mondial Designs,  
20 Livingstone Ave., Dobbs Ferry, NY 10522

isting setup, the A/V receiver, with its onboard surround-sound processor and multiple channels of amplification, provides the most economical (and direct) upgrade path to home theater.

But what if you must have more power, or simply higher-quality amplifiers, than what's available in a typical A/V receiver? The multichannel power amplifier is clearly designed to address this need, and more and more of them are appearing on the market. A single multichannel amplifier is obviously more convenient to install than several conventional stereo power amplifiers, to say nothing of twice that

pointing out that adding a readily available stereo amplifier to a three-channel amplifier can easily (and economically) bring the system up to full home theater standards, and also that good A/V receivers usually have line-level outputs for driving external amplifiers. Of course, an A/V receiver will already have the necessary complement of power amplifiers, but it is assumed that a good external amplifier will yield improved performance. Also, there are a few A/V "tuner/preamplifiers" that require external power amplifiers. Using the Acurus 100X3 with an A/V receiver does offer advan-

be conventional (unbalanced) gold-plated RCA-type phono jacks.

All five channels are rated at 105 watts into 8 ohms. B&K says Channels 1 and 2 and Channels 4 and 5 can be bridged to provide single channels rated at 200 watts into 8 ohms.

## CARVER AV-405

The Carver AV-405 (\$850) has two front channels rated at 100 watts each, a center channel rated at 110 watts, and two surround channels rated at 50 watts each, all into 8-ohm loads.

The amplifier is electronically protected against overloads and overheating. Should an overload condition occur, internal relays disconnect the speaker loads. Carver points out that driving the amp hard into a load of less than 2 ohms will also trigger the protective system.

The rear apron of the AV-405 is relatively uncluttered compared with some of the other amplifiers in this group. It contains only five pairs of output binding posts, which accept dual banana plugs as well as wires and lugs. The corresponding input phono jacks form a similar group a few inches away.

This was the only amplifier in the test group to be fitted with handles on its front panel (an optional feature). Since it is one of the smaller and lighter units tested, the feature is probably more cosmetic than functional, although it would have been greatly appreciated on some of the true heavyweights in the group!

## KENWOOD KM-X1

The Kenwood KM-X1 (\$899), one of the largest and heaviest amplifiers in the group, was designed as a companion to Kenwood's KC-X1 A/V tuner/control amplifier, with the two units (similar in size and styling) forming the functional equivalent of a very large, powerful, and versatile A/V receiver. The six-channel KM-X1 does not depend on the KC-X1 for its actual operation and control, however, and is therefore equally suitable for use with other preamps and signal sources.

The KM-X1 is the only amplifier in the test group that is rated to meet Lucasfilm's THX standards, and it carries the THX logo on its panel. THX compliance requires, among other things, a considerable power-delivering capability, and to this end, the KM-X1 is also the only amp in this group to have a cooling fan on its rear apron. The fan

## B&K AV5000 (\$1,098)



**CHANNELS:** five

**RATED OUTPUT:** 105 watts per channel; 200 watts bridged

**DIMENSIONS:** 17 inches wide, 5 1/4 inches high, 15 1/2 inches deep

**WEIGHT:** 40 pounds

**MANUFACTURER:** B&K Components, Dept. SR,  
2100 Old Union Rd., Buffalo, NY 14227

is thermally switched by the temperature of the internal heat sinks. In a (literally) silent testimonial to the thermal mass and overall conservative design of the amplifier, the fan never came on during our tests, nor did the amp's exterior get particularly warm.

The front panel of the KM-X1 has two rectangular switches at its opposite ends. One is the overall power switch (a small pilot light is located above it) and the other is a speakers on/off switch. While the latter might be useful under some circumstances to

## CARVER AV-405 (\$850)



**CHANNELS:** five

**RATED OUTPUT:** front, 100 watts per channel; center,

110 watts; surround, 50 watts per channel

**DIMENSIONS:** 19 inches wide, 4 3/8 inches high, 15 inches deep

**WEIGHT:** 30 pounds

**MANUFACTURER:** Carver Corporation,  
Dept. SR, P.O. Box 1237, Lynnwood, WA 98046

## COMPARISON TESTS

### KENWOOD KM-X1 (\$899)



**CHANNELS:** six  
**RATED OUTPUT:** 100 watts per channel (into 6 ohms)  
**DIMENSIONS:** 17<sup>3</sup>/<sub>4</sub> inches wide, 6<sup>3</sup>/<sub>8</sub> inches high, 15 inches deep  
**WEIGHT:** 44 pounds  
**MANUFACTURER:** Kenwood, Dept. SR, P.O. Box 22745, Long Beach, CA 90801

silence the speakers without switching off the amplifier, it is normally used only when the amplifier is controlled by the KC-X1 tuner/preamp, which switches the various speakers on or off as required for the selected operating mode of the system.

Another highly visible feature of the amplifier is also related to speaker

switching. Across the bottom of the front panel are what appear to be six large rectangular buttons marked with the identifications of the six channels, with a small pilot light above each one. Actually, these are not control buttons but indicator lights. When the amplifier is used with the KC-X1 control unit, the lights come on as re-

quired by the selected operating mode. When the amp is used without the KC-X1, all the speaker lights come on — a rather unusual power pilot light.

The rear apron of the KM-X1 presents a neat, uncluttered appearance. The speaker outputs are in two groups of three at opposite ends of the panel, flanking the fan grille in the center. The left side of the back panel has speaker binding posts marked Right Surround, Right Front, and Subwoofer; the opposite side of the panel has a similar group marked Center, Left Front, and Left Surround. The binding posts do not accept dual banana plugs. The input phono jacks are grouped above the right-side connectors.

The rear panel also has sockets for standard eight-pin DIN and twenty-five-pin RS-232 connectors to connect the KM-X1 to the KC-X1 control unit.

### NAD MODEL 916

The NAD Model 916 (\$699) is a compact six-channel amplifier rated at 30 watts per channel. Although it is considerably less powerful than some of the other amplifiers in the test group, each pair of channels can be bridged to form a single channel rated at three times the power, or 90 watts.

Bridging is accomplished by moving a slide switch near each pair of speaker output terminals. For example, NAD suggests that bridging Channels 1 and 2 and Channels 3 and 4 would create two 90-watt amplifiers for the main front speakers in a two-channel stereo installation, leaving Channels 5 and 6 as independent 30-watt amplifiers for driving speakers in another room. Alternatively, in a home theater system, two channels could drive the front speakers, two others could be bridged to drive a subwoofer, and the remaining two could drive the center and surround speakers. As with any bridged amplifier, it is recommended that the speakers have 8-ohm ratings if this mode of operation is used.

Like some other NAD amplifiers, the Model 916 has a feature called a Soft Clipping circuit to minimize audible distortion should the amplifier be driven beyond its linear range. The circuit can be activated (separately for each pair of channels) by a switch on the rear of the amplifier.

Below the output binding posts for each pair of channels are small knobs that set the level separately for each channel. Below them are phono jacks for the line-level signal input and for

### NAD MODEL 916 (\$699)



**CHANNELS:** six  
**RATED OUTPUT:** 30 watts per channel; 90 watts bridged  
**DIMENSIONS:** 17<sup>1</sup>/<sub>8</sub> inches wide, 5 inches high, 17<sup>3</sup>/<sub>4</sub> inches deep  
**WEIGHT:** 29 pounds  
**MANUFACTURER:** NAD, Dept. SR, 89 Doug Brown Way, Holliston, MA 01746

the corresponding line output, which is buffered so that a low-impedance load (or even a short-circuit) will not affect the signal reaching the amplification circuit. This feature allows the amp's line outputs to be daisy-chained to amplifiers in other rooms without degrading performance.

## PARASOUND HCA-806

The six-channel Parasound HCA-806 (\$1,150) is the largest, heaviest, and most expensive amplifier in this group. Although it is not easy to make power-output comparisons between multi-channel amplifiers that offer many different combinations of bridged and unbridged channels, we had no difficulty in ranking the HCA-806 as the true "heavyweight" of the group — and not merely in its mass.


The front panel contains a rocker-type power switch with adjacent red and green LED indicators. Initially, a red Standby light comes on for a few seconds until the amplifier circuits stabilize, when it is replaced by a green Operation light. During operation the red light may be activated by an overload, a short-circuit, or an internal fault, all of which will shut down the amplifier until the condition is corrected. The panel also contains a row of six current-overload LED's that monitor the status of the six channels. Activation of these lights indicates the onset of audible distortion (which should rarely occur in normal operation).

The HCA-806's output connectors are five-way binding posts spaced to accommodate dual banana-plug connectors. Unlike the connectors on some of the other amplifiers in this group, the Parasound's occupy almost the entire width of the rear apron of the amplifier, which makes it easier to connect the speaker wires.

Above each speaker's output connectors is the corresponding input phono jack and a knob-operated level control. There are also several miniature toggle switches interspersed with the controls and connectors. Two of them control the status of Channels 3/4 and 5/6, selecting either normal independent operation or bridging them to create a single more powerful channel from each pair.

There are also two switches identified as Loop 1/2-3/4 and Loop 1/2-5/6. These allow a single stereo source to be reproduced through up to three pairs of stereo channels (for multiroom installations) without using Y connec-

## PARASOUND HCA-806 (\$1,150)



**CHANNELS:** six  
**RATED OUTPUT:** 80 watts per channel; 180 watts bridged  
**DIMENSIONS:** 19 inches wide, 5 inches high, 17<sup>3</sup>/<sub>4</sub> inches deep  
**WEIGHT:** 50 pounds  
**MANUFACTURER:** Parasound, Dep. SR, 950 Battery St.,  
San Francisco, CA 94111

tors. For example, the Loop 1/2-3/4 switch routes the signals connected to the Channel 1 and 2 inputs across to the Channel 3 and 4 inputs as well.

The HCA-806 is rated, with obvious conservatism, at 80 watts per channel, with all channels driven, into 8-ohm loads. Unlike some of the others, it also carries a 4-ohm rating, of 120 watts, and even a 180-watt rating for each of the two bridged channels.

## THE TESTS

**T**he procedures for testing multichannel amplifiers are pretty much the same as for conventional stereo amplifiers, although the logistics can get complicated. We use bulky 250-watt, 8-ohm precision resistors and, to keep the test setup from getting overcrowded, we drive only two channels at a time and measure only one of them. While this is not in exact compliance with the EIA RS-490 Standard Amplifier Test procedure we normally follow, it does suit our primary goal: to establish what these amplifiers can do under essentially identical operating conditions.

Most of the tested units have identical amplifiers in all channels. The Carver A-405 uses lower-power amplifiers for its surround channels, which is perfectly acceptable for home theater applications since with Dolby Pro Logic all channels will never require

the same peak power simultaneously. Even with the new Dolby AC-3 digital surround format, movie soundtracks usually will not need as much power for the surround channels as for the front, though AC-3 music recordings, when they are released, may have different requirements. Besides, using surround speakers of only slightly higher sensitivity than the front speakers can make up for a difference in amplifier power. Furthermore, all but the NAD amplifier have very substantial power ratings for *all* their channels, and every one of them proved to be conservatively rated, though the NAD has no extra dynamic headroom and should not be driven hard.

As shown in the accompanying table of laboratory measurements, the figures for output at clipping (a condition that ideally should never be encountered in actual use) provide a comparison of the ultimate power capabilities of these amplifiers.

For each amplifier, we measured the total harmonic distortion (at 1 kHz) at its rated maximum power and also at 1 watt output, which is a fairly typical playing level for soft and moderately loud music.

Sensitivity is the input level required at 1 kHz to develop a 1-watt output into 8 ohms. Most of the units fell in the same broad sensitivity range. A higher sensitivity is, generally speaking, neither good nor bad

# COMPARISON TESTS

## LABORATORY MEASUREMENTS

	ACURUS 100X3 (\$899)	B&K AV5000 (\$1,098)	CARVER A-405 (\$850)	KENWOOD KM-X1 (\$899)	NAD MODEL 916 (\$699)	PARASOUND HCA-806 (\$1,150)
<b>NUMBER OF CHANNELS</b>	three	five	five	six	six	six
<b>OUTPUT AT CLIPPING</b> (watts, 1 kHz, 8 ohms)	168 W	172 W	Front, 137 W Center, 145 W Surround, 78 W	153 W	40 W	136 W
<b>DYNAMIC OUTPUT</b> (watts, 8 ohms)	195 W	210 W	Front/Center, 144 W Surround, 76 W	156 W	40 W	126 W
<b>DYNAMIC HEADROOM</b> (watts, 8 ohms)	2.9 dB	3 dB	1.36 dB	1.93 dB	0 dB	1.97 dB
<b>SENSITIVITY</b> (1 watt output, 8 ohms)	127 mV	100 mV	100 mV (front)	100 mV	190 mV	155 mV
<b>DISTORTION (THD, 1 kHz)</b> at rated power at 1 watt output (8 ohms)	0.011% 0.015%	0.013% 0.01%	Front, 0.063% Front, 0.043%	0.0056% 0.016%	0.007% 0.005%	0.024% 0.019%
<b>NOISE</b> (A-wtd. re 1 watt)	-80 dB	-96 dB	-108 dB (front)	-94 dB	-96 dB	-95 dB
<b>FREQUENCY RESPONSE</b> (20 Hz to 20 kHz)	+0, -0.05 dB	+0, -0.18 dB	+0, -0.17 dB	+0, -0.68 dB	+0, -0.2 dB	+0, -1.2 dB

from the user's standpoint, since the preamplifier will set the actual listening level of the system.

We measured the A-weighted noise level referred to an output of 1 watt, which placed all of the amplifiers on the same basis so that we could judge the audibility of their internal noise. Despite the seeming disparity between the highest and lowest noise measurements (-80 and -108 dB), none of these amplifiers exhibited any audible noise at the listening position during actual use (nor would we expect any at any conceivable listening distance).

As with any properly functioning power amplifier, the frequency-response measurements were all ruler-flat through the audible range.

### THE BOTTOM LINE

**A**lthough the measured performance of these amplifiers may appear to vary rather widely in some respects, from the user's standpoint they were remarkably similar. These are all first-rate products, and none of them exhibited substandard performance in any respect.

Like any good amplifier operated within its ratings — and if you *do* exceed the linear range of most of these amps, your speakers may be in mortal

peril! — these six amps did not have any distinctive "sound" of their own. Of course, they are *not* all alike in other respects, as is obvious just from lifting them up. Even the "lightweights" of the group weigh in at 25 to 30 pounds, and the heavyweights are definitely not to be taken lightly!

More important, their different features and designs give them strengths and weaknesses for different applications. Given their diversity, it is reasonable to ask if any of these amplifiers would be especially desirable for a specific home theater application (aside from their prices, which span a sufficient range to make that a factor in some cases). For a couple of them, the answer is obvious. Whether a specific installation requires power of 100 watts per channel or more will depend on the speakers' sensitivity, the size of the room, and the owner's viewing and listening preferences. Some program material truly requires a lot of power for the intended impact (the *Jurassic Park* soundtrack is a good example), and if that sort of fare is your preference, go for all the power you can afford. Five of the amplifiers we tested can deliver that much power without straining, but the relatively low-power NAD 916 cannot (unless bridged).

