

Stereo Review®

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SPEAKER SPECIAL

**HOW TO SHOP
FOR GOOD SOUND**

**SURROUND-
SOUND OPTIONS**

**SPEAKER TESTS:
Audio Concepts,
Bose, Hsu, N.E.A.R.,
Paradigm, and Polk**



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Once again, science has old parts and bring

The DSP-E200. Practically all you need to transform your existing components into a 5-channel home theater system.

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created a way to take them back to life.

INTRODUCING HOME THEATER COMPONENTS DESIGNED TO BREATHE NEW LIFE INTO THE EQUIPMENT YOU ALREADY HAVE.

A good story has always been a great form of entertainment. It still is. Only now the best stories of our time come in a slightly different format.

Namely video tapes and laser-discs. Movies that come to life right before your very eyes. With soundtracks every bit as riveting as the pictures themselves.

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If you're starting from scratch, you owe it to yourself to consider the RX-V660. It's the newest member in Yamaha's renowned line of 5-channel audio/video receivers.



The DPS-E1000. A 5-channel audio/video amplifier that can literally bring down the house. Add it to your existing system to create a 7-channel home theater that can push DSP, Dolby Pro Logic and Cinema DSP to the limit.

A specifically designed three-channel amplifier. The DSPE200. A remarkable new amplifier that plugs into

Almost any TV in the house is fine, although you'll get maximum effect out of a 25" screen or larger.



Our engineers started with parts a lot of people already have — a good color TV, a Hi-Fi VCR, maybe even a receiver and speakers — and created a fairly miraculous way of bringing them back to life.

Which leads us to one of our more exciting new products.

your existing amplifier/receiver and can give you the same sound placement, depth and intensity, that until recently, one could only find in the finest movie theaters.



What makes this overwhelming experience possible is something Yamaha calls Cinema DSP. A unique Yamaha development that actually combines Digital Sound Field Processing (a technology Yamaha invented) with Dolby Pro Logic.†

What's so great about that?

Digital Sound Field Processing (DSP) recreates the acoustic properties of an actual movie theater in the relatively cramped quarters of your living room. While Dolby Pro Logic places sound effects and dialogue around the room just how the director originally intended.

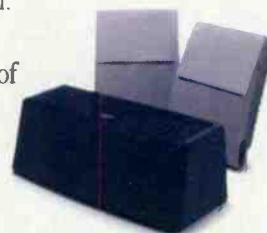
Cinema DSP combines the best of both technologies. Simply stated, it's the part of the system that creates a spacious movie theater experience in the confines of your living room.

There you have it. An exceptionally simple approach to home theater.

Which when you think about it, proves a couple things.

You don't have to spend a fortune to experience the latest trend in home entertainment.

You just need to breathe a little life into the equipment you already have.



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YAMAHA®

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Model PN5+

Model PN70



Model PN50 New Center Channel & Video Speaker

HERE'S WHY

The New York Times

"PINNACLE LOUDSPEAKERS HAS ACHIEVED WONDERS WITH ITS PATENTED VERSION OF A BASS REFLEX ENCLOSURE.

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Stereo Review

"AT LOWER LEVELS THE SOUND CHARACTER OF THE PN5+ SYSTEM WAS AMAZINGLY CLOSE TO THAT OF OUR REFERENCE SPEAKERS WHICH COST NEARLY TWENTY TIMES AS MUCH!...QUITE REMARKABLE...!"

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HIGH FIDELITY

"...THE PN6+ IS A MUST HEAR MODEL FOR YOUR AUDITION LIST."

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stereophile

"THE LARGER PN8+ WAS SHOCKINGLY GOOD FOR THE MONEY..."

— Peter Mitchell, April 1990

Inc.

"GOOD SPEAKERS FOR LESS THAN \$200 ARE HARD TO FIND. THE PINNACLE PN5+...BOASTS TRUE HIGH FIDELITY SOUND IN SMALL CABINETS."

— Cary Lu, September 1990

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Cover

The wide range of speaker systems available today is represented by (clockwise from top) the N.E.A.R. 50ML, Audio Concepts G3, Bose Powered Acoustimass-3, Polk S4, Paradigm Titan, and Hsu Research SW10 subwoofer. For more on these models, see test reports beginning on page 26.

Photograph by Jook P. Leung

BULLETIN	4
LETTERS	10
TIME DELAY	14
NEW PRODUCTS	16
AUDIO Q&A	22
POPULAR MUSIC	79
CLASSICAL MUSIC	92
GOING ON RECORD	104
SIGNALS	112

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Stereo Review®

INCORPORATING HIGH FIDELITY®



Page 55

EQUIPMENT

Hirsch-Houck Labs Equipment Test Reports	26
Polk Audio S4 Loudspeaker System, page 26	
Audio Concepts G3 Loudspeaker System, page 30	
Paradigm Titan Loudspeaker System, page 38	
Bose Powered Acoustimass-3 Three-Piece Loudspeaker System, page 39	
New England Audio Resource NEAR-50ML Loudspeaker System, page 41	
Hsu Research SW10 Subwoofer, page 44	



Page 48

Good Sound	48
-------------------------	----

How to evaluate speaker performance
• by *Floyd E. Toole*

Choosing Speakers for Surround Sound	55
---	----

Two-channel stereo may have been easier, but it was never this much fun • by *Peter W. Mitchell*

Showstoppers	67
---------------------------	----

New products from the 1992 Summer Consumer Electronics Show

MUSIC

Special CD Offer	25
A Sony Classical sampler, "Almanac '92"	

Dawn Upshaw	64
"Everything you ever wanted in a singer but were afraid to ask for" • by <i>David Patrick Stearns</i>	

Best Recordings of the Month	73
---	----

The Black Crowes, Messiaen's *Turangalila-Symphonie*, Iris DeMent, and Kathleen Battle and Wynton Marsalis's "Baroque Duet"



Page 73

BULLETIN

by William Livingstone
and Glenn Kenny

Disc Notes

Recent certifications by the Recording Industry Association of America are Platinum status for the soundtrack to *The Commitments* (MCA) and for Sir Mix-A-Lot's "Mack Daddy" (Def American). Annie Lennox's "Diva" has been certified a Gold record. . . . Observances of the five-hundredth anniversary of Columbus's first voyage to the Western Hemisphere have stimulated interest in recordings of American Indian music, and New World Records reports that its current best sellers (especially in Europe) are its Native American titles. Newly reissued on CD and cassette by New World this summer are "Oku Shareh, Turtle Dance Songs of San Juan Pueblo" (80301) and "Songs of Love, Luck, Animals, and Magic" (80297), music of the Yurok and Tolowa Indians.

Milestones

The one-hundredth anniversary of the birth of the French composer Darius Milhaud (1892-1974) is being celebrated this year. . . . The Polish pianist Mieczyslaw Horszowski, who turned one hundred on June 23, has retired from performing but has just renewed his contract to continue teaching at the Curtis Institute in Philadelphia. . . . Advent is celebrating its twenty-fifth anniversary by issuing a limited edition of the Large Advent speaker, which was prominent in nearly half a million living rooms in the

KEF and Celestion Acquired

Kinergetics Holdings, Ltd., a London-based group, recently acquired KEF, the respected speaker manufacturer, and signed an agreement to acquire Celestion, another loudspeaker maker, pending stockholder approval. Kinergetics says that both companies will remain independent and that the infusion of capital will be used to initiate more aggressive product development and heighten both companies' profiles with advertising and promotion.

mid-1970's. . . . Infinity is tooling up to celebrate its twenty-fifth anniversary in 1993. . . . And the pioneer synthesizer artist Wendy Carlos, whose 1968 album "Switched-On Bach" (CBS) was the first classical record to be certified Platinum, has already released an updated, state-of-the-art rerecording on Telarc for its twenty-fifth anniversary next year.

At the Movies

Batman Returns, with Michael Keaton and Michelle Pfeiffer, is the first feature film released nationally in the new 35mm Dolby Stereo SR D format. This format includes four-channel analog soundtracks and six-channel digital tracks on the same print. Dolby Labs say that the clarity of digital audio and the excitement of six discrete channels in the *Batman Returns* soundtrack herald a new era in cinema sound. . . . JVC and Philips recently announced their joint development of a karaoke system that will use CD-size discs to store 74 minutes of full-motion video and digital audio. The format has provisions for a special data area on the disc to superimpose lyrics on the screen for karaoke (or singalong) use. The standard will be announced to the industry worldwide before the end of the year.

High-Definition TV

In Japan, since November 1991 about 8 hours of HDTV transmissions per day have been available. . . . In the

Rest in Peace

The trumpeter Miles Davis, who died last year, has been buried in Woodlawn Cemetery in the Bronx, the northern borough of New York City, very near the grave of Duke Ellington. Other famous jazz artists buried there are the trumpeter Cootie Williams, the cornetist King Oliver, and W. C. Handy, usually called the Father of the Blues.

With the restoration of democracy in Eastern Europe the remains of musical émigrés who died in exile are being returned to their native countries. In 1988 the sons of the composer Béla Bartók had his remains moved from Hartsdale, New York, to Hungary, where he was born. This summer the body of the Polish pianist Ignace Jan Paderewski (1860-1941), who was the first premier of the Polish republic, was moved from Arlington National Cemetery to Warsaw.

The composer Sergei Rachmaninoff (1873-1943) is buried in Kensico Cemetery in Valhalla, New York, and now that communism has collapsed in the Soviet Union, there is discussion about reburying him in Russia.

European Community's television industry, thirty-eight principal companies or institutions have committed themselves to promote the European MAC standard for HDTV. They include the BBC and Thames Television in England, RAI in Italy, Antenne 2 in France, and so forth. . . . In the United States five competing systems are being evaluated at the Advanced Television Test Center (an industry-supported institution) in Alexandria, Virginia. The Federal Communications Commission is expected to endorse one of them next year. Among the companies promoting the competing systems are NHK (Japan Broadcasting Corporation), Zenith Electronics, American Telephone and Telegraph,

Philips Electronics, Thomson Consumer Electronics, NBC, Massachusetts Institute of Technology, and General Instrument Corporation.

Beatles Update

Paul McCartney turned fifty in June. George Harrison is forty-nine, Ringo Star is fifty-one, and John Lennon (killed in 1980) would have been fifty-two this year. Starr, who regrets his years of alcohol and drug abuse, went through a rehabilitation program in 1988. McCartney (said to be England's nineteenth richest man with a fortune estimated at \$700 million) is now a vegetarian. Queen Elizabeth II has contributed to McCartney's fund to convert his old high school in Liverpool into a school of performing arts.

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Remote control works around corners and through walls – system operation from anywhere in your home.

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For example, our award-winning Lifestyle® music system replaces an entire rack of conventional electronics and speakers. It shows what can be accomplished as we apply breakthrough technology to the goal of providing clear benefits.



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We invite you to compare our Lifestyle® music systems to larger, more expensive stereos. Just listen. You'll make your own decision in less than a minute. For more information, and names of Bose dealers near you, call toll-free:

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The Pioneer CLD-D701 Combination CD/LaserDisc Player and VSX-D901S A/V Receiver with Dolby Pro Logic.

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The result is that ProVision delivers a screen image that can't be matched by any other projection television. A

key element of the home theater experience.

The picture source is a Pioneer LaserDisc Player, a technology in which we have led worldwide. The ultimate in sight and sound, it comes 60% closer to reality than ordinary videotape. And features the superiority of digital sound.



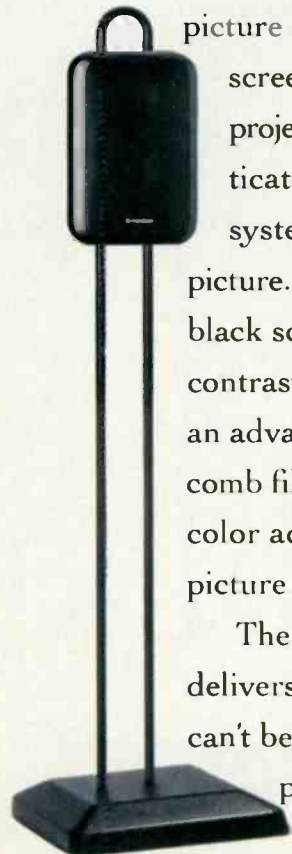
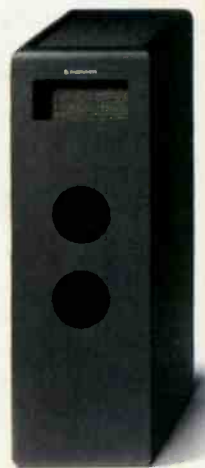
LaserDisc is widely acknowledged as the finest medium for the electronic reproduction of picture and sound track. Without it, you're not getting the maximum spectacle that "home theater" can deliver.

Of course, what you hear is equally spectacular. The enveloping intensity of five channel Dolby® Pro Logic® Surround Sound. All delivered with the care of our industry leading audio/video receivers.



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Of course, there's a lot more to tell, so call us at 1-800-PIONEER for more information. Or, drop by a Pioneer Home Theater dealer.

You'll find just what you'd expect from the leaders in audio and video: Home theater so advanced, you don't just watch it.™

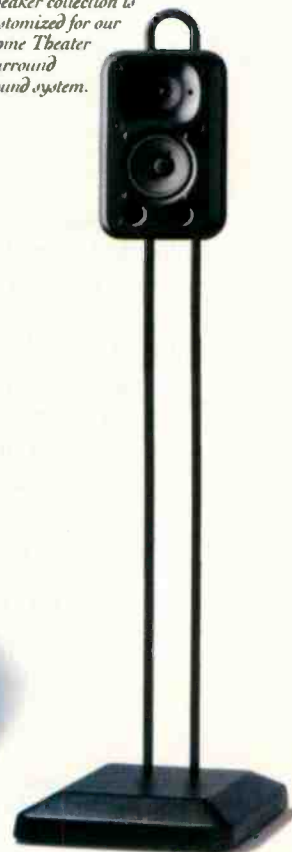


Our new ProVision SD-P5065K Projection TV incorporates a host of technological innovations. Pictured here is an actual on-screen image.

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We're older now, but at 21°, we're still pretty cool.

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Stereo Review is published
by Hachette Magazines, Inc.

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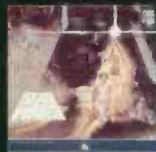
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LETTERS

Fine Tuning

I like the new format of your music section since it allows for a greater number of reviews, but I have one complaint: If I am considering spending up to \$17 on a recording, knowing whether it runs 35 or 75 minutes can influence my decision.

STEVEN P. YAEGER
South St. Paul, MN

Please give us older readers a break and do away with the small print in the "Letters" and "Audio Q&A" columns. Even with glasses, the new style gives me a headache. I may be too old to rock and roll, but I'm too young to dig out the magnifying glass.

STEPHEN J. SPATOLA
Caldwell, NJ

It seems that in your popular-music and jazz reviews you no longer publish catalog numbers. We've been doing all of our pop and jazz ordering based on reviews in your magazine, and these numbers are required when ordering CD's and cassettes from our vendors.

SUSAN J. RUTTENBER
Director, Montvale Free Public Library
Montvale, NJ

A number of readers let us know that the type was too small in "Letters," "Audio Q&A," and the record reviews. We agree. In the August issue we enlarged the type for "Letters" and "Q&A" and in this issue for record reviews. Also, we are again giving disc playing times (to the nearest minute) and CD catalog numbers in reviews.

Rodrigues Caption Contest

The winning caption in the 8th Rodrigues Cartoon Caption Contest (July) was, "I have an LP of Lawrence Welk, and I'm not afraid to use it!" But nowhere in the drawing can a turntable be found. Did any of the judges notice this?

BILL REDMAN
Duluth, GA

We were laughing so hard, we didn't.

Michael Stanley Band

I read with interest Steve Simels's item on the CD reissue of the Michael Stanley Band's "Right Back at Ya" in July's "Tales from the Vaults." Although it is true that some of the material sounds dated, it is not half as dated as

some of the stuff getting airplay these days. What is ironic is that if critics in national publications had said ten years ago, when the album was first released, that some of the music is "heartland rock on a par with Springsteen or Mellencamp," maybe today the MSB would not be "world famous only in Cleveland."

BILL J. BRODNICK
Cleveland, OH

Home Recording Fairness

Congress is about to levy a new tax on audiophiles, computer users, and struggling musicians. The Audio Home Recording Act (AHRA) will establish a new bureaucracy to distribute the revenue from digital audio royalties to the music industry. The rationale is that America is teeming with home pirates who will make digital copies of CD's rather than pay for originals. It sounds reasonable until one remembers that the record industry's revenues have tripled since cassette recorders became common.

Even if the bill functioned as advertised, it would hurt struggling musicians. The AHRA distributes money according to unit sales, so

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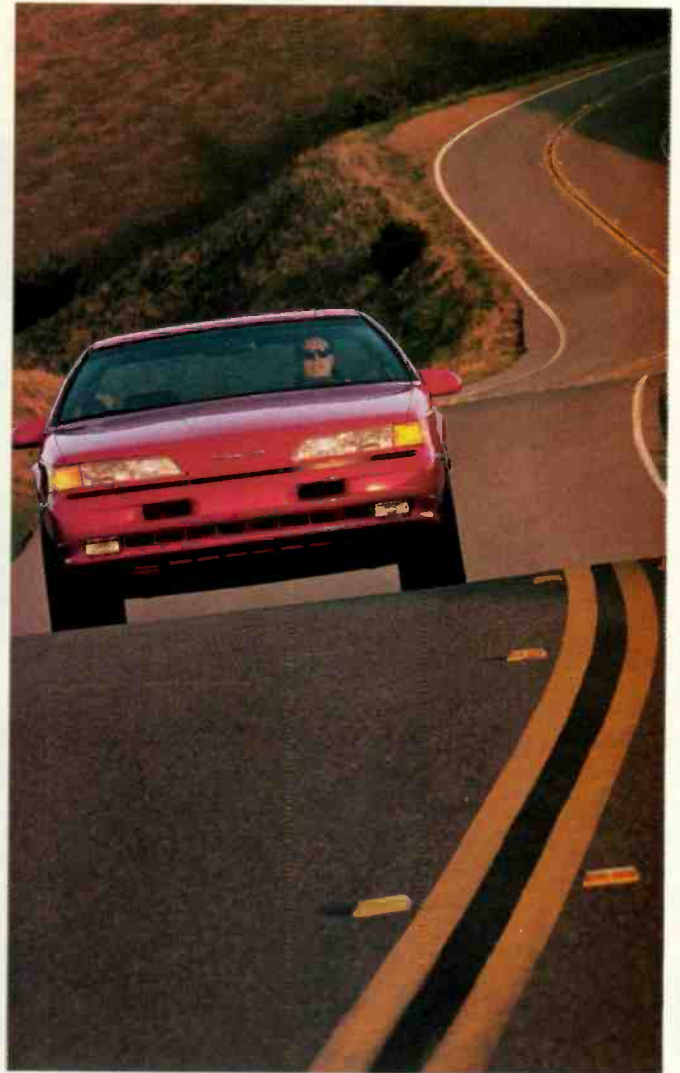
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Top 40 artists would get nearly all of it. Where would the money come from? Most users of digital audio recorders are aspiring artists. Thus the AHRA takes money from poor musicians and gives it to rich ones.

Digital audio means storing sound as 1's and 0's, indistinguishable from 1's and 0's used to store documents, spreadsheets, pictures, video, etc. There is no possible way to tax one kind of data storage and not others. Computer users today are the biggest consumers of digital audio tape, and most of the money paid out to record companies because of the AHRA will come from computer users.

Digital audio technology should be a boon to the blind, who do a disproportionate amount of audio recording. Instead, blind people will be taxed for the privilege of recording their own voices, then forced to use tape recorders that only record if the copy-prohibition circuitry hasn't been triggered—helpfully displayed by a flashing light on the front panel.

I urge fellow STEREO REVIEW readers to tell Congress their opinions on the AHRA. Write to representatives at Washington, DC 20515; senators have the zip code 20510.

PHILIP GREENSPUN
Cambridge, MA

The fees mandated by the Audio Home Recording Act are royalties, not a tax (which would be revenue paid to support government services). In return for these fees and imposition of a system that limits multigenerational direct digital dubbing, the legislation amends the copyright law to give a blanket license for duplication of copyrighted recordings for non-commercial purposes. The fees are to be collected from manufacturers of digital audio recording equipment and media, not from consumers. They are not large and are based on the manufacturer's wholesale price to a distributor or dealer: 2 percent on recording equipment up to a maximum of \$12 for a multiwell deck and 3 percent on media (in the vicinity of 10¢ to 15¢ per tape or disc at current prices). The legislation specifically exempts equipment and media used for professional, computer, spoken-word, and other such applications and specifies reasonable bases on which these can be distinguished.

We agree that none of this should be necessary, especially the Serial Copy Management System (SCMS), which really does no one any good. But what is the alternative? Interminable legal wrangling of the sort that effectively killed digital audio tape (DAT) as a consumer format. The choice is between, on the one hand, a modest royalty and a digital copy-protection system that will, in practice, inconvenience very few people and, on the other hand, no consumer digital recording system at all. We think people should at least have the opportunity to buy and use digital recorders, and the AHRA unlocks that door for us.

As for SCMS, remember that it affects only direct digital dubbing and permits unlimited first-generation digital copies from an original (before SCMS, consumer DAT decks could not make even first-generation digital copies from CD's or commercially duplicated digital tapes). And you can make as many generations of copies as you like by way of a digital recorder's analog inputs with little or no loss of sound quality.

Portable Headphones

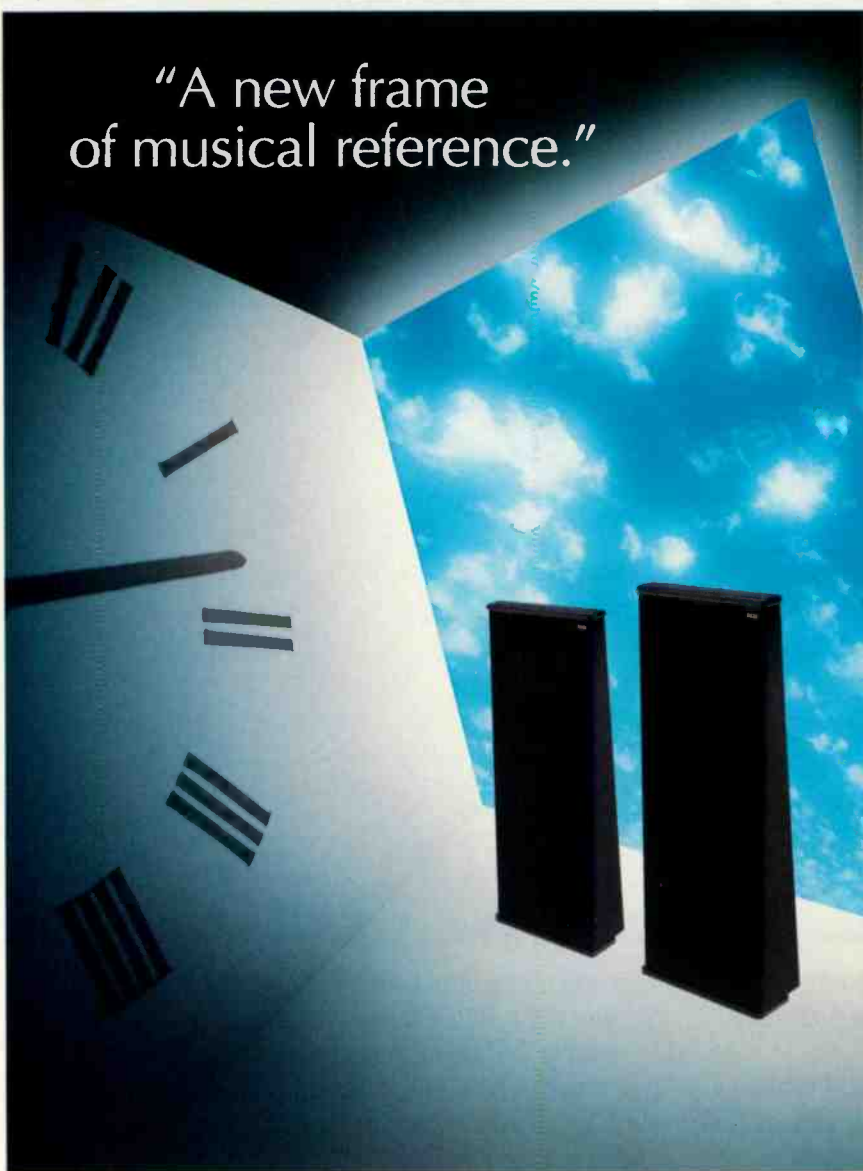
Ken Pohlmann's "CD Portables: The Beethoven test" in July didn't address one important issue: the headphones. My friends and I have tested several brands of portable CD players, and we have found very little audible difference when the same headphone is plugged into different players, but remarkable differences when different headphones are used with the same player. Since most people will not buy separate high-quality headphones to go with a portable CD player, I consider the sound quality of the supplied phones to be the No. 1 factor in choosing a portable.

Hui Li
Goleta, CA

Correction

The caption for the photo of the Parasound HCA-2200 amplifier on page 53 in the August issue contained several errors: It has two 1,200-VA power transformers, and it is rated to deliver at least 220 watts per channel in stereo and 750 watts in mono into 8 ohms, or 385 and 1,000 watts, respectively, into 4 ohms. The price is \$1,585. □

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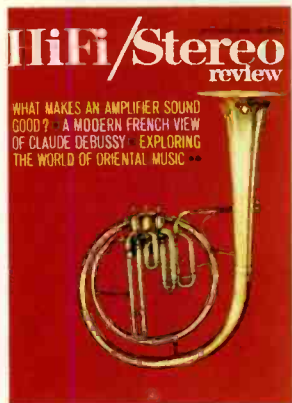
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TIME DELAY

BY STEVE SIMELS



30 years ago

Moneywatch: In the September 1962 issue music editor David Hall notes the rise of discount stores like Sam Goody and declares the current \$4.98 (mono) and \$5.98 (stereo) list price of records "just not realistic."



New products cited this month include a Jerrold antenna coupler for TV and FM reception, a Paco stereo-FM adaptor, an integrated tonearm and cartridge from EMI, and the Fisher X-101-C stereo amplifier, which delivers 27 (!) watts per channel. Equipment tested includes the Viking 86 stereo compact open-reel tape deck, which Julian Hirsch describes as "foolproof," and the Dual Model 1006 Custom record player, whose changing mechanism Hirsch finds "unconventional" but "as reliable as any I have seen."

Notes from the Mystic East: Although the Beatles' George Harrison is still two years away from U.S. fame, STEREO REVIEW presciently offers the article "Exploring the World of Oriental Music," which focuses on his future sitar teacher, Ravi Shankar.



20 years ago

Letters: Reader R. N. Nelson of Decatur, Illinois, and reviewer Joel Vance get into a heated debate over the relative merits of the legendary hipster jazzman Mezz Mezzrow, and Richard Kunkel of Los Angeles defends Emerson, Lake, and Palmer, panned in several recent issues.

Installation of the Month: Ginger Joy of Utica, New York, has what she calls an "antique stereo"—an Acoustic Research receiver, a Dual 1219 automatic turntable, a Shure V-15 Type II Improved cartridge, and two AR-2ax



speakers, all enclosed in a well-preserved Victrola cabinet dating from around 1917.

Keeping things in the family, this issue's "Best of the Month" selections include a harpsichord duet recital featuring the *SR* critic Igor Kipnis that his colleague Bernard Jacobson calls "a recording that should not be missed." Singled out for somewhat similar praise by Peter Reilly, who calls it "unique in the pop-music field," is "Sail Away" by Randy Newman (who is not, alas, an *SR* reviewer). Later in the review section, Paul Kresh salutes two new versions of William Walton's *Façade*, released in honor of the composer's seventieth birthday, and Joel Vance, obviously unaware that Branford Marsalis will one day lead the band of *The Tonight Show*, ponders the question, "Is jazz coming back?"

Audio Basics: Associate Technical Editor Ralph Hodges devotes his September column to the wonders of the balance control and concludes that a system with separate balance and volume controls is definitely a good thing.

10 years ago

Going on Record: Music Editor James Goodfriend ponders the problems inherent in classical-music video, noting that "the back of Leonard Bernstein's neck, even alternated with shots of trombonists shaking saliva out of their mouthpieces, will simply not do."

Reporting on the 1982 Summer Consumer Electronics Show, Ralph Hodges notes that he couldn't "walk down an aisle without tripping over" prototype CD players, still months away from U.S. introduction. Later he gets his first taste of high-quality video



sound auditioning a demonstration tape of *The Empire Strikes Back* on a Proton TV monitor and an early surround-sound setup.

Best of the Month: Eric Salzman declares the Neville



Marriner recording of Haydn's *The Seasons* "not to be missed," and Steve Simels says that Richard and Linda Thompson's "Shoot Out the Lights" is "the kind of record that makes most of those that cross my desk seem like the work of artistic pygmies." Elsewhere in the review section, Noel Coppage compares aging hippie waif Melanie to Edith Piaf, and the society singer/pianist Bobby Short tells reviewer Peter Reilly, "I guess now I'm back in style, whatever that means."

Bulletin: John Cougar (not yet Mellencamp) claims he wrote the lyrics for his hit *Hurts So Good* in soap on a glass door while showering. □

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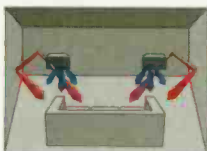
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▼ JASCO

Jasco's Optima TV/FM antenna uses passive microwave circuitry to improve reception. Price: \$49.90. Jasco Products, Dept. SR, P.O. Box 466, Oklahoma City, OK 73101.

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▼ SONANCE

The DB4 and DB6 speaker switchers from Sonance can accommodate four and six sets of speakers, respectively. Prices: DB4, \$110; DB6, \$179. Sonance, Dept. SR, 961 Calle Negocio, San Clemente, CA 92673.

• Circle 122 on reader service card



▲ BOSE

The Bose Acoustimass-7 is a home theater speaker system made up of three Acoustimass dual-cube satellites for left, right, and center channels and a bass module that can be hidden from view. All connections are made through the bass module. The

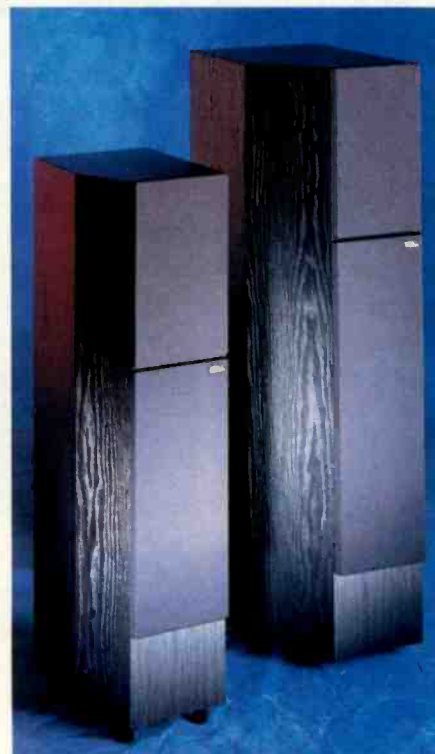
Direct/Reflecting satellites measure $3\frac{1}{8} \times 6\frac{3}{4} \times 4\frac{3}{4}$ inches; the bass module is $19 \times 14 \times 7\frac{1}{2}$ inches.

Price: \$899. Bose Corporation, Dept. SR, The Mountain, Framingham, MA 01701-9168. Telephone: (800) 444-BOSE.

► DESIGN ACOUSTICS

The DA 900 and DA 1000 from Design Acoustics are three-way tower speakers featuring downward-firing woofers. The speakers are shielded for use near TV sets or video monitors, and the cabinets are finished in oak or black wood-grain vinyl. Prices: DA 900, \$400 each; DA 1000, \$550 each. Design Acoustics, Dept. SR, 1225 Commerce Dr., Stow, OH 44224.

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U2—Achtung Baby. One, Until The End Of The World, plus more.
(Island) 431-213

Eric Clapton—Rush (Orig. Sndtrk.)
Tears In Heaven, etc.
(Reprise) 433-714

Bonnie Raitt—Luck Of The Draw. I Can't Make You Love Me, etc. (Capitol) 423-186

Michael Jackson—Dangerous.
Remember The Time, many more.
(Epic) 433-920

Wayne's World—Sndtrk. Ballroom Blitz, Bohemian Rhapsody, etc.
(Reprise) 434-498

Garth Brooks—Ropin' The Wind.
What She's Doing Now, more.
(Liberty) 428-862

Hammer—Too Legit To Quit.
Title Cut, plus Do Not Pass Me By, etc. (Capitol) 433-094

Tears For Fears—Tears Roll Down (Fontana) 436-006

Melissa Etheridge—Never Enough (Island) 435-180

John Mellencamp—Whenever We Wanted (Mercury) 430-231

Reba McEntire—For My Broken Heart (MCA) 430-090

Mötley Crüe—Decade Of Decadence '81-'91 (Elektra) 429-316

Stevie Ray Vaughan & Double Trouble—Sky Is Crying (Epic) 429-258

David Byrne—Uh-Oh (Luaka Bop/Sire) 436-949

Keith Sweat—Keep It Comin' (Elektra) 431-130

R.E.M.—Out Of Time (Warner Bros.) 417-923

Carreras/Domingo/Pavarotti—Favorite Arias (Sony Master.) 425-470

Simon & Garfunkel's Greatest Hits (Columbia) 219-477

Jon Bon Jovi—Blaze Of Glory (Mercury) 423-400

Ricky Van Shelton—Don't Overlook Salvation (Columbia) 436-360

Neil Young And Crazy Horse—Wald (Reprise) 430-645/390-641

The Very Best Of The Platters (Mercury) 430-611

Buddy Guy—Damn Right I've Got The Blues (Jive) 434-373

Howlin' Wolf—The Real Folk Blues (Chess) 415-745

Skid Row—Slave To The Grind (Atlantic) 422-220

En Vogue—Funky Divas (East-West) 435-750

Frank Sinatra—Sinatra Reprise/The Very Good Years (Reprise) 430-363

The Allman Brothers Band—A Decade Of Hits 1969-79 (Polydor) 430-439

John Lee Hooker—More Real Folk Blues/The Missing Album (Chess) 429-159

The Best Of Muddy Waters (Chess) 407-932

Leonard Bernstein Favorites: Orchestral Showpieces (Sony Class.) 421-610/391-615

Al DiMeola—Kiss My Axe (Tomato) 435-453

PM Dawn—The Utopian Experience (Gee Street/Island) 430-207

Frank Sinatra—Sinatra Reprise/The Very Good Years (Reprise) 430-363

Koko Taylor—What It Takes/The Chess Years (Chess) 429-142

The Best Of B.B. King (MCA) 379-776

Marc Cohn (Atlantic) 421-552

Yellowjackets—Live Wires (GRP) 435-388

Tom Petty & The Heartbreakers—Into The Great Wide Open (MCA) 429-795

Public Enemy—Apocalypse 91 (Def Jam/Columbia) 428-003

Legends Of Blues, Vol. 1—Roots N' Blues (Columbia) 421-347

The Blues, Vol. 1—The Original Chess Masters (Chess) 378-430

EMF—Schubert Dip (EMI) 421-487

Yanni—Dare To Dream (Private Music) 435-271

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Public Enemy—Apocalypse 91 (Def Jam/Columbia) 428-003

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The Blues, Vol. 1—The Original Chess Masters (Chess) 378-430

Spyro Gyra—Collection (GRP) 420-950

"The Mambo Kings"—Original Soundtrack (Elektra) 435-099

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Roxette—Joyride (EMI) 419-556

Little Village (Reprise) 434-480

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The Blues, Vol. 1—The Original Chess Masters (Chess) 378-430

Mr. Big—Lean Into It (Atlantic) 418-798

Hank Williams, Jr.—Maverick (Curb/Capricorn) 434-472

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Public Enemy—Apocalypse 91 (Def Jam/Columbia) 428-003

Legends Of Blues, Vol. 1—Roots N' Blues (Columbia) 421-347

The Blues, Vol. 1—The Original Chess Masters (Chess) 378-430

Jesus Jones—Doubt (SBK) 417-691

Bobby McFerrin & Chick Corea—Play (Blue Note) 434-381

Tom Petty & The Heartbreakers—Into The Great Wide Open (MCA) 429-795

Public Enemy—Apocalypse 91 (Def Jam/Columbia) 428-003

Legends Of Blues, Vol. 1—Roots N' Blues (Columbia) 421-347

The Blues, Vol. 1—The Original Chess Masters (Chess) 378-430

Gloria Estefan—Into The Light (Epic) 415-943

New Edition—Grt. Hits, Vol. 1 (MCA) 430-066

Tom Petty & The Heartbreakers—Into The Great Wide Open (MCA) 429-795

Public Enemy—Apocalypse 91 (Def Jam/Columbia) 428-003

Legends Of Blues, Vol. 1—Roots N' Blues (Columbia) 421-347

The Blues, Vol. 1—The Original Chess Masters (Chess) 378-430

Big Audio Dynamite II—The Globe (Columbia) 414-649

Curtis Stigers (Arista) 429-977

Tom Petty & The Heartbreakers—Into The Great Wide Open (MCA) 429-795

Public Enemy—Apocalypse 91 (Def Jam/Columbia) 428-003

Legends Of Blues, Vol. 1—Roots N' Blues (Columbia) 421-347

The Blues, Vol. 1—The Original Chess Masters (Chess) 378-430

Travis Tritt—It's All About To Change (Warner Bros.) 422-113

Social Distortion—Somewhere Between Heaven And Hell (Epic) 433-631

Tom Petty & The Heartbreakers—Into The Great Wide Open (MCA) 429-795

Public Enemy—Apocalypse 91 (Def Jam/Columbia) 428-003

Legends Of Blues, Vol. 1—Roots N' Blues (Columbia) 421-347

The Blues, Vol. 1—The Original Chess Masters (Chess) 378-430

Rippingtons—Curves Ahead (GRP) 426-874

Richard Marx—Rush Street (Capitol) 433-110

Tom Petty & The Heartbreakers—Into The Great Wide Open (MCA) 429-795

Public Enemy—Apocalypse 91 (Def Jam/Columbia) 428-003

Legends Of Blues, Vol. 1—Roots N' Blues (Columbia) 421-347

The Blues, Vol. 1—The Original Chess Masters (Chess) 378-430

Madonna—The Immaculate Collection (Warner Bros./Sire) 414-557

Jodeci—Forever My Lady (MCA) 430-959

Tom Petty & The Heartbreakers—Into The Great Wide Open (MCA) 429-795

Public Enemy—Apocalypse 91 (Def Jam/Columbia) 428-003

Legends Of Blues, Vol. 1—Roots N' Blues (Columbia) 421-347

The Blues, Vol. 1—The Original Chess Masters (Chess) 378-430

David Bowie—Changes-bowie (Rykodisc) 412-247

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Public Enemy—Apocalypse 91 (Def Jam/Columbia) 428-003

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NEW PRODUCTS



◀ ADCOM

Adcom's GFA-2535 power amplifier, designed for home theater setups, can deliver 60 watts per channel in four-channel mode or 200 watts to the center channel and 60 watts each to two surround channels. Price: \$600. Adcom, Dept. SR, 11 Elkins Rd., East Brunswick, NJ 08816.