On the other hand, if your taste runs

to less spectacular recorded sound, and your speakers are of average or greater efficiency, even the NAD 916 should be more than satisfactory (and its distortion was one of the lowest in the group). And with bridging, it has all the power (for fewer channels) that most people will ever need.

The Acurus 100X3, the only three-channel design we tested, offers exceptional flexibility in installation. Although it is one of the most powerful amps in this group, its price is about average. It is also relatively compact and can be used easily to upgrade a reasonably good stereo or low-power A/V receiver, which can then drive the surround speakers or one or two subwoofers.

The Kenwood KM-X1 differs from all the others we tested in being essentially half of a "super" A/V receiver designed and constructed in two parts. Obviously, when used with its companion tuner/preamplifier it provides exceptional convenience and performance, with all the electronic and control functions of a deluxe A/V system. On the other hand, on its own it is a very competitively priced six-channel power amplifier.

One thing is certain: Any of these amplifiers should do a fine job in a first-rate home theater system. □



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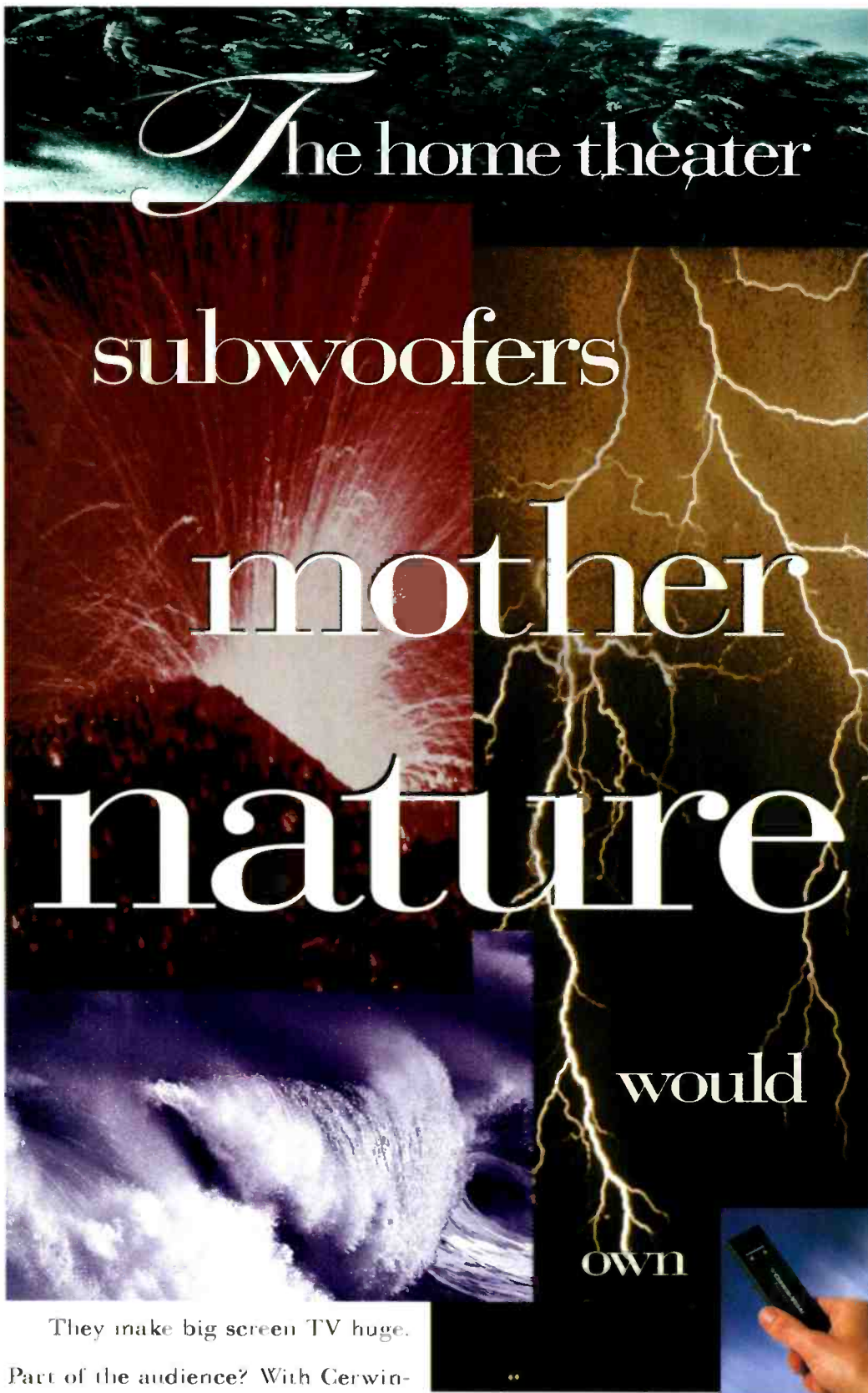


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# HOW TO BUY COMPUTER SPEAKERS

**TIRED OF THOSE LITTLE  
SQUAWKERS THAT  
CAME WITH YOUR PC?  
REPLACE THEM!**

**T**hese days most computers come with a CD-ROM drive, a 16-bit stereo sound card, and a pair of small speakers that are probably okay for monitoring warning beeps or for casually browsing multimedia discs. But if you read this magazine, you're accustomed to much higher-quality sound than many so-called "computer speakers" are capable of delivering. Whether you're exploring "Myst," clicking your way through Bob Dylan's "Highway 61" interactive disc, or playing a CD of Mozart in the background while you run a spreadsheet, you understandably want — no, *deserve* — the best possible sound.

So how do you go about upgrading your computer's speaker system? Well, you could simply plug a pair of ordinary speakers into the computer's audio output jack (provided you have the right adaptors). That probably wouldn't do much good, though, since the amplifiers built into most computers rarely eke out more than 2 watts a side, and often only a fraction of a watt. A more workable solution is to pick up a decent set of powered computer (or "multimedia") speakers, which have their own built-in amplifiers.

Powered computer speakers come in two basic configurations: the standard stereo pair and the three-piece system, which includes a bass module, or "subwoofer" (a woofer by ordinary speaker standards). Generally speaking, you have to spend at least \$100 to get a system that is substantially better than the speakers that come with many computers.

## WHAT TO LOOK FOR

Aside from good sound, there is really only one essential requirement for powered computer speakers: a single volume



by Cary Lu

control that is readily accessible and clearly marked. Because of a lack of standardization on the audio side of computer software, sound levels tend to vary wildly from one program to the next, which means that you have to adjust the volume more often than if you were simply playing CD's on your stereo system. Few things are more annoying than having to reach around to the back of a speaker to tame a blaring soundtrack! While volume adjustments can usually be made via software, it's a heck of a lot easier just to turn a knob.

Of course, there are other computer-speaker features that might come in handy depending on what kind of system you have and how you use it. One is input mixing. You'll need a mixer if you want to listen to your CD player or radio while you're playing a game or running a sound-oriented

# HOW TO BUY COMPUTER SPEAKERS

program. And if you have an external CD-ROM drive, a mixer is required if you want to combine the drive's audio output and the computer's sound output into one stereo output, avoiding the need for *two* pairs of powered speakers. Most computer speakers that have a built-in mixer provide simple, fixed-level mixing (you have to adjust relative volume levels at the sources). A few have a continuous-blend control that sets the relative volume easily.

A front-panel headphone jack is another feature worth considering — especially if you play video games late at night. Just make sure the jack is easy to get to (read: on the front panel), because you have to unplug the headphones when you want to listen through the speakers.

Tone controls might be useful depending on the quality of the speakers and where you plan to put them. Some powered speakers have bass and treble

While most powered speakers have an on/off switch, it may not matter if you plug them into the computer's switched power outlet so that the speakers will turn on whenever the computer is turned on. An on/off switch will be necessary, however, if you plan on listening to a noncomputer sound source through a mixer.

## THINGS TO AVOID

As with anything else, there are also a few computer-speaker features that you should avoid. One is automatic power-on. Amplifiers with "auto on" remain in standby mode until an audio signal is detected, when they automatically turn on; they shut down about a minute after the audio signal disappears. This feature makes sense if you want to conserve power in a battery-operated system, but otherwise it can be extremely irritating. The turn-on process is not instantaneous, so the amplifier often cuts off the first note of music. In worse cases, the amplifier adds insult to injury by popping loudly as it turns on. Subwoofers with automatic power-on circuitry are not a problem, however, as long as they power up quietly.

Another dubious feature found in some computer speakers is the noise gate, a circuit designed to suppress background noise caused by the sound card and the soundtrack. As long as the level of the input signal remains above a predetermined threshold level, or "gate," the amplifier works normally, but as soon as the signal level drops below the gate, its gain drops to zero, effectively muting the output. The problem is, the noise gate introduces an annoying swishing sound when it kicks in. Noise gates also produce another unnatural effect, most noticeable



The Altec Lansing ACS500 three-piece powered system (\$450) has a surround-sound decoder.

during quiet soundtracks that contain dead space, as when a piano is played slowly: You can hear background noise during each note, but not *between* notes. Of course, to casual listeners such flaws may not be that noticeable, especially if the computer's fan is particularly noisy.

Finally, as hinted earlier, you may want to steer clear of speaker systems that have a separate volume control on each enclosure — a very clumsy arrangement. Also avoid systems with knobs that are hard to reach or too small to adjust easily. Other sticky areas include powered speakers that have no volume control at all and three-piece systems that have volume controls *on the bass module*, which is obviously meant to be tucked away in a corner or under a desk!

Of course, some of these problems can be fixed with an external volume control. The most convenient device I've seen is a \$13 accessory sold by Cambridge SoundWorks for its SoundWorks powered speaker system that has a 12-foot cable. Radio Shack sells a \$5 headphone volume control (catalog No. 42-2459) that'll work, but it's integrated into a 1-foot cable, which means you'll probably still need an extension cable, and the control itself is too small to grab easily. In computer stores you may find external volume controls designed to stick onto the side of a monitor. Just be careful: Cheaply made controls introduce noise.

## INSTALLATION AND SETUP

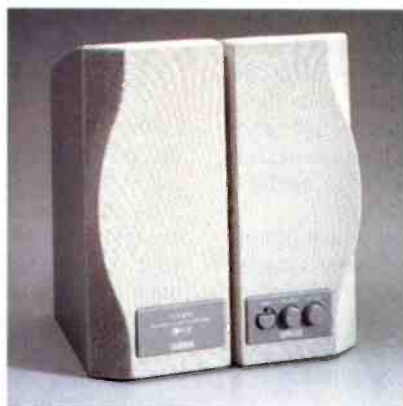
Powered computer speakers are typically small enough to fit almost anywhere, which is good because you really need to experiment with location



Advent's AV270 Powered Partner (\$179 a pair) has tone controls and a 20-watt amp.

controls, some only treble, and others no tone controls at all. Just don't expect tone controls to perform miracles — you can't turn a mediocre speaker into one that sounds good by twisting a couple of knobs. And in the case of bright-sounding speakers that don't have any tone controls, you can always angle the speakers away from the listening position to tame the treble.

Similarly, a balance control might be helpful, but only if you can't place the speakers at equal distances from your listening position. And if you plan to put them only a few inches away from the monitor — as most people do — make sure they are magnetically shielded. But before you plop them right next to the screen, try moving them out a little farther — say a foot or so; the stereo imaging will be so much better you'll want to keep them there.



Yamaha's YST-M10 (\$150 a pair) has front-panel controls and a 20-watt power amplifier.

to achieve the best possible sound quality. Start by positioning the speakers as close to ear level as possible and about 3 to 4 feet apart; any deviations from that will probably degrade imaging and stereo separation, though sometimes compromise is necessary. If the speakers go on a shelf, try to align the front of each one with the forward edge of the shelf so that the sound projects into open space. If the speakers absolutely have to be placed on a table, try to elevate them (at least a few inches) to minimize reflection problems. In the case of a three-piece system, the location of the bass module can vary. Most people put it on the floor next to the desk. If you want more bass output, place it near a wall or, better, in a corner.

Wiring powered speakers will certainly add to the maze of cables that already festoon your computer station. If you want the speaker to turn on with your computer, you may need to change the power cable between the computer and monitor. If that cable has CEE connectors (three parallel flat prongs), get some CEE-to-standard-three-prong cables and use an ordinary three-way power-plug adaptor to provide an outlet for the speakers. Nearly all powered speakers come with a large AC adaptor, which should be kept away from your monitor. If the monitor starts shimmering or flickering, move the adaptor farther away.

In most computer speaker systems,



**Bose's MediaMate (\$339 a pair) contains a stereo power amplifier and a two-input mixer.**

the amplifier and controls are usually housed in the right speaker. If you are left-handed, or if the left speaker position is simply easier to reach, you can swap the speakers and reverse the left and right plugs as long as the speakers have RCA phono jacks. If they use stereo miniplugs, wire in a channel-reversing adaptor (available at an electronics

parts store) to keep the left and right channels in their correct positions.

Beyond those suggestions, there isn't much else you can do to optimize your computer's sound system — except, of course, to silence the computer itself (which can be quite noisy). If you have a tower configuration, at least put the main processor on the floor, away from your ears. Otherwise, it's extremely difficult to quiet the noisy fans and whirring hard drives that plague many computers. In my office, I've gone so far as to put the processor on the other side of a wall; the two monitors, the floppy disk and CD-ROM drives, the keyboard, and the mouse are all on *my side* of the wall. Not exactly an easy solution, but it works for me.

## HOW DO THEY SOUND?

After spending several weeks listening to computer speaker systems, one conclusion stands out: When it comes to music, it's hard to beat the sound quality you can get from a basic two-channel receiver (about \$120) and a good pair of conventional bookshelf speakers (less than \$200). Still, a number of computer speaker systems are worth checking out. Unless otherwise noted, the systems I evaluated have a volume control and headphone jack on the front panel.

In the \$100 to \$150 price range, three of the powered speakers I auditioned performed respectably. Atlantic Technology's M110 (\$119 a pair) sounded good on music but emphasized sibilants on voice recordings. It includes mixing facilities and has a very tiny volume control and a recessed headphone jack, which, unfortunately, would not accept most of the headphone plugs I tried. Jensen's JPS45 (\$149 a pair), which has a volume control on its side and a headphone jack on its rear panel, had decent if undistinguished sound. Finally, Apple Computer's Apple Design Powered Speaker (\$139 a pair) did a good job with speech but sounded a little rough on music, particularly when played moderately loud. The Apple system has mixing facilities (with a noise gate on the minijack input but not on the phono-jack input).

In the \$200-and-up price category, SoundWorks, a three-piece system from Cambridge SoundWorks (\$220, including remote volume control) delivered better sound than the less ex-



**Cambridge SoundWorks' three-piece SoundWorks system (\$220) also comes in beige.**

pensive speaker pairs mentioned above, but it lacks both mixing facilities and a headphone jack. Atlantic Technology's M105 powered Bass Toaster (\$229) did a good job of fattening up the bottom end when used with the M110's, but it catapults the system price up to \$348. Finally, the Bose MediaMate (\$339 a pair), a powered speaker with a continuous mixing control, was able to turn out surprisingly good bass for its small size (7½ x 3¼ x 8¼ inches). Among these three systems, the Cambridge SoundWorks system is the best buy and Atlantic Technology's combined M110/M105 system is capable of delivering the best sound — but only by a slim margin. The Bose MediaMate falls somewhere in between.

The most expensive speaker I auditioned was Advent's Powered Partner AV570 (\$399 a pair), formerly available under the Acoustic Research name. While it was the best-sounding computer speaker I have heard, it has three serious flaws: separate left and right volume controls, a noise gate, and automatic turn-on circuitry. It also lacks mixing facilities and a headphone jack.

The bottom line: Any of the computer speaker systems mentioned above — or a basic stereo system if you have \$300 or so to spend — will deliver much better sound than the low-quality speakers that typically come with today's multimedia computers. And a good sound system is what you need to experience the realism and depth that the soundtracks of today's video games and multimedia CD's offer. If only there were a way to silence the computer . . . □

*Cary Lu is a regular contributor to Macworld, Family PC, and Inc. Technology magazines.*

# *The Road Kill Diaries*



**July 20**

**Spent the morning burrowing.**

**Heard the sound of some powerful amps.**

**Ran out in the road to investigate.**

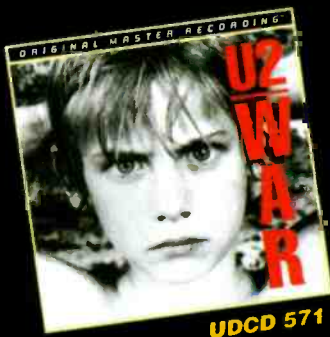
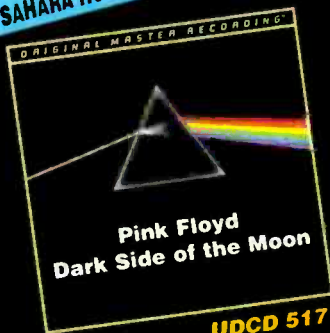
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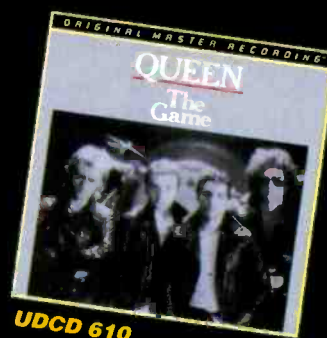
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# BEST OF THE MONTH

**STEREO REVIEW'S  
CRITICS CHOOSE THE OUTSTANDING  
CURRENT RELEASES**



DAVID WEEBER/VIRGIN

## Boy George: Glam Rock, Hard Place

**A**nyone who remembers Boy George from either his costumed reign with Culture Club or his subsequent solo albums will likely be surprised at the turn of events on "Cheapness and Beauty." Gone are the disco beat, the swirling semi-soul, and the fey flirtiness. In their place come guitars, glam rock inspired by David Bowie and Iggy Pop, and a hard look at the gay lifestyle.

The album bypasses dreamy romance in its handling of homosexual themes, from the in-your-face references of *Evil Is So Civilised*, *God Don't Hold a Grudge*, and *Same Thing in Reverse* to the more suggestive lyrics of the scary *Funtime*, an Iggy remake. The album's closer is a chillingly sad (if overproduced) AIDS ballad, *Il Adore*, in which a mother cradles the head of her dying son, Pieta-like, still unable to accept his homosexuality.

Much of "Cheapness and Beauty" is about self-realization — but also about what George calls "being caught in a trap." Seesawing between the celebration of sexuality and the pull of religion, George has made a record that pulsates with passion and tension, whether he's taking on the bisexual who married into the straight life in *Unfinished Business* or raging against the wrong kind of paradise in *Your Love Is What I Am*. Overall, this album's portrait of the former George O'Dowd is vastly different from that of its predecessors, with its reliance on live instruments instead of technology, its dead-eye language ("You walk like Jack and you love like Mary / And you're more than a bit of a queen"), and its hard-fisted delivery. In fact, the singer is through half of the program before his voice — deeper now, and more serious — recalls the soft guile it had in his Culture Club days.

"Cheapness and Beauty" is full of hellish references to love at a terrible price (no happy endings here) and self-loathing balanced with the occasional stab at gay pride. Uplifting it is not. But it is also the most real music Boy George has ever made. And just maybe the most important, too.

*Alanna Nash*

**BOY GEORGE: Cheapness and Beauty.** *Funtime: Satan's Butterfly Ball; Sad; God Don't Hold a Grudge; Genocide Peroxide; If I Could Fly; Same Thing in Reverse; Cheapness and Beauty; Evil Is So Civilised; Blindman; Your Love Is What I Am; Unfinished Business; Il Adore.* VIRGIN 40492 (50 min).

## Leila Josefowicz's Stunning Debut

**T**here has been no scarcity of remarkably gifted teenage and pre-teen violinists lately, but even so the debut recording of young Leila Josefowicz — playing the Sibelius and Tchaikovsky concertos with Neville Marriner and the Academy of St. Martin in the Fields — is a heartening event, and by no means because of the age factor alone. Josefowicz, Canada-born and California-bred, turned eighteen only a few months ago; she apparently began her professional activity at the age of ten or eleven and is currently studying at the Curtis Institute of Music in Philadelphia. The vitality she brings to these concertos is not expressed in terms of unbridled energy but is accompanied by an evidently instinctive refinement that keeps expressive elements effortlessly and convincingly within certain bounds — as well as the by now expected technical assurance.

Josefowicz has been performing and touring with Marriner for more than five

# BEST OF THE MONTH

years, mostly in these very concertos, and that may explain in part the impression I received of the fine, old-fashioned level of their collaboration. This is a seasoned partnership, with nothing ad hoc about it, old-fashioned in the sense of real artists committing to disc interpretations they have developed together over a period in which they've come to know and respect one another. Yet they are flexible and responsive enough to suggest spontaneity in every phrase. A tad more robustness on the orchestra's part in the outer movements of the Sibelius might have been welcome, but it is never in any sense underanimated, and the Tchaikovsky is flawless from start to finish in its balance of vigor and elegance.

To be sure, there are numerous outstanding recordings of both works by some of the legendary giants active in the last sixty-five years, and it would be absurd to suggest that this disc in any way supersedes them. But there is no hyperbole in suggesting that it deserves to stand beside them. *Richard Freed*

## **SIBELIUS: Violin Concerto.**

## **TCHAIKOVSKY: Violin Concerto.**

Leila Josefowicz: Academy of St. Martin in the Fields. Neville Marriner cond. PHILIPS 446 131 (66 min).



**Violinist Leila Josefowicz**

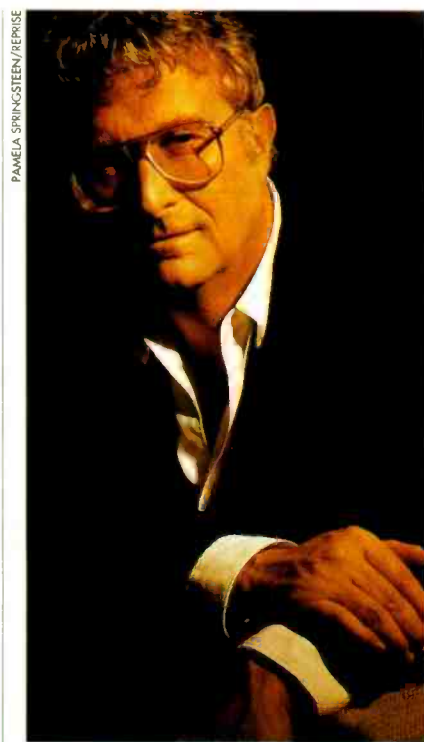
## Newman Dances With the Devil

**R**ock-and-roll embodies many things, but a literary sensibility is usually not among them. So Randy Newman's Broadway-bound rock musical version of Goethe's *Faust*, recast as a contemporary morality play, is a gale of fresh air. In these times of punk-rock clones and half-baked alterna-dreck, it stands as a red-letter day for those who like their pop music leavened with a little genuine wit and insight.

Newman's "Faust" is an out-and-out riot, faithful in its outline to the characters and plot turns of the early nineteenth-century original but utterly up-to-date in tone. Indeed, Goethe's classic tale seems more apropos than ever to the late twentieth century in general and the culture of rock-and-roll in particular. That's because the original was in part a darkly comic ode to rebellious youth, which despite its pitfalls is held to be the engine capable of saving humanity. Viewed through this lens, the nexus between *Faust* and rock-and-roll is inescapable. The only surprising thing is that it took so long for someone to make the connection.

The casting is one of the most brilliant aspects of this project. Drawing from a pool of singer/songwriters who have been his peers since the early Seventies, Newman matched them to roles in ways that caricature elements of their public personas: James Taylor a cheerfully complacent God, Linda Ronstadt the doe-eyed Margaret, Bonnie Raitt the worldly-wise Martha, and Don Henley the brainy, brutish Faust, whose calculating insensitivity offends even the Devil, performed with pompous drollery by Newman himself. The contrasting viewpoints between God's affable well-meaning and the Devil's cynical, rapier wit come fast and furious, as when Newman interrupts a Taylor-led gospel singalong (*Glory Train*) with a harangue on the whole of religion: "You know it's a lie / It'll always be a lie / The invention of an animal / Who knows he's going to die."

Henley shines as the combustible Faust, here written as a bright but basically amoral college student with a ballooning ego who adapts rather too easily to the power and popularity bestowed upon him by the Devil. In *The Man*, one of the musical's pivotal songs, Faust cements his deal in a nightclub, reveling in his tawdry moment in the spotlight (the metaphorical parallels with the seamier side of rock celebrity are inescapable). As lives are ruined or taken, the saga inex-



**Randy Newman: could he be . . . Satan?**

orably makes its way to a tragicomic finale. Along the way, though, Newman can't resist a detour or two, such as *Northern Boy*, a song that seems to exist solely to allow his hilariously contemptuous Devil to heap insults on some poor dullard from the Great White North. But Newman saves his finest comic volley for the denouement, *Happy Ending*, which finds a defeated Devil picking himself up after Faust's surprise redemption, dusting himself off, and making his way, bloody but unbowed, to . . . Las Vegas.

Throughout "Faust," Newman provides an adroit, finely tuned musical score that effortlessly shifts from bawdy boogie-woogie to lushly orchestrated threnody to heavy-metal flare-up to bits of Broadway-musical cornpone. Indeed, Newman displays a sure-handed grasp of more styles than any one composer should be capable of. In so doing, he's constructed a "Faust" for the Nineties, a show that gives new meaning to the term "Devil's music." *Parke Puterbaugh*

## **RANDY NEWMAN'S FAUST.**

*Glory Train; Can't Keep a Good Man Down; How Great Our Lord; Best Little Girl; Northern Boy; Bless the Children of the World; Gainesville; Relax, Enjoy Yourself; Life Has Been Good to Me; Little Island; The Man; My Hero; I Gotta Be Your Man; Feels Like Home; Bleeding All Over the Place; Sandman's Coming; Happy Ending.* REPRIS 45672 (58 min).

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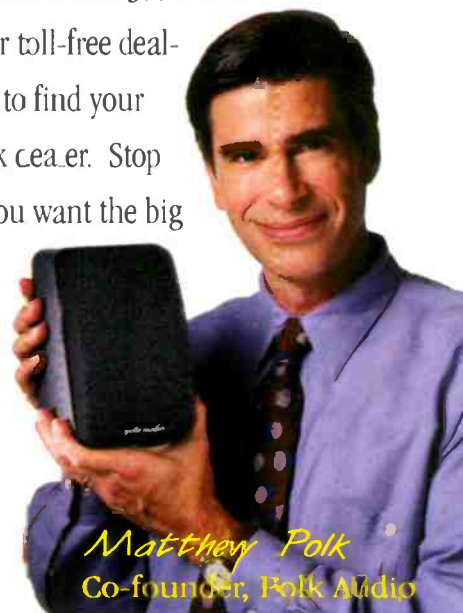
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# BEST OF THE MONTH

## Bryn Terfel: Music's Prince Of Wales

**A** paradox lies at the heart of most performances of twentieth-century English art songs: While the music and the poetry celebrate the joys of simple country life, the singers are usually effete urban artists with plummy accents who never laid eyes on a plow in their lives. There have been notable exceptions — the contralto Kathleen Ferrier, for instance, brought genuine earthiness to her magnificent, forthright interpretations of traditional songs. Now, with "The Vagabond," his first recording of English songs, the Welsh baritone Bryn Terfel — widely praised for his earlier Schubert collection, "An die Musik," and his performances in Mozart operas — lays an immediate and undeniable claim to a place in the first rank of interpreters of this music.

From the first stanza of Vaughan Williams's *The Vagabond*, Terfel unleashes an almost overwhelming musical power, grappling with the piece as though it were a wrestling challenger rather than a score. When this son of a sheep farmer and former rugby player tells you that all he wants is "Bed in the bush with stars to see, / Bread I dip in the river," you don't



JOHN STODOLNY/DEUTSCHE GRAMMOPHON

Baritone Bryn Terfel

doubt that he has actually slept outdoors and seen plenty of rivers besides the Thames.

Yet for all his power, Terfel brings true elegance and grace to this music. His phrasing of Gerald Finzi's Shakespeare songs is achingly, shingly beautiful. When he moans, "Not a flower sweet, on my black coffin let there be strewn," only

a stone could be unmoved. If this man ever decides to sing *Ol' Man River*, invest in Kleenex.

Terfel's genius lies in the astonishing freshness of his communication. Rather than merely impersonating the illiterate sailor in John Ireland's *The Vagabond* (quite a different song from the Vaughan Williams), or the melancholy old men in George Butterworth's rather prissy settings of poems by A. E. Housman, Terfel somehow actually *becomes* them, and makes their songs into musical conversations with the listener.

And I haven't even said anything yet about the *voice* — what a flexible, richly hued, marvelous thing it is. It is a tribute to Terfel's artistry that you become so deeply engrossed in his musical storytelling that you don't notice what a beautiful instrument he has until the experience has ended. He is accompanied sympathetically on the piano by Malcolm Martineau and recorded with thrilling fidelity by the Deutsche Grammophon engineers. *Jamie James*

### **BRYN TERFEL: The Vagabond.**

Vaughan Williams: *Songs of Travel*.

Finzi: *Let Us Garlands Bring*.

Butterworth: *Bredon Hill and Other Songs: Six Songs from "A Shropshire Lad."*

Ireland: *Sea Fever; The Vagabond; The Bells of San Marie*. Bryn Terfel (baritone); Malcolm Martineau (piano). DEUTSCHE GRAMMOPHON 445 946 (77 min).

## NOW ON CD

### POPULAR

#### **TELEVISION PERSONALITIES:**

**... And Don't the Kids Just Love It.** RAZOR & TIE 2089. From 1980, the first full-length album by one of the most original of the post-Sex Pistols English punk bands.