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▶ PHILIPS

The DC 911 car CD tuner from Philips features a removable chassis, eighteen AM/FM presets with strongest-station memory, a 16-bit digital-to-analog converter with four-times oversampling, and four line-level outputs. Price: \$599. Philips Car Stereo, Dept. SR, 9600 54th Ave. N., Plymouth, MN 55442.

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▶ PYLE

The World Class Woofers Series from Pyle comprises forty-two models and sizes of car subwoofers. All feature polymer-laminated cones, high-energy magnet structures, and vent-cooled motors. Prices range from \$40 to \$375. Pyle Industries, Inc., Dept. SR, P.O. Box 620, Huntington, IN 48750.

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▲ AUDIO ACCESS

The MRX multiroom receiver from Audio Access, shown above with its KP-1 keypad, includes six separate 40-watt-per-channel amplifiers for independent volume control and source selection in six audio zones. Price: \$4,300. Audio Access, Dept. SR, 26046 Eden Landing Rd., Suite 5, Hayward, CA 94545.

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◀ VELODYNE

Velodyne's VA 1012 powered subwoofer (front) has a 10-inch woofer, 12-inch passive radiator, and 60-watt amplifier; height is about 18½ inches. The VA 810 (rear) has an 8-inch woofer, 10-inch passive radiator, and 50-watt amplifier; height is 16 inches. Both feature Velodyne's exclusive compression circuit that prevents the speaker from being overdriven. Prices: VA 810, \$595; VA 1012L, \$695. Velodyne, Dept. SR, 1070 Commercial St., Suite 101, San Jose, CA 95112.

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NEW PRODUCTS



◀ BOZAK

Bozak's new speaker line consists of one large bookshelf speaker, the Sonata, and four floor-standing systems, the Rhapsody II (far left), the Grand, the Concerto II, and the Symphony II. All feature Bozak's Acoustic Isolation Enclosure design, which is said to reduce distortions caused by driver-induced cabinet

vibrations. The cabinets are finished in full-cut, hand-rubbed wood veneers. Prices (per pair): Grand, \$5,000; Symphony II, \$3,600; Concerto II, \$2,600; Rhapsody II, \$1,900; Sonata, \$1,400. Bozak Audio Laboratories, Dept. SR, 539 Norwich Ave., Taftville, CT 06380.

• Circle 129 on reader service card



◀ PIONEER

Pioneer's PD-TM2 is an eighteen-disc CD changer with a capacity of three six-disc magazines. Features include a fluorescent command-identification display, sophisticated editing features to facilitate taping, and delete programming to specify tracks the user does not want played. Price: \$510. Pioneer, Dept. SR, 2265 E. 220th St., P.O. Box 1720, Long Beach, CA 90801-1720.

▼ MCINTOSH

The McIntosh MC-1000 high-current mono power amplifier is rated to deliver up to 1,000 watts into 8-, 4-, or 2-ohm loads with less than 0.005 percent distortion. It has both balanced (XLR) and unbalanced input jacks

and separate output terminals for 8-, 4-, and 2-ohm speakers. Weight is 105 pounds. Price: \$4,999. McIntosh Laboratory Inc., Dept. SR, 2 Chambers St., Binghamton, NY 13903-2699.

• Circle 130 on reader service card



▶ INFINITY

The subwoofer in Infinity's Micro II three-piece system features two 6½-inch drivers and a rated response down to 40 Hz. The 8-inch-high, two-way satellites have removable brackets for mounting on a wall or shelf; the S-1 stand shown is optional. Prices: system, \$779; satellites alone, \$179 each; stands, \$100 a pair. Infinity, Dept. SR, 9409 Owensmouth Ave., Chatsworth, CA 91311.

• Circle 131 on reader service card





Henry Kloss Does It Again. And Again.



"Henry Kloss has demonstrated a rare talent for spotting important new concepts and incorporating them into readily affordable consumer products. His new models have stemmed from a deeply rooted desire to move audio technology forward and provide buyers with previously unavailable benefits." *Audio Magazine*, February 1992

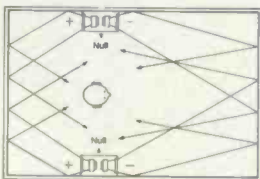
Audio Hall of Fame member Henry Kloss created the dominant speakers of the '50s (AR), '60s (KLH) and '70s (Advent). Now he's created a new *kind* of audio company with factory-direct savings... Cambridge SoundWorks.

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The Surround II delivers dipole radiator, surround sound performance at a fraction of the cost of competing speakers using similar technology.



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Henry Kloss designed Ambiance In-Wall with

Our Ambiance In-Wall speakers use a true acoustic suspension sealed cabinet for optimum bass response.

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Stereo Review said Ambiance "easily held its own against substantially larger, more expensive speakers." Ambiance In-Wall is also very simple to install—it's a custom installer's and do-it-yourselfer's delight.† At \$329 a pair (\$165 each), direct from the factory, it's an outstanding value.

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CIRCLE NO. 6 ON READER SERVICE CARD

The Critics Love Ensemble And Ensemble II. What's The Difference, Anyway?

Cambridge SoundWorks changed the audio world when we began direct-marketing Ensemble® by Henry Kloss. Ensemble is a revolutionary dual-subwoofer/satellite speaker system offering all-out performance, without cluttering up your room with huge speaker cabinets. Available *only* factory-direct from Cambridge SoundWorks, with no expensive middle-men, Ensemble is priced at hundreds less than it would have sold for in stores. *Audio* magazine says Ensemble "may be the best value in the world."

And Then There Were Two.

Now Cambridge SoundWorks has introduced Ensemble II, a more affordable version of Ensemble using only one cabinet to hold both subwoofer drivers. Ensemble II has joined Ensemble in the ranks of the country's best-selling speak-



The real difference is in the subwoofer.

ers. We believe Ensemble II is a better system than the new Bose® AM-5 Series II. And because we sell it factory-direct, it's half the price. *Stereo Review* said "Ensemble II performs so far beyond its price and size that it can be compared only with much larger speakers at substantially higher prices." We agree with the writer who said, "It's hard to imagine going wrong with Ensemble." The question is, which Ensemble system is right for you?

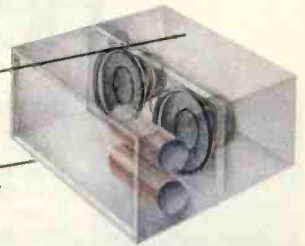
The Same Satellite Speakers.

When you listen to either Ensemble system, almost 90% of the music you hear is being reproduced by the satellite speakers. Both Ensemble and Ensemble II use satellite speakers that are virtually identical.*

Unlike many competing systems, Ensemble's satellites are true two-way speaker systems, each containing a high performance tweeter and a 4-inch woofer. *Stereo Review* said, "The Ensemble satellites delivered a smoother output than

True acoustic suspension, sealed subwoofer cavity.

Cavity acts as acoustic band-pass filter.



"Ensemble may be the best value in the world!"
Audio



many larger and more expensive speakers."

Small (8½"×5¼"×4") and unobtrusive, they'll fit into the decor of any room. They're available in scratch-resistant gunmetal grey Nextel, or primed so you can paint them any color you wish.



Ensemble satellite speakers are available primed for painting, so they can match your decor exactly.

The Same Overall Sound.

In many rooms, Ensemble II sounds virtually the same as Ensemble, especially when Ensemble's two subwoofers are placed right next to each other. The real difference between the two systems is that Ensemble, with its two ultra-compact subwoofers (12"×21"×4½"), gives you *ultimate placement flexibility*.

The Same Attention To Detail.

Ensemble and Ensemble II are constructed with the very best materials and no-compromise workmanship. Their subwoofers use heavy-duty woofers in true acoustic suspension enclosures. The satellites are genuine two-way systems with very high quality speaker components. Individual crossover networks are

built into every cabinet for maximum wiring flexibility. Robust construction is used throughout, featuring solid MDF cabinets and solid metal grilles.

The Same Factory-Direct Savings.

Cambridge SoundWorks products are available *only* factory-direct. By eliminating the middle-men, we're able to sell Ensemble and Ensemble II for hundreds less than if they were sold in stores.

The Same 30-Day Total Satisfaction Guarantee.

Choosing a loudspeaker after a brief listen at a dealer's showroom is like deciding on a car after one quick trip around the block. So we make it possible to audition our speakers the *right way*—



Stereo systems featuring Ensemble and Ensemble II speakers with Pioneer or Philips electronics start at only \$799, including CD player. Dolby Surround Sound systems start at only \$999.

in your own home. You get to listen for hours without a salesman hovering nearby. If within 30 days you're not happy, return your speaker system for a full re-

fund. We even reimburse original UPS ground shipping charges in the continental United States.



The only difference in satellites is that the original Ensembles use gold-plated connectors that allow use of even the heaviest gauge wire.

The Real Difference: The Ultimate Placement Flexibility Of Dual Subwoofers.

Placement of bass and high-frequency speakers in a room—and how those speakers interact with the acoustics of the room—has more influence on the overall sound quality of a stereo system than just about anything. As an alternative to spending hundreds (or thousands) of dollars on this or that "latest" amplifier or CD player design, you should invest some of your time experimenting with various speaker positioning schemes. Ensemble's two ultra-slim (4½") subwoofers give you more placement flexibility than any speaker system we know of (including Ensemble II), and is most likely to provide the performance you want *in real world...in-your room*.

How To Order.

The dual-subwoofer Ensemble system is available in two versions. With handsome black-laminate subwoofers for \$599. Or with black vinyl-clad subwoofers for \$499. Ensemble II is priced at \$399. For more information, a free 48-page catalog, or to order..

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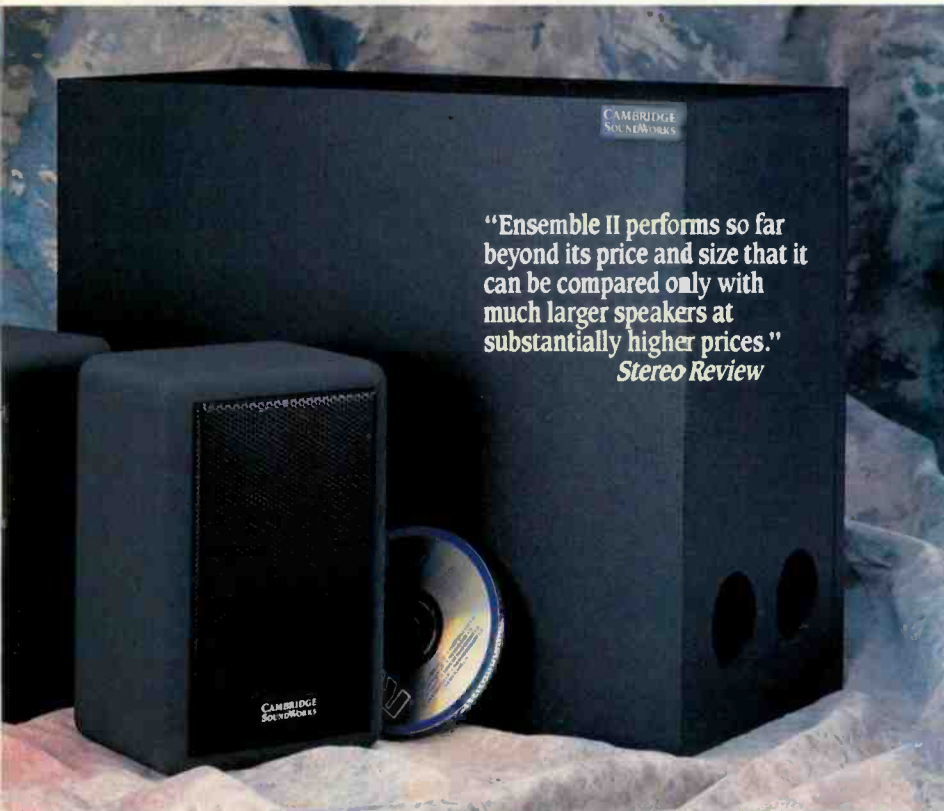
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Stereo Review



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There are almost 400 speaker companies in the United States.
But none of them can offer you all this...



Audio Hall of Fame member Henry Kloss.

Cambridge SoundWorks products are designed by our co-founder, Henry Kloss, who created the dominant speakers of the '50s (AR), '60s (KLH) and '70s (Advent).



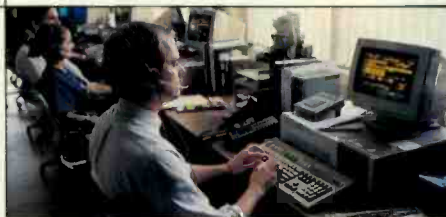
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AUDIO Q & A

BY IAN G. MASTERS

CD Storage

Q I thought I was doing my CD's a favor by putting them into six-disc magazines immediately after purchase and keeping the magazines, flat, in a dust-free container when not in use. I have read, however, that CD's should only be stored on edge in their jewel boxes. Why is this preferable? FRED A. BROCK
Tyler, TX

A The main advantage of the jewel box, other than keeping a disc and its liner notes together, is that it fairly effectively keeps dust away from the surface of a CD and protects it from fingerprints when you move it from one place to another. Changer magazines do protect discs from handling hazards (as long as you keep the CD's in the magazines), but most are not sealed from outside contamination. You have the right idea by keeping them in airtight containers, but few people go to that trouble.

As for storing discs on edge, this is to prevent their edges sagging, which might or might not cause the player to misbehave. In a jewel box, the disc is supported solely in the middle; that doesn't matter if the disc is upright, but deformation could occur over time in the horizontal position, particularly in warm climates. In this respect, a magazine is better, as it typically supports most of the playing surface.

Long Video Leads

Q My television monitor and my equipment rack are about 15 feet apart. Would there be any harm in moving my VCR to the rack and connecting it to the TV with long cables?

WARREN A. WESSLING
San Mateo, CA

A I assume you want to feed the signal from the VCR's video output to the monitor's video input, rather than an RF signal to the TV's tuner. The latter option poses few distance problems but usually yields lower-quality pictures. For line-level video, long cables are readily available (try Radio Shack) and rarely cause visible degradation, particularly with runs as short as yours. In my own setup, which is similar, I have modified a piece of 75-ohm antenna cable with high-quality RCA plugs on each end, but, frankly, I can't see much difference in the picture between that and other cables, even with a laserdisc signal.

Indoor Antennas

Q Do any of the compact indoor FM antennas equal or approach the performance of an outdoor antenna? Other than size, ease of installation, and directional control, do they offer any advantages?

DAVID C. MILBURN
Miami, FL

A Outdoor antennas have several inherent pluses. First, they can be larger than most of us would tolerate inside, so they can provide greater sensitivity, bringing in weaker stations. Second, they can usually be positioned higher, which is also an advantage when pulling in distant stations. FM signals travel in straight lines and are effectively blocked by the earth's curvature if the broadcasting and receiving antennas are too far apart; the higher the receiving antenna, the farther it can be from the FM station. Finally, an outdoor antenna can be made highly directional, which can be a big help in reducing multipath and other types of interference. None of this may matter to you, however, depending on what you want to listen to. Outdoor antennas solve some of the worst reception problems, but if you don't have those problems, mounting an outside unit may be more solution than you need. In that case, the advantages you note with indoor antennas would probably outweigh other considerations. I suggest you borrow one and try it out in your own location.

Copying Eight-Tracks

Q I have a large collection of eight-track cartridges that I would like to copy onto cassettes, but I have found them very difficult to salvage because of high noise and crosstalk between tracks. Is there any way I could take the tape out of a cartridge and play it on an open-reel recorder? **FRED W. AVERY**
Groton, NY

A It's a tempting prospect, as there is probably not a lot wrong with the tapes themselves unless your player's heads have become magnetized. The tape is standard quarter-inch stock, and the tape speed is 3 3/4 ips, which virtually all open-reel machines can handle. The tracks, however, are unique to the format: There are eight of them side by side, as the name implies. Even if you could manage to mount an appropriate head in the tape path of your open-reel recorder, shifting it from one stereo pair to the next at the right moment would definitely be tricky. And then you would probably have to go to some lengths to join up the four programs to make the tapes listenable.

Your best hope is to have a sympathetic service person tweak your player as much as possible. At least you should be able to conquer the misalignment, and a new head, if you can find one, should do wonders for the player's high-frequency performance.

CD Interference

Q It seems that my CD player produces some sort of RF interference that causes static on my FM tuner. When I turn off the player, the noise disappears. I have tried plugging the CD player into different outlets, reversing the

plug, and grounding the chassis, but nothing alleviates the problem. What can I do?

WARREN M. PECK
Great Lakes, IL

A Some CD players produce this sort of interference and some don't. Some FM tuners are sensitive to it and some aren't. You happen to have just the wrong combination, and there's not a lot you can do about it, although moving the equipment around sometimes helps. Try to get as much distance as possible between the CD player and the tuner. If that doesn't work, you'll have to get into the habit of turning off the CD player's power when listening to the radio. Fortunately, that's not a big deal, and it will cure the problem completely.

Copying CD's

Q I have a number of pen pals, and some of them have asked me to copy favorite selections onto cassette from my large collection of CD's. I would ask them only to reimburse me for postage and the cost of the tape. Would I be breaking any laws?

KATIE HENDERSON
Springfield, VA

A Yes. It's naturally tempting to share our favorite music with friends, but it's definitely illegal to do so by making copies. Charging for it is worse, but making a dub for anyone but yourself is still definitely a breach of copyright.

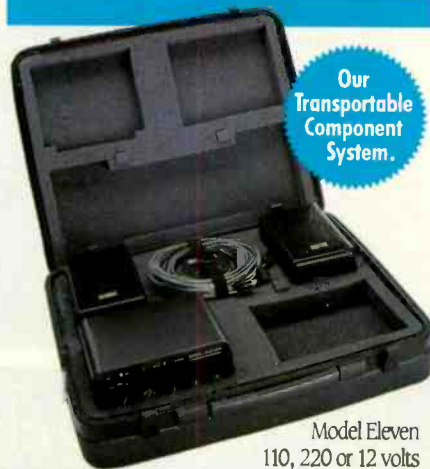
External Crossover

Q I want to connect an external crossover to my receiver and have the power run through it to my loudspeakers. How do I go about this?

DAVID MATTHEWS
Portland, OR

A If you intend to use a passive crossover network to replace the one built into your speakers, there is no real problem. Connect the receiver's speaker outputs to the crossover's inputs, and connect the various crossover outputs to the terminals provided for the individual drivers in your speaker system. Speakers designed for bi-amplification or bi-wiring have such terminals. If your speakers don't have them, you may have to open up the enclosures to get at the individual drivers and to disable the existing crossover.

Most external crossovers are "electronic" or "active," however, and are meant to be inserted in the audio chain *before* the amplification stage. You would need separate amplifiers for the individual drivers in each speaker. The receiver's own amplifier section can be used for one pair, external amps for the rest. The easiest way to set up this configuration is to use the receiver's "pre-out" and "main-in" jacks if it has them. □



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SPECIAL CD OFFER

Stars from Sony Classical

THE editors of STEREO REVIEW are extremely pleased to announce that the next in our series of special CD offers designed to expand our readers' musical horizons is Sony Classical's "Almanac 1992."

This 70-minute disc, an exclusive offer for readers of this magazine, contains fifteen selections from front-line, full-price Sony Classical releases from 1992, featuring the company's illustrious musical stars. To get your copy simply send in the coupon below with a check or money order for \$2.50 (plus tax in New Jersey) to cover postage and handling, which means that the disc is practically free.

Sony Music is the world's largest record company, and its prestigious classical division maintains a catalog of all major periods and styles of concert music interpreted by an impressive roster of the world's leading performing artists. All this range and dazzle are expressed in "Almanac 1992."

For example, the Baroque period is represented by the soprano Kathleen Battle and the trumpeter Wynton Marsalis in Handel's "Let the Bright Seraphim." Samples of music from the Viennese Classical period include a London trio by Haydn (with the flutist Jean-Pierre Rampal) and a selection from Mozart's Sinfonia Concertante played by the Berlin Philharmonic under the maestro Carlo Mario Giulini. Today's *soprano assoluta* Cheryl Studer sings "Martern aller Arten" from Mozart's opera *The Abduction from the Seraglio*.

The lushness of the Romantic era is palpable in selections by Wagner, Tchaikovsky, and Rachmaninoff performed by world-class orchestras led by Claudio Abbado, Esa-Pekka Salonen, and Zubin Mehta. A sample of chamber music by Brahms is played by Isaac Stern, Cho-Liang Lin, Jaime Laredo, Michael Tree, Yo-Yo Ma, and



Sharon Robinson, and a Romantic flourish is added with the finale from Verdi's opera *Luisa Miller* performed by the Metropolitan Opera Orchestra led by James Levine.

Michael Tilson Thomas provides a taste of Impressionism conducting the London Symphony in an excerpt from Debussy's *La Boîte à Joujoux*, and the guitarist John Williams gives Impressionism an Iberian flavor in a selection from his new album of Spanish masterpieces.

John Williams, the film composer, conducts the Boston Pops Orchestra in *Deep River*, a cut from his environmental salute "The Green Album." Contemporary music is represented by a movement from Schnittke's Cello Concerto No. 2 played by the London Symphony under Seiji Ozawa with Mstislav Rostropovich as soloist, and there's a cross-over selection, *Hush*, with Yo-Yo Ma and Bobby McFerrin. The French duo-pianists Katia and Marielle La-

bèque play one of their encores, *Jesu, Joy of Man's Desiring*.

We are grateful to the record companies who have cooperated in bringing you music of great quality and variety in our program of special CD offers over the years. But note for note and penny for penny, we don't think there has been a bigger bargain in the series than Sony Classical's "Almanac 1992," and we urge you to order your copy today.

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TEST REPORTS



Polk Audio S4 Loudspeaker System

JULIAN HIRSCH
HIRSCH-HOUCK LABORATORIES

In the twenty years since its founding, Polk Audio has produced several lines of loudspeakers designed for different markets and applications. Polk's new S and LS Series speakers replace the company's venerable Monitor and RTA lines, respectively. These are the initial products from a reorganized design team using an approach called concurrent engineering, which is intended to streamline the development of innovative technology and its incorporation into products.

Polk speakers have traditionally been two-way systems using one or more small woofers, typically about 6½ inches in diameter, and one or more small dome tweeters. The rationale behind this approach is that the midrange, from roughly 200 to 1,000 Hz, provides most of our sonic localization cues and is where our hearing

is most sensitive to harmonic relationships. Polk has devoted much design effort to eliminating anomalies such as resonance and phase shift from the midrange.

A 6½-inch driver, in Polk's view, offers the ideal compromise between bass performance and control of resonant modes, and in a two-way system

Dimensions

9¼ inches wide, 15½ inches high,
7¼ inches deep

Finish

oak-grain vinyl

Price

\$130 each

Manufacturer

Polk Audio, Inc., Dept. SR, 5601 Metro Dr.,
Baltimore, MD 21215

it can handle frequencies to well above 1,000 Hz before a crossover to a tweeter is required. Working with research facilities at Johns Hopkins University, Polk engineers have combined laser interferometry, holography, and sophisticated computer techniques to produce accurate velocity and displacement plots of vibrating speaker cones. These studies have shown that composite cone structures, using dissimilar materials, can counteract the resonant tendencies of the individual materials.

One result of Polk's research is a new family of woofers and tweeters for the S Series speakers. The woofer cones are composites of polyamide with mineral and aramid fibers. A proprietary surround geometry minimizes stored or transmitted energy to the baffle (the rubber surround extends seamlessly to meet the baffle). The speaker frame provides a tight press fit to the baffle, independent of screws that hold the driver in place. Comparable (but different) construction features in the tweeter are designed to optimize its performance as well.

The S4, the smallest and least expensive in the Polk S Series, is a true minispeaker. Its 6½-inch main driver operates in a compact vented enclosure, with the port on the front baffle, next to the driver. Just above the woofer is a 1-inch soft-dome tweeter whose integral flared-metal surround minimizes diffraction at the interface with the baffle. The input terminals, recessed into the rear of the speaker, are spring-loaded clips that accept wires or banana plugs (single or dual).

The Polk S4's supplied to us for testing were early production units. Final performance specifications were not available, but the speakers were accompanied by Polk's test data on them, which in general agreed with our measurements as closely as one could expect from the very different test conditions.

Lab Tests

We placed the Polk S4 speakers on 27-inch stands at least 2 to 3 feet from any wall. The averaged room response of the two speakers was unusually flat over a wide range, within 1 dB overall from 800 to 12,000 Hz. The close-miked woofer response, combined

PHOTO: JOCK P. LEUNG

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TEST REPORTS

with the port output, produced the usual optimistic picture of the speaker's deep-bass capabilities, although the rise of about 3.5 dB from 700 to 100 Hz seemed consistent with what we heard.

A smoothed response measurement at 1 meter with a swept one-third-octave band of pink noise showed a response flat within ± 2 dB from 70 to 20,000 Hz. The low-frequency output dropped rapidly (as would be expected from the small driver size and cabinet volume), to -10 dB at 40 Hz. Quasi-anechoic (MLS) response measurements generally confirmed the smoothness of the S4's response.

Horizontal dispersion was very good, with a maximum 2 to 3 dB of separation between the on-axis and 45-degree off-axis response curves up to about 7,000 Hz, increasing to 5 dB at 10,000 Hz and 11 dB at 20,000 Hz.

The S4's group delay was very uniform, varying only about ± 100 microseconds (μ s) from 800 to 20,000 Hz except for a ± 200 - μ s jog at about 14,000 Hz, which appeared to be a measurement artifact. The lowest impedance measurements were 4.1 ohms between 200 and 300 Hz and 4.5 ohms at 50 Hz. At the two bass resonances, 25 and 90 Hz, the impedance reached 19 and 20 ohms, respectively, and it rose to 11.5 ohms at 2,200 Hz (the crossover frequency is approximately 4,800 Hz). The S4's impedance should probably be rated at 5 to 6 ohms.

Sensitivity was a surprisingly high 92-dB sound-pressure level (SPL) at 1 meter with an input of 2.83 volts. We measured the woofer distortion at an

input of 2.26 volts, corresponding to a 90-dB SPL. Distortion ranged between 1 and 2 percent from 55 to 4,000 Hz, increasing to 3.5 percent at 50 Hz.

The woofer cone reached its limits with a single-cycle 100-Hz input of 155 watts into its 12-ohm impedance. At 1,000 and 10,000 Hz, the amplifier clipped before significant distortion occurred, at inputs of 930 and 1,230 watts, respectively.

Comments

The Polk S4's measured performance was exceptional, especially for its size and price. In particular, its frequency response over most of the audio range was among the flattest we have measured from a speaker.

The S4's sound was completely consistent with our measurements. Its bass output seemed impressively strong, and there was none of the sense of "thinness" that one often experiences with small speakers. And since the bass response was flat, there was little tendency to overemphasize voice fundamentals.

As we have noted in the past, there are a growing number of very listenable small speakers in the Polk S4's price range. As with all speakers, each has its own distinctive sound quality, but as a class they represent an excellent value for the consumer. And, as with all speakers, they must be selected on the basis of personal preference. The S4 is an outstanding contender in its class, and it *should* be heard (you might be surprised by it in a side-by-side comparison with some much larger and more expensive speakers). □



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TEST REPORTS



Audio Concepts G3 Loudspeaker System

JULIAN HIRSCH
HIRSCH-HOUCK LABORATORIES

In the early years of component high fidelity, it was a common practice to assemble much of your system from kits. The financial savings could be considerable, and the satisfaction of personal involvement was a worthwhile bonus. In fact, one could easily build a speaker that would match or outperform most of the available commercial speakers. Nowadays, the financial attraction of doing it yourself has faded, with prebuilt products in most categories offering better performance at lower prices than would be

possible for a kit. The recent exit of the Heath Company from the kit business seemed to mark the end of this phase of our history.

Not entirely, however. Kits are not totally extinct, and Audio Concepts of La Crosse, Wisconsin, offers a line of speakers in any of three forms: a parts kit, a full kit, or factory-assembled. Least expensive is a parts kit, which consists of the drivers, the assembled and tested crossovers, hardware, cabinet stuffing materials, adhesives, and a manual with plans and suggestions

for building the cabinet. A full kit consists of all the above plus an assembled and finished cabinet and grille. Finally, the speaker is available fully assembled and tested. The company also sells a wide variety of raw drivers (including all those used in its own products), crossover networks and components, and other materials used in speaker construction.

Audio Concepts' finest speaker, the G3, is a columnar, floor-standing, three-way system. The cabinet supplied with a full kit and used in the factory-assembled speaker that we tested is made of high-density particleboard, internally braced and covered on top and sides with a choice of wood veneers. The front and back panels are finished in flat black, and a black cloth grille is supplied.

The G3 is based on a 10-inch woofer in an aperiodic enclosure vented by five 1/2-inch holes on the rear panel. The vents release the pressure of the woofer's back wave but do not radiate significant output at very low frequencies. At 350 Hz there is a 12-dB-per-octave crossover to a 5-inch midrange driver, which operates in a separate subenclosure that is isolated from the other drivers and vented aperiodically through a 1-inch hole on the back of the cabinet. The second crossover, at 4,400 Hz with 6-dB-per-octave slopes, is to a 1-inch, ferrofluid-damped, aluminum-dome tweeter.

The G3's specifications include a frequency response of 36 to 20,000 Hz ± 3 dB, 8 ohms nominal impedance, and a sensitivity of 89 dB at 1 meter with a 1-watt input. It is recommended for use with amplifiers rated between 30 and 200 watts per channel.

Lab Tests

We tested the Audio Concepts G3 speakers on their optional 5-inch G-

Dimensions

12 1/2 inches wide, 36 inches high,
11 1/2 inches deep

Finish

clear lacquered oak or unfinished cherry;
black lacquer at extra cost

Price (per pair)

parts kit, \$359; full kit, \$649;
assembled, \$829

Manufacturer

Audio Concepts, Dept. SR, 901 S. 4th St.,
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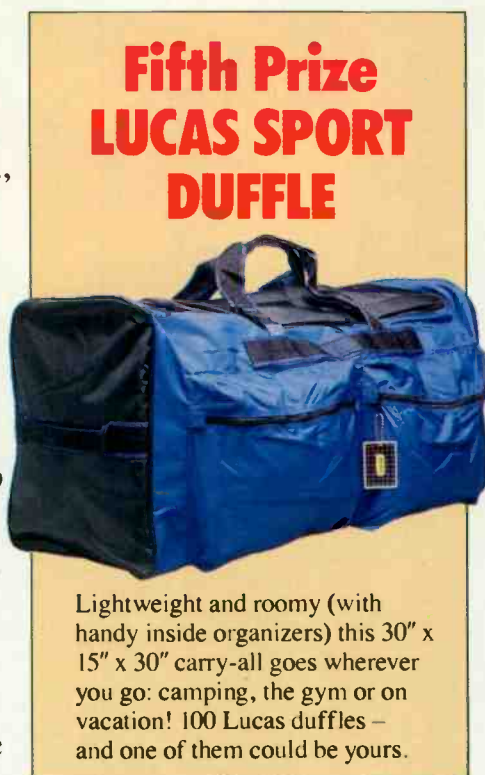
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TEST REPORTS

Base stands, which raise the tweeter and midrange driver to approximately the ear level of a seated listener. The woofer is at the bottom of the speaker panel, close to the floor.

The room response of the pair of speakers was exceptionally smooth and nearly identical for the left and right speakers. Also, there was little evidence of the floor bounce that usually adds a large dip and peak in the 250-Hz region. The raw bass response extended down to 20 Hz with only a 10-dB hole between 40 and 70 Hz (the room response of a speaker below a few hundred hertz is always affected by its acoustic environment, however).

Room response was flat within ± 2.5 dB from 170 to 2,000 Hz and sloped downward by about 6 dB to 10,000 Hz. The response rose about 6 dB from 10,000 to 20,000 Hz. A close-miked woofer measurement showed a ± 2 -dB response from 48 to 350 Hz, falling off at about 9 dB per octave below 60 Hz to -12 dB at 20 Hz.