#### **LEONARD NIMOY:**

**Mr. Spock's Music from Outer Space.** VARÈSE SARABANDE 5613.

#### **WILLIAM SHATNER:**

**The Transformed Man.** VARÈSE SARABANDE 5614. Sixties camp classics from the heroes of TV's *Star Trek*, including Shatner's famously surreal rendition of *Lucy in the Sky with Diamonds*.

#### **ILLINOIS JACQUET.**

EPIC/LEGACY 64654. One of the saxophone great's best albums, recorded in 1962, featuring Roy Eldridge, Kenny Burrell, and Jo Jones.

#### **MERLE HAGGARD:**

**Sing Me Back Home.** KOCH 4054. Out of print for more than a decade.



this 1967 album (originally on Capitol) collects important B-sides as well as the hit title song.

### CLASSICAL

#### **ELGAR: Enigma Variations.**

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#### **Pomp and Circumstance Marches.**

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#### **RAVEL: Gaspard de la Nuit. DEBUSSY: Pour le Piano; Three Preludes.**

#### **STRAVINSKY: Three Movements from "Petroushka."**

Gina Bachauer (piano); John Gielgud (narrator). MERCURY 434 359. Bachauer offers "... an impressively personal reading" of Ravel's *Gaspard de la Nuit* and some equally fine Debussy (June 1965).

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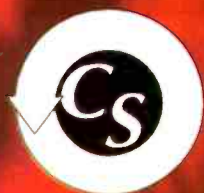
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# POPULAR MUSIC

NEW RECORDINGS REVIEWED BY CHRIS ALBERTSON, FRANCIS DAVIS,  
PHYL GARLAND, RON GIVENS, BRETT MILANO,  
ALANNA NASH, PARKE PUTERBAUGH, KEN RICHARDSON, & STEVE SIMELS

**TONY BENNETT: Here's to the Ladies.**

COLUMBIA 67349 (67 min).

**Performance: The Toniest!**

**Recording: Fine**

The one classic pop singer to cross over to Generation X, 69-year-old Tony Bennett has become the Harry Connick of the mid-Nineties. "Here's to the Ladies," the latest in Bennett's series of tribute albums (following homages to Frank Sinatra and Fred Astaire), annexes a full orchestra to the singer's working trio. This time out the husky-voiced crooner (whose warm style actually owes the most to Louis Armstrong) *cherche la femme* to sing the praises of the distaff side of the jazz-pop world. Bennett celebrates female icons as justifiably legendary as Billie Holiday (a dramatic *God Bless the Child*, featuring Doug Richardson's bass) and Judy Garland (a romping *Over the Rainbow*, with an introductory verse that the High Priestess of Judyism never sang), as undeservedly neglected as Margaret Whiting (a stunning *Moonlight in Vermont*), and as overrated as Barbra Streisand (the first treatment of *People* to actually swing). Within the big band, the most prominent soloist is Ralph Sharon, Bennett's pianist of the last forty years, whose arpeggios resonate all the more warmly against shimmering strings. Last year's Grammy-winning "Unplugged" confirmed Bennett's standing with the MTV demographic; "Here's to the Ladies" proves again that he's an artist for all time.

Will Friedwald

**TRACY CHAPMAN: New Beginning.**

ELEKTRA 61850 (65 min).

**Performance: Graceful**

**Recording: Good**

After the relative disappointment of her 1993 album, "Matters of the Heart," Tracy Chapman's "New Beginning" is an aptly named return to near form. One song, *I'm Ready*, even alludes to a rebirth and baptism ("I'm ready to let the rivers wash over me"). Dignified and graceful, the al-

bum tells of tough victories and close defeats, making a powerful connection with the listener both socially and spiritually.

Chapman is most concerned with matters of metaphysical and carnal passion. In *Heaven's Here on Earth* she weds a single-note acoustic guitar line, light percussion, spare electric guitar, and woodwind to an intense meditation on peace and understanding. In *At This Point in My Life* she imparts a wisdom too easily forgotten: "The search to live honestly / Is all that anyone needs." As usual, Chapman's smoky, deep-wood voice ferrets out the dark, hidden crevices of the soul. *The Promise*, a love song that veers near the profound, will put a lump in your throat. And if her ecology-

conscious song (*The Rape of the World*) falls short, her no-nonsense recognition of a hollow-hearted man (*Smoke and Ashes*) is remarkable in its quiet evolution from starry-eyed optimism to cold reality.

Although Chapman never comes up with a song as starkly memorable as *Fast Car*, she makes up for it in material that supports her cries for personal integrity, rarely stooping to sermonize. Chapman knows full well that it takes more than trends and treacle to effect true healing, whether of the spirit or the flesh. This album is as good a beginning as any. A.N.

**DON DIXON: Romantic Depressive.**

SUGAR HILL 5501 (41 min).

**Performance: Assured**

**Recording: Excellent**

Don Dixon wears his heart on his album title in this worthy collection. It's a true solo record: Dixon plays every instrument (except for drums and percussion), which is appropriate to the soul-searching he undertakes in this brooding memoir. He is also a surehanded producer and songwriter, but it is as a singer that he really shines, cutting loose in a supple voice that packs the conviction and judicious self-containment lacking in a mass-market joker such as Michael Bolton. (Dixon is closer to the likes of Darius Rucker of Hootie and the Blowfish, who has cited him as a primary influence.)

In "Romantic Depressive," Dixon's subject matter is evenly divided between doleful reminiscences about love's labors and reflections on himself and the world from the vantage point of midlife. He waxes bittersweet in *I Should Know Better*, an uncommonly pretty tune co-written by pianist Bland Simpson (of North Carolina's Red Clay Ramblers); this is surrounded by the

## TRICKLE-DOWN MUSIC

So here's the shtick: A bunch of Boston garage-rock veterans get bored one weekend and form a joke band. They put on powdered wigs, adopt fake British accents, and write songs about the joys and trials of being filthy rich. These include a rant about how hard it is to get good help nowadays (*Little Rickshaw Boy*), a salute to a role model (*Little Lord Fauntleroy*), and a song allegedly about clothing (*I've Got My As-*

*cot 'n' My Dickie*). Wouldn't you know it — the concept catches on, the guys get signed to a hot indie label, and they make what may be the funniest good album of the year, "Let Them Eat Rock" (Upstart 026). Not only have Upper Crust wrung an entire CD out of the joke, but they've made a quintessential Boston garage disc. Now how long will it be before someone does this without the irony? Brett Milano



Upper Crust: Gentlemen prefer bonds.

TONY BENNETT: CHRIS ALBERTSON; TRACY CHAPMAN: TRACY CHAPMAN

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## POPULAR MUSIC

exertions of *Giving Up the Ghost* and *Angel Angel*, the latter a sprightly tune nudged along by handclaps and a Motownish bass line. Dixon turns introspective in *25,000 Days*, forthrightly facing himself in the mirror, and he dredges up a detailed account of the Vietnam-era draft and his near-miss as



a college student in *Lottery of Lives*. Songs like these and a comic-relief instrumental entitled *Good Golly Svengali* serve to balance Dixon's bouts of lovelorn melancholy with a broader outlook. "Romantic Depressive" is an album by a stalwart soul who, refreshingly, isn't afraid to flinch from adulthood. *P.P.*

### PETER FRAMPTON:

**Frampton Comes Alive II.**

EL DORADO/I.R.S. 34368 (75 min).

**Performance:** Better than expected

**Recording:** Good live

I hate to break the news, but *Day in the Sun*, which opens this apparent sitting duck of an album, is a really good song — so good that I've had to shelve all the cheap jokes I was planning to make at Peter Frampton's expense. Despite the lower profile and the receding hairline, Frampton is about as good in the mid-Nineties as he was in the mid-Seventies — still not about to change anyone's life, but still writing some of the more spirited fluff around. Though never a wellspring of depth, Frampton was hardly the worst thing about the Seventies: after all, he could always turn a hook and play a decent guitar solo. And his aw-shucks stage manner, in retrospect, was sort of refreshing.

Instead of skimming the better songs from his dozen or so studio albums, "Frampton Comes Alive II" includes mostly new material. But the basic ingredients are familiar: a handful of polite rockers, a bunch of wide-eyed love songs, enough instrumental workouts to prove he can play, and a quasi-blues barnstormer where he breaks out the talkbox. The only surprises come in the disc's acoustic midsection, where Frampton does his first-ever topical song — *Talk to Me*, a smart-enough response to the Oklahoma City bombing — and follows that with an understated version of a great non-original, Tim Hardin's *Hang On to a Dream*.

The drawbacks are also familiar: Some of the rockers are light-arena filler, and the make-out ballad *I'm in You* displays the silliness that sank Frampton's career in the first place. Still, "Alive II" is a relatively guilt-free nostalgia fix, and probably the only other Peter Frampton album you'll ever need to hear. *B.M.*

### GARBAGE.

ALMO 80004 (51 min).

**Performance:** Throwaway

**Recording:** Harsh

You've got to hand it to this trashy electro-pop quartet: Their name is at the very least a candid admission of the disposable nature of the music they make.

In foraging for a new approach to worn-out formulas, this strange alliance of three producers and a Scottish chanteuse is interesting on paper but rather stillborn on disc. The main problem is the conceptual gulf between the sneery-voiced singer, Sharon Manson, and her knob-twiddling bandmates, who include onetime Nirvana producer Butch Vig. Garbage comes off not so much as a real band but as a "project" constructed around three men's ability to loop and program. Despite it all, there are some arch electronic hooks, primarily in *Supervixen* and *Only Happy When It Rains*, that may lodge in the mass consciousness for the Warhol-mandated fifteen minutes.

Leaving a bitter aftertaste, however, are the lyrics — bilious, self-obsessed musings on gender politics and whatnot that ultimately say nothing you haven't heard before. And with this compulsively cheerless bleak-pop approach, Garbage has already started decomposing. *P.P.*

### EMMYLOU HARRIS: Wrecking Ball.

ASYLUM 61854 (53 min).

**Performance:** Luminous

**Recording:** Evocative

Hearing that Emmylou Harris, of all people, is too country or something for Nashville — hence the new direction on her *Asylum* debut — one can only shake one's head and mutter, "Huh?" Especially since the real reason Music City executives are shunning her has to do with her, uh, relatively advanced years. I mean, get real, kids: Why else would those execs get behind Alison Krauss (whose music is indistinguishable from what Harris has been doing forever) rather than the older model? Then again, what do we expect from a world in which Renee Russo (!) is deemed too old to be Val Kilmer's love interest in *Batman Forever*?

In any event, the good news is that Harris has recast herself as what she was back in her days with Gram Parsons — that is, as a sort of cutting-edge folkie. Paired with producer/performer Daniel Lanois, who has proven himself comfortable with everybody from Bob Dylan to U2, Harris works her achingly pure soprano through an eclectic bunch of songwriters from Rodney Crowell to Neil Young, and the sonic backdrop Lanois has erected for her (*Ambient Acoustic?*) is spare, spacious, and unerringly right. You haven't lived, for example, until you've heard the sort of psychedelic/bluegrass/grunge melange that Harris and Lanois extract from Jimi Hendrix's *May This Be Love*.

The result is simply one of the strongest albums that Emmylou Harris has made to date. Clearly, Nashville's loss is everybody else's gain. *S.S.*



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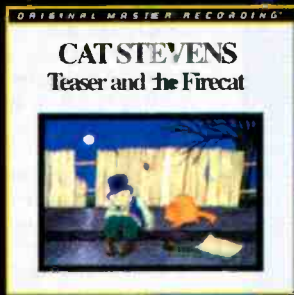
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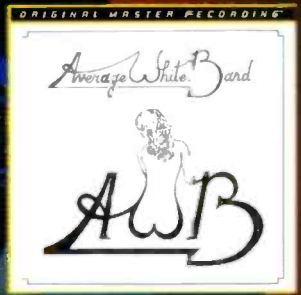
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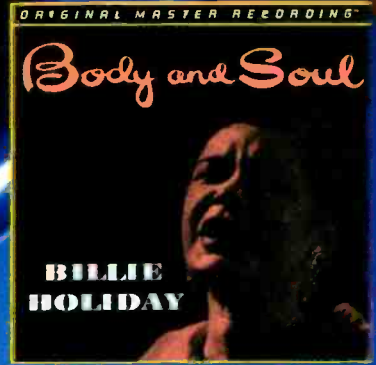
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## POPULAR MUSIC

### JOHN HIATT: *Walk On*.

CAPITOL 33416 (65 min).

**Performance:** One of his best

**Recording:** Good

John Hiatt has taken his act on the road and gotten it together. "Walk On" is a collection of songs he wrote during his "Perfectly Good Guitar" tour, and it's a perfectly good album, filled with his cockeyed, sweet-and-sour wisdom. As usual, Hiatt delivers a wondrous blend of moods and opinions, from his bloodshot perspective on uncertain love to his cackling perspective on loopy American culture to his wistful perspective on life as we don't know it.

First and foremost, there is the title cut, a mysterious and wrenching bit of trouble. It's a song noir, from the evocation of muggy nighttime New Orleans to the chorus about the woman who is waiting back in a hotel room for the man who is pacing the city. Hiatt piles foreboding image upon foreboding image — and then sings with such a restrained straight-edge that the tune cuts like a razor. You don't really feel the pain, but you see the bloody lines.

The word pictures in "Walk On" work beautifully because Hiatt doesn't slap you upside the head with them. The guy in *Ethylene* doesn't just miss his woman, he misses "that crocheted thing you kept on the Kleenex box." The guy in *Shredding the Document*, who is fed up with all the yahoos blabbering on TV, is now adamantly refusing to talk to anybody . . . well, maybe Larry King . . . but then again, no . . . but then again, maybe Oprah Winfrey.

The music is swell, too. David Immergluck — familiar to those who have enjoyed his work on all kinds of stringed things for Camper van Beethoven, Monks of Doom, and the Ophelias — contributes zesty and tasteful mandolin, and he can play a banjo like a hard-rock guitarist. Just as important as the album's fine musicianship is the way the backing tracks stay in the background.

John Hiatt is not an easy man to please. He looks around and sees fault lines. He tells us which way the cracks are headed and, sometimes, how we cannot avoid them. He doesn't always like it, but this is his job. God bless him. *R.G.*

### K.D. LANG: *All You Can Eat*.

WARNER BROS. 46034 (36 min).

**Performance:** Celestial

**Recording:** Very good

In her first album since the soundtrack to *Even Cowgirls Get the Blues*, the Big-Boned Gal from Alberta bypasses both the Nashville circuit of "Absolute Torch and Twang" and the mirror-ball cabarets of "Ingenue" for a concert stage in her own head. While the title should raise a smile, coming from this very public lesbian, the new album is far less about physical love than about idealized sensuality. In fact, relying on instrumental tracks nearly as odd and sometimes as dissonant as those of the movie soundtrack, "All You Can Eat" is more like a stream-of-consciousness fantasy or an unrequited love affair of the mind, replete with courtship, sex, and rejection.