The G3's impedance averaged 6 ohms or higher over most of the audio range, with its minimum of 4.1 ohms occurring between 1,500 and 2,000 Hz. The maximum impedance, 20 ohms, was at the bass resonance of 24 Hz. Smaller peaks of 7.6 ohms at 360 Hz and 12.7 ohms at 5,000 Hz were evidently associated with the crossover frequencies. We would consider 6 ohms to be a more reasonable rating than the specified 8 ohms.

Sensitivity was 88 dB. With an input of 3.5 volts, corresponding to a 90-dB sound-pressure level, the woofer's distortion was 1.1 percent at 350 Hz, 0.6 percent between 70 and 90 Hz, 1 percent at 40 Hz, and 3.3 percent at 30 Hz (still very low). The midrange driver's distortion was 0.6 percent from 500 to 2,500 Hz, falling to less than 0.5 percent at 300 Hz.

Response measurements at 1 meter, made with a sweeping one-third-octave filter and a pink-noise signal, showed a maximum output at 800 Hz. The response fell to -5 dB at 60 Hz and sloped down to -7 dB from 5,000 to 10,000 Hz before leveling off and climbing slightly at higher frequencies. A quasi-anechoic measurement on the tweeter axis confirmed the general shape of this response curve, which fell smoothly by 9 dB from 700 to 9,000 Hz and rose about 4 dB from 9,000 to 10,000 Hz, then stayed level between 10,000 and 20,000 Hz.

Horizontal dispersion was excellent, though rather different from that of most speakers we have tested. The on-axis (0-degree) response curve and the 45-degree off-axis curve separated gradually above 3,000 Hz, but the off-axis response did not exhibit the usual rapid drop-off above 7,000 or 8,000 Hz. Instead, the two curves continued to diverge gradually, differing by 3 dB

Installing the Audio

Concepts G3 in finished cabinets should be simple and foolproof.

at 8,000 Hz, 6 dB at 16,000 Hz, and less than 8 dB at 20,000 Hz.

In single-cycle burst power tests, the G3's woofer absorbed some 700 watts at 100 Hz, into its 5.5-ohm impedance, before audibly reaching its excursion limits. At higher frequencies, our amplifier was the limiting factor, clipping at 1,085 watts (1,000 Hz) and 930 watts (10,000 Hz).

Comments

The Audio Concepts G3 had a smooth, slightly warm and laid-back

sound. Although the highs were very much present, they did not dominate the overall sound. Neither did the bass output; the G3 gave no hint of its bass potential until called upon to do so. The speaker's deep-bass performance, together with its slightly depressed treble, imparted a slight warmth to some program material that was not even hinted at in other recordings.

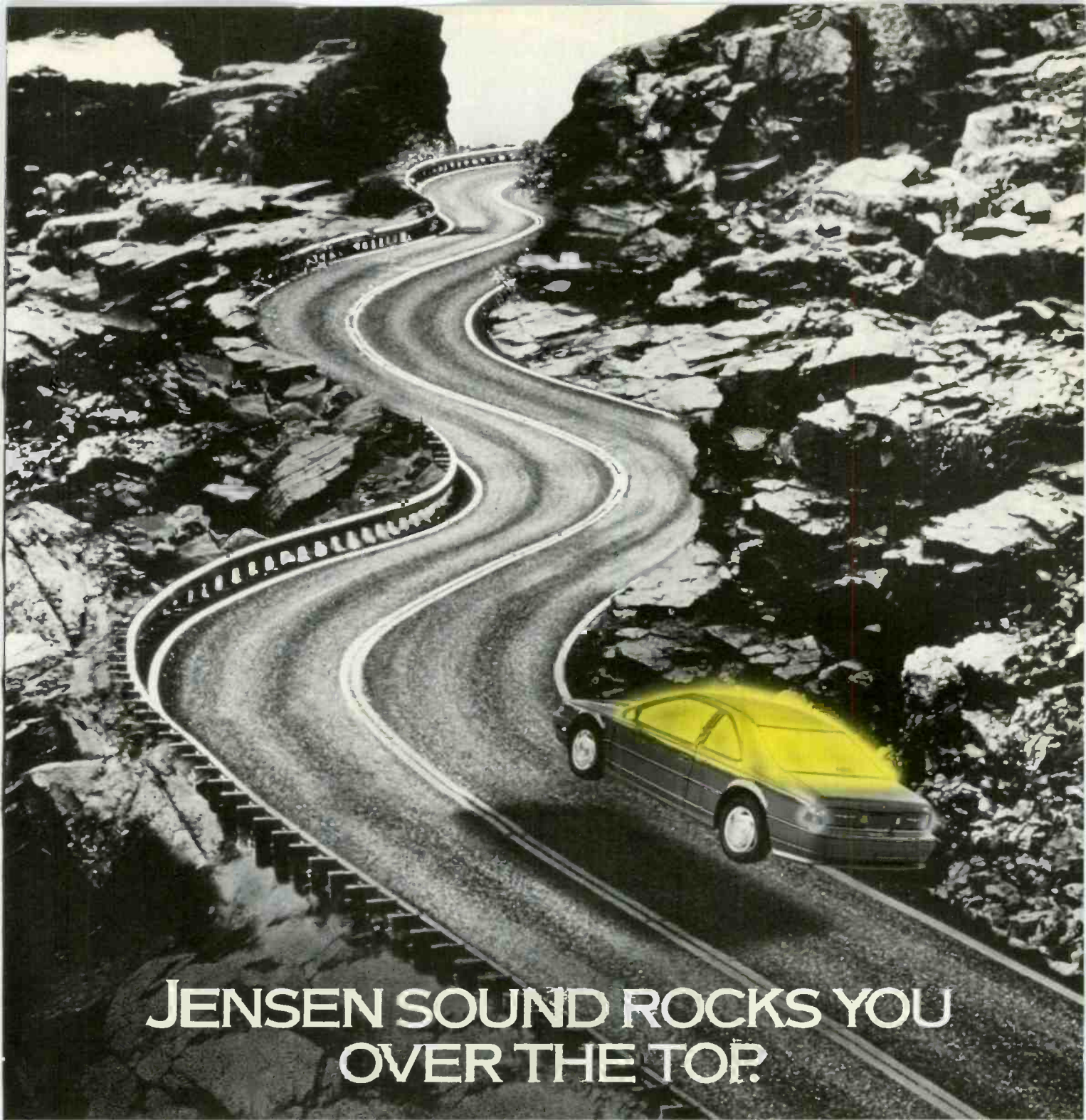
Much of the credit for the smoothness of this system probably belongs to the positioning of its woofer, near floor level. Judging from most of our room-response measurements of loudspeakers, the elimination of any large upper-bass or lower-midrange response irregularities imparted by its woofer placement must account for a good portion of this speaker's appealing character.

But perhaps the most impressive thing about the G3 is its price. Installing the drivers and crossover network in finished cabinets should be a simple and foolproof process, and a pair of speakers of this quality for less than \$750 is surely one of today's best bargains. Even the factory-assembled price is far below that of most comparable speakers.

The instruction manual leaves nothing to the imagination, and it makes good reading in the bargain. The same goes for the Audio Concepts catalog, which includes a number of other speaker systems, speaker components, and accessories. It's worth a look to anyone considering building his own speakers. □



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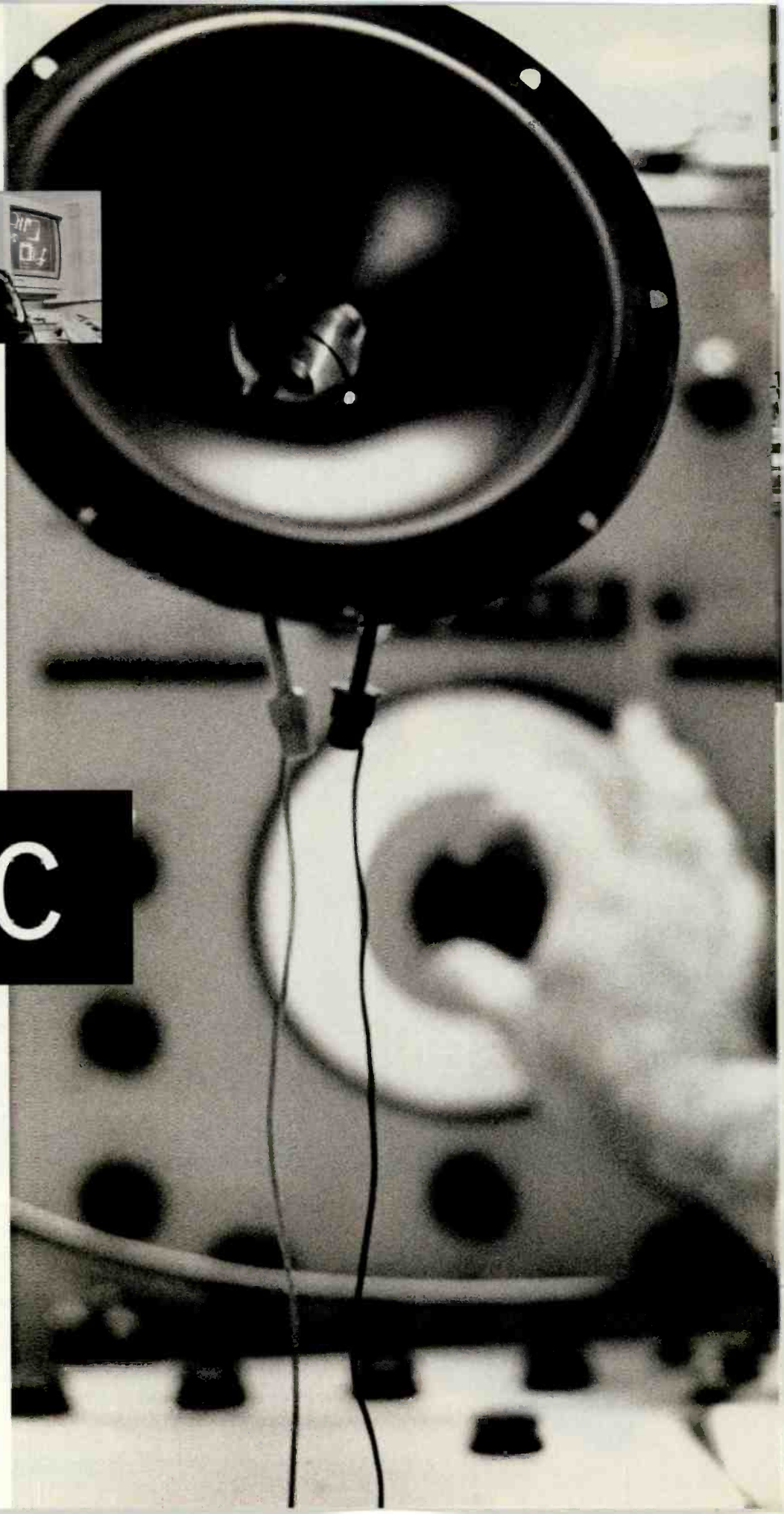
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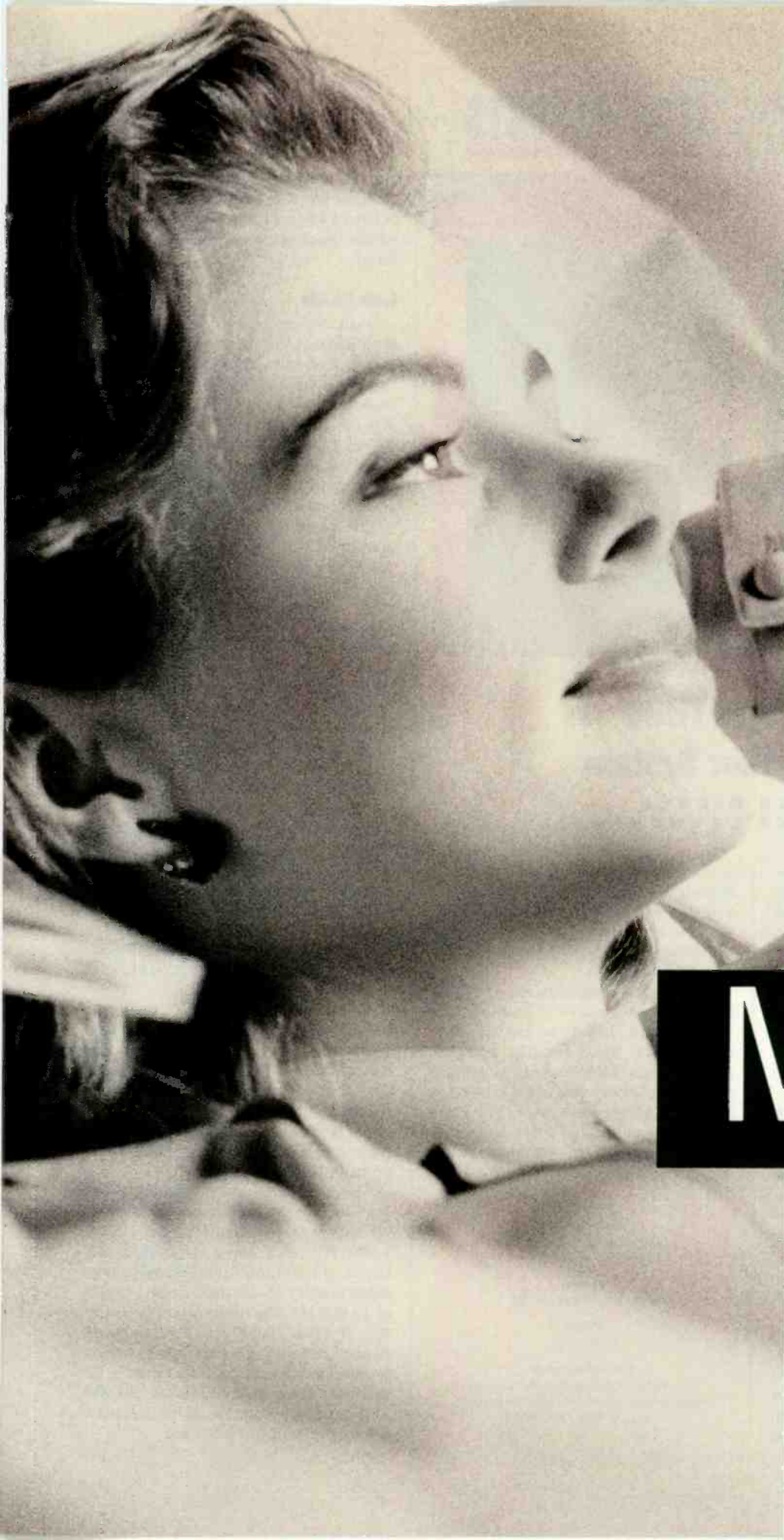
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TEST REPORTS



Paradigm Titan Loudspeaker System

JULIAN HIRSCH
HIRSCH-HOUCK LABORATORIES

DESPITE its imposing name, the Canadian-made Paradigm Titan, just over a foot high and weighing a mere 10 pounds, is what is usually referred to as a "mini-speaker." A two-way system, it has a 6½-inch woofer operating in an 11-liter bass-reflex enclosure with a duct-loaded port. This bass/midrange driver, manufactured by Paradigm, has a multilayer voice coil on a Kapton former and a polypropylene cone.

The crossover to the Titan's ¾-inch dome tweeter is through a second-order (12-dB-per-octave) frequency-corrected and phase-corrected network. The tweeter's polyamide dome, driven by a high-temperature voice coil on an aluminum former, is damped and cooled by ferrofluid.

The edges of the grille are chamfered to match the front edges of the cabinet, minimizing diffraction that could disturb the speaker's stereo imaging. Since the grille is not removable, we were unable to examine the speaker's "specially designed front baffle," which is also said to help keep diffraction at a minimum. According

to Paradigm, however, the woofer is mounted so its edge surround is flush with the baffle. The cabinet walls are ¼ inch thick, and the enclosure is generously filled with acoustically absorbent material.

The Titan's specifications include an on-axis response of 75 to 20,000 Hz ± 2 dB and a DIN-rated low-frequency extension to 55 Hz (the approximate -3 -dB frequency in a typical room). Sensitivity in a room is rated at 88 dB sound-pressure level (SPL) at 1 meter with an input of 2.83 volts, or 85 dB in an anechoic environment. Nominal impedance is 8 ohms, with a mini-

Dimensions

7¼ inches wide, 12½ inches
high, 9½ inches deep

Finish

black ash, white, or oak

Price

\$199 a pair

Manufacturer

Paradigm. Distributed in the U.S. by
AudioStream, Dept. SR, MPO Box 2410,
Niagara Falls, NY 14302

imum of 4 ohms. The Titan is recommended for use with amplifiers rated between 15 and 100 watts. It is intended for placement on a bookshelf or stands.

Lab Tests

With the speakers placed on 26-inch-high stands about 8 feet apart and 2 to 3 feet from any walls, the room response above 350 Hz was very smooth and flat, within ± 3 dB from 300 to 20,000 Hz and ± 1.5 dB from 350 to 11,500 Hz. The 200- to 300-Hz range was elevated because of floor reflections, and the bass output was strong to below 60 Hz.

The close-miked woofer response, combined with the port response, was unrealistically extended, as sometimes happens in this sort of measurement. Although the response seemed to extend to 20 Hz, the distortion in the port output at very low frequencies renders the measurement invalid in that range.

Several response measurements with pink noise at 1 meter (using either a sweeping band of noise or a constant noise spectrum with a sweeping one-third-octave filter) produced generally similar and more realistic results. The speaker's output was constant within 1 or 2 dB from about 80 or 90 Hz to perhaps 2,000 Hz, with a shallow depression of another decibel in the 4,000- to 10,000-Hz range and a return to midrange levels at 20,000 Hz. Low-frequency response dropped off rapidly below 80 Hz, to -5 dB at 60 Hz and -17 dB at 40 Hz.

A quasi-anechoic FFT response measurement, valid above 300 Hz, confirmed the general shape of the random-noise measurement. A ± 1 -dB variation from 700 to 2,000 Hz was followed by a dip of 3 to 4 dB between 6,000 and 9,000 Hz and a return to midrange levels, or perhaps 1 dB higher, from 10,000 to 20,000 Hz.

The change in output between the speaker's forward axis and 45 degrees off-axis was less than 3.5 dB below 1,000 Hz, increasing to 4 or 5 dB between 1,200 and 7,000 Hz and falling more rapidly above that. From -6 dB at 10,000 Hz, the off-axis response fell to -19 dB at 20,000 Hz. The tweeter's phase linearity was very good, with a group-delay variation of less than ± 50 microseconds from 3,000 to 20,000 Hz, corresponding to a path-length difference of about 0.6 inch.

TEST REPORTS

Impedance reached a minimum of 4.4 ohms at 170 Hz (and 5.2 ohms at 35 Hz) but remained well above 8 ohms over most of the audio range. Maximum impedance was 52 ohms at 2,000 Hz. Sensitivity was 87 dB with 2.83 volts applied. A 4-volt input was required to achieve our reference level of 90 dB SPL.

At 4 volts, woofer distortion was a low 0.5 to 0.6 percent from 120 to 1,600 Hz. It rose to 3 percent at 100 Hz and remained between 3 and 6 percent from 100 to 30 Hz.

The Paradigm Titan handled rather large power inputs without audible distress or damage. At 1,000 and 10,000 Hz, our amplifier clipped at 330 watts and 600 watts, respectively, with a single-cycle sine-wave burst, but the speaker gave no signs of audible distress. At 100 Hz, the small woofer reached its excursion limits, with a resulting hard sound quality, with 52 watts input.

Comments

The Paradigm Titan sounded every bit as good as its measurements would imply. Over much of the audio range its frequency response ranks among the flattest that we have measured from a speaker. Although frequency-response measurements do not necessarily define the sound quality of a speaker, in this case there was a good correspondence between the two characteristics.

It is not unusual for a well-designed small speaker to sound smooth and well balanced, but it is less common for a small speaker to avoid sounding thin when the program calls for a healthy bass output. The Titan passed that test handily. Even though it cannot reproduce the lowest frequencies, it does such a skillful job with the ones within its range that the listener does not notice that all that music is coming from the pint-sized Titans. If you close your eyes, they sound just fine, giving no hint of their size. The small size, in fact, gives the Titan a distinct advantage in imaging accuracy over many larger speakers.

We have heard a few (very few!) speakers with a single 6-inch woofer that can produce a similar effect, but they usually cost considerably more than \$199 a pair. Calling this speaker "Titan" is not as extravagant as one might think—it is truly a giant-sized value. □

PHOTO: JOOK P. LEUNG



Bose Powered Acoustimass-3 Three-Piece Loudspeaker System

JULIAN HIRSCH
HIRSCH-HOUCK LABORATORIES

THE Bose Powered Acoustimass-3 loudspeaker system represents a new stage in the evolution of the company's Acoustimass products. All the Acoustimass systems are three-piece designs, with small satellite speakers and a bass module common to both channels. The Acoustimass-3 is a smaller version of the well-established Acoustimass-5, carrying its "virtually invisible" design strategy even further.

In the powered version of the Acoustimass-3, the bass module contains a 50-watt bass amplifier and two 25-watt satellite amplifiers for the mid-

dle and high frequencies. The system accepts line-level outputs from a signal source, and the bass module has three knob-operated controls for adjusting overall volume and relative bass and treble levels to compensate for room acoustics. The rear panel of the bass module has a rocker-type power switch and spring-loaded connectors for supplying the left- and right-channel upper-frequency signals to the two satellites.

The Powered Acoustimass-3 is marketed as a companion to the Bose Lifestyle Music Center, the combination being a more affordable version of the original Lifestyle system we reviewed in September 1990. But it is equally adaptable to any other program source having line outputs.

The Acoustimass-3 bass module can be placed horizontally or vertically almost anywhere in the room. With vertical placement, the upper end contains the electronic section, the input/output connectors, and the three room-compensation controls. The acoustic output emerges from slots near the bottom.

The bass module contains a single

Dimensions

bass module, 18½ inches wide, 7¼ inches high, 8½ inches deep; satellites, 4½ inches square, 3½ inches deep

Finish

black or white

Price

\$699

Manufacturer

Bose Corporation, Dept. SR, The Mountain, Framingham, MA 01701-9168

TEST REPORTS

5/4-inch driver whose output, after passing through two internal resonant cavities, ultimately exits to the room through a port. The enclosure amounts to a bandpass acoustic filter that prevents the propagation of frequencies outside the module's intended range of approximately 50 to 200 Hz. Since most audible harmonics of signals in this range do not leave the enclosure, the location of the bass module cannot easily be detected by ear (the ear derives localization cues from higher frequencies).

Frequencies above 200 Hz are channeled to two tiny satellites, each containing a single 2½-inch cone driver, magnetically shielded to prevent interference with a nearby video monitor or television set.

The Bose Powered Acoustimass-3 system is supplied complete with interconnecting cables for its modules and clear installation instructions. Although the power to the bass module can be switched manually, connectors are provided so it can be controlled from a Lifestyle Music Center.

Lab Tests

Bose does not publish most of the usual performance specifications for its products, and the integrated design of the Powered Acoustimass-3 makes it difficult to do many of the usual electronic laboratory measurements. For example, the amplifier has a patented Dynamic Equalization circuit that automatically boosts the deep bass at low volume levels, independently of control settings. In the absence of any means of disabling this circuit, it would probably be impractical to verify frequency-response specifications even if they were given.

Nonetheless, we followed our usual test procedure as closely as possible. We placed the satellites on stands, several feet from any wall, and put the bass module upright between them and against the wall behind. The complete system was driven with a sweeping sine-wave signal, warbled through a one-third-octave range, and its output was measured from a point about 12 feet in front of the left speaker. The bass and treble controls on the bass module were set to their center positions (marked by a dot) for these measurements.

The resulting curve was surprisingly smooth, with no more than the normal amount of irregularity from room re-

flections. In fact, the "raw" room curve was flat within ± 2.5 dB from 1,000 to 15,000 Hz. Response dropped off slightly at 20,000 Hz, to about 5 dB below average midrange levels, which is creditable performance for a 2½-inch cone driver. Below 1,000 Hz, room effects became more prominent (which is also normal), but the *average* level was quite constant from 55 to 10,000 Hz, with more prominent variations in the lower part of that range.

We measured the output of the bass module with the microphone at its exit port, using several settings of the bass control. The maximum output was at 65 Hz, sloping off about 6 dB per octave from 65 to 180 Hz and dropping more steeply above 180 Hz. The low-

There was never a hint that all of the sound of the Bose Powered Acoustimass-3 did not originate from the two tiny satellites.

frequency cutoff was steep, with a drop of about 30 dB per octave below 55 Hz. The bass adjustment shifted the entire output level of the bass module over a ± 6 -dB range without affecting the shape of the curve.

Quasi-anechoic response measurements of the satellite output, valid above 400 Hz, were made at a 1-meter distance. The response varied over a total range of 5 dB from 400 to 5,000 Hz except for a deep, sharp notch at about 3,500 Hz. Suspecting that the cloth grille was affecting the frequency response of the cone just behind it, we removed it and repeated the measurement. The notch disappeared, leaving the rest of the curve essentially as before.

There was a high-frequency rise of about 6 dB centered between 7,000 and 8,000 Hz, and the output remained above midrange levels all the way to

20,000 Hz. The treble adjustment affected the output above 1,000 to 2,000 Hz, with a ± 7 -dB range at 10,000 Hz. The satellite's horizontal directivity over a 45-degree angle off its forward axis showed a dropoff of about 3 dB beginning at about 3,000 to 4,000 Hz, increasing to 13 dB at 10,000 Hz and 24 dB at 20,000 Hz.

The satellite impedance curve was notable for its lack of the usual large amplitude and phase variations. Except for a rise to 6.2 ohms at 365 Hz (the driver resonance), the impedance amplitude was between 3.4 and 4.9 ohms over the full audio range, and the phase of the impedance was between +15 and -20 degrees.

Comments

The Bose Powered Acoustimass-3 follows in the tradition of the Acoustimass-5, producing sound of a quality and quantity difficult to believe given the size of the components. In our listening room it was at least the peer of most of the high-quality small speaker systems we have used and better than many of them. There was never an audible clue to its size. The sound was all there, well balanced, and integrated, with never a hint that *all* of it (bass included) did not originate from the two tiny satellites. Of course, audiophiles "know" that a pair of coffee-cup-size speakers cannot produce this quality and quantity of sound, but the illusion persists.

Curiously, the bass and middle frequencies were better integrated in the output of the Powered Acoustimass-3 than in that of many conventional speakers over a wide range of size and price. There was virtually none of the upper-bass heaviness that mars the sound of so many speakers because of an emphasis (intentional or otherwise) of frequencies in the 100- to 150-Hz range.

Although the Powered Acoustimass-3 is not inexpensive, its self-contained amplifiers enable it to be driven directly from a tuner, CD player, or preamplifier, keeping the total system cost within reasonable bounds. Considering that, it is a good performer for its price. In fact, the more I use Acoustimass speakers, the more amazed I am. This is a really listenable system, whose major fault, if you can call it that, is the ease with which the tiny satellites can be misplaced behind something. □

TEST REPORTS



New England Audio Resource NEAR-50ML Loudspeaker System

JULIAN HIRSCH
HIRSCH-HOUCK LABORATORIES

NEW England Audio Resource, of Lisbon Falls, Maine, manufactures a line of speaker systems using metal cones or domes for all drivers. Its metal-diaphragm speaker line is headed by the NEAR-50ML, a floor-standing three-way system with an 8-inch long-throw woofer in a vented enclosure, a novel 4-inch fluid-centered midrange driver, and a 1-inch dome tweeter. Each speaker weighs 55 pounds.

The 50ML's cabinet has a sloping

speaker panel with the woofer at the bottom and the midrange and high-frequency drivers close to each other at the top in a compartment isolated from the woofer enclosure. The panel's slope reduces the cabinet depth to only 5 inches at the top. The panel's front edges are beveled, and the entire front of the speaker is covered by a removable black cloth grille retained by plastic snaps.

At the bottom of the back panel are two pairs of recessed, gold-plated

binding-post terminals, which are normally strapped together in parallel. If the connecting straps are removed, the speaker can be operated as a biwired system with separate cables from the amplifier to the upper-frequency and bass drivers, or it can be biamplified by using separate amplifiers. The binding posts, on standard 3/4-inch centers, accept single or dual banana plugs, lugs, or wire ends. The woofer port is located on the rear, above the input terminals.

Crossover frequencies are 290 Hz from the woofer to the midrange driver and 4,000 Hz from the midrange to the tweeter. The unique midrange driver has no "spider" to center its voice coil in the magnetic gap. Magnetic fluid in the gap positions the voice coil, damps its motion, and provides a more linear suspension for the moving system. N.E.A.R. calls this technique a "liquid magnetic suspension."

The NEAR-50ML's rated frequency response is 30 to 23,000 Hz \pm 2 dB. Its rated sensitivity is 91 dB sound-pressure level (SPL) at 1 meter with a 2.83-volt drive signal. Nominal impedance is 8 ohms, 5 ohms minimum.

Lab Tests

The room response of the pair of NEAR-50ML speakers was quite uniform, especially in the low bass. It varied less than \pm 4 dB from 20 to 20,000 Hz. Most speakers whose woofers are at some distance from the floor show a major response variation in the region of 200 or 300 Hz. There was much less variation in this region in the 50ML's response thanks to the low placement of its woofer, which minimizes the effect of floor reflections, shifting the peak and dip up to about 500 Hz and greatly reducing their amplitude.

The close-miked response of the woofer and its port showed a maxi-

Dimensions

0 1/2 inches wide, 48 inches high,
12 inches deep at base

Finish

walnut or oak veneer, black lacquer

Price

\$1,850/pair in veneer; \$1,599/pair in lacquer

Manufacturer

New England Audio Resource (N.E.A.R.),
Dept. SR, 679 Lisbon Rd.,
Lisbon Falls, ME 04252

TEST REPORTS

mum output (from the port) at 35 Hz and a strong output all the way from 20 to over 200 Hz. This curve spliced easily to the room curve to form a composite frequency response of ± 4 dB from 20 to 20,000 Hz. From a midrange plateau of ± 2.5 dB from 100 to 3,000 Hz, the average output fell to a second plateau of ± 1 dB from 3,000 to 11,000 Hz, with a smooth rise of 5 dB from 11,000 to 20,000 Hz.

Response measurements using swept noise or filters and digital MLS quasi-anechoic techniques differed somewhat from the room-response measurements, as is usually the case. In particular, the bass was not as strong or extended (live-room MLS measurements are limited to the range above several hundred hertz). We did find a rather deep notch, however, in the response at about 3,000 Hz. The depth of the notch, between -5 and -15 dB, varied somewhat with the angle and distance of the measurement microphone (up to 45 degrees off-axis and between 1 and 6 feet from the speaker). The second speaker produced identical results. But since no trace of this notch could be found in

20,000 Hz. Such relatively constant impedance is unusual and highly desirable from the standpoint of the amplifier that has to drive it, but we would rate it at 6 rather than 8 ohms.

The NEAR-50ML's sensitivity was 88.5 dB, slightly less than rated but approximately average for a home speaker system. In pulse power tests, the woofer did not audibly distort with 100-Hz single-cycle bursts until they reached an impressive 765 watts into its 5-ohm impedance. At 1,000 and 10,000 Hz, our amplifier clipped (at 990 and 1,050 watts) before the speaker showed any signs of distress.

With a constant input of 3.3 volts, equivalent to a 90-dB SPL in our sensitivity measurement, the woofer distortion was between 0.6 and 0.75 percent from 65 to 220 Hz, rising to 1 percent at 58 and 290 Hz (the crossover frequency) and to between 3 and 5 percent from 40 to 25 Hz.

Comments

Although the NEAR-50ML's metal-cone drivers set it apart from the vast majority of speakers in all price ranges, its sound places it squarely among the growing number of high-quality home speaker systems. As with many such technological distinctions, there was no evidence that the metallic radiating surfaces had any distinctive sound quality compared with conventional paper or plastic cones.

The 50ML was an impressively smooth speaker, with not a bit of harshness or brightness in the middle- or high-frequency ranges, nor any boom or heaviness in the lower midrange or bass. In fact, it sounded very much the way its room-response curve looked. The slightly depressed output from 3,000 to 11,000 Hz gave it a somewhat distant sound, as opposed to the forward quality of those speakers having an elevated output in that range.

According to the manufacturer, these speakers must be "broken in" by playing them for several weeks before their sound quality reaches its ultimate refinement. Since it is impossible for us to break in speakers while other tests are being conducted, we had to settle for a shorter period of use. In our opinion, the NEAR-50ML is a fine-sounding speaker right out of the box. If it improves with use, so much the better. □

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ME-Cookin': Portland.
MI-Listening Room: Midland, Saginaw. Overture Audio: Ann Arbor. Pecar's: Detroit, Troy.
MN-Audio Perfection: Minneapolis.
MO-Primus Audio: K. C. Sound Central: St. Louis.
NC-Audio Video Systems: Charlotte. Stereo Sound: Durham, Greensboro, Winston Salem. The Audio Lab: Wilmington.
ND-Pacific Sound: Bismarck.
NE-Custom Electronics: Omaha, Lincoln.
NH-Cookin': Nashua, Manchester, Newington, Salem, S. Nashua.
NJ-Sound Waves: Northfield. Sassafras: Cherry Hill. Woodbridge Stereo: W. Caldwell, W. Longbranch, Woodbridge.
NM-West Coast Sound: Albuquerque, Las Cruces, Sta. Fe.
NV-Upper Ear: Las Vegas.
NY-Audio Breakthroughs: Manhasset. Audio Den: Lake Grove. Clark Music: Albany. Syracuse. Electronic Workshop: Manhattan. Hart Electronics: Vestal. Innovative Audio: Brooklyn. J.B. Sound: Rochester. Listening Room: Scarsdale. Sound Mill: Mt. Kisco, Yorktown Hts. Speaker Shop: Amherst, Buffalo.
OH-Audio Craft: Akron, Cleveland, Mayfield Hts., Westlake, Toledo.
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The NEAR-50ML's metal-cone drivers set it apart from the vast majority of speakers.

our room-response measurements, nor could it be heard under any conditions, we suspect that it was a measurement artifact.

The 50ML's tweeter had excellent horizontal dispersion. Up to 7,000 Hz there was essentially no change in the speaker's frequency response over a 45-degree angle. At 10,000 Hz, the 45-degree off-axis output was down 5 dB; at 20,000 Hz it was down about 17 dB.

Impedance was a minimum of 4.5 ohms at 30 Hz and 5 ohms at 95 Hz. The maximum readings were 9.5 and 8 ohms at 320 and 2,600 Hz, and it remained above 6 ohms from 150 to

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TEST REPORTS



Hsu Research HRSW10 Subwoofer

JULIAN HIRSCH
HIRSCH-HOUCK LABORATORIES

THE HRSW10 subwoofer from Hsu Research (formerly Definitive Research) is intended as an affordable, practical means of obtaining extended bass response. Although the term "subwoofer" is often used loosely to describe a speaker whose upper response limit may be 100 Hz or higher, Dr. Poh Ser Hsu designed the HRSW10 to operate below 40 Hz and to deliver a powerful, clean output down to 20 Hz.

The HRSW10 is a vented cylindrical column whose tubular body, made of recycled paper, has walls about 1/2 inch thick. The end pieces are medium-density fiberboard, the top one finished in walnut veneer, and the entire column is covered with a knitted black cloth sleeve. The 10-inch driver is mounted on the bottom, facing downward, next to a 3/4-inch-diameter port. The speaker is supported about 2 3/8

inches off the floor on four slender posts.

The woofer has a vented pole piece and a 2-inch, four-layer voice coil with a rated impedance of 7 ohms. Its linear excursion is said to be ± 10 millimeters, more than that of most woofers of comparable or even larger size. The HRSW10 is meant to be used in pairs, driven by a stereo amplifier rated be-

Dimensions

29 1/2 inches high, 14 1/2 inches in diameter

Finish

walnut veneer; oak and rosewood available at extra cost

Price

\$500 per pair;
passive 40-Hz crossover, \$30

Manufacturer

Hsu Research, Dept. SR, 20013 Rainbow Way,
Cerritos, CA 90701; (800) 554-0150

tween 40 and 300 watts per channel. According to Hsu Research, 40 watts per channel can produce a sound-pressure level (SPL) of about 109 db at 1 meter down to 20 Hz in a typical room. The driving amplifier should have an input-level adjustment and an input impedance of at least 50,000 ohms.

The HRSW10 is normally used with an outboard passive crossover network (actually a low-pass filter) having a 40-Hz cutoff frequency. Units with other cutoff frequencies (between 40 and 100 Hz) are available on special order, and an active electronic crossover is available as well. The stereo inputs to the crossover unit are meant to be connected across the speaker outputs of the system's main amplifier, and its outputs go to the inputs of the amplifier driving the subwoofers. The HRSW10 and other Hsu Research products are sold factory-direct with a thirty-day money-back guarantee.

Lab Tests

We performed room-response measurements and listening tests with the two HRSW10 speakers placed against the wall behind the main speakers and about 10 feet apart. For our measurements we drove them directly from a Carver Mono-Block power amplifier without a crossover; for listening we used a 35-watt-per-channel amplifier with its inputs driven from the main system amplifier through the 18-dB-per-octave Hsu Research crossover unit. For response and distortion measurements, the speaker was inverted to permit microphone placement close to the woofer cone or the port.

The HRSW10's close-miked frequency response, combining the output of the cone and port, was ± 2 dB from 11 to 70 Hz or ± 3 dB from 10 to 100 Hz (without a crossover network). The crossover network, measured separately, had a slope of approximately 18 dB per octave, as rated, but the rolloff started somewhere below our test limit of 10 Hz, which boosted the 20-Hz level some 10 dB above the 40-Hz level.

Impedance reached its minimum of 8 ohms at 18 Hz and was 9 to 10 ohms from 80 to 100 Hz. The maximum levels were 50 ohms at 11 Hz and 106 ohms at 46 Hz. Total harmonic distortion plus noise with an 8.94-volt input (corresponding to a 10-watt input to an associated speaker) was 2 percent between 50 and 60 Hz and a maximum of

TEST REPORTS

7.5 percent at 27 Hz. We also tested the speaker with single-cycle bursts at 20 Hz to establish its power-handling limits. At 112 watts into its 8.2-ohm impedance, the woofer cone reached its limits with an audible clunk.

Comments

It was evident that measurements of a subwoofer convey even less of an impression of its performance than do those of a conventional speaker system. The best—indeed, the *only*—way to judge a subwoofer is to connect it in a music system and listen to it.

The Hsu Research HRSW10 subwoofers come with a CD of organ music and suggestions of where to find the most revealing passages on it, as well as a list of other recommended recordings with deep-bass content. We used the HRSW10's with several stereo speaker pairs, ranging from large floor-standing models to tiny bookshelf units. Although the various combinations sounded somewhat different, all the speakers seemed compatible with the HRSW10's. One would hardly expect a tiny speaker whose response is appreciably down at 40 Hz to blend smoothly with this subwoofer, but a few we tried did just that.

When a subwoofer operates only below 40 Hz, it will rarely generate an audible output. You cannot expect to hear anything from it unless the program material has substantial content below 40 Hz, which is seldom the case in music. Large pipe organs and movie soundtracks benefit the most from a subwoofer, and, to a lesser degree, so do large bass drums and other instruments whose fundamentals extend to that region.

With recordings rich in deep bass, however, the HRSW10 was probably the most effective subwoofer we have tested. The skin-tingling and wall-vibrating sensation it imparted (even at moderate levels) was unmistakable—and unique to good subwoofers. And it's a real advantage that these speakers can easily be driven by any low-powered amplifier or receiver. We were never tempted to drive it with a more powerful amplifier, since the 35 watts we had was enough to shake the room.

The combination of price and performance offered by the Hsu Research HRSW10 makes it a "best buy" for anyone in the market for a good subwoofer. □



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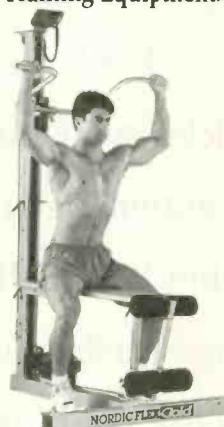
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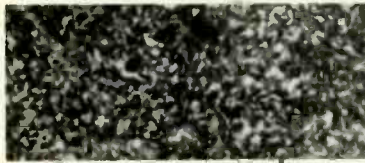
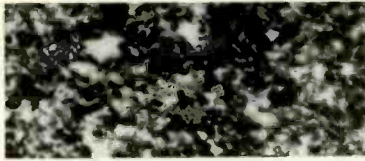
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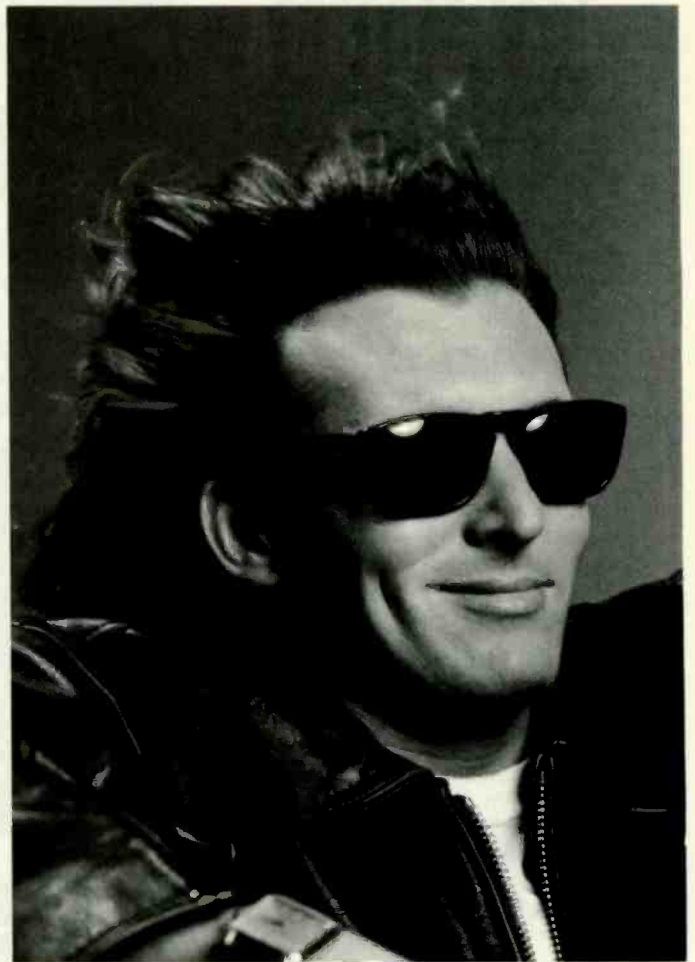
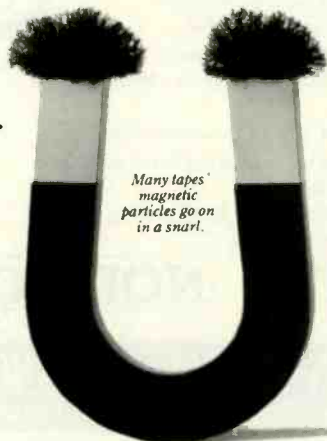
Compared to other tapes, XLII-S has a higher density of magnetic particles.

The tape is XLII-S. The power behind it is Black Magnetite—a unique magnetic material recently

harnessed by Maxell engineers.

With 13% greater power than the magnetic coating on all other high bias tapes, Black Magnetite helps XLII-S deliver higher maximum output levels and wider dynamic range.

Black Magnetite's tiny magnetic particles are not only more powerful than conventional gamma ferric oxide particles, they're smaller and more uniform in shape. This enables us to pack more particles more densely onto the surface of the tape.

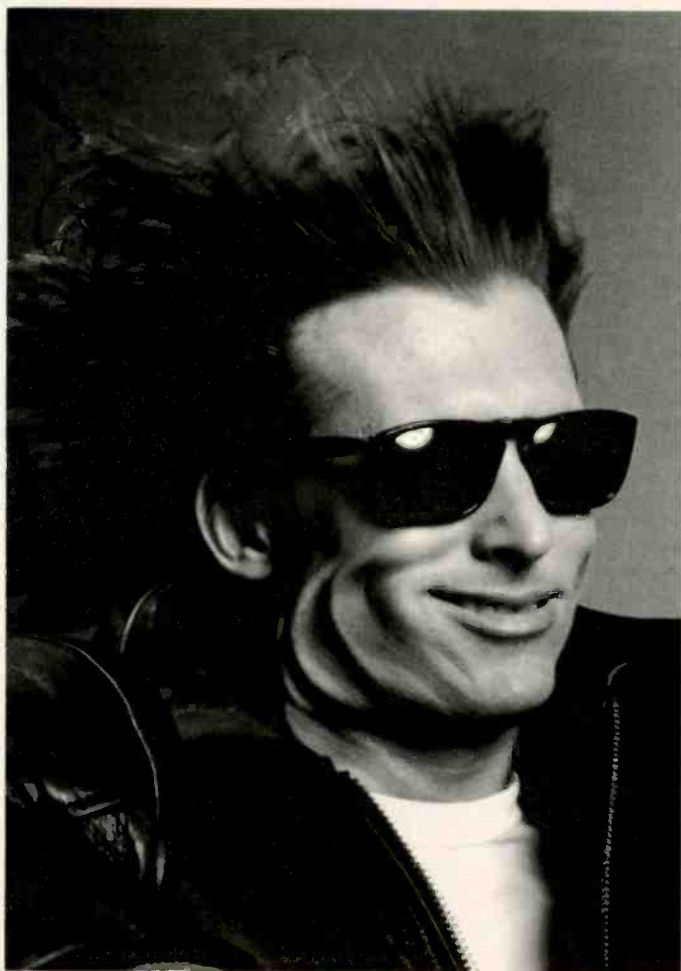


HIGH BIAS

During manufacture, conventional tapes run through a magnetic field where many of the magnetic particles adhere any-old-which-way. Like flies on flypaper.



But at Maxell, we employ a complex process called "multi-orientation" to set the particles straight. The result is a



BLACK MAGNETITE

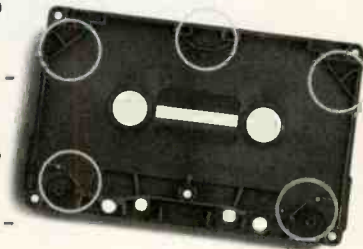
smoother magnetic coating, which produces less AC bias noise.

Unwanted noise is further reduced by our patented *dual-surface base film*. One side of the film is super-smooth for closer tape-to-head contact. The other is rough, deliberately so, for a stable ride through your transport mechanism with the least possible friction and tape jitter.

These innovations, however, are no

more remarkable than the cassette shell that houses them.

More rigid and weightier than standard cassettes, the XLII-S *high resonance-damping cassette* has been precision en-



XLII-S vibration-damping cassette shell has five support points for increased rigidity and durability.

gineered to reduce modulation noise. By making the window smaller, for instance, we were able to build in more anti-resonant material and five support points instead of three.

All of which helps XLII-S maintain phase accuracy as well as an extremely low noise threshold.

You can feel a difference in XLII-S just by picking up the cassette. Of course, it's nothing compared to what you'll feel the moment you press 'play'.



TAKE YOUR MUSIC TO THE MAX.



GOOD SOUND

HOW TO EVALUATE SPEAKER PERFORMANCE

SHOPPING for loudspeakers can be exciting for an audio enthusiast, but for most people it is an experience in frustration. The enormous variety of brand names and models is part of the difficulty, the confusing and contradictory dealer recommendations and manufacturer claims another part. Most of these conflicting claims are simply the consequence of differing personal opinions and of specifications that are not standardized and that convey little information about how a speaker might sound.

In the end, a loudspeaker is selected on the basis of a complex combination of sound quality, appearance, brand-name confidence and status value, and, of course, price. Along the way the selection will be influenced by friends' recommendations, reviews, and the salesperson's advice.

Having the proper perspective on the overall situation, knowing the right questions to ask, and understanding some loudspeaker fundamentals

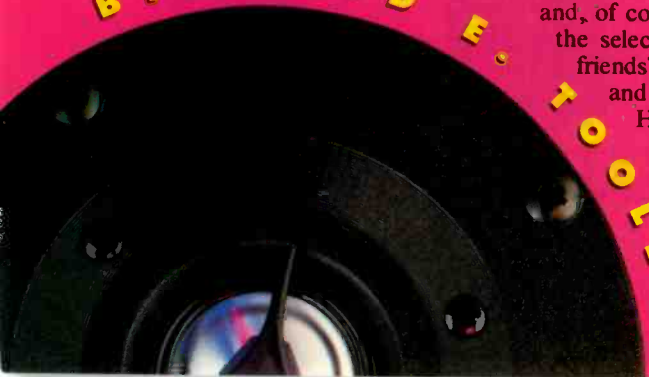
will help you make the best choice from the many alternatives available.

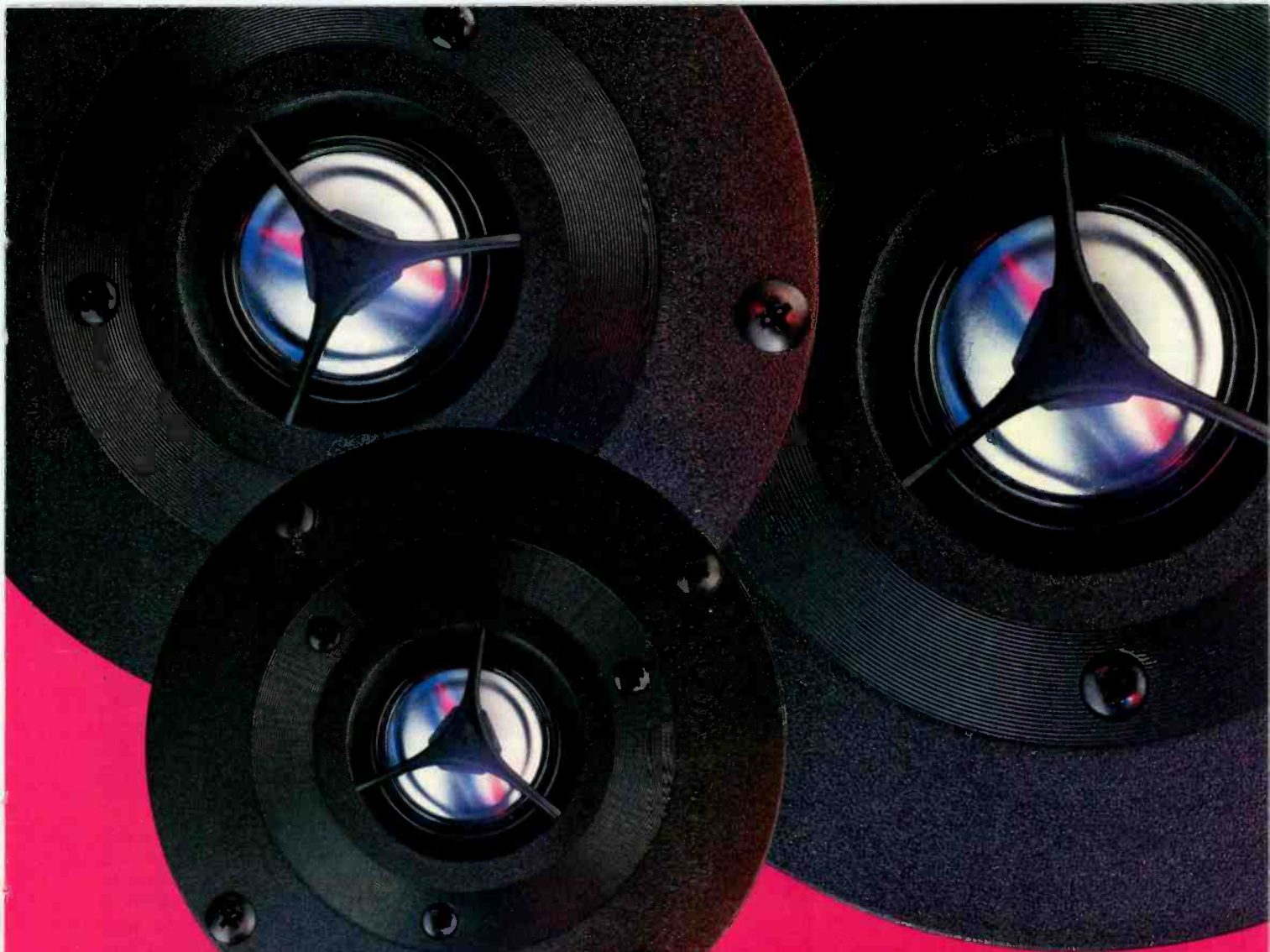
A loudspeaker should be an accurate reproducer of sound—that is, its function. Voices and musical instruments should sound the way the musicians and sound engineers intended when they made the recording. That is why we talk of stereo reproduction: It is an attempt to recreate in your home the sound of a musical performance recorded somewhere else. Although it is not really possible to replicate a concert-hall performance in a living room, it is possible to come close in creating the *illusion* of hearing a performance in a concert hall, and, done well, that can be immensely satisfying. In the case of pop music, there is usually no "live" performance in the traditional sense. Here the intent is to faithfully present a "performance" that has been assembled, or mixed, in a recording control room, from tracks laid down by musicians at various times and even in various places. But regardless of what is to be reproduced, there is an objective to which good loudspeaker engineers aspire, and,

BY FLOYD E.

TOLEME

PHOTO OF NEAR TWEETER BY JOOK P. LEUNG





while there are differences in how they attempt to reach the objective, the aim is always to give the listener at home an exciting and satisfying musical experience.

The Search for Perfection

A perfect speaker should have no sound of its own, no recognizable timbral signature. All of us have heard stereo systems that were so shrill and strident that they became tiresome to listen to for any length of time. Similarly, overly prominent bass can make a speaker system sound boomy or tubby. These and other characteristics are sometimes designed into speakers to attract a customer's attention during the brief, critical encounter in the showroom. Experienced listeners are able to recognize such colorations, right away, but inexperienced ears may find the more "dramatic-sounding" speakers attractive. With time, however, most listeners come to realize that real voices aren't sibilant or chesty, real trumpets don't screech,

cymbals don't "splash," kick drums produce tight "thumps" rather than big, reverberant booms, and so forth.

In the past, when limited technology prevented anyone from achieving truly accurate sound reproduction, loud-speaker designers developed different approaches depending on which form of imperfection they considered the most pleasing. There were the East Coast and West Coast sounds, the British and German sounds, and so on. Remnants of these varying speaker styles linger, but for the most part there has been a progressive convergence on just plain "good sound." Improvements in materials and engineering techniques have enabled speaker designers to get closer to the ideal of accurately converting the recorded signal into sound energy. The best speakers today sound much more similar to each other than the best speakers of the past, as they should. After all, we don't have different musical instruments or voices for perfor-

mances in different geographical locations, nor are there different versions of recordings for specific markets.

Imaging and Ambience

Stereo imaging refers to the impressions of direction and space that make stereo so much more exciting and realistic than single-speaker (mono) reproduction. If you have a good stereo system, and if you are listening from the proper location, it is possible to close your eyes and locate the musicians in an ensemble and to get a sense of the acoustic space in which the recording was made. Occasionally it is even possible to feel that you are within that space.

Good imaging begins with good tonal balance, since some of the clues to distance and depth are related to timbre. In normal hearing, our impressions of spaciousness and depth are influenced by sounds arriving from different directions. It is not surprising, therefore, that speaker directivity and listening-room acoustics are also factors in establishing these impressions in stereo reproduction. Because

the speakers and room function together in this respect, the fine details of imaging performance are difficult to evaluate properly in any room other than your own.

This sensitivity to room acoustics is a severe limitation of conventional two-channel stereo, as is the fact that only the person in the "stereo seat," or "sweet spot," gets to hear all of stereo's spatial benefits. These limitations have been addressed by the movie industry, which for decades has used multichannel sound to give large audiences superior directional and spatial impressions. The current trend toward surround sound for home theater systems is most encouraging, since it is an opportunity to employ the additional channels and speakers to enhance the spatial illusion. The speakers placed to the sides or rear of the listeners can be driven by most surround-sound processors in any of several spatial-synthesis and ambience-recovery modes. There are considerable differences among the processors on the market, but the best of these versatile systems, used with care and restraint, can greatly enhance the listening experience for many kinds of music.

With just two speakers, the kind of speaker used can influence the spatial experiences they can provide. For example, speaker systems with conventional forward-facing drivers provide listeners with a strong direct sound (the first sound to arrive from the speaker) and moderate amounts of reflected sound from the adjacent walls. Such systems are popular because they seem to meet the needs of most recordings as well as the expectations of most listeners (in part because virtually all recordings are monitored through speakers of this type when they are being made).

Other types of speakers radiate more sound in directions other than straight at the listener. Among these are dipole, "bipole," omnidirectional, and other types, each providing a different proportion of direct and reflected sound. Such designs give the listener a much more energetic reflected sound field, enhancing the sense of spaciousness at the expense, perhaps, of a little less precision in the directional impressions of individual instruments. Such an illusion is entirely compatible with some recordings of classical music, for example, where precise localization of instruments is less important than a sense of spatial envelopment, just as it is in real concert halls, but this is clearly a matter of

SPEAKER SHOPPING CHECKLIST

When shopping for speakers, these are some of the crucial things to listen and look for:

- **TONAL BALANCE.** Flashy speakers may dazzle you in a showroom, but models with unrealistically shrill highs or boomy lows won't be very satisfying to live with.
- **STEREO IMAGING.** If you're listening to a good stereo recording of a small jazz ensemble, for example, you should be able to close your eyes and pinpoint the location of each instrument in the sound field between the loudspeakers.
- **PERFORMANCE AT HIGH VOLUME LEVELS.** If you're looking for speakers to fill a small space, this isn't too important. But if real acoustic power is what you're looking for, audition at high levels and listen for low-distortion reproduction.
- **SOLID CONSTRUCTION.** Flimsy enclosures can mean flabby sound. Make sure the box around the drivers is strong and sturdy.
- **A GOOD FIT.** You may love how the speakers look in the showroom, but how about your own listening room? Make sure the space in your home can accommodate the speakers properly.
- **A RETURN POLICY.** A system that sounds great in a showroom may be ill-suited to your listening room, so try to audition speakers at home before you buy. If that's not possible, make sure your dealer has a good return policy in case the speakers don't work out as planned.

personal taste, in music as well as in the kind of auditory experience the listener prefers. The only real disadvantage to using a loudspeaker as a spatial-enhancement device is that the amount or kind of enhancement cannot be varied.

Getting Big Sound

With tonal quality, ambience, and imaging under control, we have still gone only part of the way toward a truly satisfying listening experience. Music also has dynamic range, from very soft to very loud. Speakers must be able to handle the crescendos as well as the quieter portions of the program. With some pop music, satisfaction requires almost continuously high levels.

Performance limitations at high sound levels can result in distortions that make the sound muddy or unpleasant, or even loud bangs as woofers reach their mechanical limits. Even if these effects are not obvious, power compression may be occurring, and the climaxes will simply not be as loud as they should be, diminishing the drama and impact intended by the composer or filmmaker. Worst of all, the speakers may die.

If you like your music loud, or if you have a large room to fill with moderate sound levels, you'll probably have to consider something larger than a bookshelf loudspeaker. That is why, in spite of considerable effort at downsizing, large speakers persist in the marketplace.

Since much of the acoustic energy in a recording is in the lower frequencies, it is possible to get good results from a modular system in which two (or more) smallest speakers provide the middle and high frequencies (and the stereo illusion) while a separate subwoofer, located elsewhere, provides the thunder and punch. Such three-piece systems can solve a lot of problems by reducing the size of the high-visibility components and positioning the subwoofer on less important real estate. They come in all sizes, from the spare-no-expense, rattle-the-rafters variety that can be assembled by your local audio dealer to prepackaged systems with tiny satellite speakers and a modestly sized "go anywhere" bass module.

There is a growing impression that these tiny modular systems represent a kind of technological breakthrough, that David has triumphed over Goliath. Be assured, however, that the laws of physics remain intact and that these little systems are just that . . .

Our Speakers Are So Sensitive, You Can Hear The Subtleties Of People Who Communicate With Their Hands.



Music, quite simply, is a mood-altering substance. With that in mind, we've built our DX loudspeakers on the belief that the more you hear, the more you'll feel.

Consequently, our DX midrange is designed to achieve such natural presence and clarity, you'll feel every stretch and strum in a guitar solo.



*If you love heavy metal,
you should be
listening to lightweight
aluminum.*

Perhaps it's because of our midrange voice coil, in which we've used an aluminum "former" to dissipate heat. Or the free-edge surround that ingeniously dampens cone movement. Then again, maybe it's our distortion-free crossover network. The combined result is a loudspeaker with the highest power handling and widest

dynamic range of anything you might hear in the demo room. Of course, the DX also has something else you won't hear in other loudspeakers.

Cerwin-Vega bass.

Which for over 35 years has been the ultimate mover and shaker in audio.

In fact, the DX-9 takes bass response all the way down to an earth-shaking 25Hz.

All of which is encouragement to drop by a Cerwin-Vega dealer and listen closely to our DX loudspeakers. And see how a totally instrumental piece of music can actually speak to you.



Cerwin-Vega!

**IN CONCERT
TONIGHT:**
Van Halen,
M.C. Hammer,
Beethoven,
The Byrds,
Mozart,
Miles Davis,
And Monk.
**TOGETHER!
8:00 PM!
YOUR HOUSE!**

*ADX loudspeaker can
make a room the size
of, say, an outhouse,
sound very much like
an opera house.*

little. They fill an important need, and if they are well designed they can sound quite good. But they simply cannot keep up with their bigger brethren at high sound levels. Some of these systems avoid damage at high power levels by including a protective device of some kind, such as diverting some of the amplifier output into light bulbs. That can result in an impressive rating for power-handling capacity, but much of the power is expended in lighting up the interior of the subwoofer enclosure. This is a deliberate kind of power compression.

The effortlessness with which the best speakers reproduce high sound levels is something that many people have never experienced. It is enough to make realistically loud sound a pleasant experience. The difference results from the use of speaker motor systems that remain linear and do not distort at high sound levels, drivers of the necessary number and size to insure that the power demands are properly distributed across the frequency range, and diaphragms whose materials and design enable them to retain their mechanical integrity under enormous stresses. There is no magic in any of this, just good engineering, and there are no miniature, inexpensive solutions to creating a truly impressive listening experience.

From Sound Room to Home Theater

Making speakers fit into a living space and into a life style is a different matter. Many people would just like them to go away but leave the sound behind. Others revel in the slabs of beautiful wood and the sculpted shapes of high-price, high-end speakers. For some, speakers provide a service, for others they provide status. These perspectives are highly personal, often differing dramatically among members of the same family. But perspectives can change.

Over the years my own family and friends have been very understanding about my audio excesses. But their acceptance changed to enthusiasm the moment I installed a really good home theater system a few years ago. Instead of an esoteric stereo system satisfying the needs of a solitary listener, we had a focus for home entertainment. A laserdisc recording of the

opera *Carmen* entranced three generations one Christmas afternoon. A Barbra Streisand concert rounded out a fine dinner with old friends. A Tina Turner concert captivated a room crowded with people at a New Year's party. Countless movies that would have gone unwatched have passed through our house because they "sound so good." Watching TV is not just watching TV any more. Our conventional stereo recordings continue to sound just fine, too, but some sound better than ever with subtle spatial enhancement from the surround-sound processor. But whatever level of video equipment you include in your home theater setup, from basic to

"high-end," high-quality loudspeakers are an essential part of the system.

What to Look For

Good speakers must have a bandwidth that embraces the musically important audio frequencies—about 30 to 20,000 Hz—and reproduces them uniformly in terms of both amplitude, or loudness, and dispersion into the listening room. These are qualities that can be measured and specified, but a lack of uniform standards in the audio industry makes it virtually impossible to use manufacturers' specifications as much more than a rough guide. Competently performed magazine test reports can be more consistently helpful in this regard.

Flimsy enclosures are a bad sign. The sound should radiate from the speaker diaphragms, not from vibrating enclosure walls. This helps to explain why so many small speakers sound reasonably good: Small boxes are easily made very strong, but it is much more difficult to give the necessary structural strength to a large enclosure. The rewards of the large systems, though, are usually increased dynamic range and deeper, cleaner bass response.

If you are limited in amplifier power, high speaker sensitivity is an advantage, so that the dynamic range won't be restricted by amplifier clipping and distortion. Power-handling capability is also important, but years of abuse by wildly optimistic ad writers has diminished the value of this number. Sometimes a range of amplifier power is suggested, but is "10 to 200 watts" really helpful?

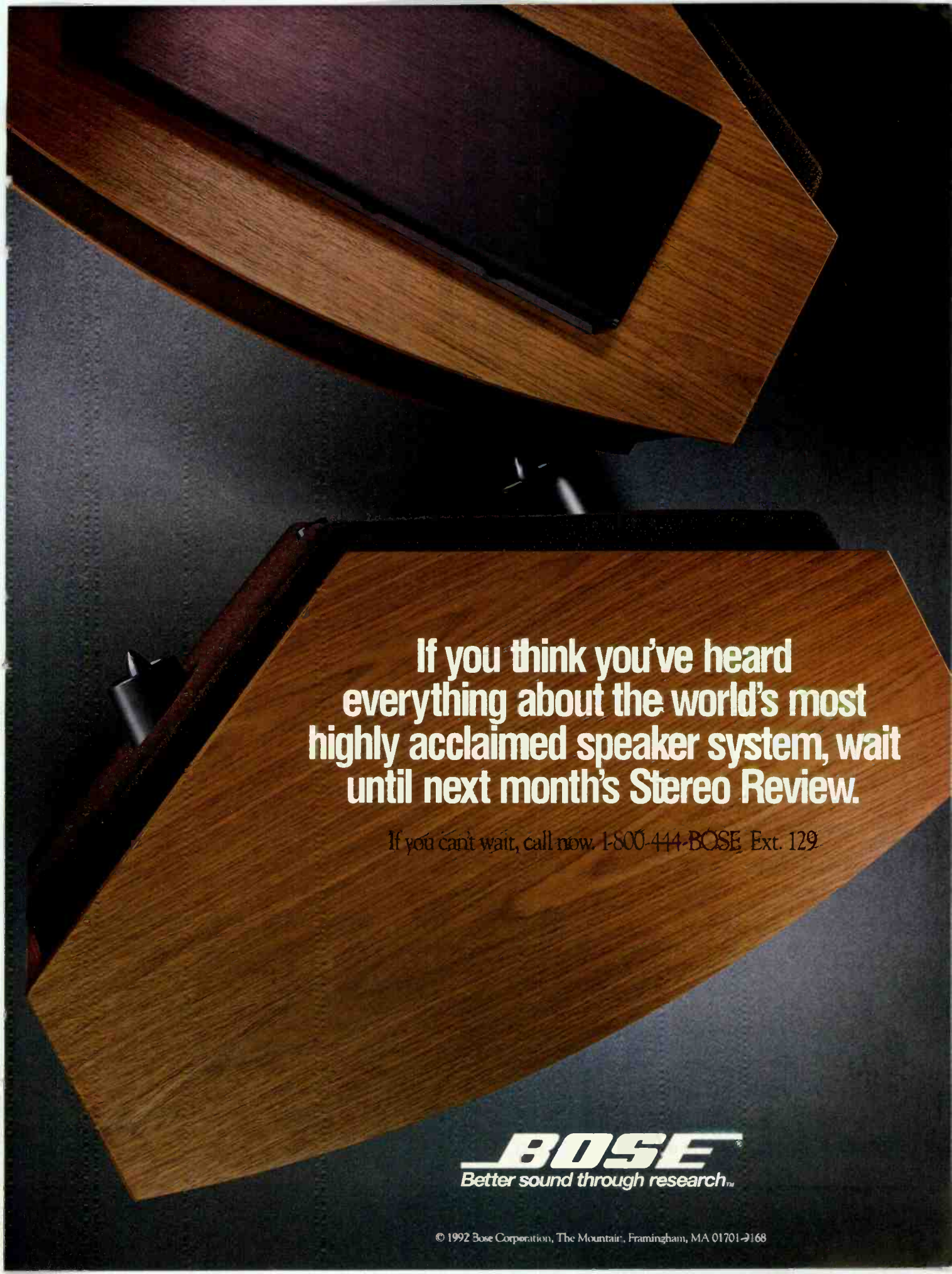


Unfortunately, the number and sizes of drivers in a system are not totally reliable indicators of anything, either. There are superb-sounding two-way systems with 6-inch woofers and thoroughly rotten-sounding three-way systems with 10-inch woofers. Although the best-sounding systems almost always have several drivers, each optimized for a portion of the audible frequency range, the real point of differentiation is in how well the system is designed, not in the visual cues. The ears should be trusted more than the eyes.

There is no doubt that the very best sound can cost a lot of money. Fortunately the law of diminishing returns sets in at a moderate price level, and it is possible, with careful shopping, to find relatively inexpensive speakers that sound remarkably good. There are limits, however. Don't expect small, budget-price speakers to equal the dynamic performance and power handling of bigger systems. But in small rooms or at moderate listening levels they can be very satisfying. A good pair of small speakers can also be added to later on. Add a subwoofer here, a center-channel speaker there, a pair of surround speakers, and before you know it junior has grown up. From a modest beginning, a truly serious system can evolve. More money can buy style as well as sound power, however, and there is no doubt that stylish black-lacquer or wood-veneer enclosure finishes can make speakers, large or small, more compatible with home decor.

Years ago, the "high fidelity" movement championed accurate sound, but this term has been so corrupted over time that it is nearly meaningless except in the dictionary sense. As I see it, though, the objective today is the same as the one that motivated the pioneers: high-quality entertainment. For the serious players, that means accurate sound reproduction in terms of frequency response, dynamic range, and spatial rendering. That is what is important in CD players, amplifiers, tuners, and all other electronic components, and that is what is important in loudspeakers as well. □

Floyd E. Toole served for many years in the acoustic studies division of the National Research Council of Canada, where his work focused on establishing correlations between speaker performance measurements and perceived sound quality. He recently joined Harman International as vice president of acoustic research and is president-elect of the Audio Engineering Society.



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Better sound through research™

Command Performance.



Introducing the new Adcom GTP-500 II Tuner/Preamplifier.

Only a few years ago, Adcom announced the dawn of a new era by introducing its GTP-500 tuner/preamplifier. Together with any of Adcom's critically acclaimed power amplifiers, this unique audio product has given thousands of cost-minded, serious music lovers a quality alternative far superior to the common receiver. The new, evolutionary GTP-500 II offers a meaningful expansion of convenient features and sonic performance.

Full Command Of Your Music System

Control your system's power on/off, select pre-programmed FM and AM stations, scan the FM dial, adjust volume level and select different sources... all with Adcom's wireless remote controller. With optional Adcom remote sensors and additional loudspeakers, you can also enjoy your Adcom music system in other rooms throughout your home.

For total music system integration, the GTP-500 II remote sensors will also receive and retransmit commands to a majority of remotely controlled components, regardless of brand. This remarkable design gives you full command of your entire music system throughout your home and offers the ultimate flexibility of integrating the remote features of components manufactured by others.

Value Measured By Performance

The overall performance of the new GTP-500 II is demonstrably superior through its evolutionary design

and the use of state-of-the-art component parts.