From start to finish, k.d. lang sounds as if she has just awakened from a lovely dream and is lying on her pillow, thinking of the woman who has captured her heart. For all its internalized heat, the album relies almost exclusively on slow-to-midtempo rhythms and free-floating yet bottom-heavy ambient melodies. The singer threatens to break into a sweat only in the jazzy *Get Some*, the teasing *Sexuality* (a gauzy come-on in which she asks, "How bad could it be / If you amuse yourself with me?"), and the album's strongest song, *I Want It All*, in which her libido comes alive, her arty soprano takes a dramatic leap, and she finally lays her desires on the table: "All of your body / All of your mind / All your affection / All of the time . . . every ounce of you and your love . . . I am on my knees." Not a trace of her former cowpunk persona lingers around the edges, nor any of the exquisite ache and tension of *Constant Craving*, which was her most mainstream single.

Along the way, Lang and her longtime collaborator, Ben Mink, work in halfhearted allusions to conservative politics and its oppressive effect on sexual identity and practice (*Acquiesce*), as well as vague references to the pressure and privilege of fame (*If I Were You*). But it is the power and the spiritual endorphins of love that really consume her. How much they'll consume you depends on how much you treasure her entrancing voice — and how much sleepwalking you're willing to put up with. Alternately bland and invigorating, "All You Can Eat" is one album that precisely lives up to its title. *A.N.*

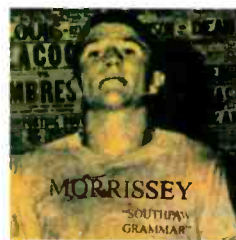
### MORRISSEY: *Southpaw Grammar*.

REPRISE 45938 (52 min).

**Performance:** Trying

**Recording:** Okay

Morrissey's latest aural anxiety attack is one of his weirdest and weakest records. Over the years, he has periodically changed musicians between albums to relieve the monotony of his endless kvetching and to liven up the landscape surrounding



his limited vocal range. But in "Southpaw Grammar" he winds up with a crew that plays the Spiders from Mars to his crestfallen Ziggy Stardust. The band's ham-fisted glam rock is inappropriate to a personality as brittle and circumspect as Morrissey, and the combination overwhelms the poor guy.

"Southpaw Grammar" starts out with the biggest bummer of Morrissey's career, an eleven-minute dirge entitled *The Teachers Are Afraid of the Pupils* that sounds like the Sisters of Mercy meet the London Symphony Orchestra. Built around discordant two-

## POPULAR MUSIC

note riffs, the song stubbornly refuses to end, and no one seems willing or able to stop it. The album closes with *Southpaw*, another labored ordeal that runs on for ten minutes.

In between these art-rock train wrecks are half a dozen somewhat more succinct and satisfying tracks. Even here, though, the tug of war between band and singer throws things off, as in *The Operation*, which opens with some sort of arena-rock drum solo and ends with a frenetic guitar rave-up à la the Yardbirds' *I'm a Man*. "Southpaw Grammar" shows Morrissey caught in a fast current, out of control and holding on for dear life — a guest on his own record. *P.P.*



### RED HOT CHILI PEPPERS:

#### One Hot Minute.

WARNER BROS. 45733 (61 min).

Performance: **Incendiary**

Recording: **Super**

The latest guitarist to pass through that revolving-door position with the Red Hot Chili Peppers is Dave Navarro, formerly of Jane's Addiction. Making his debut in "One Hot Minute," he brings more substance to the band than anyone since the late Hillel Slovak. This just might be the Chili Peppers' finest hour, an album of unsettled moods running hot and cold, earthy and transcendent, sex-mad and meditative, funky and poppy, airy and hard. The eclecticism recalls the glory days of Parliament-Funkadelic in that the Chili Peppers mix it up without ever straying too far from the groove.

Navarro takes to his role like an equal fourth member, pulling the others toward his stylistic preferences (he is decidedly not a funkmeister by nature) as much as they pull him toward theirs. This true spirit of collaboration has broadened the Chili Peppers' palette considerably, from the infectious Iggy Pop-style punk racket of *Coffee Shop* to the hypnotic recitative of *Walkabout*, a coolly rational exhortation to leave the rat race. Singer Anthony Kiedis and bassist Flea revisit their chemically fueled youth in *Deep Kick*, casting themselves as a contemporary Tom Sawyer and Huck Finn on the lam in San Francisco. They understand what made them tick then and what does now. Without getting preachy about it, the Chili Peppers use "One Hot Minute" to pledge their allegiance to music, the only addiction worth living for. And to that end they offer up a poppy hymn of celebration, *Aeroplane*, that glides along on a good vibration worthy of vintage Beach Boys while serving to revive, albeit briefly, the long-dormant California dream. *P.P.*

### SMASHING PUMPKINS:

#### Mellon Collie and the Infinite Sadness.

VIRGIN 40861 (two CD's, 125 min).

Performance: **Stellar**

Recording: **Creative**

Here is the alternative movement's first genuine art-rock epic — and it took Smashing Pumpkins to make it. Leader Billy Corgan has never hid his ambition to craft an album that will endure like the Sixties and Seventies classics he loves, and with "Mellon Collie and the Infinite Sadness" he realizes his goal.

The diverse and daring two-CD set begins and ends with nods to landmark double LP's: The opener is a moody piano instrumental (think of the Elton John album "Goodbye Yellow Brick Road"), and the finale is an ironic lullaby (think of "The Beatles"). In between comes a wide sweep of songs that absorb the best things about modern rock while daring to aim for grandeur.

Given Smashing Pumpkins' usual love for guitar jams, there's a notable lack of instrumental excess. All but three of the twenty-eight songs fall in the range of three to four minutes or so, many of them substitute keyboards or strings for lead guitar, and the occasional jams are done tastefully — particularly in *Porcelina of the Vast Oceans*, a textural marvel that justifies its nine-minute length. This is the first Pumpkins album where the guitar dynamics are built around songs instead of vice versa. Corgan has made a few quantum leaps as a songwriter, channeling his mood swings into material as guitar-brutal as *Where Boys Fear to Tread* and as gorgeously melodic as *Lilly (My One and Only)*. The richest section is saved for album's end, where the screaming outbursts in *X.Y.U.* are followed by a string of haunting, neopsychedelic pop numbers. Romantic depression has seldom sounded this good.

Like most other double albums, "Mellon Collie" also has its dead spots — specifically a stretch of midtempo songs midway through the second disc, as well as a couple of experiments that don't come off (especially the harp-and-poetry departure *Love*). But there are enough gems here to revive the old idea that self-indulgence can be a good thing. *B.M.*

## Collections

### A TESTIMONIAL DINNER: THE SONGS OF XTC.

THIRSTY EAR 57019 (46 min).

Performance: **Very filling**

Recording: **Tastes great**

The trouble with tributes? Too often, bands doing covers sound like mere cover bands. Fortunately, most of the folks at "A Testimonial Dinner" take the songs of XTC and run with them, crafting an inventive homage to a British group that began in 1977 as punkish pranksters before eventually turning into pop artisans — a trio lauded by their big cult as (you've heard this one before) The Best Thing Since the Beatles (but I tend to agree).

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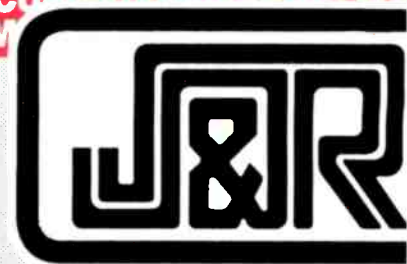
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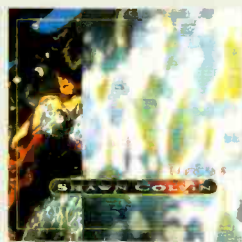
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## QUICK FIXES


**SHAWN COLVIN: Live '88.**

PLUMP 5901 (45 min).

Most successful performers fear the release of recordings from the warm-up stages of their careers. But Shawn Colvin needn't be embarrassed by this pre-stardom concert from 1988. All her seminal songs are here — *Shotgun Down the Avalanche*, *I Don't Know Why*, *Another Long One*, *Something to Believe In* — and most of the time her pillow-soft voice ferrets out their hidden emotions. A fine document of an artist who at the time was about to clue the rest of the world in on her secret. *A.N.*

**JULIAN COPE: 20 Mothers.**

AMERICAN 43044 (72 min).

After the dark trilogy of "Peggy Suicide," "Jehovahkill," and "Autogeddon," Julian Cope serves up twenty self-described "love songs" written for mother, mother-in-law, and Mother Earth but also for wife, kids, brother, Kurt/Courtney, and . . . Christopher Robin. Some of the tracks are squarely pop; others drift in the rock soup that helps make Cope a favorite eccentric. Another masterwork from an earthy visionary. *K.R.*

**DANCE HALL CRASHERS: Lockjaw.**

510/MCA 11326 (41 min).

The crashers in question are four guys as a power-pop/punk/ska outfit with two gals as dual lead vocalists, and they've definitely got the beat — plus the loud guitars, the fast-and-loose songs, and the love-game lyrics. Production and performances are equally keen. Playing this CD is like opening a big sack of potato chips: The tracks are so addictive, you can't listen to just one. *K.R.*

**STUART DEMPSTER: Underground Overlays from the Cistern Chapel.**

NEW ALBION 076 (62 min).

"Underground Overlays" was recorded in a large, deep cistern north of Seattle. The trombone and conch shells played by Stuart Dempster and his assisting musicians produce overtones and echoes that convey an eerie sense of the primitive and the mystic. The use of an Australian instrument, the didjeridu, further contributes to

the air of exoticism. It's all more than a little weird, but it's intriguing, and even compelling. *William Livingstone*

**PHILIP GREEN: The World's Greatest Popular Standards.**

ALANNA 5563 (41 min).

The first in a projected series of twenty CD's of great popular songs in instrumental arrangements, this disc travels from *I Found a Million Dollar Baby* (1931) to the Beatles' *Yesterday*. All are played by Green's Pops Concert Orchestra in a smooth, pleasing "beautiful music" manner, which should appeal to all ages but especially to the more serene Baby Boomers. *W.L.*


**HOLE: Ask for It.**

CAROLINE 1470 (18 min).

The release of this six-song EP of early material by Courtney "America's Favorite Teenager" Love and band has been a long time coming, for obvious reasons. The big question — why, as my mother used to ask, is this woman hollering? — remains unanswered, but "Ask for It" does afford one perverse pleasure: the louisiest cover of a Velvet Underground song (*Pale Blue Eyes*) ever committed to disc. Oh well, thank God that Love's not exploiting the death of her husband or anything. *S.S.*

**MARCUS HUMMON:**
**All in Good Time.**

COLUMBIA 66124 (45 min).

Here's proof positive that the James Taylor/Dan Fogelberg School of Sensitive Acoustic Music has set up permanent headquarters in commercial Nashville. Marcus Hummon, educated at Williams College and Vanderbilt, has seen his songs recorded by Wynonna (*Only Love*), Alabama (*Cheap Seats*), Hal Ketchum, and Patty Loveless. Such royalties go a long way toward a BMW. *A.N.*

**PLANET SQUEEZEBOX: ACCORDION MUSIC FROM AROUND THE WORLD.**

ELLIPSIS ARTS 3470 (three CD's, 184 min).

Who knew the accordion was so universal an instrument? These selections show everything it can do, in material that ranges from avant-garde to tango to zydeco. It's mostly happy, celebratory music with some plaintive songs for contrast. An interesting successor to Mickey Hart's "Planet Drum." *W.L.*

Several participants delight in subverting some of XTC's hardest-rocking material. Freedy Johnston turns *Earn Enough for Us* into a lilting country tune, the Verve Pipe relaxes the twin-guitar argument of *Wake Up* by giving it over to a finger-popping bass, and Spacehog transforms the bridge of *Senses Working Overtime* into an organ shuffle. Elsewhere, P. Hux (Parthenon Huxley) rocks things up in *Another Satellite*, Sarah McLachlan does a convincing after-hours take on *Dear God*, and Ruben Blades charts *The Man Who Sailed Around His Soul* off the coast of Panama. Only the "stars" — Crash Test Dummies (*All You Pretty Girls*), the Rembrandts (*Making Plans for Nigel*), and Joe Jackson (*Statue of Liberty*) — don't get the idea, handing in basically carbon covers.

But not to worry: In a customarily witty move, XTC (billed here as Terry and the Lovemen) shows up to cover themselves, finishing a previously demo-only B-side, *The Good Things*. It's a fitting treat in a tribute that's revelatory for neophytes and fans alike. *K.R.*

**WORKING CLASS HERO: A TRIBUTE TO JOHN LENNON.**

HOLLYWOOD 62015 (69 min).

**Performance: The real thing**  
**Recording: Very good**

"Working Class Hero" makes a strong case for the idea that John Lennon was the true godfather of the alternative movement. His inner torments, unsparring self-criticism, profound sense of injustice, and brutally frank dissection of the world around him — all are echoed in grunge and related genres. Of the acts that appear here, those from the Northwest, in particular, tear into Lennon's solo material with a rapport that goes far beyond the affectionate tip-of-the-hat heard in most tribute albums. Screaming Trees delivers a somber *Working Class Hero* whose anger simmers just below its barely controlled surface. Mad Season attacks *I Don't Wanna Be a Soldier* with a precarious balance of fear and contempt. Candlebox lays bare the pain and self-recrimination of *Steel and Glass*.

So it goes throughout the album. There's genuine rage in the voice of Stone Temple Pilot Scott Weiland (here performing with a makeshift group, the Magnificent Bastards) as he shouts the broadside against Paul McCartney. *How Do You Sleep*. Even in Cheap Trick's hands, *Cold Turkey* still sounds harrowing. The album's overall downer theme works as a purgative for angst, just as Lennon's original use of primal-scream therapy in song left him and his audience feeling better. Besides, there are several calmatives thrown in for good measure: Blues Traveler's reverent *Imagine*, Mary Chapin Carpenter's sincerely soppy *Grow Old with Me*, and George Clinton's glorious gospel-style reading of *Mind Games*.

In short, "Working Class Hero" is a treasure chest of emotional bloodletting in which the Lennon catalog is shown to reflect the contemporary mindset with uncanny accuracy. *P.P.*

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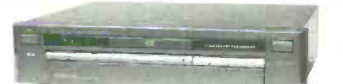
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# POPULAR MUSIC



## HAMIET BLUIETT SEXTET: Young Warrior, Old Warrior.

MAPLESHADE 10293 (53 min).

**Performance:** Slightly dented  
**Recording:** Quite good

A friend of mine who occasionally gigs with Hamiet Bluiett likens the experience to a portrait artist dabbling in finger painting. Another former Bluiett sideman told me, "He wants you to play weird, and he doesn't like rehearsals because the group might become too smooth." Maybe so, but Bluiett didn't completely discard the old rulebook at the sessions that resulted in "Young Warrior, Old Warrior." Sure, he takes his baritone sax up and down some unusual paths, the ensemble is a bit on the rough side, and no one calls for another take when Jack Walrath's trumpet misses its mark. The program mixes raw-edged funk with a kind of down-home dissonance that sometimes gets into a blues groove and appears desperately to want out. But this is, on the whole, a traditional set, largely due

to the excellent, more conservative approach of tenor saxophonist Mark Shim and a rhythm section headed by pianist Larry Willis with Keter Betts on bass and Jimmy Cobb on drums. Listening to the album is not unlike enjoying a savory apple and having to eat around a worm hole or two. I like most of it — but perhaps a rehearsal might have been in order. *C.A.*

## ABDULLAH IBRAHIM TRIO: Yarona.

ENJA/TIPTOE 88820 (56 min).