Adcom's unique, low-impedance RIAA compensation provides lower noise and distortion in the phono input stage. To further reduce noise and distortion in all stages, all switching devices are buffered.

Long term adherence to circuit design objectives is accomplished by utilizing 1% Roederstein resistors in all critical applications as well as a new low-loss, printed circuit board.

Through a careful balance of sensitivity and selectivity, the GTP-500 II optimizes FM performance whether you're in an urban or rural area. Design parameters, including an improved IF stage, have been optimized to translate into lower distortion. In fact, the quality of FM stereo reproduction through the GTP-500 II is as good as the broadcast itself.

More Sound, Less Money

Adcom stereo components have established a reputation for sounding superior to components costing two and three times as much. The new GTP-500 II promises to keep faith with this tradition of more sound for less money.

Its ability to command your entire music system by remote control, and its exceptional sonic performance are why so many experts consider the GTP-500 II to be Adcom's command performance.

ADCOM[®]
details you can hear

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CHOOSING SPEAKERS

FOR SURROUND SOUND



Two-channel stereo may have been easier, but it was never this much fun.

YOU say you have decided to graduate from two-speaker stereo to the greater spaciousness and realism of a surround-sound system with four, five, six, or more loudspeakers? Good move. The next step is to find your way through the jungle of confusing and even contradictory information you're likely to encounter.

We may as well admit it: Even without contradictory advice, surround sound can be intimidating. The most experienced hi-fi hobbyist may pause before the challenge of selecting four to six loudspeakers that sound good together and then deciding how to install them in a room without making the place look like an engineering laboratory.

If the choices that face you as a surround-sound shopper seem particularly confusing, that may be only because they involve unfamiliar issues. Buying hi-fi equipment has always involved choices. Even for a basic stereo system, you need to decide between

speakers with two-way or three-way crossovers. Do you want dynamic drivers in rectangular boxes or flat electrostatic panels? Compact bookshelf speakers or tall, floor-standing models? Such questions don't have a single "right" answer. For each choice there are pros and cons, benefits and tradeoffs. The same is true of surround sound. There are many roads to success.

For many people, surround sound is mainly about playing Dolby-encoded film soundtracks. These may contain off-screen sonic events that appear to come from behind you or even overhead, but the primary appeal of Dolby Surround is realism—the feeling that you are not just a remote viewer. You seem to be *there* with the characters, in the desert or jungle or Gotham City street that you see on the screen.

"Ambience" is the technical word for the collection of sonic cues that tell your ear/brain system you are in a particular place. Every

ILLUSTRATION BY COCO MASUDA

BY PETER W. MITCHELL



The Polk M3 (\$200 a pair) has a combination bracket stand that allows it to be mounted in a variety of ways for placement flexibility when it is used in a surround-sound system.

Infinity's Infinitesimal Four speaker (\$420 a pair) is a ported bass-reflex system with a 5¼-inch woofer and an EMIT-R tweeter. Dimensions are 6 x 10 x 7 inches.



Boston Acoustics' HD5 speaker (\$150 a pair) features a 5½-inch copolymer woofer and a ¾-inch dome tweeter. The cabinet of the HD5v (\$170 a pair) is magnetically shielded so it won't affect nearby video screens.

RCA's five-piece surround speaker system (\$2,000) features a single rear-channel module with six drivers, two of them directed to reflect sound off side walls.



The Cambridge SoundWorks Surround Speaker (\$399 a pair) is a quasi-dipole radiator whose two 3-inch tweeters are wired out of phase and mounted on the sides of the cabinet.



environment has its own signature ambience. It may be moisture dripping in a tropical jungle, the whisper of cold wind over jagged ice at the North Pole, taxi horns and buses in the city, a ticking clock and humming refrigerator in your kitchen, or the echoes of an empty room.

A concert hall has ambience, too—the reflections and reverberation that reinforce every sound from the stage. When you play recorded music at home your brain recognizes that the reflections from your living-room walls are different from those in a concert hall. That's one of the ways in which recorded sound is different from "live" performance. A surround processor can simulate large-hall reflections or "unmask" the ambience hidden in recordings, thereby providing a quality of you-are-there realism that two-speaker stereo seldom achieves. Such surround sound may be more useful with classical music and acoustic jazz than with rock music that was recorded in a nonreflective studio.

Fortunately, a surround system can be designed to work well for both Dolby Surround and concert-hall ambience. But the different requirements of these two types of ambience have implications for speaker selection.

Frequency Range

Imaging and spaciousness are perceived mainly at midrange frequencies. In the surround channel of a Dolby-encoded film soundtrack, bass below 100 Hz is rolled off during the encoding and highs above 7,000 Hz are rolled off in playback. Consequently, a good midrange driver, such as a 6 x 9-inch car speaker, can provide all the bandwidth you need for "rear" Dolby Surround speakers. Small speakers have the added virtue of being inconspicuous in the living room.

Although many surround decoders deliver a full-bandwidth rear signal in the concert-hall or stadium-surround modes, small speakers can still produce most of the desired spatial effect. However, there is one reason to use full-range surround speakers: realistic bass. If bass sound waves are produced by only one or two speakers at the front of the room, the bass energy will be unevenly distributed because of standing waves related to the room's dimensions. Injecting additional bass energy into the room from a second pair of speakers located along the side walls may smooth out some of the standing waves, providing more accurate bass sound.



**The first rule is
that the "effect"
speakers should
sound like the
main speakers.**

Power Handling

Inadequate power-handling capacity is not a problem with surround speakers unless you choose models with very small drivers. Ambience in Dolby Surround is mainly a low-level background signal (wind, birds, street traffic) at levels less than one-tenth of the power in the front speakers. Even when a loud sound occurs in the back, such as an airplane flying overhead, the power to the surround speakers is likely to be no more than one-fourth of that in front.

In a concert hall the total intensity of the reflected energy arriving at your ears from the walls may exceed the intensity of the direct sound from the stage. But in concert-hall mode in a surround playback system the power level to the surround speakers is typically less than one-third of the power to the main speakers.

A much greater power demand may occur in the center channel of a Dolby Pro Logic surround system. With Pro Logic decoding most of the dialogue is focused in the center channel, together with a great deal of other on-screen sound (engine roars, car crashes, bomb explosions). As a result, the center speaker may receive from half to more than 100 percent as much power as the main left or right speaker.

Tonal Matching

Not long ago I visited an old friend who was installing an elaborate (and very expensive) six-channel surround system. Although we spent hours fiddling with the digital processor's adjustments, the effect just didn't sound right. I finally set up a microphone in the listening area and measured the frequency response of each speaker.

The three pairs of speakers were individually excellent, but they were all different. To make things worse, the main stereo speakers were floor-standing models located several feet away from the nearest wall, while the four "surround" speakers were tucked into the wall/ceiling corners.

In retrospect it should have been obvious that this placement would cause trouble. To appreciate why, you can do a simple experiment with your present stereo speakers. Put one speaker in a corner and place the other on a stand at least 3 feet away from any wall. Listen to a monophonic recording (or an FM broadcast with your receiver switched to mono), and rotate your balance control back and forth to compare the sound from the two channels. The two speakers will sound radically different, especially at male voice frequencies. Because of these differences, the two speakers can no longer form a coherent stereo image.

Mismatched speakers are equally unacceptable for surround use because of the way we perceive sound. In many environments every direct sound is immediately followed by multiple reflections from other directions. The human hearing system is biologically programmed to suppress awareness of those potentially confusing repetitions of the same sound, leaving our conscious minds free to notice any new and different sound that might represent a threat. In a living room or a concert hall you don't hear the reflections from the walls as individual sounds unless they are long-delayed echoes. That does not mean that the reflections are ignored, only that they are detected at a subconscious level. In a subliminal process they help you identify the character of your environment and alter your perception of the direct sound.

SURROUND systems depend on that subliminal processing. In order for reflected sounds to be perceived subliminally as part of the recorded environment, they must have the same timbre as the corresponding direct sound. If the recorded reflections are reproduced with a very different tonal quality, the ear/brain system will try to perceive them as new sounds, and the ambience effect we are trying to achieve may be lost.

Therefore, the first rule in surround sound is that the "effect" speakers

should sound like the main speakers. The more precisely the front speakers and the side or rear speakers are matched in tonal quality, the more realistically spacious the sound will be. But if your surround speakers have a peak at the same frequency where your front speakers have a dip, any sound at that frequency will stick out from the surround speakers like a sore thumb—instead of being perceived subliminally as part of the ambience.

Tonal matching is especially important for realistic concert-hall ambience, where virtually all of the surround signals are reflections of the on-stage sound. It may be less important with Dolby Surround since some of the “ambience” in a film soundtrack consists of direct sounds that would surround you in a particular environment (wind, birds, traffic). But tonal matching is never *not* important.

Since my friend was using an elaborate system of separate components, we were able to pull a spare graphic equalizer out of the closet, connect it between the surround processor and the “rear” amplifier, and re-equalize the surround speakers to match their sound with that of the front speakers. But you may not have that option, especially if your surround decoder and rear amplifiers are combined in a single chassis (as they are in an A/V receiver). In any case, while you may be tempted to use any old leftover speakers, for best results you should select surround speakers whose sound is as much like that of your main stereo speakers as possible.

OFTEN the best approach is to buy a one-brand surround system consisting of five identical speakers (left, center, right, and two surrounds), plus a subwoofer or two. Even if you are emotionally attached to your present stereo speakers, you owe it to yourself to hear how good a surround system can sound with matched speakers all around. Some of the most consistently spacious sound I've heard came from one-brand systems—not only state-of-the-art products such as the Snell Home THX and JBL Synthesis systems but also budget-price, compact packages from Atlantic Technologies and Ohm Acoustics.

Of course, for practical and economical reasons most people don't want to buy a complete five-speaker system. Like me, you'd probably rath-



**Surround speakers
do not have to be
located at the
back of the
listening room.**

er keep your existing stereo system and add surround speakers to it. If your speakers are current models, simply visit any dealer who has them in his sound room. By selecting a period when the store isn't too busy, you can spend some time doing A/B comparisons and choose small speakers that have a similar tonal balance. (This comparison is best done in mono, listening to just one speaker.) Since tonal matching is most important in the midrange, ignore bass sounds and extreme highs while making this comparison. Focus on the tonal quality of voices and midrange instruments.

If your stereo speakers are old models that local stores no longer carry, take one of your speakers to the store to do this comparison. If that seems like too much bother, you could just take some familiar recordings to the store, listen to various small speakers, and select a pair that sounds like your recollection of your own speakers. But sonic memory is notoriously unreliable. The only certain way to match speakers is to compare them side by side in the same room.

Matching problems can also be identified after a surround system has been installed. Most Dolby Pro Logic decoders are equipped with a calibration signal consisting of pink noise (similar to the sound of rain on a rooftop) that cycles from speaker to speaker around the room. Normally you adjust the center-channel and surround volume controls to maintain a constant volume level as the sound goes from speaker to speaker. After you match the volume, listen to the character of the sound as well. Don't expect an exact match. Even if the speakers are identical, the response of

your ears will vary according to the direction of the sound. But if the surround speakers sound *very* different from the front speakers, something is amiss in the system.

Speaker Placement

Ambience is diffuse, that is, nondirectional. A movie theater may use as many as two dozen speakers, arrayed along the side walls and across the back, to bathe the audience in surround sound. At home you can achieve a similar result with just one or two pairs of surround speakers by relying on room reflections to scatter the sound so that it arrives at your ears from all directions.

Although a decoder's surround output is often labeled “rear,” this does *not* mean that the surround speakers have to be located at the back of the room. Studies of perception and the effects of concert-hall architecture have shown that the impression of spaciousness is enhanced much more by lateral reflections (sound waves traveling across the head) than by reflections along the median line (from the front, back, or overhead).

Does this mean that “rear” speakers should be mounted on the side walls? In a wide room that can work very well. But in a narrow room conventional speakers on the side walls would fire directly into your ears, and you would probably hear them as discrete sources. To achieve a consistently spacious effect the surround sound should be diffuse *and* have a strong lateral component. You can either mount the speakers so that they scatter some of their sound off the side walls or install them on the side walls but aimed so as to spread their sound around the room.

For example, you might achieve good diffusion by laying the surround speakers on their backs, firing upward, to scatter their sound off the walls and ceiling. Or mount them high on the back wall facing outward to bounce sound off the side walls. Wherever you put them, good diffusion is easier to obtain if the speakers have uniformly wide dispersion at all frequencies. That's easy to accomplish with small drivers, but a garden-variety two-way speaker with a one-inch tweeter and an 8- or 10-inch woofer may be excessively beamy at midrange frequencies.

A different method of achieving the same goal was devised for Home THX by developer Tomlinson Holman and is now widely imitated. It is particularly appropriate for narrow rooms. The

surround speakers, which are mounted on the side walls, have a bipolar pattern, firing toward the front and back but not directly at the listener. This insures that the surround sound is scattered around in the room before it arrives at your ears.

To sum up, the goal of achieving good diffusion with a strong lateral component can be met in either of two ways: (1) Select small speakers with uniformly wide dispersion, placing and aiming them so as to scatter a substantial portion of their sound off the ceiling and side walls. (2) Install bipolar speakers on the side walls so that they fire fore and aft to scatter their sound.

The Boundary Problem

The goal of surround sound is to cause the walls of your room to seem to disappear, but they still have an acoustic effect. As the example of my friend illustrates, if you stuff your surround speakers into wall-ceiling corners, the reflections from nearby surfaces will color the surround sound, boosting its lower midrange so that it no longer matches the tonal balance of the direct sound from the front.

Ideally, then, you should think about placement before you go shopping. If your main and surround speakers will all be installed on bookshelves, they will be similarly affected by their environment, and you can compare them side by side in the store. But if your main speakers are free-standing and you want to wall-mount your surround speakers, you should compare them that way when you go shopping. Manufacturers' brochures may tell you which models have been designed to work best on a bookshelf instead of a speaker stand.

Placement is particularly important for bipolar surround speakers that are intended for use on side walls. They must be mounted the same way in the store to let you judge their performance. On the other hand, if you have chosen wide-dispersion surround speakers that were not designed for near-wall placement, you should be especially careful to avoid walls and corners. Mount them on speaker stands or hang them from the ceiling on a chain (like a swag lamp), aiming them to scatter their sound off the walls.

In-wall speakers can be ideal for surround sound. They are inconspicu-



Snell Acoustics' Home THX System (about \$5,000) consists of three LCR-500 loudspeakers for the front channels, two SUR-500 surround-channel speakers, and two SUB-750 subwoofers. The front speakers and subwoofers are magnetically shielded.



Altec Lansing's Model 66 (\$200 each), originally sold in pairs as an outdoor speaker, is now available singly for use as a center-channel speaker in a surround-sound setup.

The NHT Model Zero speaker is available in a "Zero 3-Pack" for \$270, providing an easy solution for those who need small, inexpensive speakers for the left, center, and right or center and surround outputs in a budget surround-sound setup.



The Bose VS-100 (\$129 each) is designed for a wide variety of surround-sound applications, including use as a center-channel speaker. Magnetically shielded, it features a 4½-inch full-range driver in a tuned dual-port enclosure.

Do . . .

. . . consider a one-brand surround system, because its speakers are likely to be more accurately matched than a mixture of different brands.

. . . compare the sound of center and surround speakers with that of your main speakers. Specs and test reports can't tell you whether speakers are tonally similar.

. . . ignore differences in the deep bass and high treble. A good match in the midrange is what matters most.

. . . for the surrounds, select and install either small, wide-dispersion speakers, aimed to scatter part of their sound off the side walls, or bipolar surround speakers, mounted on the side walls but firing to the front and back.

. . . select a magnetically "shielded" center speaker. The surround speakers need not be shielded.

. . . select a center speaker with substantial power-handling capacity. The surround speakers can be smaller.

. . . listen to the Dolby Pro Logic calibration signal as it cycles among the speakers. It can reveal mismatched speakers or installation problems.

Don't . . .

. . . put the "rear" speakers behind you unless you aim them outward to bounce their sound off the side walls.

. . . aim surround speakers directly at the listening area unless the room is very wide. The surround sound should be scattered and diffuse.

. . . put surround speakers in corners or wall/ceiling junctions unless they were expressly designed for that location.

. . . choose a low-profile center speaker just because it looks better sitting atop the TV. A taller speaker with narrower vertical dispersion may produce clearer dialogue.

ous, they won't be called upon to produce low bass or to play loud, they were probably designed to take account of the wall's reinforcement, and their wiring can be hidden in the wall. Several companies are now producing in-wall speakers that have a quasibipolar radiation pattern, firing most of their sound toward the front and back of the room.

The Center (Dialogue) Speaker

With Dolby Pro Logic decoding, the main purpose of the center speaker is to provide a more precisely focused image of dialogue and other on-screen sounds, particularly for listeners who are not seated on the exact stereo center-line. It is well known that any disparity in frequency response may impair the formation of a precise stereo image, which is why we buy matched pairs of speakers for stereo. For three-speaker stereo all three channels should have the same response. If the center speaker is not a good match for the left and right, the imaging might become worse rather than better.

The center speaker serves a second purpose, having to do with an inherent imperfection in two-speaker stereo. Any mono (center-stage) sound is produced at equal intensity by the left and right speakers. Let's assume that you are seated precisely on the stereo center-line, equidistant from the two speakers. Sound travels in a straight line from the left speaker to your left ear. The same sound is produced by the right speaker and travels a slightly longer distance to reach your left ear. Because of its greater distance, the right-speaker sound arrives at your left ear slightly later than the left-speaker sound. The result is that as the sound waves from the left and right speakers combine in the air at your left ear, the slightly later right-speaker sound is out of phase relative to the earlier left-speaker sound for frequencies near 2,000 Hz (the frequency at which a typical human head is approximately half a wavelength wide). The sound waves cancel, producing a 2,000-Hz notch in the frequency response. The same thing occurs at the right ear, where the left-speaker sound arrives later than the right-speaker sound.

Is this effect really audible? According to Tom Holman, it is. In a recent test he played the same center-stage sound through a two-speaker setup and through a three-speaker setup. The difference was most obvious with

female vocals: In two-speaker stereo the voice sounded slightly hollow and its localization a bit uncertain. With three speakers the localization was precise and the timbre was firm, clear, and natural. In a complex movie soundtrack involving music, dialogue, and action noise (cars, planes, explosions), the center speaker enhances the clarity of the dialogue, making the words easier to understand.

The speakers in a movie theater are located directly behind the screen, firing through holes in the porous screen material. At home the center speaker can't fire through a glass picture tube, so it must be above or below the screen. If you put a conventional speaker on a direct-view TV set (or right next to it), its magnetic field will smear the colors. Therefore, a center speaker usually must be shielded. Actually, "shielded" is not the right word for what happens, but it's common usage. The external field of the speaker's magnet is approximately canceled by a second magnet whose poles are reversed. Some manufacturers include canceling magnets in all of their surround speakers. This is of no direct benefit to you, except that you can store your tapes on a bookshelf right next to a surround speaker without worrying about partial erasure.

The clarity of dialogue may also be affected by the vertical directivity of the center speaker. The Home THX program introduced the idea that all three front speakers (left, center, right) should have narrow vertical dispersion in order to minimize reflections off the floor and ceiling. But this can create a conflict if you want to place the center speaker on your TV set. The easiest way to control vertical directivity is to design the speaker with two midrange drivers, one above the other, possibly with a tweeter between them. But in that configuration the speaker is taller than it is wide.

Instead, many companies are producing low-profile center speakers (with side-by-side drivers) that can sit inconspicuously atop a TV. You'll have to decide for yourself whether the dialogue is clearer when the long dimension of your center speaker is vertical. Vertical reflections might not be a problem in your room if you have a thick carpet on the floor and an acoustical-tile ceiling.

Whatever you decide, you're almost certain to feel that the results justify the effort and expense. With the right speakers, surround sound really will bring a new dimension to your listening experience. □



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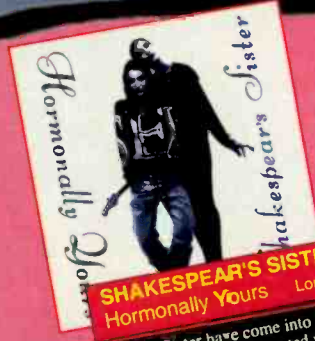
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6761 Resist



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6767 Come Dry Your Eyes
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6759 White Lies/Black Truth
6760 Helluvatime

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**"Everything you ever
wanted in a singer but
were afraid to ask for."**

DAWN UPSHAW

DAWN UPSHAW seems entirely too soft-spoken and well turned out to be such a maverick among opera singers. Though her soubrette voice is ideal for any number of *opera buffa* heroines, she can't help dismissing most of them. "They're dips—or just so good that you can't believe it," she says. "Susanna [*The Marriage of Figaro*] is great, and Pamina [*The Magic Flute*] is sort of a fairy-tale character, so that's fine. But I need a character. That's why I lost interest in Zerlina [*Don Giovanni*]. There isn't much there in the libretto. But I'm glad I have other interests."

And that begins to explain why such a seemingly square thirty-one-year-old singer—born in Nashville, raised in the Chicago area, and utterly devoted to her young daughter and her husband—is on the Nonesuch artist roster, making imaginatively programmed recordings of twentieth-century repertoire that, in their own discreet way, redefine the vocal recital as surely as the Kronos Quartet redefines chamber music. Upshaw can pass for "normal" in the opera world, having recorded *Figaro* with the Metropolitan Opera on Deutsche Grammophon and Massenet's *Cherubin* for RCA as well as Mahler's Symphony No. 4 with the Cleveland Orchestra on London, but she often does her best work with musicians who are out to change the status quo. She moves effortlessly in authentic-performance circles, having

worked with Nikolaus Harnoncourt and Roger Norrington (who cast her in his *Magic Flute* recording after hearing a tape of her singing a few Mozart songs). Though her taste in contemporary music is by no means avant-garde, her commitment to it runs deep, as evidenced by the way she pores over stacks of new works sent to her every year.

Some of the singers Upshaw looks up to, in particular Jan DeGaetani and Benita Valente, have had anything but conventional operatic careers. In fact, she recalls, it was visits with DeGaetani at the Eastman School of Music that changed her life. "She made me feel like I could do anything I wanted to do. She made me feel that I had something really unique to offer," Upshaw recalled when we met one rainy afternoon last spring at a Manhattan cafe. "Without that, I don't think you can do much of anything. I think that many students who are in these schools get lost trying to get up to a certain standard rather than looking inside themselves and finding out what their potential is."

Less than a decade after her encounter with DeGaetani, Upshaw is singing in seven languages, the latest being Polish, which she learned for the recording of Henryk Górecki's Symphony No. 3 for soprano and orchestra (reviewed in this issue). She is in the process of rethinking her recitals. Having already rankled concert promoters because she refuses to sing opera arias in recitals (she just doesn't



BY DAVID PATRICK STEARNS

think they're appropriate), she is doing away with other formalities and conventions, chatting with audiences between songs and building programs around a particular theme. One of her most entertaining programs is about childhood, starting with Mussorgsky's rambunctious *The Nursery* and ending with the Brahms *Lullabye*.

Given the artistic freedom Upshaw has with Nonesuch, she personalizes everything, even the cover photo of her album "The Girl with Orange Lips," which was shot at the Bronx Botanical Gardens. In the photo she resembles a startled faun in the forest, but somehow that suits the ultra-exotic repertoire of songs by Ravel, Falla, Stravinsky, and Earl Kim. And while critics love her singing in the recording, her extra-musical ideas were criticized as being too influenced by pop music. "I get such a kick out of it," she said. "I wanted it to be ambiguous and make people ask questions. I don't think it's at all like a pop album. But people have an idea of what classical records should look like . . . and I think that's a little ridiculous."

Obviously, the Grammy Award voters agree with her. Having won one Grammy for her debut album on Nonesuch, she hoped that "Girl with Orange Lips" would be esoteric enough not to be considered a failure if it weren't nominated. Yet it was nominated as Best Classical Vocal Album—and it won, which she still can't figure out. "During the Grammys, I was into rehearsal at the Met for *Figaro*, and people came up to me and said, 'Congratulations! What is that record?' It was totally unknown to people in that end of the business."

NO doubt the award also had a lot to do with what's behind the packaging: Upshaw's spring-water-fresh vocal quality, rare directness, and simplicity of manner. Almost everything she sings sounds unforced and so logical as to be inevitable. That's what comes from learning the music by herself at the piano. She might listen to a recording of what she's working on, but rarely more than once. "She lives every musical detail. She does everything from the inside. Nothing is surfacy," said the pianist Richard Goode, with whom she has given several joint recitals. "Many people think lieder are more subdued than opera, but she enters into them with an extra intensity."

"She's everything you ever wanted in a singer but were afraid to ask for," said the conductor David Zinman,

who worked with her on the Górecki recording. "She's punctual, prepared, and easy to work with. She's a mensch."

If Upshaw seems to be an anti-diva, it's partly because she has never really been an opera person. While she was growing up, her parents were active in community theater and she followed in their footsteps, playing Maria in an amateur production of *West Side Story*. She intended to hone those skills at Illinois Wesleyan College University (where she met her future husband, Michael Nott, a musicologist), but her music-history classes carried her into more classical terrain, and she decided to stay there. "I had never experienced Josquin—or that much Bach," she said.

Later, she tried to catch up with her more opera-oriented fellow graduate students at the Manhattan School of Music, but it was a losing battle. Even her earliest opera roles were unorthodox, such as the summer she spent at



Selected Recordings

BACH: Magnificat
VIVALDI: Gloria in D
 Atlanta Symphony, Shaw
 TELARC 80194

BARBER: Knoxville: Summer of 1915
HARBISON: Mirabai Songs
 Orchestra of St. Luke's, Zinman
 NONESUCH 79187-2

THE GIRL WITH ORANGE LIPS
Songs by Delage, Falla, Kim,
Ravel, and Stravinsky
 NONESUCH 79262-2

GÓRECKI: Symphony No. 3
 London Sinfonietta, Zinman
 NONESUCH 79272-2

MOZART: Le Nozze di Figaro
 (Upshaw sings the role of Susanna)
 Metropolitan Opera, Levine
 DEUTSCHE GRAMMOPHON 431 619-2

MOZART: Die Zauberflöte
 (Upshaw sings Pamina)
 London Classical Players, Norrington
 EMI 54287-2

the Wolf Trap Opera singing in a production of Conrad Susa's *Transformations*, a group of bizarrely updated fairy tales set in a mental institution. And even today she unapologetically confesses that she knows virtually nothing about some standard-repertoire operas. Even singing the operas she loves, she isn't always happy with the circumstances. "In opera, there are so many more components that I have no control over and that I'm often uncomfortable with. I love singing at the Met, but it can be frustrating singing those little operas by Mozart in a 4,000-seat house."

Not surprisingly, Upshaw resists the jet-set opera life style. She sings around sixty-five to seventy engagements a season, but she'd like to get it down to fifty. She insists on taking a month off every year, and when she travels she prefers to do it with her two-and-a-half-year-old daughter, Sarah, and her husband. Clearly, music doesn't run her life. At home in Westchester County north of New York City, she basically doesn't do any recreational listening outside of the occasional Pointer Sisters or Joni Mitchell album she puts on while washing the dishes. As much as she enjoys her career, it doesn't dazzle her.

In fact, she's adjusting to what seems to be some sort of second phase: Having experienced the initial thrill of working in Vienna, Zurich, Aix-en-Provence, and Salzburg, Upshaw must now figure out how to sustain her professional level despite having one child approaching school age and a desire to have another one before too long. "When things first happened in my career," she told me, "everything seemed so important, such a big deal. I felt like a golden egg had landed in my lap. I would say, 'Oh my gosh! Oh my gosh!' But I'm not as naïve as I once was, so I don't go through those rushes of excitement any more."

"Sometimes I think it could fizzle out at any time. I'm not saying I don't have confidence in my own work. But sometimes people think, 'Gee, where has she been? Oh, there must have been some problems. Better not hire her.' I've heard about that happening with other people. But I may have to travel less and see what happens. I don't think I was ever so ambitious in my career that I felt like it was my life. But there's no way that could happen now with a child. I've always found my sense of identity from my family, not through performing. And that will always be most important." □

It would be easy to assume that engineers, caught up in the world of objective measurement, would be uninterested in the subjective concerns of the naked ear.

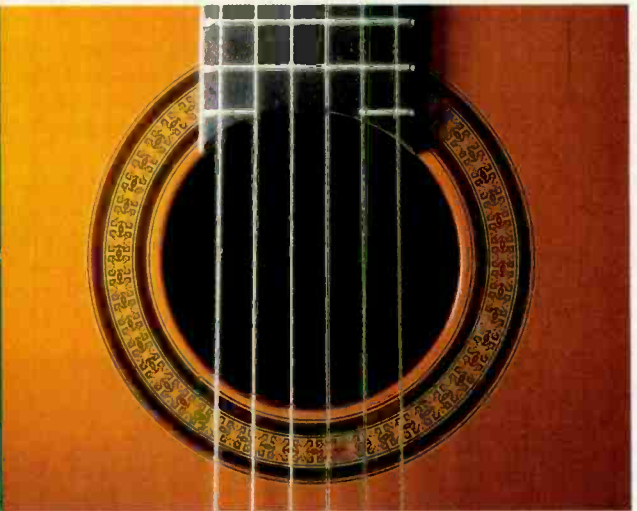
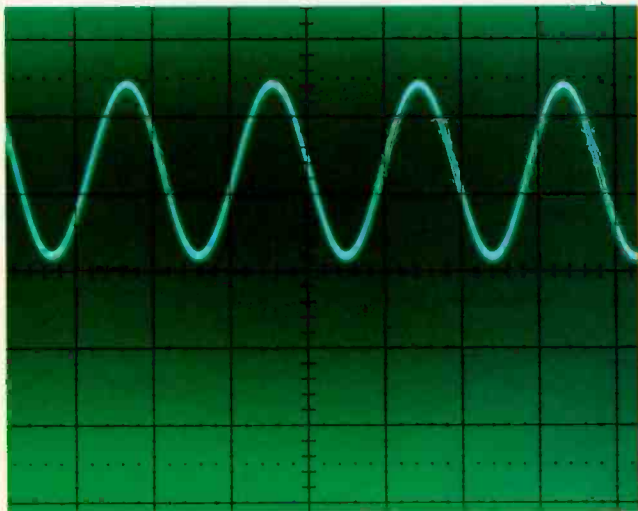
Not so with the engineers of Elite® components, fully 85% of whom are trained musicians. For most of them, in fact, music is a passion, electronics



capabilities allow you to simultaneously enjoy two different program sources in two different rooms. A new on-screen display shows you instantly the operational status of the receiver.

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One of the most significant audio innovations in many years is incorporated in the Elite PD-52 CD Player. It's called the stable platter. By



{ THE GOAL WASN'T MERELY TO MAKE A BETTER SPEC. IT WAS TO MAKE A BETTER SOUND. }

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SHOWSTOPPERS

FOR the first time ever, this year's Summer Consumer Electronics Show in Chicago was open to real consumers. On the last two days of the four-day event, according to the Electronic Industries Association, 98,720 members of the public joined more than 51,000 retailers, manufacturer/exhibitors, and press representatives at the 981 exhibits in McCormick Place convention center. The crush may have been hard to take at times, but the enthusiasm was refreshing.

Much of the audio-related action was in the home theater area. A Home Theater Pavilion showcased Dolby Pro Logic audio/video setups at price points ranging from \$3,446 to tens of thousands of dollars. With eight possible speaker/TV/electronics configurations represented, the exhibit conveyed the wide range of options available to today's home theater builders. The whole show, in fact, demonstrated that home theater is no longer the exclusive province of a few visionary manufacturers and custom installers. Even high-end audio companies known for a purist approach to product design are catching the home theater wave. The result is that consumers can select high-quality, easy-to-use home theater components and systems at every price level.

New audio products and lines at the show incorporated evolutionary developments of familiar technology. In new technology, there was the final premarket faceoff between the rival new digital record/playback formats: Digital Compact Cassette (DCC) and Mini Disc (MD). DCC home decks and MD portables are expected to be in stores before the next CES rolls around in January 1993. In car stereo, smaller, more conveniently installable CD components continued to make news, as did the application of digital signal processing (DSP) to the mobile listening environment. Two formats still new to the market, CD-Interactive (CD-I) and Photo CD, were seen for the first time by many of the consumers in attendance.

Another application of DSP was Snell Acoustics' impressive proof-of-principle demonstration of its system to correct anomalies in speaker response caused by room acoustics. The goal is to enable audio dealers to create individually tailored processing programs to make any speakers sound their best in any room. That could have a profound effect on our enjoyment of music at home, and it certainly points up the bottomless potential of DSP.

Meanwhile, the products that the editors of STEREO REVIEW found especially notable, shown on the next few pages, are not only worth attention in themselves but can be viewed as harbingers of more good things to come.

—Glenn Kenny

New

products

from the

1992

Summer

Consumer

Electronics

Show



▲ Kenwood's KDS-P100 (\$549) is the autosound industry's first half-DIN-size digital signal processor. It can alter the apparent listening position in any of five simulated concert halls or apply preset equalization for different kinds of music. There are also three user-programmable memory banks.



▲ A high-end power amplifier for multichannel home theater applications, the Forté FT-1 (\$1,490) provides 125 watts each to the three front channels and 55 watts each to two surround channels, with separate power supplies for the input and output stages.

▲ JBL's Synthesis One (\$40,000 with video projector as shown) is a multispeaker surround-sound system whose six power amps can deliver up to 1,400 watts. There are separate operating modes for movies and music.



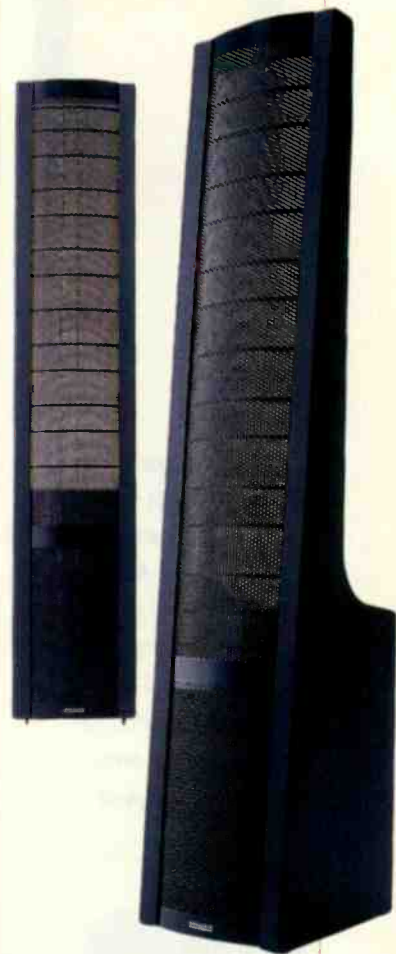
▲ DCM's Time Window Seven (about \$3,000 a pair) is a seven-sided floor-standing speaker system with two 6½-inch midrange drivers, two ¾-inch coaxially mounted hard-dome tweeters, two 9-inch woofers, and a rear-firing ¾-inch diamond-coated dome tweeter.



The Harman Kardon CSP-1 (\$399), a five-channel car stereo surround processor, provides a discrete center channel and is said to enrich imaging by extracting ambience information from stereo recordings.



Martin-Logan's Aeries is a hybrid speaker system that combines an electrostatic panel with a compact woofer. Smaller and lower-priced than most such hybrids, the Aeries measures 10½ inches wide, 55½ inches high, and 13½ inches deep. Price: \$1,995 a pair.



Denon's DCH-700 (\$750) is a five-disc car CD changer with a DIN-size front panel. Only 10½ inches deep, it can be mounted in consoles and some dashboards and under seats. It features Denon's LAMBDA 20-bit D/A conversion circuitry.



The Philips DCC900 (\$799) is the world's first Digital Compact Cassette deck, able to record and play back digital audio on a cassette the same size as an analog cassette and also play analog cassettes. It features a twelve-character dot-matrix display for textual information.



The Real-Time Ripple Effect (RTRE) loudspeaker from Museatex, 50 inches tall, has a planar diaphragm driven only at its center. The rest of it follows in a ripple, resulting in wider, smoother sound dispersion. Price: \$2,250 a pair.





Digital Phase Corporation's AP631 speaker (\$1,095 a pair) uses a new enclosure technology called Acousta-Reed, a system of wooden reeds that is said to optimize the performance of its 6-inch polypropylene woofer. The tweeter is a 1-inch Mylar dome, and the speakers stand 3 feet high.



Definitive Technologies' C1 center-channel speaker (\$299 each), at center in photo, is 19 inches wide and magnetically shielded. Its two 5-inch woofers are

placed on either side of its 1-inch tweeter for better dispersion. The BP 2 bipolar surround speakers (\$250 each) flanking the C1 radiate from both front and rear.



Carver calls its new TFM-75 Magnetic Field power amp (\$1,995) "the world's most powerful" for home use. It is rated to deliver up to 750 watts into 8 ohms, 1,000 watts into 4 ohms, and 1,300 watts into 2 ohms.

Marantz's MA-500 monoblock power amplifier (\$299), rated for 100 watts, can be used in multiples or with other amps in a full surround-sound system.



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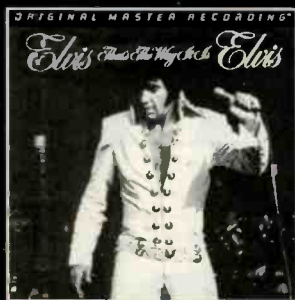
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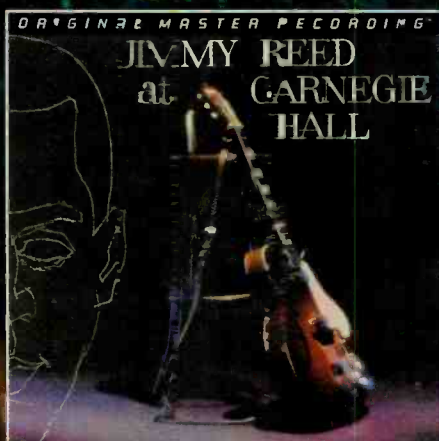


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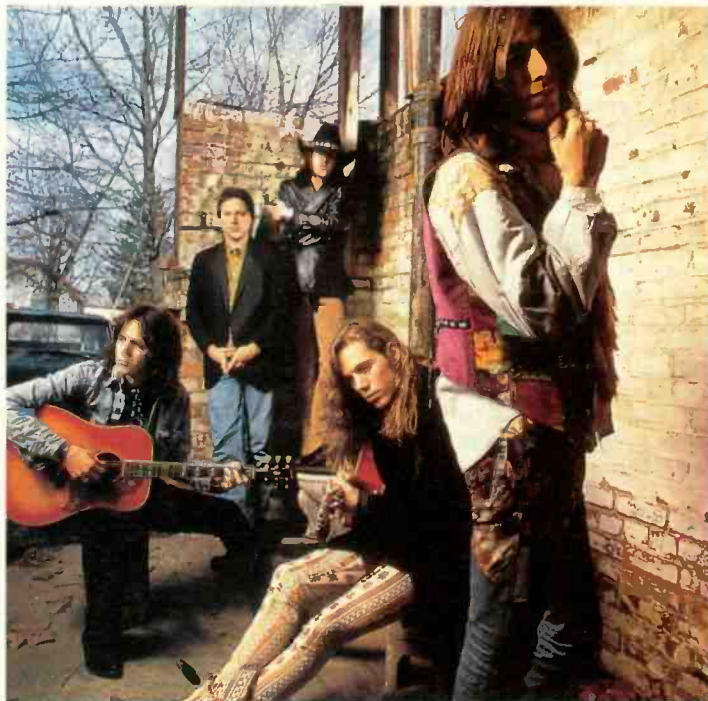
The Black Crowes Hang Loose

IN the space of two albums the Black Crowes have made a leap like that from "The Rolling Stones Now!" to "Exile on Main St." The Crowes' second record, "The Southern Harmony and Musical Companion," takes its title from an old hymnbook. On one level, the title is transparently ironic, given the Crowes' murky, raw, and impolite brand of rock-and-roll. On another, there's more sincerity than meets the eye. Buried somewhere between Chris Robinson's bleary vocals and the walloping bar-band rock instrumentals is a plea for truth, salvation, and transcendence.

Like its predecessor, "Shake Your Money Maker," this is a rhythm-and-blues album, but the emphasis is more on blues than rhythms, which are slower and less urgent this time around. The songs in "Southern Harmony" hang together, cohering into an album-length experience rather than a bunch of bite-size pieces. You can definitely hear the stamp of the Stones, Aerosmith, the Faces, and Humble Pie in "Southern Harmony," yet the Black Crowes are not copyists but inheritors of the tradition. Besides, they depart from their influences in crucial ways: the authenticity of their Southern roots, the brotherly interplay between singer and guitarist (Rich Robinson), and the serious, unsparring tenor of the lyrics.

In terms of lyrics, the Crowes recall Lynyrd Skynyrd in the way they spill facts and judgments without apology. Chris Robinson is as hard on himself as on anyone else. Of his notorious mouth, which has embroiled him in controversy on more than a few occasions, he sings, "I know one million ways to always find the wrong thing to say" (*Bad Luck Blue Eyes Goodbye*). With a clever pun he sings of his divided nature in *Thorn in My Pride*, neatly syncopating his vocals against a finger-picked acoustic. The album is really about exorcising dark secrets and hidden agendas by getting them out in the open. In this light, Robinson's prickly, opinionated character starts to seem almost noble—if nothing else, you know you'll never get a sugar-coated lie from him.

Depending on how much you want to read into the lyrics, there appear to be scattered sly allusions to the narcotic life style that can befall a road-weary rock-and-roller. In *Hotel Illness*, the album's most straight-ahead rocker, Robinson shouts himself hoarse with descriptive candor: "This room smells like hotel illness / The scars I hide are now your



business" and "It's hard to talk with a Novocain tongue." And *Back Luck Blue Eyes Goodbye* is prefaced with a studio aside—"B&B and a little weed"—that sounds like a musician's prescription for getting loose.

Musically, the Black Crowes are so tight they're able to hang loose and let it fly. Recorded in little more than a week on analog equipment, complete with leakage and distortion to give it a warts-and-all feeling, "Southern Harmony" strikes a blow for that endangered species, the old-fashioned, nontrendy, guitar-powered rock-and-roll band. They get right down to business from the first note of *Sting Me*, in which Rich Robinson's sassy, robust chording is joined by handclaps, a straight 4/4 snare beat, and an electric piano that falls in just like Ian McLagan's in the Faces' great *Miss Judy's Farm*. Chris Robinson joins the fray with a raspy bit of self-revelation: "I've got nothin' up my sleeve / 'Cept this heart and a chip on my shoulder."

The musical pleasures mount as "Southern Harmony" gains momentum, culminating in the ascending, Led Zep-style riff-rock of *No Speak No Slave*, which boils over in a frenzy of guitar and vocal histrionics. It segues into *My Morning Song*, an FM-radio

readymade in which jagged guitar lines brush against Chris Robinson's beseeching vocal: "Kiss me baby on an Easter Sunday / Make my haze blow away." With a construction reminiscent of *Layla*, the song shifts tempo after reaching an energetic climax, riding out on a calm-after-the-storm coda. Sounding like a man reborn, Robinson offers himself as a healer to one who's strayed from the path: "If your rhythm ever falls out of time / You can bring it to me and I promise I will make it alright."

The Black Crowes close this remarkable album with a shambling, acoustic take on Bob Marley's *Time Will Tell* that recapitulates one of the album's central themes: "Think you're in heaven but you're living in hell." No mere Seventies-rock revivalists, the Black Crowes are a band of substance and solidity that sound like they're here to stay.

Parke Puterbaugh

BLACK CROWES The Southern Harmony and Musical Companion

Sting Me; Remedy; Thorn in My Pride; Bad Luck Blue Eyes Goodbye; Sometimes Salvation; Hotel Illness; Black Moon Creeping; and three others
DEF AMERICAN 26916-2 (51 min)



Messiaen's "Turangalila": The Right Joy

DEUTSCHE GRAMMOPHON'S new recording of Olivier Messiaen's *Turangalila-Symphonie* was not intended as a memorial to the composer, who died at the end of April, but there could hardly be a more fitting one. Among all Messiaen's large-scale works, none has more instantaneous impact and communicative appeal than this ten-part work, so filled with original color, whose Sanskrit title, in the composer's words, "means all at once love-song, hymn to joy, time, movement, rhythm, life and death." The performance, by the Orchestre de la Bastille under Myung-Whun Chung, was recorded in Messiaen's presence in October 1990 and has his approval.

A note by the composer tells us that he was preparing a new edition of the score incorporating "some small changes . . . suggested to me by my hearing around two hundred performances of the work. . . ." Chung's performance, he continued, "takes account of these modifications, and answers perfectly to all my desires. These are the correct tempos, the correct dynamics, the right feelings and the right joy! Coming after the many excellent interpretations that we already know, this new version, superb from every point of view, can be considered henceforth the definitive account."

Composers have been known to indulge in a little grateful hyperbole now and then, but in this case the enthusiasm rings true. Leonard Bernstein, who con-

ducted the work's première in Boston at the end of 1949, unfortunately never recorded it, but it has had some powerful advocacy on disc from the likes of Seiji Ozawa, André Previn, Simon Rattle, Louis de Froment, and Esa-Pekka Salonen. Chung proves to be at least the equal of any of them, and perhaps no one familiar with his outstanding Nielsen cycle on Bis will be at all surprised. *Turangalila* is one of the first releases in his new series for DG as music director of the Opéra de Paris-Bastille and also the first recording of this work to fit snugly on a single CD.

Salonen's excellent Sony recording could have fit on one CD as well, for it is actually a half-minute shorter than Chung's overall. There are marked differences in the pacing of some of the individual movements, though, and not only does Chung's performance represent the composer's last wishes regarding the work, his way with the music is simply more enticing. His reading gives off more of a sense of fantasy, of otherworldly playfulness, and, as Messiaen summed it up, of joy. Yvonne Loriod (Messiaen's wife since 1961) and her sister Jeanne are the soloists, at the piano and ondes martenot, respectively, as they were in the première and in some of the earlier recordings. Chung's orchestra is in splendid form. If the excitement quotient in some of the more active sections seems a bit lower than in Salonen's version, it is very likely because,



Conductor Myung-Whun Chung

PHOTO: VIVIANNE/DEUTSCHE GRAMMOPHON

for all the transparency of the recording, the new Bastille Opera house seems to have a rather dryish acoustic character. This is nonetheless a winning *Turangalila*, calling for the warmest recommendation.

Richard Freed

MESSIAEN: *Turangalila-Symphonie*

Orchestre de la Bastille, Myung-Whun Chung
DEUTSCHE GRAMMOPHON 431 781-2 (79 min)

Iris DeMent's Country Truths



COUNTRY newcomer Iris DeMent has a face right out of a black-and-white Sixties art movie about a naïve, goodhearted country girl about to be despoiled in the big city. The original songs in her debut album, "Infamous Angel," have a certain innocence about them, too, even though DeMent has been to the big city—several of them, in fact. But to her credit, she's managed to hold on to her clear-eyed ideas about life and loving.

An Arkansas native and the youngest of fourteen children, DeMent sings in an unaffected and unadorned soprano that seems a cross between Maria Muldaur, Kitty Wells, and Emmylou Harris but echoes the whole backwoods country tradition. It's impossible not to give her your full attention, in part because her

voice is so hauntingly plaintive, but also because her homemade songs, hung on the cadences of gospel, bluegrass, and honky-tonk, simultaneously race to the heart and the head.

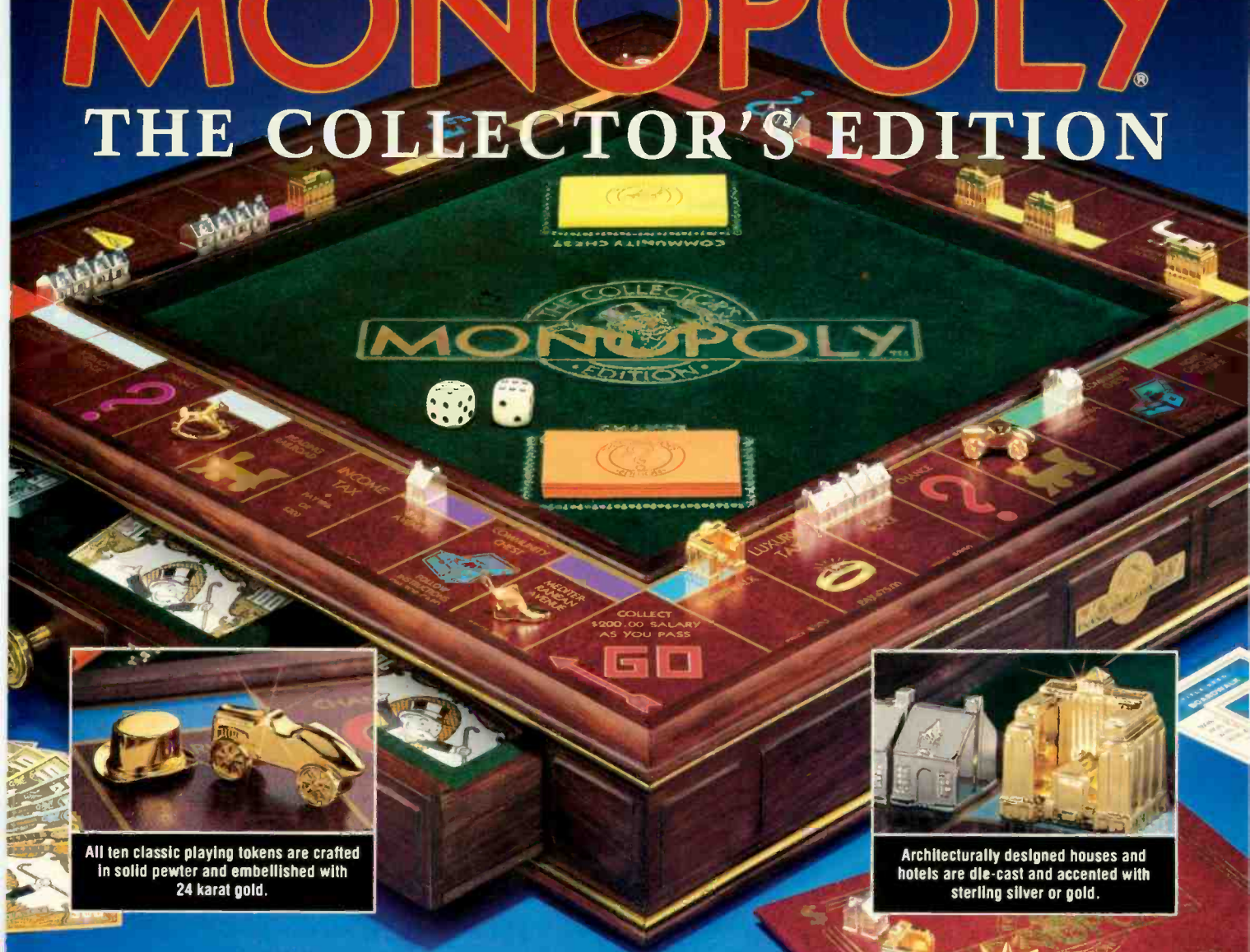
These Hills, a hymn to a physical place that forges a connection to loved ones already passed on, seems destined to be covered by generations of acoustic-minded musicians. *Our Town*, the story of a woman's coming home to the village she grew up in and left long ago, is a paradigm of magnificent songwriting, as is *After You're Gone*, an emotional and starkly honest admission to a dying father. And the bluesy *Sweet Forgiveness*, which perfectly captures the spiritual quality of romantic love, should reduce you to a quivering puddle.

Yet DeMent may not be for everyone.

PHOTO: KELLEY MACCALL/ROUND RECORDS

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If you don't appreciate authentic country music—songs about the stuff that really matters in life, like true love for friends and family, a sense of place, and a healthy curiosity about the Great Beyond—you might as well skip this one altogether. And if you're looking for a sickly produced formula album, one with vocals indistinguishable from those in most pop records, forget it. DeMent's album, accented with the noblest strains of dobro and fiddle, is as rural and real as pig slop, but a lot more inviting.

Produced by Jim Rooney, who dressed Nanci Griffith's best early al-

bums, "Infamous Angel" is the rarest of modern country records—one that combines universal truths, timeless beauty, and musical eloquence. Look for it to show up on lots of critics' "year's best" lists, as well as your own. *Alanna Nash*

IRIS DEMENT
Infamous Angel

Let the Mystery Be; These Hills; Hotter Than Mojave in My Heart; When Love Was Young; Our Town; 50 Miles of Elbow Room; Infamous Angel; Sweet Forgiveness; After You're Gone; Mama's Opry; Higher Ground
PHILO/ROUNDER PH 1138 (38 min)

Elegant Baroque

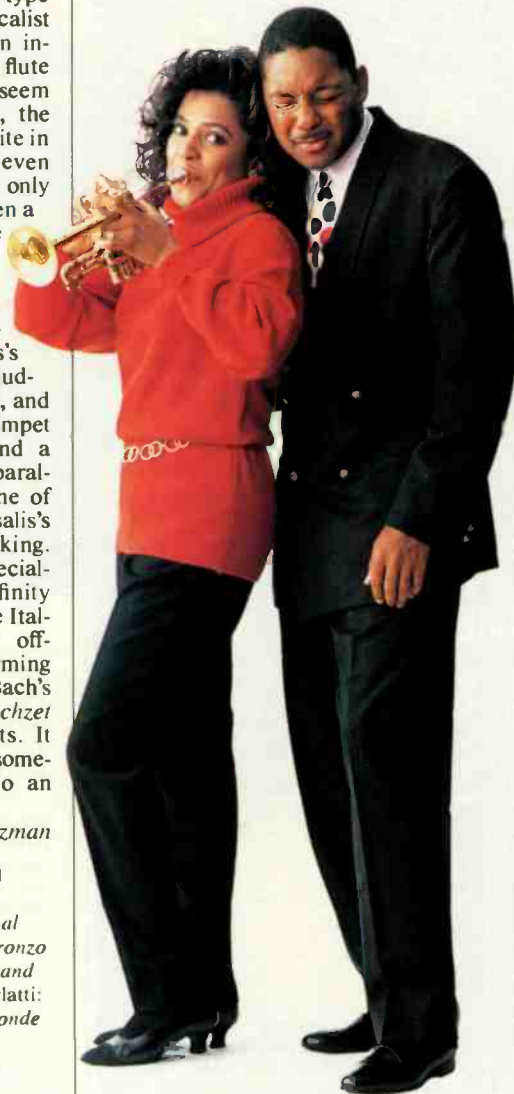
ONE of the most popular musical forms in the Baroque era was a type of aria in which the vocalist matched musical wits with an instrumental soloist. Casting a flute or a violin in such a role would seem sensible. But a trumpet? In fact, the trumpet obbligato was a great favorite in the theater, in the concert hall, and even in church and chamber. One can only speculate about what a duet between a castrato and a keyless Baroque trumpet must have sounded like.

We are not likely to have any solid evidence on that score in the near future, but we do have Kathleen Battle and Wynton Marsalis's "Baroque Duet," a collection including soprano arias by Bach, Handel, and PREDIERI, a secular cantata and trumpet arias by Alessandro Scarlatti, and a trumpet sinfonia by Stradella. The parallelism between the clear, pure tone of Battle's high soprano and Marsalis's classical trumpet sound is striking. While neither of these artists is a specialist in early music, there is an affinity between the intense elegance of the Italian Baroque (and its Germanic offshoots) and their personal performing styles. The Scarlatti cantata and Bach's very sacred and impassioned "Jauchzet Gott" are the impressive highlights. It adds up to a very pleasant and sometimes very moving excursion into an unusual corner of the repertory.

Eric Salzman

KATHLEEN BATTLE AND WYNTON MARSALIS: Baroque Duet

Handel: *Let the Bright Seraphim; Eternal Source of Light Divine; Alle Voci del Bronzo Guerriero*. Bach: *Cantata No. 51, Aria and Chorale; Cantata No. 21, Aria*. A. Scarlatti: *Four Trumpet Arias; Cantata, Su le Sponde del Tebro*. And two others. Anthony Newman; Orchestra of St. Luke's, John Nelson
SONY SK 46672 (65 min)



POPULAR

• **CROSBY, STILLS, NASH & YOUNG**
Four Way Street. ATLANTIC 82408-2 (two discs). The 1971 live double album by the harmonizing hippies, with bonus tracks including Young's *The Loner* and Crosby's *Laughing*.

• **THE HASSLES**

EMI E2-98828. Classic slice of 1967 Hammond-organ rock from Long Island, featuring the teenage Billy Joel and eight previously unreleased tracks.

• **THE HOUR GLASS**

EMI E2-96059. Psychedelic garage rock from 1967, starring Duane and Gregg Allman before they formed the Allman Brothers Band, with seven bonus tracks not on the LP.

• **WILLIE NILE**

RAZOR & TIE RE 1997. Debut album by the diminutive folk rocker (a STEREO REVIEW Record of the Year for 1980), with Television's Fred Smith on bass and an outtake bonus track.

• **OVER HERE!**

SONY BROADWAY SK 32961. Original-cast recording of the 1974 Andrews Sisters musical, featuring (then) little-knowns John Travolta, Marilu Henner, Ann Reinking, and Treat Williams.

• **OTIS RUSH**

Cold Day in Hell. DELMARK DE-638. A 1975 album by the innovative Chicago blues guitarist, featuring two previously unreleased tracks.

• **JIMMY SILVA & THE GOATS**

Heidi. ESD 80562. The reclusive Seattle singer-songwriter's third album, along with his 1986 debut ("Remnants of the Empty Set"), both featuring members of the Smithereens and the Young Fresh Fellows.

• **X-RAY SPEX**

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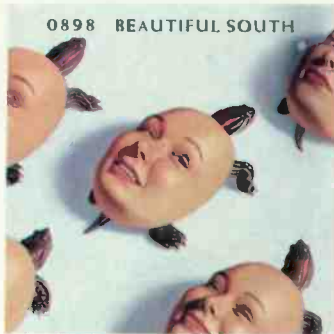
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THE BEAUTIFUL SOUTH

0898 Beautiful South

ELEKTRA 61308-2 (51 min)

Performance: Stellar songwriting
Recording: Excellent

My nominee for song of the year—and I can't imagine my opinion changing between now and December—is *Old Red Eyes Is Back* by the Beautiful South, the lead track in their wonderful third album. It is simply the best example of pure songwriting since R.E.M.'s *Losing My Religion*. Hung upon a gorgeous, airy melody is the tale of an alcoholic; the song is compassionate while noting the waste of a life. It is this kind of juxtaposition of serious themes and sunny music that makes the Beautiful South stand out from the pack, and "0898 Beautiful South" contains a dozen songs that can equally be hummed, pondered, and puzzled over.

The songs' Britishness may be a barrier to American success, but their tunefulness could provide an entree to the charts. Only a corpse could resist the bright melody and brisk beat of *We Are Each Other* or the uplifting sentiment of *I'm Your No. 1 Fan*, with its joyous organ hook. At times the Beautiful South recalls Stealer's Wheel with their knack for comely melodies and smooth, manicured vocals. Add to this a political acuity that crops up in unlikely musical contexts, and you've got an idea of the complexity that lurks beneath the attractive surface.

Paul Heaton, the band's vocalist and lyricist, endeavors to get at the substance behind the facade. In *36D*, for example, he urges a streetwalker to "close your legs, open your mind," and in the obliquely political *We'll Deal with You Later* he speculates about who might be the real objects of revolutionary discontent. But despite the subject matter, you'll be humming the choruses to both songs for days. Elsewhere, a pet theme is the lethal enmity and fractured motives underlying conjugal relationships, as in *Here It Is Again* and *Something That You Said*. This is, in short, a pop album with fans. *P.P.*

The Beautiful South: hummable



REVIEWS

POPULAR MUSIC

Discs and tapes

**reviewed by Chris Albertson,
Phyl Garland, Ron Givens,
Roy Hemming, Alanna Nash,
Parke Puterbaugh, and
Steve Simels**



BIG DADDY

Sgt. Pepper's Lonely Hearts Club Band

RHINO R2 70371 (37 min)

Performance: Like, wow!

Recording: Splendid

It was twenty-five years ago today that Sgt. Pepper taught the band to play—but he never taught them to play like *this*. In an inspired move, Big Daddy—a greaser-rock group that puts a Fifties spin on contemporary hits—has rerecorded the Beatles' "Sgt. Pepper's Lonely Hearts Club Band" in its entirety. The result is the novelty album of the year, if not the last twenty-five years. It doesn't so much deflate the Beatles' pretensions ("Sgt. Pepper" was more ambitious than pretentious) as mock the excessive praise of the album by scribes, seers, and hypemongers who saw in it the Second Coming. After a quarter century of brainy analysis, why not have fun with the darn thing?

Only a Blue Meanie could suppress a giggle hearing *With a Little Help from My Friends* sung in a letter-perfect Johnny Mathis croon as if it were *Chances Are*, or *Lucy in the Sky with Diamonds* done as a piano-pounding raver the way Jerry Lee Lewis might have cut it, with the band chanting "shake it, baby, shake it" in the background. Other highlights: *Within You Without You* presented as a beat-generation poetry reading, complete with bongos and free-form flute, and *A Day in the Life* reborn as a hiccupping Buddy Holly tribute. A splendid time is guaranteed for all. Don't miss it. *P.P.*

MARY-CHAPIN CARPENTER

Come On Come On

COLUMBIA ACD 48881 (50 min)

Performance: Okay, but . . .

Recording: Very good

Mary-Chapin Carpenter's had a big year: a Grammy for *Down at the Twist and Shout* and unexpected—for a literate, acoustic-minded singer-songwriter—mainstream success on the country charts. Now comes her fourth album, and if it's not exactly stretch marks we see rippling across the CD, at the least it's stress lines.

Carpenter has tried to balance her typical dark, sensitive, and introspective songs with the kind of lightweight and upbeat commercial material that glides easily across the airwaves. Aside from a cover of Mark Knopfler's gentle looper *The Bug*, Carpenter co-wrote most of the radio-ready stuff with Don Schlitz, of *The Gambler* fame. These cuts include the empty rhythm number *I Feel Lucky*, the frustrated-wife portrait *He Thinks He'll Keep Her*, and a love duet with labelmate Joe Diffie where their singing styles mix like oil and water, *Not Too Much to Ask*. Fans of her more thought-provoking material may feel these tunes largely waste her talent, but the second half of the album has more of her trademark songs of cool observation and internal anguish, the most memorable being *Only a Dream*, a kind of paean/love poem to an older sister. Still, there's something overwhelmingly disappointing about this release. Carpenter is better here at setting mood and scene and zeroing in with lines of wisdom than at fashioning whole songs that register in the heart and affect the subconscious.

Whether Carpenter's success has simply kept her on the road too long to be able to write enough outstanding material, or whether

OPENING ACTS



OVERWHELMING COLORFAST

RELATIVITY 88561-1085-2 (40 min)

Hüster Du meets the Beatles? Unlikely as that sounds, this young band from Antioch, California (helped out by Nirvana's producer, Butch Vig) manages the synthesis with considerable aplomb, the post-punk guitar thrash anchored both melodically, and structurally in a way that recalls the Fab Four at their most "Revolver"-intense (check out the ace cover of *She Said She Said*). An extremely promising debut. *S.S.*

ROSS PELTON/RELATIVITY



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Indigo Girls Amy Ray and Emily Saliers

someone at Columbia believes her wider audience dictates a watering down of her heretofore uncompromised style. "Come On Come On" delivers only a fraction of the knock-you-to-your-knees, truth-in-songwriting wallop of her earlier efforts. Here's a tip of the hat to her higher profile, along with a big wish that she finds a better solution to what's shaping up as a major identity crisis. *A.N.*

BILLY RAY CYRUS
Some Gave All

MERCURY 314-510 635-2 (36 min)

Performance: *Faux country*
Recording: *Too good*

This debut country album has already been an enormous, unexpected pop-crossover success, apparently thanks largely to the vid-eogenic good looks of its auteur (if that is the word for a guy who writes little of his own material). But is it any good? Well, *Achy Breaky Heart*, the annoyingly ubiquitous hit single, is at best mediocre John Mellencamp Meets the Faces. As for the rest... well, I'm reminded of what some L.A. critic said about Neil Diamond's performance in the remake of *The Jazz Singer*: Diamond, he opined, can act the way a lox can sing. Frankly, folks, what we've got here is a singing lox. *S.S.*

INDIGO GIRLS
Rites of Passage

EPIC EK 48865 (56 min)

Performance: *Some sweet, some strained*
Recording: *Very good*

Even the Indigo Girls seem to recognize that they're too serious. "I'm not making a joke / You know me, I take everything so seriously," Emily Saliers sings in *Galileo*. One song later (*Ghost*) she sighs, "There's not enough room in this world for my pain." Her partner, Amy Ray, is not exactly a fount of happy

thoughts herself. In a song about Nashville, generally a pretty upbeat place, she chides, "Nashville, you forgot the human race / You see with half a mind what colors hide the face."

Nonetheless, "Rites of Passage" is very impressively crafted. With a few more tracks like Saliers's *Airplane*, an improbably light-hearted song about her fear of flying (in which the Indigo Girls are joined by the Roches), it might not leave such a strong aftertaste of ponderousness. Taken individually, nearly every song is strong and deeply felt, but the cumulative effect of Saliers's vulnerability and Ray's contumely is a bit much. (Ray's graceless, bellowing cover of Dire Straits' *Romeo and Juliet* is the Indigo Girls' direst recorded moment.)

To their credit, they have developed a flair for arrangements. Ray fleshes out a couple of songs (*Three Hits and Cedar Tree*) with Celtic touches, and Saliers makes room for a tasteful overlay of strings in *Ghost*. Guest vocalists Jackson Browne and David Crosby can be discerned in *Galileo*, an intriguing, folkish ode to reincarnation. The Indigo Girls' voices, and the vinelike way they intertwine, are among contemporary music's treasures, and their lyrics offer welcome departures from the status quo. If only they would lighten up more often. I recommend John Prine's "The Missing Years," and specifically *It's a Big Old Goofy World*, for pointers on taking things more in stride. *P.P.*

TALES FROM
THE VAULTS

FREDDIE & THE DREAMERS

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EMI CDP-96979-2.

Hey, I'm as loopy for the British Invasion as the next guy, but trust me: "Best of" is not a phrase applicable to any music these knuckleheads ever made.

JACKIE WILSON

Mr. Excitement.

RHINO PRO4 70775

(three discs).

Long-overdue retrospective ranging from Wilson's earliest recordings (with Billy Ward and the Dominoes) through singles cut just prior to the 1975 stroke that ended his career. To hear Wilson combine the vocal elegance of Sam Cooke with the physical intensity of James Brown is more than just memorable—it's positively ennobling.



LINK WRAY & THE WRAYMEN

Walkin' with Link. EPIC/LEGACY EK

47904.

A 1959 album by early rock's loudest guitarist, fleshed out with singles and alternate takes, including a ferocious, demented version of Jimmy Reed's *Ain't That Lovin' You Baby*. Heavy metal begins here (I think). *Steve Simels*

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CHARLIE RICH

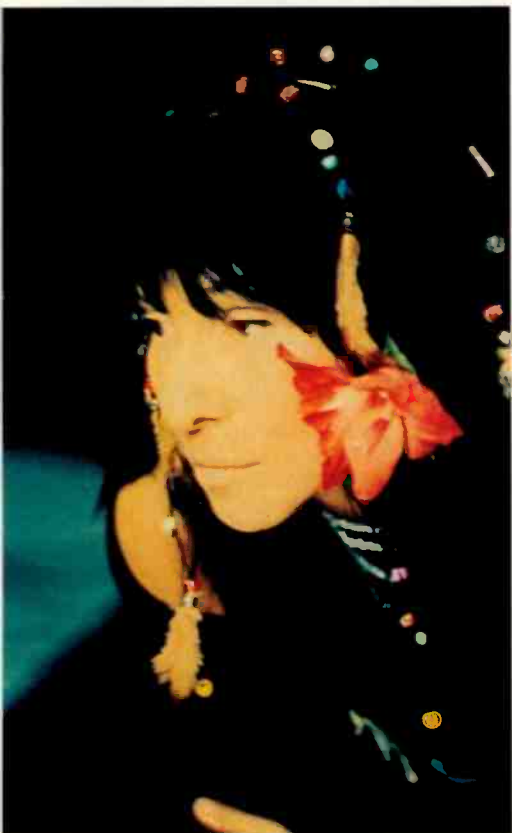
Pictures and Paintings

BLUE HORIZON 26730-2 (50 min)

Performance: Emotive
Recording: Very good

Everybody always knew that the Silver Fox had a lot more music in him than the country-politan *Behind Closed Doors* and *The Most Beautiful Girl*. He'd done time as a rockabilly singer for Sun in the Fifties, then returned with *Mohair Sam* in the Sixties before Billy Sherrill got his mitts on him in the Seventies. In the Eighties, Rich all but disappeared, but he was hardly idle—he was polishing up his piano chops and courting jazz and r-&-b, as he'd done in the very earliest days of his career.

"Pictures and Paintings," his first album in a coon's age, features a late-night, hip jazz-club sound. Mostly backed by just electric guitar, bass, and drums, Rich displays a deft piano sensibility and a voice that may have trouble sustaining the top notes but is more than familiar with pain. The program consists of standards (*Am I Blue?*) and old and new originals (*Everytime You Touch Me, I Get High*,



Buffy Sainte-Marie

recast with a Latin beat, and the bluesy *Somebody Broke into My Heart*). Yet there's a certain staleness about it, and a sameness, too. But even if Rich embarrasses himself in the vocal for *Mood Indigo*, he makes the title song, Doc Pomus and Dr. John's *Pictures and Paintings*, about a love affair that wasn't, into something transcendent. And when he sings *Feel Like Going Home* backed by a soulful black choir, we learn that for him, at least, there's more than one way to get there. A.N.

DAVID ROCHE

Here It Is

FIREWEED DR 365 (38 min)

Performance: Searching
Recording: Very good

Did the Andrews Sisters have a brother who was just itching to share the mike? The Forresters? For that matter, the Dionne quintuplets? Well, meet David Roche, sibling to Terre, Maggie, and Suzzy, a/k/a the Roches. David, who walks a similar tightrope of semi-acoustic folk-pop-jazz, doesn't share his sisters' arty attitude, or their wit, but he's got that old Roche anxiety and romantic neurosis, and such lines as, "I've spent the sleepless night / Walking the floor with my fist clinched tight," suggest that he might drag a load of angst as heavy as theirs.

Nine of the eleven offerings here attest that men suffer as much as women in love, and the other two spotlight such diverse characters as a dead friend (*Goodbye to You*) and a self-important airhead (*Good at It*). Roche excels at maneuvering quirky, hairpin melodic turns and abrupt rhythm changes, but his brand of hip pop (chiming guitars, crisp drums, and with-it vocal harmonies provided by his sisters) never packs enough of a punch, and he usually runs out of things to say before he runs out of stanzas. Still, despite an average voice, there's something charming about him. Maybe it's his open-sore suffering, or perhaps just his arrogance at believing he can add to the family legacy. Hey, stranger things have happened. Ask Crystal Gayle. A.N.