**Performance:** Intimate  
**Recording:** Likewise

As was true of his role model, Duke Ellington, Abdullah Ibrahim (the South African musician formerly known as Dollar Brand) is such a singular composer that his grace as a pianist often goes overlooked. "Yarona" captures Ibrahim playing several of his most colorful and swirling numbers — including *African Marketplace* and *Capetown Fringe*, which is here retitled *Mannenber* — with just bassist Marcus McLaurine and drummer George Johnson at the New York club Sweet Basil (the close recording lets you hear the tables being cleared). Ibrahim at his best is Ibrahim with horns; he can populate an entire world with only two or three of them. But what the performances here lack in incidental detail, they more than make up for in depth and in-

timacy. And Johnson, who is frequently called on to carry the melody while Ibrahim trills around it, merits praise for handling a difficult task extremely well. *F.D.*

## DON SICKLER: Night Watch.

UPTOWN UPCD 2739 (60 min).

**Performance:** Well-balanced  
**Recording:** Very good

Nobody knows more unjustly overlooked tunes by the likes of Elmo Hope and Hank Mobley than Don Sickler, who has served as an arranger or in an advisory capacity on a number of the finest bop dates of the Eighties and Nineties. Sickler's first album under his own name in about a decade reminds us that he's also a capable trumpeter. In "Night Watch" he shares solo space with pianist Richard Wyands and four other horns, including tenor saxophonist Ralph Moore and the unsung veteran trombonist Carl Fontana. Though this is very much an arranger's date, Sickler gives himself and the others ample room to blow, and Fontana is in especially good form. The choice material includes two numbers each by Kenny Dorham and Walter Davis, Jr., and a novel interpretation of Charles Mingus's *Scenes in the City*, in which Sickler captures the spirit of the original and still comes up with something fresh by isolating and developing one lovely phrase. *F.D.*

## THE RHYTHM AND THE BLUES

The Forties was an eventful decade for jazz. At one end, the Swing Era peaked and became history; at the other, bebop emerged. Sandwiched between these milestones were a New Orleans renaissance, a boogie-woogie craze, and the crystallization of a new sound that in the following decade would evolve into rock-and-roll. That sound was rhythm-and-blues, whose texture came largely from the newly electrified guitar and the aggressive tenor saxophone, and although R&B was basically regarded as pop music, the lines between it and jazz were often blurred.

Most R&B recordings were made at small independent labels, upstarts such as Savoy, Specialty, Aladdin, Atlantic — and Mercury, a Chicago company that recorded some of the most exciting music of the period. "Blues, Boogie, & Bop," a seven-CD set of Mercury's Forties sessions, is in some ways a history lesson that starts with Albert Ammons and His Rhythm Kings accompanying Sippie Wallace, a classic blues singer of the Twenties, and takes us to the doorstep of bop. Ammons's influential piano takes up the first disc and goes well into the second; he was one of a handful of outstanding boogie-woogie players, and here he is heard at his best. The remainder of Disc 2 features Helen Humes, a wonderful vocalist who by then had left the Count Basie band. Her accompanists include Teddy Wilson, Mundell Lowe, and a band led



by trumpeter Buck Clayton, with fellow Basie-ites Walter Page and Jo Jones in the rhythm section. Disc 3 is devoted to pianist Jay McShann, best known as the man whose Kansas City orchestra gave the world Charlie Parker. (Bird isn't represented in this collection, but singers Jimmy Witherspoon and Walter Brown are.)

Thirty Eddie Vinson sides cover the fourth disc and spill onto the next. A fine alto saxophone player and an even better singer, Vinson achieved enormous popularity fronting his own well-oiled big band and recording such hits as *Kidney Stew Blues* and *Cherry Red Blues*, both included here. Completing Disc 5 are two sessions by Roy Byrd

(a.k.a. Professor Longhair) and one each by Julia Lee and Myra Taylor, the latter a historical footnote who nonetheless had a pleasant, sweet style à la Ella Fitzgerald.

Disc 6 veers into straight jazz by the bands of Rex Stewart, Buddy Rich, and Cootie Williams. Stewart's growling, mumbling comet style fit well in the Ellington band of the late Thirties and early Forties, but his four numbers here are not among his best. The Buddy Rich orchestra — represented by twelve selections, including four Tadd Dameron arrangements — brings us stylistically to bop, while the three Williams sessions that end this disc typify the period's jump bands, with Willis Jackson's frenetic, screaming tenor bringing to mind Jazz at the Philharmonic at its wildest.

The seventh disc, mostly alternate takes and fragments, is aimed at the collector who absolutely must have everything ever recorded. A lot of this is unremarkable, but the disc does contain two newly discovered recordings by pianist Mary Lou Williams, one of the most innovative women jazz has produced.

All told, these eight hours of sounds strikingly reflect a pivotal period in American music. The accompanying eighty-two-page booklet is informative, and the package — a plastic case in the shape of a Forties radio — is attractive. *Chris Albertson*

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# CLASSICAL MUSIC

NEW RECORDINGS REVIEWED BY ROBERT ACKART,  
RICHARD FREED, DAVID HALL, JAMIE JAMES, GEORGE JELLINEK,  
ERIC SALZMAN, & DAVID PATRICK STEARNS

**BACH:** *The Well-Tempered Clavier, Book I, Preludes.* **CHOPIN:** *Preludes.* João Carlos Martins (piano, in Bach); Arthur Moreira-Lima (piano, in Chopin). LABOR 7017 (two CD's, 90 min).  
**Performance:** High drama  
**Recording:** Live and in your face

In this concert recording from the 92nd Street Y in New York City, the iconoclastic Bach specialist João Carlos Martins performs the preludes from Book I of *The Well-Tempered Clavier* while his countryman Arthur Moreira-Lima plays Chopin's Op. 28 preludes. Instead of one set following the other, they are interlaced, with the preludes arranged according to their common keys. The juxtapositions are some-

times revealing — showing, for example, the remarkable similarity in the busy passagework of each composer's D Major prelude. The program ends with the D Minor preludes, in which Chopin's seems to pick up where Bach's leaves off.

Call it a gimmick if you will, but the performances are genuine edge-of-the-seat experiences. Martins sometimes storms the keyboard so lustily in his part that you wish he'd quit trying to turn Bach into Godzilla and just play some Liszt, but there are lots of "ah-hah" moments, too, when he delivers the kind of insightful flourish associated with the young Glenn Gould. Even better are the Chopin preludes of Moreira-Lima, who studied in Moscow and epitomizes

big-personality, chance-taking, rhythmically free musicmaking. Chopin's works can seem somewhat narrow alongside the wondrous contrapuntal complexity of Bach's, but not with Moreira-Lima's epic-style playing. No living Chopin pianist is more fascinating. Labor Records is missing a big opportunity by not extracting a single Chopin CD from this set. *D.P.S.*



**BEETHOVEN:** *Piano Concertos Nos. 2 and 3.*

Till Fellner (piano); Academy of St. Martin in the Fields, Neville Marriner cond. ERATO 98539 (66 min).

**Performance:** Neat  
**Recording:** Excellent

Till Fellner, 24, is a rising star on the international pianistic horizon. A pupil of Alfred Brendel, he won the Clara Haskil International Competition in 1994, and that earned him a recording contract with Erato.

The Beethoven Piano Concerto No. 3 can be interpreted in terms of late Mozart or else treated as a precursor of the composer's own later heroic manner. Fellner opts for the late-Mozart manner and gives us a fairly small-scale but beautifully articulated account of the solo role. It is in the Concerto No. 2 (actually the first of Beethoven's concertos in order of composition) that young Fellner really shows his stuff, with elegance, wit, zest, and, of course, brilliance to burn. Neville Marriner is, as always, a superb collaborator. The recorded sound is crystal clear throughout. *D.H.*

**BELLINI:** *Norma.*

Jane Eaglen (Norma), Eva Mei (Adalgisa), Vincenzo La Scala (Pollione), Dimitri Kavrakos (Oroveso), others; Maggio Musicale Fiorentino Chorus and Orchestra, Riccardo Muti cond. EMI 55471 (three CD's, 149 min).

**Performance:** Vital, well sung  
**Recording:** Good, not great

*Norma* isn't recorded frequently for the simple reason that Normas worth recording are rare specimens. Those who fall into that category (Maria Callas, Joan Sutherland, Montserrat Caballé, Renata Scottò) are already documented, and it is a pleasure to report that British soprano Jane Eaglen measures up to them impressively indeed.

Eaglen, who has been acclaimed in a variety of dramatic soprano roles on both sides of the ocean, has a substantial voice of considerable range and power, and she uses it commandingly, producing firm and fearless high C's. Her intonation is dependable, her coloratura command effective if not quite virtuosic, and she invests her important recitatives with meaning.

In Eva Mei we have a soprano Adalgisa,

## Voices of Light



CHRISTIAN STEINER/HERBERT BARRETT/MGM1

Anonymous 4

If the names Ruth Cunningham, Marsha Genensky, Susan Hellauer, and Johanna Rose don't immediately ring a bell, you're not hopelessly out of touch. These talented women are the voices of Anonymous 4, acclaimed for recordings of early music on the Harmonia Mundi label. Their latest CD, however, is a Sony recording of American composer Richard Einhorn's *Voices of Light*, a new work inspired by the Danish filmmaker Carl Dreyer's classic 1928 silent film *The Passion of Joan of Arc*. Einhorn uses the vocal quartet to depict the complex character of the martyred Joan, and his score for orchestra, chorus, and vocal and instrumental soloists mixes Gregorian chant and medieval, Renaissance, Baroque, and minimalist musical styles. On the recording, released in October, Anonymous 4 is joined by the Netherlands Radio Philharmonic Choir and Orchestra, all under the direction of conductor Steven Mercurio.

# CLASSICAL MUSIC

a choice that would probably have pleased Bellini, which means that her duets with Norma are sung in the original key of F. Some of the familiar soprano/mezzo timbral contrasts are lost, but Mei does project



the desired youthful quality, being vocally and dramatically well in character.

Listeners accustomed to the Franco Corelli–Mario Del Monaco kind of sonority will find tenor Vincenzo La Scala's Polione more modestly scaled. He strains a bit in "Meco all'altar di Venere," but thereafter he uses his light spinto tones flexibly and accurately and rises to eloquent heights in the final scene. Bass Dimitri Kavrakos is an acceptable Oroveso.

There are minor orchestral imprecisions in this live recording from the 1994 Ravenna Festival, and certain ensemble balances are not defined with utmost clarity. Riccardo Muti paces the work briskly, at times too briskly. Case in point: The Act II trio, "Deh! Non volerli vittime," is too jaunty for the tragic situation involved. Also, for a conductor known for literalness, it is surprising that Muti does not insist on several of the vocal effects Bellini called for. That is, of course, a relatively minor point; this is a welcome *Norma*. *G.J.*

**BRAHMS: Piano Sonata No. 3. LISZT: "Dante" Sonata. SCHUMANN: Toccata, Op. 7.**

Mark Anderson (piano). NIMBUS 5422 (67 min).

**Performance: Grandly Romantic  
Recording: Excellent**

The American pianist Mark Anderson previously displayed his mettle with a Nimbus recording of the formidable Brahms D Minor Concerto paired with Dohnányi's ingratiating Variations on a Nursery Tune. But there is no filler in this solo program. The Brahms Sonata No. 3, a product of the composer's twentieth year, is a five-movement, no-holds-barred Romantic blockbuster, and Anderson approaches it on its own terms. His inspired interpretation is free-wheeling in the massive opening movement, drenched in nostalgia throughout the long-drawn-out slow movement, replete with dramatic contrast in the scherzo, achingly melancholy in the following intermezzo, and uninhibitedly exultant in the finale.

Liszt's "Dante" Sonata also gets the full treatment both in terms of rhetoric and, where the music demands, transcendent virtuosity. The diabolic and lyrical-redemptive aspects of the Lisztian idiom are superbly displayed here. Finally, the brief (7½-minute) but finger-twisting Schumann toccata gets a fine workout, but I would have liked a touch more urgency in the pacing.

The recorded sound is just fine — rich-toned and spacious. *D.H.*

**HOVHANESS: Symphony No. 6 ("Celestial Gate"); Prelude and Quadruple Fugue; Tzaikerk; Prayer of Saint Gregory; Alleluia and Fugue; Concerto for Orchestra No. 7.**

I Fiamminghi, Rudolf Werthen cond. TELARC 80392 (79 min).

**Performance: Outstanding  
Recording: Lovely**

Telarc has assembled an entrancing anthology of works by Alan Hovhaness that encompass both his liturgical and exotic styles. The "liturgical" Hovhaness finds its contemporary counterpart in the works of John Tavener and Arvo Pärt, but he was writing in this manner almost fifty years ago and has persisted through more than 360 works and fifty-two symphonies, the best of which border on the sublime.

The orchestra of Flemish musicians who call themselves I Fiamminghi, under their conductor, Rudolf Werthen, play all this music with uncommon conviction and poetic passion, and the Basilica of Bonne Espérance in Belgium yields a sound of surpassing luminosity and warmth, not only from the string body but also from the remarkable first-desk trumpet, Benny Wiame.

The disc opens with the gorgeous Symphony No. 6, or "Celestial Gate," in which modal polyphony and arioso recitative play a major role — for me it ranks with Hovhaness's best-known work, *Mysterious Mountain*. Next is the early Prelude and Quadruple Fugue, a fine polyphonic study with never a dull moment (I produced the first recording of it, with Howard Hanson for Mercury, forty years ago). *Tzaikerk (Evening Song)* is an exotic Armenian-style chamber piece for flute, violin, timpani, and strings, and the serene *Prayer of Saint Gregory* features that wonderful solo trumpet. *Alleluia and Fugue* for strings is in somewhat the same liturgic vein. Closing out the CD, the Concerto for Orchestra No. 7, composed for the Louisville Orchestra in 1953, is a blockbuster that calls on all of Hovhaness's exotic modal-polyphonic and biconal techniques. Highly recommended! *D.H.*

**SCHUBERT: Sonata in A Minor (D. 784); Marche Militaire (D. 733, No. 1). HAYDN: Piano Sonatas Nos. 30 and 52.**

Evgeny Kissin (piano). SONY 64538 (62 min).

**Performance: Richly gratifying  
Recording: Very good**

The first major masterpiece among Schubert's piano sonatas is preceded on this disc by two sharply contrasting Haydn piano sonatas, and they add up to a program that demonstrates not only Evgeny Kissin's stylistic mastery but also his musicality.

Schubert's A Minor Sonata is in the realm of the "Unfinished" Symphony and the two great string quartets, No. 13, in A Minor, and No. 14, "Death and the Maiden." It is somber stuff, and in Kissin's hands it comes close to being terrifying. The specter of death lurks in the first movement and a sense of near-panic in the tense conclud-

ing *Allegro vivace*. The famous military march, in Carl Tausig's gussied-up version (the piece was originally salon music for piano four-hands), is a welcome mood-lightener after the dark vistas of the sonata.

Haydn's Sonata No. 30, in A Major, of 1776 comes from the years when he was writing operas and relatively lightweight but brilliant symphonies. Like them, it partakes of the entertaining "galant" manner, with the expressive elements in the first movement posed rather than plumbed. The adagio second movement is followed by a *Tempo di menuet* finale with six variations.

In the Sonata No. 52, in E-flat Major, from 1794 we have the Haydn of the late quartets and the London symphonies, with brilliant and Classically turned outer move-



ments and a slow movement in his most richly lyrical vein. Kissin shows himself to be a master of technique, style, and expression in both works, most dazzlingly so in the finale of the E-flat.

I was still profoundly moved by all three sonata performances on my third hearing. Kissin's piano, recorded in EMI's Abbey Road Studio 1, sounds very bright and clear, with a noticeable but not obtrusive reverberance. Don't pass up this disc no matter what! *D.H.*

**SCHUMANN: Dichterliebe; Liederkreis; and other Heine Lieder.**

Wolfgang Holzmair (baritone); Imogen Cooper (piano). PHILIPS 446 086 (67 min).

**Performance: Lovely  
Recording: Intimate**

There is no doubt that Wolfgang Holzmair is one of today's most accomplished and intelligent interpreters of early Romantic lieder, and this exquisite recording of the principal song cycles of Robert Schumann, based upon poems of Heinrich Heine, is among his best to date. Holzmair's voice is wonderfully even throughout the range, just as confident in his golden, almost tenorial top as it is in the rich, soulful lower register. Still more impressive is his open, conversational way with these deceptively simple songs of love's joy and love's loss, as captured with intimacy and warmth by the Philips engineers.

Many modern singers take an ironic, almost smirking attitude toward trifles like *Die Rose, die Lilie, die Taube, die Sonne*, from *Dichterliebe*, with its tripping rhythms and childish internal rhymes (for example, to quote the booklet's neat translation, the poet tells us his love is "the petite one, the neat one, the sweet one, complete one"). Holzmair, however, tosses it off here with just the right combination of polish and gai-

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The guitarist Sharon Isbin commissioned and gave the premières of all three of the concertos on her first-class "American Landscapes" CD: John Corigliano's *Troubadours*, Joseph Schwantner's *From Afar*, and Lukas Foss's *American Landscapes*.

My favorite is the Foss, which neatly merges the composer's early Copland-influenced Americana style with the imaginative freedom and innovation of his later avant-gardism. The middle movement is a series of remarkably original variations on *I Am a Poor Wayfaring Stranger*, and the finale brings in a solo violin and piano to jam with the guitar while the orchestra plays Ives's favorite tune, *America the Beautiful*, in a different key. It sounds kooky, but it works. What Rodrigo and Segovia have done for the Spanish guitar, Foss and Isbin have done for the American steel-string guitar.

Schwantner began his career as a classical, jazz, and rock guitarist, and his familiarity with the instrument, rare among classical composers, enables him to create a fluent solo part in a concerto that is both neat and intensely dramatic. *From Afar*, subtitled "A Fantasy for Guitar and Orchestra," is said to be the first guitar concerto ever commissioned by a major American orchestra (the Saint Louis Symphony); the version here is the composer's own



Guitarist Sharon Isbin

MAARNE HENRIKSON/AVI HOFFMANN ASSOCIATES

very effective one for chamber orchestra. The title suggests something distant, recollected in tranquility, but the immediacy of this music, dashingly performed by Isbin, is anything but distant and tranquil.

Corigliano's *Troubadours* (Variations for Guitar and Orchestra), with its evocations of medieval music, is the least successful of the three pieces — partly because, in at least two of the movements, its various elements, old and new, seem undigested. In the last movement, though, a long, slow variation on a troubadour melody takes over, and this extraordinarily beautiful and original musical conception turns a hodgepodge into a deep and breathtaking meditation.

Isbin is entirely at ease with the disparate styles and demands of these pieces, and the excellent Saint Paul Orchestra under the dynamic Hugh Wolff is a perfect partner. There are a lot of guitarists before the public today, but few have the musicality, vision, and sheer gumption of Sharon Isbin.

Eric Salzman

**SHARON ISBIN:**  
**American Landscapes.**

**Corigliano:** *Troubadours*. **Schwantner:** *Far Away*. **Foss:** *American Landscapes*. Sharon Isbin (guitar); Saint Paul Chamber Orchestra, Hugh Wolff cond. VIRGIN 55083 (67 min).

ety. On the other hand, he presents the morbid, neurotic songs about death with a dignity that makes their intense emotional states, as remote to us today as the raptures of the medieval troubadours, comprehensible.

The disc is generously filled out with seven more songs based on poems by Heine, including *Lehn Deine Wang*, a wildly extravagant declaration of love, and the gloomy ballad *Die Arme Peter*. Imogen Cooper plays the accompaniments with elegant precision. J.I.

**SIBELIUS: Symphonies Nos. 2 and 6.**

London Symphony, Colin Davis cond. RCA VICTOR 68218 (73 min).

**Performance: Excellent**  
**Recording: Superb**

The Sixth Symphony was a high point of Colin Davis's earlier Sibelius cycle with the Boston Symphony Orchestra on Philips. It is the least emotional of the seven Sibelius symphonies, and its relatively objective character seemed especially well suited to

Davis's general approach. It still is, but now, nearly twenty years later and with another orchestra, but one whose Sibelian background is at least as formidable as the Boston Symphony's, his approach to the more colorful Second has become a great deal more involved — and involving.

Where Davis's Boston performance of the Second seemed curiously reticent, as if he might have been embarrassed by the demonstrative nature of the work, with the London Symphony he appears comfortable in accepting it on its own terms. This does not by any means imply indulgence or excess. One of the defining features of Sibelius's personal style is the essential *dignity* at the base of even his most impassioned or overtly pictorial utterances. But Davis no longer appears to feel it necessary to be overprotective of the composer in that respect. He has tightened up here and there, particularly in the opening movement, so that the whole reading has greater flow as well as greater thrust, and the work builds

with a sense of real spontaneity — and indeed of inevitability — to a convincingly climactic finale.

There was far less need for Davis to readjust his approach to the Sixth, and the pairing of these two works, both so persuasively set forth, makes for a most illuminating contrast. The orchestra is at its best throughout, and the recording itself parallels Davis's interpretive approach in insuring that all the colors are vividly clear without neglecting the overall balance. R.F.

**R. STRAUSS: Also Sprach Zarathustra; Der Rosenkavalier, Suite; Don Juan.**

Bavarian Radio Symphony, Lorin Maazel cond. RCA VICTOR 68225 (77 min).

**Performance: Fine Rosenkavalier**  
**Recording: Mostly good**

Recordings of *Also Sprach Zarathustra* and *Don Juan* come a dime a dozen these days, and not even RCA's hype on behalf of the Dolby Surround-encoded recording can convince my ears that this performance by Lorin Maazel and the Bavarian Radio Symphony Orchestra can match those by Eugene Ormandy on Angel, Herbert von Karajan on DG, or Herbert Blomstedt on Denon — or, for that matter, either of Fritz Reiner's versions of *Zarathustra* on RCA. Maazel's strong points come to the fore in the lyrical episodes of both works, but elsewhere I miss the dash and precision he achieved on the best days of his Cleveland Orchestra tenure, nor am I especially happy with the acoustics of the recording locale, Munich's Herkulessaal, which is too aggressive in the upper-middle register.

The *Rosenkavalier* music is a different matter, chiefly because Maazel and the Bavarians respond so well to all those gorgeously lush tunes. He wrings every ounce of color and sentiment from the music, and here I find the interaction between the scoring and the hall acoustic friendlier to the ear. While there have been many recordings of the various waltz sequences from *Der Rosenkavalier*, a full-blown suite gets recorded less often, and I'm inclined to put Maazel's new version at the top of the current heap. D.H.

**TCHAIKOVSKY: Symphony No. 5; The Snow Maiden (excerpts).**

Academic Symphony Orchestra of the St. Petersburg Philharmonia, Alexander Dmitriev cond. SONY 46680 (54 min).

**Performance: A knockout**  
**Recording: Punchy**

Sony's program notes are not wholly explicit as to the provenance of the Academic Symphony Orchestra of the St. Petersburg Philharmonia. It seems to have been founded in 1931 as a radio orchestra. At any rate, conductor Alexander Dmitriev not only knows his Tchaikovsky from A to Z, but he has the musicality and common sense not to vulgarize, in any sense of that word, the much abused Fifth Symphony. This is a reading of tremendous zest and power that recalls those of the Leningrad Philharmonic's great long-time maestro, Evgeny Mravinsky. What a relief to hear the opening bars played at a decent pace



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and not as mourning music! The rest of the movement comes off with irresistible brilliance; the lyric pages are impassioned without the rubato's ever becoming mannered. The famous slow movement, with its horn solo, builds up superbly to its savage tutti interruptions and then to the grand lyrical peroration. The solo clarinet at the coda is a joy to ear and heart.

The symphony's waltz movement can often be made to sound like a makeweight, but not here. It has real class and elegance,

with wonderful staccato woodwinds in the trio section. The finale, which more often than not gets the ultra-pompous treatment, is made to move along at the very outset, and the main body of the movement goes at a terrific clip; the closing pages bespeak true triumph rather than a hollow victory. In short, the old warhorse gets a new lease on life here. I would put this version, despite occasional harsh sonics, among the top ten currently on CD.

The Melodrama, Buffoons' Dance, and

Act IV Entr'acte from the early *Snow Maiden* incidental music are a delightful bonus. This record is a real treat! *D.H.*

## VERDI: La Traviata.

Angela Gheorghiu (Violetta), Frank Lopardo (Alfredo), Leo Nucci (Germont), others: Chorus and Orchestra of the Royal Opera House, Covent Garden. Georg Solti cond. DECCA 448 119 (two CD's, 127 min).

Performance: Superior  
Recording: Excellent

Anyone thinking of *La Traviata* as a sentimental operatic war horse should turn at once to this highly rewarding recording. Georg Solti conducts the Royal Opera House Orchestra with committed care for Verdi's musical intentions, so that many passages assume unwonted life and importance. His luminous reading of the score is played and sung by an admirably schooled, and dedicated, orchestra and chorus.

Of the three principal roles, that of Violetta is unquestionably paramount. Her lover, Alfredo, is an ardent younger man whose character is summed up by amorosness, jealous anger, and remorse. His stolidly bourgeois father, Germont, is still more two-dimensional, both blunt and blundering. Not so Violetta. Into her the composer poured his understanding of multilateral love, of personal joy and of sacrifice, and, in the opera's final moments, of resignation. The role offers the singing actress every possibility for an integral musico-dramatic creation.

And Angela Gheorghiu achieves just that. Her soprano voice has unusual beauty and expressiveness, and she handles it skillfully and with taste, meticulously observing Verdi's score markings. She is among the most effectively poignant Violettas I have heard. As Alfredo, Frank Lopardo sings with accuracy, conviction, and musicality. Leo Nucci creates a credible Germont despite some woofiness in his top register.

Though this performance was recorded live at the Royal Opera House in December 1994, sounds of stage business are at a minimum, and applause occurs only at act endings. It's notable that the opera is recorded complete (it is customary to cut several passages and all reprises). Verdi, however, knew what he was about, and Solti knows it, too, for under his direction here the work assumes a seamless shape. *R.A.*

## WEILL: Violin Concerto. HINDEMITH: Septet for Winds. TOCH: Five Pieces for Winds and Percussion, Op. 83.

Christian Tetzlaff (violin): Deutsche Kammerphilharmonie. VIRGIN 45056 (58 min).

Performance: Unerring  
Recording: Transparent

All three composers on this album were leading lights of German music who were forced to emigrate to the U.S. during the dark days of Nazism.

Hindemith's Wind Septet was written shortly after World War II on the occasion of one of his first returns to Europe, and it harks back to his freshest and cheekiest work of the 1920's. Ernst Toch, the least known of the three, wrote his charming

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## QUICK FIXES

### BACH: St. John Passion.

Arnold Schoenberg Choir; Concentus Musicus Wien, Nikolaus Harnoncourt cond. TELDEC 74862 (two CD's, 110 min).

The sensuous mezzo-soprano of Marjana Lipovsek is one of the main attractions of this set, along with the articulate Evangelist, tenor Anthony Rolfe Johnson. While some of Nikolaus Harnoncourt's tempos and dynamic contrasts may seem eccentric, the interpretive license enables him to convey great dramatic depth in this most tautly constructed of Bach's narrative works. *D.P.S.*

### DEBUSSY: Trio. RAVEL: Trio.

André Previn (piano); Julie Rosenfeld (violin); Gary Hoffman (cello). RCA VICTOR 68062 (48 min).

André Previn's elegant pianism is the main distinction of this recording of the Debussy and Ravel with violinist Julie Rosenfeld and cellist Gary Hoffman. At least eight other CD's combine these works, and most throw in the Fauré trio for good measure. The CD of all three by the Trio Fontenay on Teldec would be my choice — comparable sound and performances, and more music. *D.H.*

**FAURÉ: Piano Quartets Nos. 1 and 2.** Scheuerer Piano Quartet. DISCOVER 920231 (64 min).

A discovery indeed! The four youngish Scheuerers (two brothers, two sisters) give the impression of being comfortably "inside" the Fauré idiom, and yet not too comfortable to bring both works to life with unexpected freshness as well as genuine affection. Their technically secure, well-recorded performances are more than competitive at this label's super-budget price. *R.F.*

### MOZART: Requiem.

Soloists; Boston Baroque, Martin Pearlman cond. TELARC 80410 (46 min).

The principal interest of this recording is the new performing version by musicologist and fortepianist Robert Levin, which attempts to make the traditional version by Sussmayr more "Mozartean." It may have its merits, but this is not a very distinguished performance, with some dull playing by the strings and mushy diction from the chorus that are captured all too well by Telarc's crisp sonics. *J.J.*

### EVA MEI: At Midnight (Songs by Rossini, Bellini, and Donizetti).

Eva Mei (soprano); Fabio Bidini (piano). RCA VICTOR 68025 (68 min). The Rossini segment here consists of eight

ariettas from *Serate Musicali*, and the Bellini and Donizetti selections are amiable salon pieces. Eva Mei's renditions are unflinchingly artistic, perhaps even too artistic in some passages where more spontaneity is called for. The words could also be projected more clearly, but her singing is charming and purely intoned. She is clearly a lyric soprano of bright promise, very well supported here by pianist Fabio Bidini. *G.J.*



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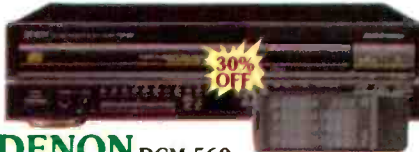
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## CLASSICAL MUSIC

wind-and-percussion pieces in Santa Monica, California, in 1959. An odd feature is the way the music grows in size from short little pieces for a few instruments to a rather substantial ensemble finale.