BUFFY SAINTE-MARIE

Coincidence and Likely Stories

ENSIGN/CHRYSALIS 21920-2 (43 min)

Performance: Poppish
Recording: Good

Buffy Sainte-Marie, she of the Cree Indian heritage, the Sixties folk revival, and the fluttery vibrato wide enough to hide a buffalo in, was always concerned with bridging the chasm between folk and pop (consider such songs as *Universal Soldier* and *Until It's Time for You to Go*). But anyone who knows only her early work will still be surprised by the new pop sound of "Coincidence and Likely Stories"—lush strings, jaunty rhythms, and multitextured backgrounds (complete with war whoops) that suggest she's been listening to too many Joni Mitchell records.

In terms of content, Sainte-Marie is obsessed with power-and-money junkies (two songs) and evil corporate America (embarrassingly assailed in *Priest of the Golden Bull*, where "their tongues are silver forks"). A lot of this goes in one ear and runs mightily to get out the other, but when she sticks to subjects closer to her own tepee, such as injustice toward Indians (*Bury My Heart at Wounded Knee*) and the head-banging effects of nasty habits (*Bad End*), she knows how to rally the warriors. A.N.

THE SMITHEREENS

Too Much Passion

CAPITOL C2-15818 (17 min)

Performance: Pretty great
Recording: Swell

You've heard the single, now hear the EP's eerily authentic recreations of songs by the Kinks (*The World Keeps Turning 'Round*)



If the mightiest oak tree in the forest decided to grant Barbara Walters an interview, its opening words would surely be, "Hello, I'm Johnny Cash." In "The Essential Johnny Cash," a three-disc anthology that spans twenty-eight years with seventy-five songs, Cash, who's now as much a part of American folklore as Paul Bunyan, amply demonstrates both how he helped forge an entire subgenre of modern country music—integrating the folk tradition into a mass-appeal pop context—and how he's been misunderstood.

If Cash can easily rub shoulders with Billy Graham, he also understands how good and evil inhabit the same skin. And so he pretends to snort coke in *Bad News*, plays the upright cop who overlooks his brother's lawlessness in Bruce Springsteen's *Highway Patrolman*, and in other songs pays homage to both the counterculture and Old Glory. The surprise throughout this highly entertaining set is how hip Cash is, and always was, his tick-tack rockabilly guitar framework cutting a swath through both country and rock, his spooky baritone-bass ringing as darkly authoritative as the Voice of the Ages. A.N.

JOHNNY CASH

The Essential Johnny Cash (1955-1993)

Folsom Prison Blues (two versions); *Get Rhythm*; *I Walk the Line*; *Tennessee Flat-Top Box*; *The Long Black Veil*; *Orange Blossom Special*; *Ring of Fire*; *Jackson*; *Daddy Sang Bass*; *A Boy Named Sue*; *Man in Black*; and sixty-three others
COLUMBIA/LEGACY C3K 47991
(three discs, 211 min)

and Ringo Starr (*It Don't Come Easy*). Come to think of it, the Smitereens have been dropping Sixties covers like those onto B sides for years, and they probably know a hundred more they could do without working up a sweat. So how about it, guys—why not release an entire album of same, sort of like Bowie's "Pin Ups"? S.S.




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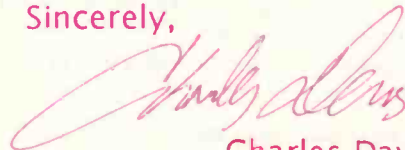


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Girl Groups for All Seasons

My, how quickly the young ones grow up these days. "Shadows and Light," the second album by Wilson Phillips, is leagues beyond the trio's mega-Platinum debut in terms of harmonic interplay and subject matter. Though the nasal ingenue voices still betray their relative youth, in terms of contemporaneity, sophistication, and focus it surpasses anything the singers' famous fathers have done in decades, though they've still got a ways to go to match the soulfulness and songcraft of Brian Wilson and John Phillips in their prime. Wilson Phillips is in sync with the times, and "Shadows and Light" is a kind of "Rumours" for the Nineties: sleek, polished pop structured around surging harmonies and lyrics whose themes resonate with the preoccupation of the artists' generation.

Specifically, the album is dedicated to Wilson Phillips's absentee fathers, and several songs quite movingly address the pain of separation while holding out hope for reconciliation. It opens and closes with wordless, undulating waves of Beach Boys-style harmony written and arranged by Carnie Wilson, who appears to have inherited some of her father Brian's knack. *It's Only Life* is a head-spinning roller-coaster ride of harmonic modulation and rhythmic twists and turns—a bravura performance. *Flesh and Blood* is sung directly to Brian by daughters Wendy and Carnie; achingly painful in its candor, it ends with the sound of the crashing surf, a touch the master himself would appreciate. *All the Way from New York*, which follows, finds Chynna Phillips petitioning her father for a favor: "Would you fly all the way from New York to see me? ... You'll never know how much it means."

When they're not writing songs for their fathers, Wilson Phillips often sings about movement (*Fueled for Houston*, which hurtles skyward like a DC-9), separation (*Where Are You, Goodbye Carmen*), and loneliness (*Alone*). The music is state-of-the-art synth pop—not exactly an old-guard critic's cup of tea but undeniably pristine and up to date,

Chynna Phillips and Carnie and Wendy Wilson: heiresses



with some fine horn arrangements by Jerry Hay, formerly of Sly and the Family Stone. The three singers are still hard to distinguish, but the blend of their voices is fresh and exhilarating. They have every reason to be proud of "Shadows and Light."

Stepping back a generation within the same family (one of them, anyway), Capitol recently issued a compilation CD of the Honeys in its Collectors Series. No serious student or fan of the Beach Boys and their offshoots should be without it. The Honeys were Brian Wilson's wife, Marlyn Wilson; her sister, Diane Rovell; and her second cousin, Ginger Blake. In addition to singing back-up on records by the Beach Boys and other surf and pop acts of the Sixties, the Honeys occasionally cut singles under their own name, most of them arranged and produced by Brian Wilson. The Beach Boys were pressured to be a hit-making machine, but Wilson could relax around his wife's band, and the results were altogether charming.

Although the Honeys could barely carry a tune in unison, their ragged enthusiasm in numbers like *Shoot the Curl* ("We're gonna ride those boys right out of style / We're gonna shoot the curl for one clear mile") made their songs a lot of fun. For Brian Wilson it was obviously a labor of love, the Honeys being his attempt to record in the girl-group style of his rival and mentor Phil Spector (check out for proof *The One You Can't Have*, a masterly homage). The Honeys continued to record under Wilson's tutelage clear through to the late Seventies, and the generous, twenty-song CD contains such sweetly sung gems from the vault as *Had to Phone Ya* and *It's Like Heaven* (subsequently recorded by the Beach Boys and Shaun Cassidy, respectively). A priceless set. *Parke Puterbaugh*

WILSON PHILLIPS
Shadows and Light
SBK 98924-2 (56 min)

THE HONEYS
CAPITOL 93193-2 (49 min)



RINGO STARR
Time Takes Time

PRIVATE MUSIC 01005-82097-2 (40 min)

Performance: Relaxing
Recording: Good

If the Traveling Wilburys ever decide to add a curiously familiar drummer to their group, here's the brother they should choose. "Time Takes Time" has the same easy-rockin' sound as the Wilburys, as well as a nicely worn sense of life. Ringo never really showed artistic pretensions before—thank God—and they barely emerge here except as a couple of reflections on what it's like to take the 25-mph ramp after roaring in the fast lane. "Well, I said it don't come easy," Ringo warbles in *Don't Go Where the Road Don't Go*, "well, I sure know how that feels." In this tune, as in most of the album's best, the band chugs along at just the right pace—fast enough to keep our interest, slow enough to suit a middle-aged sensibility. That allows the charm of Ringo's adenoidal crooning to come cruising through, wobbles and all. *R.G.*



KEITH SYKES
It's About Time

OH BOY OBR 010 (42 min)

Performance: Inconsistent
Recording: Good

Keith Sykes's writing credit shows up in albums by the likes of John Prine, Rodney Crowell, Rosanne Cash, Jerry Jeff Walker, Patty Loveless, and the Judds. But his tunes aren't the major hits. They're the kind of sly, left-field tracks that make you check the fine print to see who wrote them. Sykes, who writes and sings rockish pop with country flavorings, has been around a long time, but he's never really made it even to cult status, partly because his baritone is so anonymous, and partly because he's such an erratic writer. This album is no exception. He follows a brilliant song like *Train to Dixie*, a sort of Dylan-by-way-of-Memphis tune with a get-

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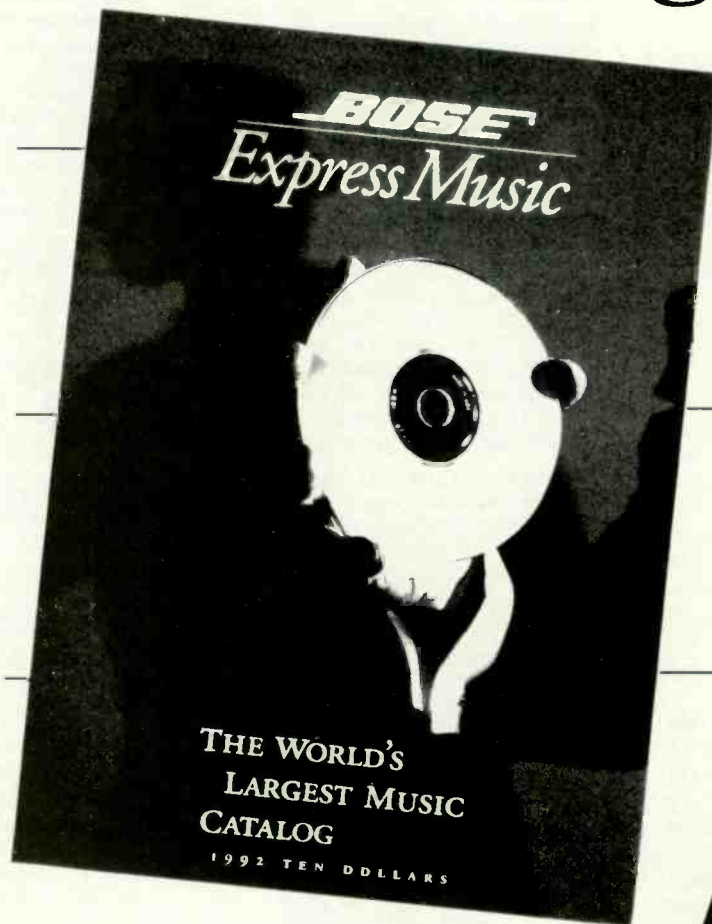
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QUICK FIXES



ALIEN 3

MCA MCAD-10629 (50 min).

The bad news about Elliot Goldenthal's defiantly modernist score for *Alien 3* is that it's dark, joyless, and off-putting, much like the disappointing film itself. The good news is that it's not the sort of predictable bombast we've gotten lately from John Williams or James Horner. S.S.

GUYS AND DOLLS

REPRISE 45014-2 (55 min).

Frank Sinatra, Dean Martin, Sammy Davis, Jr., Bing Crosby, Dinah Shore, Debbie Reynolds, and Alan Sherman (!) are just some of the famous Las Vegas habitués involved in this 1963 made-for-LP version of the Frank Loesser musical. Like it or not, it's a showbiz apotheosis—a "Concert for Bangladesh" with martinis. S.S.

MBUTI PYGMIES OF THE ITURI RAINFOREST

SMITHSONIAN/FOLKWAYS SF 40401 (65 min).

And people laughed when I predicted that everything ever released on vinyl would eventually be on CD. S.S.

MIRANDA SEX GARDEN

Iris. MUTE/ELEKTRA 61277-2 (29 min).

An EP's worth of musings by the New Kids on the Block of the ongoing Madrigal Revival. Most of this is pretty wispy, but the title track does accomplish the alarming feat of recalling both the Nico-era Velvets and the Electric Light Orchestra. S.S.



THE OUTFIELD

Rockeye. MCA MCAD-10476 (41 min).

Generic FM rock from a band that used to sound just like the Police, so this may or may not represent some kind of progress. Must to Avoid: the annoyingly retro *Jane*, to which the Woodstock watermelon toter and Ten Years After guitarist Alvin Lee contributes a suitably enervated psychedelic solo. S.S.

SUZANNE RHATIGAN

To Hell with Love. IMAGO 72787-2 1007-2 (58 min).

Granted, we all know the feeling (well, I do,

certainly), but this Brit Joni Mitchell wannabe's anti-love songs ultimately don't amount to much, and her singing isn't as distinctive as it should be. Great Al Green soul grooves, however, courtesy of producer Fred Maher and the ubiquitous Matthew Sweet and Robert Quine. S.S.

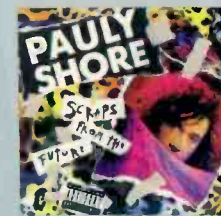
DARYL SHERMAN & DAVE MCKENNA

I've Got My Fingers Crossed:

A Celebration of Jimmy McHugh.

AUDIOPHILE ACD-264 (44 min).

New York and Boston jazz-club favorite Daryl Sherman is in peak form as she purrs the lyrics of twenty-four McHugh standards and neglected gems in her deliciously sparkling way, including a lovely Japanese version of *I'm in the Mood for Love*. R.H.



PAULY SHORE

Scraps from the Future. EPIC NK 52788 (30 min).

I can take obnoxious and adolescent. I can take stupid and sexist. I can even take nonstop dude-speak. Not funny in a different story, however, so get this twerp MTV comic outta here. I mean, c'mon, am I supposed to believe Lenny Bruce died for *this* crap? S.S.

SUICIDE

Why Be Blue. BRAKE OUT/ENEMY 108-2 (40 min).

In which the inventors of confrontational / noise-rock / minimalist / New York punk hook up again with ex-Car Ric Ocasek for an album that sounds suspiciously like . . . mid-Seventies Euro-disco? Meanwhile, in heaven, seminal rock critic Lester Bangs sheds a lonely tear. S.S.



THIS IS TECHNO VOLUME 2

CONTINUUM 19203-2 (65 min).

Twelve recent hits from the cutting edge of dance music, thus not recommended for headphone listening (translation: this stuff is butt-ugly). Inspirational lyric: "Michael Jackson is shot dead in front of a live studio audience." S.S.

out-of-the-way beat, with something totally pedestrian, like *I Wanna Go to the Islands*, which sounds left over from his stint in Jimmy Buffett's Coral Reefer Band.

"It's About Time" is Sykes's debut on Prime's Oh Boy label (its first recording of another artist), and he's tried to make it a songwriter's record, which *should* mean that he takes more risks than he would on a commercial record. Yet at least three of these songs, including *I Was Right About You*, *Goodbye for Real*, and *Your Love*, are smart, tuneful country-pop, à la Rodney Crowell, that could show up on contemporary country radio. And others, such as *Back in the '60s* or *I Love Football*, come out more addlebrained than ambitious. There are one or two especially involving songs—particularly the affecting *Me Casa Su Casa*, a South of the Border ballad about romantic friendship where he takes on a kind of Roy Orbison vocal quality—but there's nothing as bittersweet and transporting as *Coast of Marseilles*, which he wrote years ago when he was hanging around Key West. Here's hoping that Sykes finally gets it together someday and releases a completely satisfying album. *A.N.*

TOM TOM CLUB

Dark Sneak Love Action

SIRE/REPRISE 26951-2 (58 min)

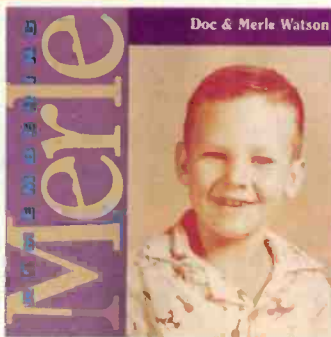
Performance: Spacy
Recording: Good

It's better to join Tom Tom Club one song at a time. That way you can enjoy the cottoncandy vocals of Tina Weymouth—soft, sweet, and weightless—the out-to-lunch air-head lyrics, and the catchy, aimless grooves as they come together in the cutest dance music you've ever heard. Lines like "Expensive wine / sunshine / music divine / ecstasy" (*Sunshine and Ecstasy*) really do combine with the blandly funky instrumental tracks in a mindlessly pleasant way. But taken one after another, these one-dimensional songs (*Innocent Sex Kiss*, *As the Disco Ball Turns*) seem like déjà-vu over and over again as they float in one ear and out the other. Listening for any length of time only inspires nostalgia for the good old days when the leaders of this band, Weymouth and Chris Frantz, were half of Talking Heads. *R.G.*

Tom Tom Club: mindlessly pleasant



MICHAEL LAVINE/WARNER BROS.



DOC & MERLE WATSON
Remembering Merle

SUGAR HILL SHCD-3800 (57 min)

Performance: Acoustic ecstasy
Recording: Good concert takes

Merle Watson may have spent his life in the shadow of his famous father, but try taking his guitar and banjo parts off their recordings and see how much the songs lose in both musical and emotional resonance. The younger Watson, who died in a tractor accident a few years ago, is the spotlighted star in this collection of seventeen concert performances recorded between 1971 and 1976, the duo's best years. But that doesn't mean Doc doesn't turn in his usual breathtaking bluegrass and old-time flat-picking, as well as chilling vocals in such traditional fare as *St. James Infirmary*, *Wayfaring Stranger*, and *Omie Wise*.

Throughout the set, whether emulating Mississippi John Hurt's picking in *Frankie and Johnnie*, wielding a slide guitar in *Miss the Mississippi and You*, or delivering classic Delta blues in *Nine Pound Hammer*, Merle shows why he was his father's anchor on stage, not just a filigree artist who responded when his daddy yelled, "Pick one, Merle!" This album, at turns moving and rousing, never seems merely a repackaging of old tapes just to have "product" out on the market. It's a marvelously entertaining and impressive collection of traditional folk, bluegrass, and blues by the finest father/son team in the field. *A.N.*

Collections

THE SULLIVAN YEARS
The Best of Broadway

TVT 9436 (two discs, 98 min)

Performance: Variable
Recording: Fair to good

There are many, many gems from the long-running *Ed Sullivan Show* that deserve preservation on CD. The Fifties and Sixties Broadway show numbers included in this set are not among them. Most of the performers (Gertrude Lawrence, Pearl Bailey, John Raitt, Larry Kert, Carol Lawrence, Richard Burton, Dolores Gray, and others) can be heard doing the same songs in better arrangements and with better sonics in the original-cast albums of the shows represented. Seeing these numbers, as you can in some recent video releases from the Sullivan archives, is another matter—they can be really enjoyable. But strictly as audio experiences they are much less than satisfying despite the star power. *R.H.*

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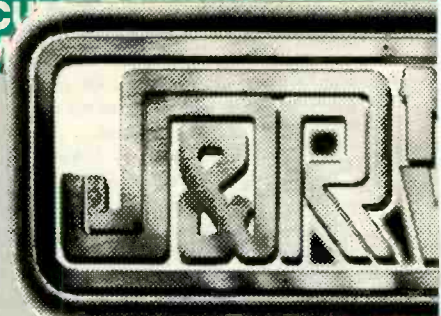
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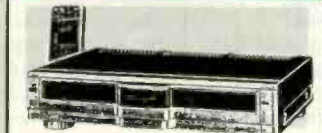
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Jazz

ROSEMARY CLOONEY

Girl Singer

CONCORD CCD-4496 (51 min)

Performance: Bright 'n' easy

Recording: Bright 'n' clean

Talk about understatement: Even "Girl Singer Extraordinaire" wouldn't be adequate as a title for this album. Rosemary Clooney keeps getting better and better. She's always had a warmly appealing sound, but her interpretations now probe more and more deeply into what the lyrics really mean. Best of all, she achieves her insights without ever losing the tonal buoyancy and tenderness that have long made her singing so distinctive. And when she's backed by a fine jazz ensemble, as she is here, she can still give lessons in how to swing to all the other girl singers around.

The gem of the album is the quietly touching version of Johnny Mandel and Richard Rodney Bennett's recent *Lovers After All*. Clooney collectors will also treasure the introduction to *Straighten Up and Fly Right*, which includes part of a 1945 recording of the Clooney Sisters auditioning for Cincinnati's WVXU. *R.H.*

ERROLL GARNER

Solo Time!

EMARCY 314-511-821-2 (two discs, 101 min)

Performance: Bouncy bonanza

Recording: Very good

Erroll Garner was one of a kind. Many have emulated the pianist's unique style, and others have used it as a springboard for their own developments, but no one has surpassed Garner's blend of originality, lyricism, and timing. He died almost sixteen years ago, at the age of fifty-three, but his music continues to be heard throughout the world as new fans discover his special approach to tunes we all thought we knew. "Solo Time!" offers twenty-one previously unissued solo selections, beautifully recorded in single takes during a marathon session at a Detroit radio studio thirty-eight years ago. This was not a broadcast but a private event arranged by Garner himself at a time when, remarkably, he found himself between recording contracts. The set is pure joy from beginning to end, and I urge you to get yourself a copy. *C.A.*



LIONEL HAMPTON

Rare Recordings, Volume 1

TELARCHIVE CD-83318 (65 min)

Performance: Generally excellent

Recording: Good

Even if being the sole survivor of the celebrated Benny Goodman Quartet were all the vibist Lionel Hampton could boast of, he would have earned his niche in jazz. His

career stretches back to a Louis Armstrong orchestra of the very early Thirties and includes the leadership of several exceptional bands. These "Rare Recordings" capture Hampton with a virtual Who's Who of jazz. All but one was made in 1977, and I believe all were previously released on vinyl by Hampton himself but not distributed in any systematic way, so this may well be the first time most jazz fans will have a chance to hear them.

The set starts off with a septet version of Charlie Christian's *Seven Come Eleven*, a 1939 Goodman Sextet classic. Dexter Gordon's soprano takes the lead, Bucky Pizzarelli's guitar propels things ever so lightly, Hank Jones swings characteristically, and Oliver Jackson's drums are augmented by Candido's congas. The same group backs Gordon's robust tenor, which often dominated Hampton's band in the early Forties, in Neal Hefti's *Cute*. Hank Jones and Pizzarelli are superb in *Gerry Meets Hamp*, one of two tracks featuring Gerry Mulligan, and there are fine selections with Earl Hines and Teddy Wilson. *Stardust* is the mellowest track; recorded in 1965, it offers a series of fine, laid-back solos by trombonist J.J. Johnson, Lucky Thompson (on soprano), Clark Terry, Coleman Hawkins, and Hampton. There is more, of course, all of it featuring Hampton's vibes, beautifully framed by the aforementioned stars and the likes of Charles Mingus, Milt Hinton, Buddy Rich, Ricky Ford, Steve Marcus, Woody Shaw, and Paul Jeffrey. A full, plate of savory swing. *C.A.*



WYNTON MARSALIS

Blue Interlude

COLUMBIA CK 48729 (71 min)

Performance: Excellent

Recording: Excellent

Wynton Marsalis's new album, "Blue Interlude," takes its title from his first extended composition on records, a 37-minute "bittersweet saga of Sugar Cane and Sweetie Pie." After one hearing, you will probably want to skip the composer's soft-spoken 6-minute explanation of the story and the musical motifs—which he underscores at the piano; it's a dreadful bore that adds neither to one's enjoyment nor understanding of the piece. The music is quite another matter, and I rather like this sometimes-Ellingtonian piece with its broad New Orleans overtones. Marsalis's music has steadily matured since he first appeared on the scene in a barrage of hype, and it can speak for itself without an accompanying dissertation. *Blue Interlude* is perhaps his finest statement to date, performed to perfection by a first-class group. The same goes for Todd Williams's *The Jubilee Suite*,

which also takes a bow in Duke's direction, and the three shorter Marsalis compositions that fill out the CD. *C.A.*



CAROL SLOANE

Heart's Desire

CONCORD JAZZ CCD-4503 (52 min)

Performance: Silken

Recording: Excellent

Carol Sloane's soft, sultry voice caresses standards as well as some not so familiar songs in "Heart's Desire," her Concord debut. She has always been a smooth, caring singer, and though her style borders on cabaret, she can hold her own in a jazz context. Here she is pleasantly pliant and ever so musical, but I wish she had skipped *Fairy Tales* and *For Susannah Kyle*, two cuts with pretentious lyrics by Chan Parker. The other eleven tracks are pure delight, however. Sloane is right on course, and the accompanying trio, led by the pianist Stefan Scaggiari, breezes along just as effortlessly. *C.A.*

JIMMY SMITH

Fourmost

MILESTONE MCD-9184-2 (56 min)

Performance: Kicking

Recording: Good remote

If you were into jazz in the Sixties, you probably had at least one of the organist Jimmy Smith's twenty or so Blue Note albums, and probably one or two of his brassy Verve LP's. Smith's success during the Blue Note years was impressive, but he really soared under the Verve banner, surrounding his well-established trio with opulent horn arrangements designed for wide appeal. I never saw anything wrong with that, because Smith's jazz integrity always remained intact, and there was always something exciting about the driving, highly rhythmic orgy of sounds that characterized these albums.

"Fourmost" captures Smith in a quartet setting more reminiscent of his Blue Note than his Verve period. Taken from two consecutive 1990 sets at New York's Fat Tuesday club, it's a straight-ahead program of familiar material by a cohesive all-star quartet. Add in the tenor saxophonist Stanley Turrentine, the guitarist Kenny Burrell, and the drummer Grady Tate, and you have a quartet of experience and artistry. Except for one track, *My Funny Valentine*, a slow-burning number that features Tate's deep-toned vocal, the whole CD is a romp and a slide that will have you popping your fingers, tapping your feet, wiggling your toes, and swaying your body. But it is not a purely physical experience, for the music also nourishes the brain. *C.A.*

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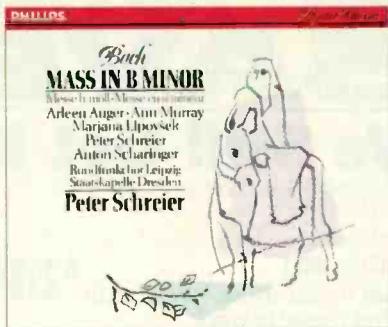



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J. S. BACH: Mass in B Minor

Augér, Murray, Lipovšek, Schreier, Scharinger; Rundfunkchor Leipzig; Staatskapelle Dresden, Schreier

PHILIPS 432 972-2 (two discs, 106 min)

Performance: Very good

Recording: Very good

The B Minor Mass is abundantly represented in the current catalog, but this new Philips set deserves to be cited among the best. While the Staatskapelle Dresden is no period-instrument group, Peter Schreier conducts it in what we today regard as a Baroque spirit, with allegros that are remarkably brisk and slow movements that are never ponderous. Furthermore, the Dresden strings play with a restrained vibrato, a procedure also observed by the violin soloist in the *Laudamus Te*. There is also a welcome dramatic awareness in Schreier's conducting, tellingly realized in several choruses and, notably, in the transition between the *Crucifixus* and *Et resurrexit* sections. The rapport between the conductor and the excellent Leipzig chorus is exemplary.

The soloists, all assured and dignified, are well matched in their duets. Arleen Augér and Ann Murray divide the soprano arias. The conductor delivers the tenor solo in *Benedictus* with his familiar expertise, if not with the tonal warmth and smoothness John Aler brings to

Philip Glass: stunning transformation



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his account on Telarc. Marjana Lipovšek's two alto solos, with their plush tone and pure legato, are among the highlights. Anton Scharinger's sonorous bass-baritone is heard to good effect in his *Quoniam*; the rich horn support clearly surpasses the struggles of valveless instruments in certain "authentic" versions. With its warm and well-balanced orchestral sound, this version may be a very desirable alternative for listeners seeking the Baroque style but with the security of modern instruments and a contralto rather than countertenor.

G.J.



BEETHOVEN: Symphonies Nos. 4 and 6 ("Pastoral")

Orchestra of the 18th Century, Brüggen
PHILIPS 432 964-2 (74 min)

Performance: Uneven

Recording: Harsh

Only Nos. 5 and 9 remain now to complete the cycle of Beethoven symphonies. Frans Brüggen has been recording with his period-instruments orchestra. It has been a rather uneven series, with a splendid "Eroica" as its high point and this newest installment, I'm afraid, not exactly a winner. Among all of Beethoven's symphonies, the Fourth and the "Pastoral" are the most notable for their warmhearted lyricism—and it is this characterization that Brüggen seems bent on resisting, or defying, at all costs. His Fourth is stark and humorless, its blandness relieved only by occasional aggressiveness, and his "Pastoral"

simply has no sunshine in it. His gruffness in the opening movement suggests he is anything but joyful to be arriving in the country. The "Scene by the Brook," curiously indulgent, tends to plod. Only the second half shows a truly compassionate spirit, with an appealingly earthy quality in the scherzo, an exceptionally dramatic account of the storm, and a noble one of the concluding "Shepherd's Song."

The performances are not helped by the sound, which is well below Philips's norm: harsh and constricted in the Fourth, pointing up the thinness of the strings, and in the "Pastoral" obscuring numerous felicities of Beethoven's coloring we are accustomed to hearing without effort.

R.F.

BERLIOZ: Béatrice et Bénédict

Graham, Viala, McNair, Robbin, Cachemaille; Chorus and Orchestra of the Lyons Opera, Nelson

ERATO 45773-2 (two discs, 111 min)

Performance: Gratifying

Recording: Satisfactory

Berlioz's *Béatrice et Bénédict*, his last composition, is, like Verdi's late masterpiece *Falstaff*, a comic opera borrowed from Shakespeare whose creation inspired the composer to a renewed flow of melodic and orchestral invention. As a theater piece, it is not wholly successful, but the music... ah, the music! In none of Berlioz's other works is the orchestra used with such telling delicacy; even the contrabassoons spin out filigree passages of gossamer lightness. The instrumental combinations and rhythmic subtleties pour out in joyous profusion, supporting fresh and beguiling melodies.

The cast in this recording is a good one. Susan Graham and Jean-Luc Viala as the parrying lovers, Béatrice and Bénédict, sing clearly, stylishly, and with verve. Sylvia McNair's Héro is affecting and sung with silvery polish. Gilles Cachemaille, as Claudio, is equally well cast, singing with a nicely focused, clear baritone. Catherine Robbin brings warmth to Ursule's music, and that veteran of character roles, Gabriel Bacquier, makes the pompous Somarone more attractive than he really is. Except for Bacquier, each singer has his speaking counterpart, French actors who know their craft. Alas, however, the splicing of the sung and spoken parts is not well done, and the rhythm of the performance is thrown off. Nonetheless, the chorus and orchestra perform their parts well under John Nelson's careful and affectionate direction.

The only other available recording of the opera, Colin Davis's 1977 Philips set, features Janet Baker, Robert Tear, Christianne Eda-Pierre, Thomas Allen, and Helen Watts. Overall, the older performance has an edge, largely because of Davis's deft touch in achieving a more "total" reading of the score.

R.A.

BOLCOM: Violin Concerto; Fantasia Concertante; Fifth Symphony

Luca; American Composers Orchestra, Davies
ARGO 433 077-2 (62 min)

Performance: Eloquent

Recording: Clear, elegant

William Bolcom is one of the few composers anywhere who can move easily and convincingly between the worlds of popular and classical music, but, with one or two

exceptions, the music in this recording rarely suggests pop. The Fantasia Concertante, commissioned by the Salzburg Mozarteum, was intended to suggest Mozart—and it does. Bolcom denies any intent to commit Neoclassicism, but the big, “serious” symphonic works here suggest Prokofiev, if not Stravinsky, and even Bolcom’s teacher, Darius Milhaud, not infrequently comes to mind. Morton Gould, anyone?

Can anything be less fashionable? Do we care? Whatever the line of descent, this music has its own special qualities, among which wit and charm must be listed first. There is a sense of “fun” long missing from “serious” music that is back in play here, and it is much to be cherished.

Also to be cherished are these performances. Sergiu Luca is the excellent violinist for whom the Violin Concerto was written, and in all three works the American Composers Orchestra under Dennis Russell Davies makes an eloquent case not only for Bolcom’s high spirits but for his lyricism as well. *E.S.*

BRAMHS: Piano Quintet, Op. 34
SCHUMANN: Piano Quintet, Op. 44

Jandó; Kodály Quartet
NAXOS 8.550406 (67 min)

Performance: Quite good
Recording: Good

The Brahms and Schumann piano quintets are obvious discmates but seem to have been paired only once before, by Péter Frankl and the Lindsay Quartet on ASV, at full price. Jenő Jandó and the Kodály Quartet prove to be strong competitors, to be judged only by the highest standards. There is not a great deal of color in these performances, but there is a great deal of integrity as well as first-rate playing, an abundance of warmth, and sane, solid musicianship. There is real give and take, and an unflinching sense of proportion. The Schumann is endearing without being indulgent; the Brahms, more fetching still, never lacks fire. There are, to be sure, other versions of both works in different couplings that may offer something these do not (the first-movement repeat in the Brahms, for example, as well as a richer color spectrum), but few allowances need be made, and the budget price of this well-recorded disc might further recommend it as an economically painless introduction for young listeners and others who have yet to discover the intimate joys of chamber music. *R.F.*

GEMINIANI: Concerti Grossi

Tafelmusik, Lamon
SONY SK 48043 (59 min)

Performance: Refined
Recording: Churchy

Francesco Geminiani, perhaps the greatest violinist of the early eighteenth century, was the prize pupil of Corelli, whose concerti grossi virtually established the form. Geminiani spent most of his life in London, where he not only performed Corelli’s orchestral works but also made arrangements of his teacher’s chamber music (two of these are recorded here) and continued the line by writing, performing, and publishing his own set of six excellent and influential concertos.

Tafelmusik is a first-class Toronto-based period-instrument ensemble led by Jeanne La-



Emanuel Ax’s superb recording of Brahms’s Handel Variations is surprisingly different from what we had come to regard as the norm in this work. He plays it with a light touch, a sort of Classical lightness à la Mozart, with textures here and there suggesting Chopin, and the result is provocative in the most stimulating way. Perhaps we don’t need to hear Brahms always as “Old Bear’s Paws” (to borrow Olin Downes’s phrase); perhaps this lightness of texture and emphasis on clarity would have been more in the young composer’s mind, after all, in dealing with a theme of Handel’s. In any event, this is an intriguing alternative view, placing a familiar and revered work in a new light. And isn’t that precisely why we are interested in hearing such well-known material played by more than a single artist?

The six Op. 118 piano pieces and the two rhapsodies that accompany the variations are less provocative, but certainly no less satisfying in Ax’s authoritative renderings. Structural details are clarified without suggesting an X-ray approach, and emotional and intellectual content are balanced with an apparently instinctive certainty. The piano sound is crystalline throughout, and Ax’s own brief annotation sheds further interpretive light. *R.F.*

BRAMHS: Variations and Fugue on a Theme by Handel; Six Piano Pieces, Op. 118; Two Rhapsodies, Op. 79

Emanuel Ax
SONY SK 48046 (68 min)

mon, and these performances are lively, stylish, and full of nice touches in matters of timbre, dynamics, phrasing, and rhythmic impulse. The details are articulated with a great deal of finesse, but, as is often the case with olde-music recordings, this one was made in a church, and the resultant resonant acoustics tend to blur away some of the refinements. Otherwise an outstanding recording. *E.S.*

GLASS/SUSO: Music from “The Screens”

POINT/PHILIPS 432 966-2 (49 min)

Performance: Delightful
Recording: Fine

A composer of great facility, Philip Glass occasionally goes out of his way to challenge himself, obviously to keep from writing

the same sort of music year in, year out. With the incidental music for a production of Jean Genet’s *The Screens* by his ex-wife, JoAnne Akalaitis, Glass achieved one of his more stunning transformations by collaborating with Foday Musa Suso, a composer from Gambia, who was no doubt chosen to help achieve a sound that fits the play’s North African setting. As evidenced by this recording, it was a remarkably seamless collaboration, rarely betraying where Glass leaves off and Suso begins. Those who enjoyed Glass’s score for the film *Powaqqatsi* and are generally sympathetic to what is nebulously known as “world music” will probably be overjoyed to hear him working with exotic tuned drums, Arab-flavored microtonal scales, and Suso’s tangy vocal contributions. More conventional instruments in the ensemble include violin, flute, clarinet, cello, and keyboards.