All that is minor musical matter compared with the major item here, Kurt Weill's Violin Concerto, one of his most original and felicitous works — and not bad for a 24-year-old. For starters, it pits the solo string against a wind orchestra (with one double-bass). The form as well as the sonority is quite original: The concerto starts out with a rather hard-edged *Andante con moto*, followed by a group of short divertimento movements — scherzo, cadenza, and serenata — and ending with a romp. The violin part is mostly hard-driving but often relaxes into a more charming manner. There is no overt jazz influence — that was yet to come — but the piece is, in its way, jazzy. The music everywhere vibrates with energy, and there is a dark undercurrent to the surface wit and play.

I can't imagine anything better than the performance here, which has both energy and transparency, qualities that don't always go together or mesh so well. Soloist Christian Tetzlaff's tone, pitch, and phrasing are refined and even delicate; if he errs it is on the side of neatness and good behavior, but the performance is not without bite. The first movement starts in a reserved manner that only makes the subsequent build-up more effective. Tetzlaff appears to lead the process in more ways than one: there is no conductor, and yet there is unanimity between soloist and orchestra: the strong sense of dramatic rise and fall and unerring sense of tempo must come from the soloist. The recording, from West German Radio, perfectly serves the clarity and the edge of all three works. E.S.

## Collection

**BEN HEPPNER: Great Tenor Arias.**  
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**Performance: Auspicious**  
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Canadian Ben Heppner has come a long way since his 1988 debut. The tenor leads he has sung in Milan, London, Vienna, Munich, and Chicago and at the Met — Florestan, Peter Grimes, Lohengrin, Walther — have invariably been demanding. He tackles a relatively conventional repertoire in this recital debut of arias by Verdi, Leoncavallo, Puccini, Giordano, Bizet, Meyerbeer, and Massenet, and it is a pleasure to report that he comes off with great distinction. A natural spinto with a voice of substance and a freely produced top, he presents a formidable Canio, Chénier, and Calaf and brings sensitively modulated phrases to the arias from *Le Prophète*, *Le Cid*, and *Hérodiade*. Both his Italian and his French are idiomatic. Only a few imperfectly centered notes are minor blemishes in this otherwise outstanding effort. The orchestral support under Roberto Abbado is sumptuous. G.J.

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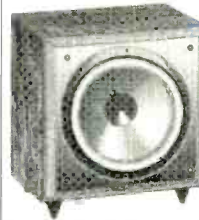
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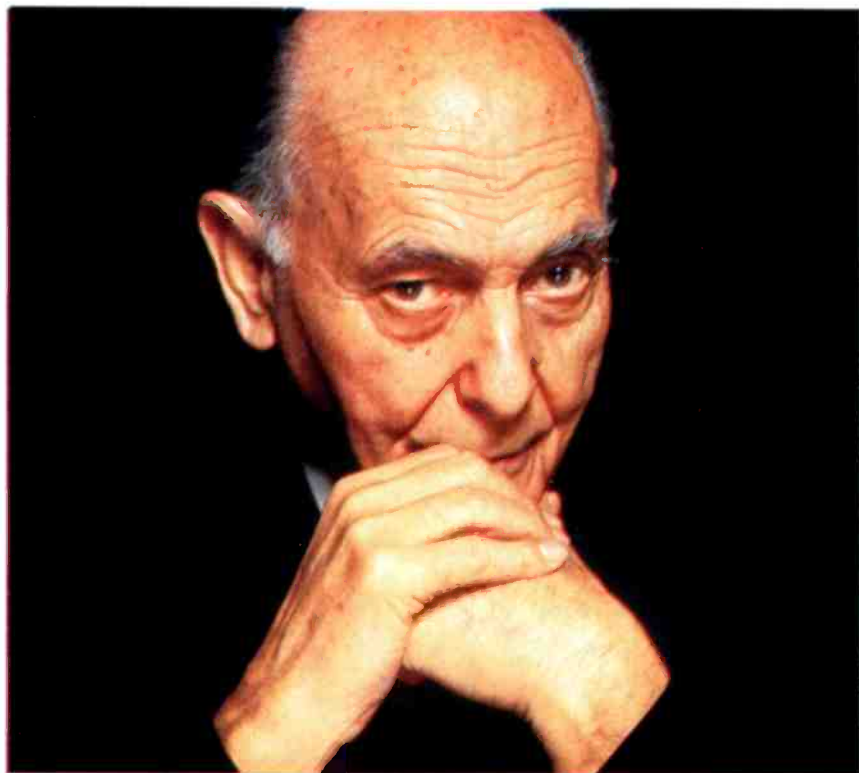
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# Georg Solti



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## New Worlds to Conquer

**G**eorg Solti, at 83, is one of the last survivors of the great generation of conductors that emerged after World War II. While most conductors his age slowly reduce their repertoire to a narrow core of familiar works that they can — and sometimes do — perform in their sleep, there seems to be no project too demanding for Solti. He continues to maintain a recording schedule that might daunt a man half his age, adding new works to his catalog and revisiting others.

This fall he returned to Chicago, where he served as music director of the Chicago Symphony Orchestra from 1969-1991, to lead a series of concert performances of Wagner's *Die Meistersinger von Nürnberg*, one of the most challenging works in the classical canon. The concerts were taped by London Records, which will release the set on CD in 1997, Solti's fiftieth anniversary year as an exclusive artist with the label.

It had been twenty-five years since Solti conducted *Meistersinger* in the theater, and twenty years since his first recording of the opera for London, but in the interim he had evolved a whole new conception of the work. In his introductory note

for the concert program, he wrote that the opera "should be light, like chamber music" — an astonishing claim for this opera, particularly coming from this conductor. While he was music director of the CSO, Solti was sometimes accused of conducting with a bludgeon, but the Chicago concerts revealed as delicately nuanced a touch with the work as could have been hoped for — although, to no one's regret, he also gave full rein to the majesty shining through so many pages of the score.

When we spoke on the eve of the first concert, he said, "I was not happy with the cast the first time I recorded *Meistersinger*, but now I have a dream cast," including tenor Ben Heppner as Walther and baritone José Van Dam as Hans Sachs. Solti said that he expected the new live recording to have the same polish as a studio recording. "because orchestras like this one are now able to play 120 minutes with very few mistakes."

Among the new works in his repertoire is Shostakovich's Symphony No. 13 ("Babi Yar"), which he recorded last year in Chicago. The symphony might be more accurately described as a cantata for bass and male chorus on a cycle of poems

by Yevgeny Yevtushenko. The work's subtitle comes from a shattering poem about a Nazi massacre of Jews in Kiev. Solti said that he was not familiar with the work until recently, when a friend gave him Yevtushenko's poems to read.

"I read the poems, and found them most disturbing. Now it has been fifty years since the concentration camps were liberated." Thumping his chest, he said defiantly, "I should do this piece, a Hungarian Jew who lived through that experience." The powerful new recording (London 444 791) features bass Sergei Aleksashkin and actor Anthony Hopkins, who reads translations of the poems.

Last year Solti added an even more key work to his repertoire, Verdi's *La Traviata*, which he conducted at Covent Garden, the opera house he directed from 1961 to 1971. Like the maestro's homecoming *Meistersinger* in Chicago, the *Traviata* performances were recorded live by London (448 119). His Violetta was a sensational young Romanian soprano named Angela Gheorghiu. "I was just flirting with the idea of recording *Traviata*," Solti said, "when I saw *La Bohème* with Gheorghiu and Roberto Alagna at Covent Garden. I was immediately convinced that it could be done — as much as you can judge a Violetta from Mimi."

Apparently, leading the world's major symphony and opera-house orchestras isn't enough for Solti. In 1994, under the auspices of Carnegie Hall, he created an orchestra of young American musicians and section leaders from the Big Five symphony orchestras. More than 800 tapes were submitted by young players from throughout the United States, and Solti himself listened to some 250 of them over the course of a few days. "It sounds horrible," he said, "but I assure you it was a most enjoyable experience."

The sixteen-day workshop culminated in a series of concerts in Carnegie Hall in June 1994, which — naturally — were recorded live by London Records. Recently released, the CD (444 458) includes works by Smetana, Wagner, Brahms, Richard Strauss, and Shostakovich. It is truly a live performance, for each of the works was performed only once.

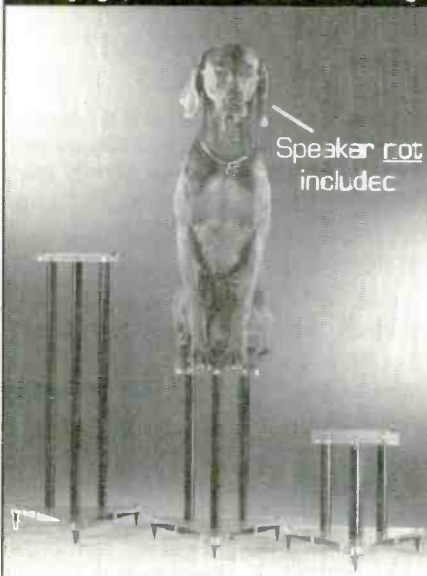
The young musicians play with verve, power, and precision, and there's scarcely a wrong note in evidence. The performance of Shostakovich's Symphony No. 9 is particularly impressive, capturing the constantly shifting moods of humor and pathos in this complex piece with elegant style. Solti said he has every intention of carrying on with the project, hoping to return to Carnegie Hall for another workshop/concert series in 1997.

"I can't leave it," he told me, "because I enjoyed it too much. Even now, two years after the event, the remembrance of it, the sound of that evening, lives on."

— Jamie James



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# THE HIGH END

PETER W. MITCHELL

## The Future of the CD

Last winter two impressive proposals were unveiled for new CD-size discs using "high-density" technology that would have a much greater information capacity than the CD. These proposals quickly became the focus of an intense international standards war, because the first use of the new technology will be in the digital videodisc (DVD). The DVD will deliver a laserdisc-quality picture, discrete 5.1-channel home theater sound, 2.2 hours of playing time, and a large variety of movies at prices not much higher than those of music CD's.

Developers also envisioned several other potential markets for the huge capacity of the DVD. Since CD-ROM discs are the basis of a flourishing information-storage industry, larger-capacity DVD-ROM discs are likely to serve an even larger market, especially in business applications. The newest CD-based videogame systems from Sega, Sony, and Nintendo continue to grow in visual complexity and power, and eventually they'll need the capacity of the high-density disc. Finally, the same technology can be used to make an audiophile Super CD.

Both of the proposed DVD formats offered five to twenty times more information capacity than a CD, but in some ways they were incompatible. The MM-CD (Multi-Media CD) format from Sony and Philips, developers of the regular CD, would rely on newly developed 3M technology to permit two layers of information to be played from a single-sided disc, with instant switching between them. The competing SD (Super-Density) format promised doubled-sided recordings with far greater data capacity, and a Matsushita variation would allow two layers to be read from the same side of the disc. The SD system won the support of a broad alliance of manufacturers and Hollywood film studios.

During the spring and summer, partisans for the warring SD and MMCD camps hardened their positions, refusing to negotiate a compromise. In his October 1995 "Signals" column, written during the summer, Ken Pohlmann likened this victory-at-any-cost approach to the MAD (mutually assured destruction) nuclear-war policies of the U.S. and U.S.S.R. during the Cold War. Finally, in mid-September, the warring DVD camps bowed to

pressure from the computer industry and agreed to compromise on a set of universal standards that all will follow.

Some corporate executives, anticipating that the DVD may become even more popular than the VCR or the Walkman, intend to have the first DVD players and movie discs in stores before Christmas 1996. Let's assume that this happens. How much longer after that will it take for the first DVD-based audio-only Super CD's and players to arrive in stores?

Probably not until around the turn of the century. First we've got to decide what we want the Super CD to be. The developers of the various DVD proposals have already defined in detail the signal content of a disc for digital video applications. But in the case of the other applications that will be based on the same technology (DVD-ROM, game disc, audio Super CD), the new high-density disc

**In the next decade  
something called the High  
Quality Audio Disc  
could replace the CD.**

is basically a *tabula rasa*, a blank slate on which engineers must write a new recipe.

Of course, the optical and mechanical specifications of the new disc are standardized. But the signal content is wide open, beginning with such elementary issues as the number of channels. A group of mostly British audio researchers, known as the Acoustic Renaissance for Audio, have been exploring what a high-density Super CD might contain. Their name for it is the High Quality Audio Disc (HQAD), and in the next decade it could evolve into a replacement for the CD.

**CHANNELS.** The HQAD would be a next-generation disc and would last well into the next century. For obvious reasons its range of possibilities must include conventional two-speaker stereo playback as well as the popular home-theater formats (the L<sub>1</sub> and R<sub>1</sub> channels of encoded Dolby Surround, the new AC-3 system of 5.1-channel discrete-surround coding, and

alternative 5.1-channel systems such as DTS or the European Musicam/Surround format). But the HQAD is mainly about music, not about movies. How can multiple channels of sound be captured so as to reproduce every aspect of hearing live sound in a concert hall or cathedral, including both horizontal and vertical surround information? "Full-sphere ambisonics" encoding is one such system, but few people have heard it. Most people, even audio professionals, have heard only the compromised UHJ version of ambisonics coding, and other approaches to full-sphere surround recording remain to be explored.

**RESOLUTION.** The 16-bit resolution of the CD has long been thought to be adequate for even very demanding signals. But in recent years, as recording engineers have begun using 20-bit A/D converters to record their master tapes, they have been discovering that subtle aspects of sound are rendered more clearly with 20-bit than with 16-bit resolution. (Note that only part of this improvement makes it into CD's made from 20-bit masters; at best such CD's may yield about 18 bits of effective resolution.) Proposals for HQAD and other Super CD variants consistently plan to deliver full 20-bit resolution, or better, to the listener.

**BANDWIDTH.** The 44-kHz sampling rate of the CD has always created a need for sharp filtering at half that frequency in recording and playback, which often has been a source of criticism. An audiophile post-CD format would employ a sampling rate of at least 50 or 60 kHz to permit the use of more gradual filtering. Meanwhile experiments at Pioneer with double-speed DAT recording, though not yet backed up by rigorously scientific comparison tests, have indicated that the inclusion of ultrasonic harmonics in a recording may give it a more natural quality, even for listeners who cannot hear discrete overtones above 15 kHz.

**COMPATIBILITY.** Obviously an audiophile Super CD might contain either two-channel stereo or six to eight channels of full-sphere surround sound, recorded in either case with at least 20-bit resolution and twice the CD's sampling rate. Record companies around the world will need to agree on standards for the many possible signal formats that could be included in a high-density disc. They will also have to face a central issue: Should the Super CD be designed to be backward-compatible, so it can play on conventional CD players as well as new DVD-based hardware? If not, retailers would have to struggle with the hated dual inventory, distributing and stocking both "regular" and "super" versions of every new recording. □

**Next Month:** How the Super CD will be completely compatible with conventional CD's, and other matters.



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