The most heartening thing about this music is that its rustic, folk-like quality leaves little room for the knitted-brow pretentiousness of previous Glass scores. In fact, this is easily the most joyful thing he has ever done. Since it was intended as incidental music, you may not want to listen to it with your ear glued to the speaker. But in its modesty, “Music from *The Screens*” is wonderful company. *D.P.S.*



David Zinman: the power of ambiguity

GÓRECKI: Symphony No. 3

Upshaw; London Sinfonietta, Zinman
NONESUCH 79282-2 (53 min)

Performance: Restrained and moving
Recording: Transparent

The contemporary Polish composer Henryk Górecki is among the more gratifying cultural discoveries since the fall of the Iron Curtain. But, like many of his colleagues, the stories he has to tell reflect a sorrow that must be all but unbearable. Unlike his dissonant, expressionistic String Quartet No. 1 and *Lerchenmusik*, released earlier on Nonesuch, the 1976 Symphony No. 3, or “Symphony of Sorrowful Songs,” is an austere work for soprano, strings, and piano, with an orchestral palette consisting of subtle shadings of gray. There’s also a quasi-minimalist sameness in the chords and counterpoint, giving the music a bleak relentlessness broken only by the vocal settings. The texts include a Polish folk poem, a fifteenth-century monastic prayer, and a

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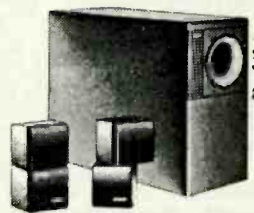
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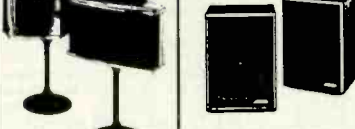
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Classical Music

verse found scrawled on Gestapo walls at the end of World War II. The central poetic image is of a mother seeing her son die before her, which not only creates a deep sense of loss but profound disillusionment toward the future.

In 1986 Erato issued a recording of the symphony that was used for the soundtrack of the Maurice Pialat film *Police*, but it didn't become a bestseller like the Nonesuch recording. Maybe Americans are more receptive to works of Eastern Europe now, but the new recording's success may have something to do with its lighter textures and faster tempos, which conspire to give a more exalted impression. The conductor, David Zinman, particularly seems to understand the power of the symphony's ambiguity: The chaconne-like first movement is built on a theme that could be anything from a child's nursery rhyme to a religious plainchant, and he never characterizes it so specifically as to ruin its resonance.

The soprano Dawn Upshaw is also a major factor. The clear, fresh timbre of her voice by itself implies that there's hope amid the ruins. She sings with the dignity of someone who has lived with sorrow so long that it's an ever-present neighbor. Her concentration is marvelous, particularly in the meditative, static third movement, which she and Zinman present as both a funeral march and a lullabye, again preserving ambiguity that is essential to Górecki's genius. *D.P.S.*



HERRMANN: Symphony No. 1
SCHUMAN: New England Triptych

Phoenix Symphony, Sedares
KOCH INTERNATIONAL CLASSICS

3-7135-2H1 (52 min)

Performance: Bracing
Recording: Good

Few would deny that Bernard Herrmann, the composer of the music for *Citizen Kane*, *Psycho*, *Taxi Driver*, and the recent remake of *Cape Fear*, had an unmistakable voice even from the very beginning of his career, which is what the Symphony No. 1 recorded here dates from. Although Herrmann's "serious" works are almost never performed, this 1941 symphony is far better than its neglect would suggest. Though by no means a masterpiece, it's a vigorous work that displays his astonishing command of orchestral color. The thematic materials are not particularly memorable, but his manipulation and transformation of them shows a good deal of invention. His use of the symphonic form is more dutiful than inspired, and despite Herrmann's efforts to convince you that it is abstract music, the symphony holds your ear because it's so atmospheric. The music always seems to be reacting to

some sort of secret story line, much more so than its discmate, William Schuman's familiar *New England Triptych*, which is an overtly programmatic piece.

The performances by a regional orchestra under the direction of James Sedares are fine, and the recorded sound is good. *D.P.S.*



MAHLER: Symphony No. 5

Boston Symphony, Ozawa
PHILIPS 432 141-2 (72 min)

Performance: Resplendent
Recording: Handsome

Seiji Ozawa, to judge from this concert recording and his earlier one of the knotty Mahler Seventh, seems to have a distinct affinity for the composer's complex middle symphonies. In the Fifth he gets the very best from his Boston players, most especially from the solo horn and trumpet. The opening funeral march is splendidly stern, and the ensuing movement gloriously virtuosic. The scherzo has fine swing and momentum. The lyrical episodes are imbued with a delightful lilt, and the parts calling for Mahlerian string *portamento* come off to perfection. The pizzicato section is sheer magic. Things are a bit less than perfect thereafter. The famous *adagietto* love idyll is too heavily freighted with sentiment at 11½ minutes. And in the complex Rondo-Finale, which is hard to make sound easy, Ozawa scores a near miss, though the brilliance of the final moments elicits deserved applause. The sonics throughout are magnificent. *D.H.*



MOZART: The Abduction from the Seraglio

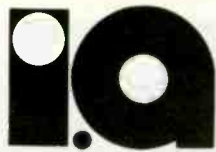
Studer, Streit, Szmytka, Gambill, Missenhardt, Heltau; Vienna State Opera Ensemble; Vienna Symphony Orchestra, Weil

SONY S2K 48053 (two discs, 123 min)

Performance: Good, with reservations
Recording: Good

Earlier and stronger entries in the Mozart anniversary avalanche have put this otherwise worthy performance at a disadvantage. It

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Vocal Olympics



In his latest effort to bring opera to wider audiences, the Spanish tenor José Carreras persuaded five of his most prominent operatic compatriots—Montserrat Caballé, Plácido Domingo, Giacomo Aragall, Teresa Berganza, and Juan Pons—to join him in an all-star vocal demonstration at the opening of the Olympic Games in Barcelona in July. With gusto they performed a 14-minute Barcelona Games Medley consisting of the most attractive melodies from *Aida*, *Bohème*, *Carmen*, and such other Top 40 operas as *La Traviata*, *Tosca*, and *The Tales of Hoffmann*. These memorable tunes sung by great artists first attracted me to opera, and I hope this performance, which television carried around the world, will do the same for a new generation of fans.

In the studio recordings of familiar arias that fill out the 72-minute RCA Victor CD or cassette (09026-61204), the emphasis is on vocal power rather than stylistic subtlety, and all six artists communicate their enthusiasm and the joy of singing. Carreras, who is in better voice than in some other recent recordings, delivers touching readings of arias from *Pagliacci* and *Otello*, which he recorded for the first time for this album.

Which champion gets the gold medal? Montserrat Caballé! Again she demonstrates that she possesses one of the most beautiful voices ever to issue from a human throat. All told, this lyrical souvenir of the Olympics and the Year of Spain makes a persuasive introduction to operatic singing.

For a limited time the Barcelona CD package will include a free RCA Victor Red Seal classical sampler disc containing thirteen selections by the company's biggest stars—Alicia de Larrocha, Evgeny Kissin, James Galway, Leonard Slatkin, Vladimir Spivakov, Pinchas Zukerman, and others—making it an unusually good buy.

—William Livingstone

is certainly well cast. In fact, Cheryl Studer's pure-toned and determined Constanze easily ranks with the best on records. And while Kurt Streit's cultivated tenor sounds a shade small-scaled, on records he measures up well against most other Belmontes. Elzbieta Szymka and Robert Gambill make a lively and expert supporting couple, and Günther Missenhardt—a few effortful top notes notwithstanding—is a resourceful Osmin. Michael Heltau is an unusually portentous and dignified Pasha.

What keeps these promising elements operating at a less than optimal level is the cool and businesslike conducting of Bruno Weil. There is an unrelaxed air about his brisk pacing, allowing for little interaction in the ensembles and less than full attention to refinement of phrasing, vocal as well as orchestral. There are superior versions conducted by Solti, Böhm, and Hogwood. *G.J.*

MOZART: *Così Fan Tutte*

Margiono, Ziegler, Cachemaille, Van der Walt, Steiger, Hampson; Netherlands Opera Chorus; Royal Concertgebouw Orchestra, Harnoncourt
TELDEC 71381-2 (three discs, 197 min)

Performance: Effective
Recording: Excellent

On first hearing, this recording was off-putting. Nikolaus Harnoncourt's tempos and dynamics seemed wayward, and there are none of the usual cuts in what is a very long opera. Even uncut, however, *Così* may be Mozart's tightest-knit operatic score, and on second listening I was quite won over. The generally relaxed tempos and often gentle dynamics make sense both musically and dramatically, and where brilliance and ebullience are called for, Harnoncourt directs in the spirit of a genteel romp.

Charlotte Margiono is persuasive as Fiordiligi, and Delores Ziegler is an attractive foil as Dorabella. As Despina, Anna Steiger sounds harsh at first but makes an impression with her lively sense of fun and intrigue. Gilles Cachemaille is a convincing Guglielmo, and Deon van der Welt brings an impetuous sincerity to Ferrando. The surprise of the cast is Thomas Hampson as Don Alfonso. Harnoncourt says he chose a lighter baritone for Alfonso than for Guglielmo because the latter "has the bottom line in the ensembles" and "in Mozart older men have higher voices." His points are well taken, and Hampson's voice and characterization make for a worldly yet attractive Don Alfonso.

If there is a leading figure in this recording, it is Harnoncourt himself. Under his direction, the chorus sings its modest contribution with enthusiasm, the orchestra plays with refinement and grace, and the soloists perform with conviction and laudable style. *R.A.*

MOZART: *Piano Concertos Nos. 21-23 and 27*

Tipo; Ensemble Orchestral de Paris, Jordan
EMI CDC 54235 (64 min), CDC 54234 (58 min)

Performance: Stylish
Recording: Good balance

Although Maria Tipo has recorded some solo works by Bach and Scarlatti in recent years, these are her first recordings with orchestra to come to my notice since the mid-Fifties, when she made her debut on Vox, also in Mozart concertos (No. 21 among



them). Her playing was stylish then, and there is more sparkle in it now, with further gains in Armin Jordan's sympathetic partnership as well as the judiciously balanced sonics. Some of the printed tempo markings suggest the use of scores that have been replaced by more authentic ones in the last few decades, but this is not reflected in the performances. These are, in fact, bright-eyed and enjoyable presentations of all four concertos: good, honest musicmaking, with a high level of technical competency, real affection for the material, and tasteful cadenzas by Tipo herself in Nos. 21 and 22. In a highly competitive catalog, however, they do not displace the recordings by Alfred Brendel with Neville Marriner (Philips), András Schiff with Sándor Végh (London), or the pianist-conductors Murray Perahia (Sony) and Tamás Vásáry (Collins), all of whom do take us a little deeper inside the music. *R.F.*

PROKOFIEV: *Symphony No. 4 (1947 version); Lieutenant Kijé Suite*

Malmö Symphony, DePriest
BIS CD-531 (63 min)

Performance: Good

Recording: Needs more body

James DePriest is one of the most intelligent and interesting conductors in the business, and I had hoped that a new recording of the Prokofiev Fourth Symphony under his direction would bring the music to vibrant life. But the Malmö Symphony is no Philadelphia Orchestra or Berlin Philharmonic, which is what the score needs. The music itself is problematic, deriving as it does from 1928 material that became the *Prodigal Son* ballet. Its initial metamorphosis into the Symphony No. 4 revealed its balletic origin all too plainly by way

Conductor James DePriest



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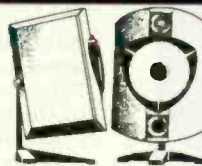
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of a certain scrappiness. In 1947 Prokofiev greatly expanded the end movements, but the piece still sounds like a scissors-and-pastepot job to me. DePriest makes the best possible case for it with the forces at hand, but he is betrayed by what seems like a distant microphone placement, resulting in less than ideally defined musical texture—a fatal flaw in Prokofiev. Neeme Järvi and the Scottish National Orchestra on Chandos still have the best of it in both versions of the Fourth Symphony.

The amusing *Lieutenant Kijé* film music comes off better on the whole in an almost chamber-music treatment. In its poetic moment the Malmö orchestra's solo saxophone, trumpet, viola, cello, and string bass do themselves proud, but I would have liked more panache and brilliance in the "Wedding" and "Troika" episodes. *D.H.*



Leonard Slatkin: American music

SCHUMAN: Symphony No. 10; New England Triptych; American Festival Overture

IVES (arr. Schuman): Variations on "America"

St. Louis Symphony, Slatkin
RCA VICTOR 61282-2 (67 min)

**Performance: Top-drawer
Recording: Superb**

Leonard Slatkin and his orchestra here give us smartly turned-out readings of two youthful scores by William Schuman, the *American Festival Overture* and the *New England Triptych*, built on hymn tunes by the Revolutionary-period Boston tunesmith William Billings. By way of interlude we get Schuman's dapper orchestration of a set of organ variations on *America the Beautiful* (some of them tongue in cheek) by the seventeen-year-old Charles Ives.

But the real substance of the disc lies in the world-première recording of the last of Schuman's completed symphonies, commissioned for the U.S. Bicentennial and subtitled "American Muse" in tribute to the nation's creative artists. The first of its three movements is brief and relentless, a kind of prelude. The heart of the work is the intensely elegiac central movement, marked *larghissimo*, which works to a climax of almost painful intensity and then subsides to a quiet end on an E-flat Major chord—proving that consonance can shock as much as dissonance. The finale is an all-out exercise in polyphonic virtuosity complete

QUICK FIXES



BARTOK: Concerto for Orchestra; Music for Strings, Percussion, and Celesta. Orchestre de la Suisse Romande. Inbal. DENON 81757-9044-2 (68 min).

The Suisse Romande Orchestra sounds world-class in Denon's handsome recording, and Elisha Inbal does just about everything right in respect to tempo, phrasing, and balance. What is missing, in both works, is a level of emotional commitment to complement the fine intellectual grasp. No latter-day pairing of these titles really offers much of a challenge to Fritz Reiner's stunning recording with the Chicago Symphony Orchestra, still impressive sonically on a midprice RCA Victor CD. *R.F.*

BRAHMS: Symphony No. 3; Tragic Overture; Schicksalslied. Berlin Philharmonic, Abbado. DEUTSCHE GRAMMOPHON 429 765-2 (68 min). Claudio Abbado gives the symphony plenty of heft and momentum in a full-blooded Romantic reading. The "Tragic" Overture is highly dramatic but hard-driven in the outer portions, and the *Schicksalslied* is richly satisfying. Fine, full-bodied sound. *D.H.*

HAYDN: Symphonies Nos. 88, 89, and 92. La Petite Bande, Kuijken. VIRGIN 91499-2 (77 min). The Symphonies Nos. 88 and 92 (the "Oxford") have long been among Haydn's most-played works, but I have never enjoyed them as much as in these performances on authentic instruments, whose open, airy textures afford the music all the grace it lacks on modern instruments. As a bonus there's one of the composer's least-heard mature symphonies, No. 89. *D.P.S.*

MOZART: Flute Quartets. Wincenc; Emerson Quartet. DEUTSCHE GRAMMOPHON 431 770-2 (62 min). Carol Wincenc and the Emerson String Quartet treat this music not as Rococo court fantasies but with a genuine, vigorous popular touch that brings out its earthiness. The elegance is still there, but so is the foot-stamping side of Mozart's personality, and the music emerges with unexpected character. A recording with a lot of musical and sonic presence. *E.S.*

OFFENBACH: Gaité Parisienne; Les Belles Américaines; Galop. IBERT: **Divertissement.** Cincinnati Pops, Kunzel. TELARC CD-80294 (66 min). Quintessential symphonic pops: the com-

plete *Gaité Parisienne* ballet (in the Manuel Rosenthal arrangement), a couple of smaller chips off the Offenbach block, and



Jacques Ibert's scene music for the famous comedy *The Italian Straw Hat*. All are played with the requisite panache by these pops specialists. *E.S.*

PROKOFIEV: String Quartets Nos. 1 and 2; Sonata for Two Violins.

Emerson Quartet. DEUTSCHE GRAMMOPHON 431 722-2 (59 min). Prokofiev's two quartets can be hard on the ears, not because the music is especially dissonant but because string quartets have such a difficult time playing it. The Emerson Quartet appears to have had a breakthrough of sorts, achieving performances so refreshingly free of stress, they let the listener get a clear look at what is going on in the music. The sonata that fills out the disc is modest but delightful. *D.P.S.*



SCHUBERT: Symphonies Nos. 5 and 8 ("Unfinished"); Rosamunde Overture. San Francisco Symphony, Blomstedt. LONDON 433 072-2 (68 min). Herbert Blomstedt, as always, brings a great sense of musical integrity to these performances, and in this case undisguised affection as well. He lets the essential charm of these works come through without coaxing. The orchestra plays with warmth as well as the power one wants in the "Unfinished," and it is impressively recorded. *R.F.*

SCHUMANN: Violin Sonatas Nos. 1 and 2; Three Romances for Oboe and Piano. Neidich; Hokanson. SONY SK 48035 (63 min).

Charles Neidich plays gorgeous clarinet, and Leonard Hokanson is an ideally sensitive pianist collaborator, but the violin sonatas need the tensile quality of that instrument to convey their underlying passion. No such problem with the lovely romances, which are often performed with clarinet and piano. Exemplary sound. *D.H.*

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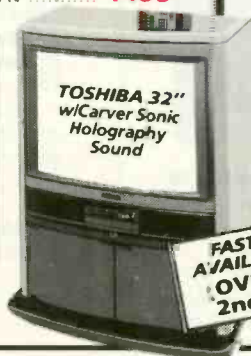
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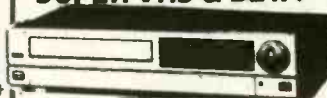
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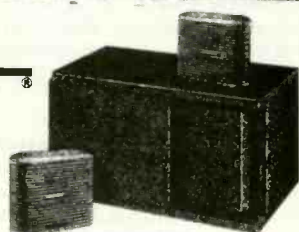
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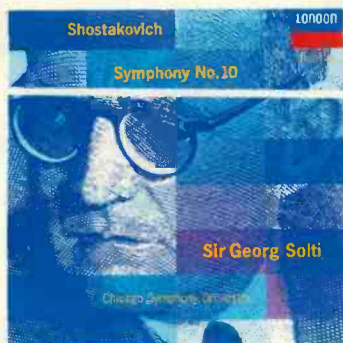
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with brilliant fugato textures and layering. It is only the ending, which seems a bit tacked on, that doesn't quite convince. The performance is absolutely superb, and the recorded sound is some of the best I've heard from Powell Symphony Hall. *D.H.*



SHOSTAKOVICH: Symphony No. 10

Chicago Symphony, Solti
LONDON 433 073-2 (50 min)
Performance: Painsstaking
Recording: Close-up, tight

Georg Solti here gives us a Shostakovich Tenth of surgical clarity in terms of texture and rhythmic articulation. But where is the passion—the journey from black despair to a frenetic sense of liberation? The *allegretto* third movement (which reveals the composer's D-S-C-H musical signature) goes at a more deliberate pace than usual. Only in the slow introductory pages of the finale does the human element finally come to the fore, thanks in large measure to the performance by the first-chair oboe. The live concert recording, complete with applause at the close, lacks the sense of space achieved at the best regular recording sessions, giving us too much of the conductor's ear view. There is an ample range of more successful digital versions available, including those by Karajan, Ashkenazy, Slatkin, DePriest, and Järvi. *D.H.*

SIBELIUS: Violin Concerto; Six Humoresques; Two Serenades

Swenson; Finnish Radio Symphony, Saraste
RCA VICTOR 60444-2 (66 min)
Performance: Splendid
Recording: Very good

Joseph Swenson has not only the requisite virtuosity to take the hurdles of the Sibelius Violin Concerto in full stride but also a powerful tone and formidable musicianship. To the first movement he brings both a convincing feel for structure and an interpretation imbued with a sense of near-rhapsodic improvisation. To the slow movement he brings a hotter tone than most violinists, but with subtle variations in dynamics and coloration. His virtuosic brilliance and power come wholly to the fore in the finale, despite the orchestra's rather ill-defined handling of the rhythmic figuration at the start. This flaw aside, conductor Jukka-Pekka Saraste provides excellent orchestral collaboration. The sonics are first-rate, save for some persistent low-frequency hum.

The Six Humoresques and Two Serenades for violin and orchestra are absolute gems from Sibelius's mature prime, the prize items being the D Minor Humoresque, Op. 87, No. 2, and the second of the serenades. *D.H.*

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• **MAHLER: Symphony No. 10.** Rattle. EMI CDC-54406. An "intensely dramatic and extroverted" recording of the revised performing version by Deryck Cooke (July 1981).

• **MOZART: Sonatas for Violin and Piano (complete).** Szegedi; Horszowski. Szell. VANGUARD OVC 8036-9 (four discs). "... perfectly gauged chamber renditions by completely equal partners" (February 1969).

• **RACHMANINOFF: Piano Concerto No. 3. MACDOWELL: Piano Concerto No. 2.** Wild; Horenstein. Freccia. CHESKY CD76. Earl Wild is in top form in these mid-Sixties recordings transferred from original master tapes.

• **SCHUBERT: "Wanderer" Fantasy; Sonata in A Major. Fleisher. Four Impromptus.** Freire. SONY SBK 47667. The sonata "ripples from Fleisher's fingers like fresh spring water in a reading of Classical elegance and lyrical expressiveness" (May 1964).

• **R. STRAUSS: Also Sprach Zarathustra; Le Bourgeois Gentilhomme Suite; Rosenkavalier Waltzes.** Reiner. RCA VICTOR 60930. The earlier of Reiner's two Chicago recordings of *Zarathustra*, still incomparable, is now available at budget price on a well-filled disc.



LUCIA POPP: Jugendstil-Lieder

RCA VICTOR 60950-2 (67 min)
Performance: Radiant
Recording: Excellent

This intelligently planned recital focuses on songs written in Vienna around 1900 by composers, all young at the time, who were influenced by the *Jugendstil* cultural and aesthetic movement to turn away from Romanticism toward new harmonic and stylistic paths.

Berg's Seven Early Songs (1905-1908), still primarily tonal, with demanding piano accompaniments, are concise and eminently accessible. The same may be said of Schoenberg's Four Songs, Op. 2 (1899), three of which set the then extremely fashionable poetry of Richard Dehmel. The five Hans Pfitzner choices, quite attractive in that composer's relatively conservative idiom, include three on texts previously set by other composers, which makes for some interesting comparisons. The four songs by the ill-fated Franz Schreker, still anchored in the Romantic tradition, are pleasant and unmemorable. Of the seven songs by Richard Strauss, including the later (1919) set of three "Ophelia" Songs, the most enjoyable is the simplest one, *Wiegenliedchen*.

Singing with the same tonal radiance and purity she first exhibited three decades ago, Lucia Popp remains an endearing interpreter. She presents the poetic messages clearly and sensitively, without overinterpretation, floating ethereal high notes whenever required. Her familiar tendency to squeeze out notes rather than attack them directly is a small price to pay for all that beauty. The pianist Irwin Gage collaborates brilliantly. *G.J.*

Collections

JUBILEE GAMES

Del Tredecì: *Tattoo*

Rorem: *Violin Concerto*

Bernstein: *Concerto for Orchestra*

Kremer; New York Philharmonic,

Israel Philharmonic, Bernstein

DEUTSCHE GRAMMOPHON 429 231-2 (72 min)

Performance: Affecting

Recording: Live and lively

Most people will buy this recording for the Bernstein Concerto for Orchestra, which was written for the fiftieth anniversary of the Israel Philharmonic and originally entitled "Jubilee Games." It is a typically colorful and rather diffuse Bernstein composition, full of adventurous, off-beat touches, some *Kabalah*-like numerical mysticism, quite a bit of joyful noise, and even a rabbinical baritone blessing at the end, sung by José Eduardo Chama.

Bernstein may be the main attraction, but the curtain-raiser is a stunning orchestral *Tattoo* by David Del Tredecì. This is a dark and dramatic orchestral tour de force, quite different in feeling from the composer's well-known *Alice* pieces. Reports of the symphony orchestra's imminent demise as a creative medium may be premature—at least with composers like Del Tredecì around.

Ned Rorem's Violin Concerto, affectingly performed by Gidon Kremer, is the most old-fashioned of these works. Its romanticism is endearing if a bit gray—like the fog on Nantucket Island where it was written. *E.S.*

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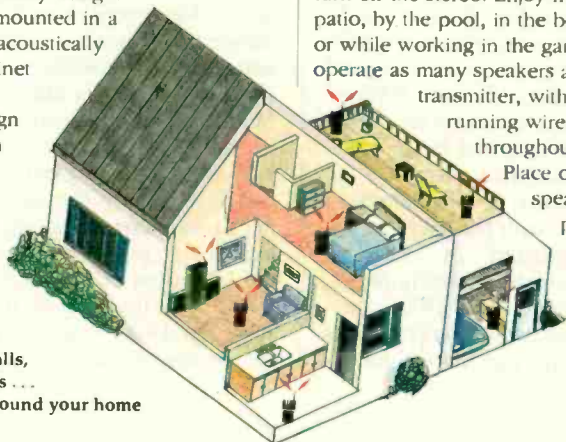
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GOING ON RECORD

BY WILLIAM LIVINGSTONE

Classical Videos

EARLY classical videos were usually devoted to major performances by such certified superstars as Leonard Bernstein, Vladimir Horowitz, or Luciano Pavarotti. Videos are now sufficiently commonplace that they are used as tools to promote the careers of very young artists, such as the pianist Evgeny Kissin and the violinist Midori.

The best known of several talented and attractive young women violinists from Japan, Midori is presented in a

ilar to Midori's, but she seems a more mature artist. On a BMG/RCA video she performs Tchaikovsky's Violin Concerto and Prokofiev's Concerto No. 2. The gimmick-free presentation enhances her excellent performance.

The Tchaikovsky concerto is played by yet another gifted young Japanese violinist, Akiko Suwanai, in "The Winners' Gala Concert" (Teldec, VHS only) from the 1990 International Tchaikovsky Competition in Moscow. This program is more than just another recital by prize winners. In a touching way it communicates the vulnerability of young artists giving their all at a great moment in their careers, and I have enjoyed replaying it several times. The other winners are Boris Berezovsky (piano), Hans Choi (baritone), Gustav Rivinius (cello), and Deborah Voigt (soprano). Choi, an exceptionally polished young singer from Korea, has won many other prizes, including a medal in the 1990 Rosa Ponselle International Competition for the Vocal Arts. In Moscow he won the gold medal in the male vocal category and was singled out over the local contestants to receive the gold medal for interpretation of Russian music!

To be sure, there are still plenty of videos by certified superstars. RCA has issued "James Galway at 50," a jolly documentary about the music world's jolliest Irish flutist. I like Galway, and I'm glad he is happy at fifty, but I would not replay this show.

I give higher marks for repeatability to "La Stupenda" (London), a documentary about the brilliant Australian soprano Joan Sutherland, now retired. In addition to generous samples of her singing, it includes chats with colleagues, such as her drama coach, Norman Ayrton, who talks of the difficulty of teaching her to act "beyond her G.P.E (General Pained Expression)." There are tributes by such singers as Marilyn Horne and Pavarotti.

Among performance videos by superstar conductors, I like Mahler's Fifth Symphony with the Vienna Philharmonic conducted by Leonard Bernstein (Deutsche Grammophon), although the sound (from 1973) is not as full as in more recent versions. It is edited visually in a way that moderates

the mugging and choreography that sometimes marred Bernstein's work.

I'm a great admirer of Sir Georg Solti, and I'm happy to see him well represented on video with splendid sound. Sony Classical used a High Definition Video System in recording a concert in Tokyo in which Solti conducted the Chicago Symphony in Beethoven's *Egmont* Overture and Fifth Symphony.

"Solti in Budapest" (London) marks the conductor's emotional return to his native Hungary on his final tour as music director of the Chicago Symphony. He conducts a concert made up of music by Bartók, who also fled Hungary during the Nazi era, and the Concerto for Orchestra is a wonderful showpiece for the Chicago Symphony. A very special performance well captured on video.

Also enjoyable (and repeatable) is "Concert in Berlin" (BMG/RCA) with Vladimir Spivakov (violin), Yuri Bashmet (viola), and the Berlin Philharmonic conducted by Mstislav Rostropovich. And I can recommend Haydn's *The Creation* (Sony) with notable soloists and the Vienna Philharmonic under Riccardo Muti.

Video Artists International gives us a rare opportunity to see Janáček's *The Makropulos Case* (VAI 69099, VHS only) in a fine performance by the Canadian Opera Company, conducted by Berislav Klobucar with Stephanie Sundine as Elina Makropulos. And Teldec performs a similar service for Verdi's *Giovanna d'Arco*, with Susan Dunn in the title role and Riccardo Chailly conducting.

But all other recent releases pale beside Wagner's *Ring of the Nibelung* (Deutsche Grammophon) in the complete Metropolitan Opera performance that was a hit on PBS last year. James Levine conducts the Met orchestra with James Morris, Hildegard Behrens, and numerous other soloists (a cast that has some weaknesses as well as many strengths). This production is probably the closest to Wagner's intentions in staging that we will ever see. In my opinion the set justifies the invention of television and home video. An investment in this video *Ring* could very well give you pleasure for the rest of your life. □



Hans Choi, prize-winning baritone

new Sony Classical video of her Carnegie Hall recital debut, available on laserdisc and VHS tape (as are all others mentioned here unless otherwise specified). She demonstrates her considerable gifts in a program of works by Mozart, Beethoven, Chopin, Ravel, and Strauss. Unfortunately, it is marred by a mawkish narration that cannot be zapped by the remote control, and it becomes more irritating with each playing.

Kyoko Takezawa, the winner of the 1986 International Violin Competition in Indianapolis, has a background sim-

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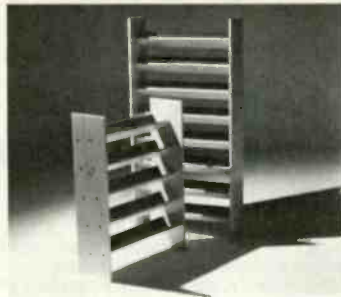
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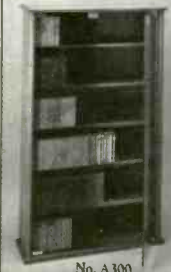
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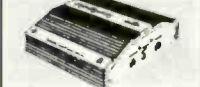
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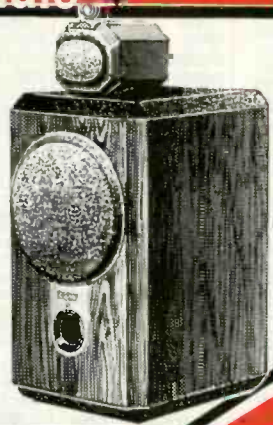
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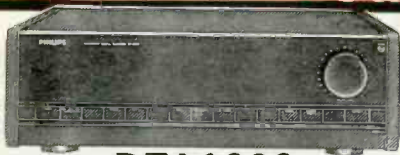
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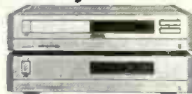
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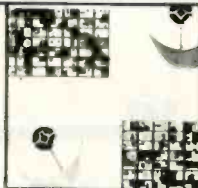


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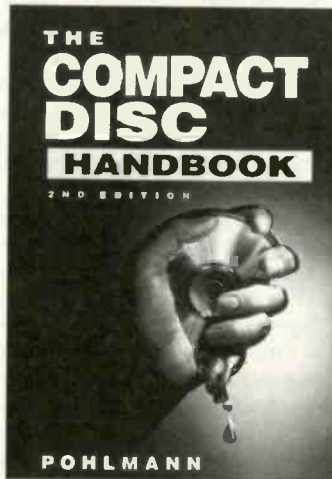
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Index to Advertisers

Reader Service No.	Advertiser	Page Number
—	Acoustic Research.....	36-37
2	Adcom.....	54
—	Advent.....	10
—	BMG CD Club.....	40a, b
—	Basic Repertory.....	45
—	Bose.....	5, 15, 53, 61
—	Bose Express.....	85
6	Cambridge SoundWorks.....	19-21, 22, 23
38	Cerwin-Vega.....	51
—	Colonel Video & Audio.....	96
—	Columbia House Laserdisc Club.....	9
—	Columbia House CD Club.....	16a, b
—	The Compact Disc Handbook.....	111
—	Comrad.....	103
—	Courvoisier.....	C3
—	Crutchfield.....	81
16	DCM.....	12
13	Definitive Technology.....	42, 43
—	Electronic Wholesalers.....	101
—	Elektra Records.....	13
—	Expansion Systems.....	77
—	Express Audio/Video.....	99
—	Ford Electronics.....	11
—	Franklin Mint.....	75
15	Geneva Group.....	77
—	Hiram Walker & Sons.....	C3
—	Hughes Audio.....	28
—	Illinois Audio.....	97
25	J&R Music World.....	88-89
18	JBL.....	C4
—	Jensen-Car.....	35
—	JVC.....	27, 29
31	M&K Sound.....	78
—	Maxell.....	46-47
33	Mobile Fidelity.....	72
—	Music by Mail.....	83
36	NHT.....	8
35	Nordic Track.....	45
—	PARA.....	87
26	Pinnacle.....	2
—	Pioneer-Car.....	71
—	Pioneer-Home.....	6-7, 24, 66
—	Polk Audio.....	31
—	6th Avenue Electronics.....	94-95
—	Sound City.....	91, 103
47	Velodyne.....	80
—	Warner Music Enterprises.....	62-63
—	Yamaha.....	C2, 1

S e p t e m b e r



SIGNALS

BY KEN C. POHLMANN

Music Crystals

WITHOUT doubt, the last decade has seen great advances in audio technology. In particular, the compact disc introduced the remarkable advantages of digital audio to the public. By digitizing the audio signal, lossless storage and duplication can be achieved, although great care must be taken when converting the binary data to and from our analog world.

Soon, with the introduction of the Digital Compact Cassette (DCC) and the Mini Disc (MD), we will enter the second generation of digital audio storage. The low-bit-rate coding technology used in these new formats is much more efficient than the linear PCM system used in CD. In fact, low-bit-rate coding is so efficient that DCC and MD can store an audio signal with a fraction of the data needed by CD, yet achieve fidelity that approaches or perhaps even exceeds that of CD. The biggest question is, will most people be able to hear the improvement?

But for all they accomplish, both analog and digital audio storage systems still have an Achilles heel. No matter how robust or convenient the format, no matter how efficient the coding, no matter how good the sound, all these systems are still mechanical in nature. Whether it is one hub spooling tape to another or a spinning disc, our audio storage systems remain conceptually identical to the tin-foil recorder that Thomas Edison devised in 1877.

Certainly, if we were to use DCC to record *Mary Had a Little Lamb*, it would sound significantly better than Edison's version, but the circuitry and motors needed to physically move our medium tie even DCC to its primitive origins. Clearly, the next great step in audio technology will be a solid-state, random-access storage medium with no dependence on moving parts to record or retrieve the data. We've already seen glimpses of it. In fact, many devices today, from telephone answering machines to recording-studio workstations, use solid-state memory chips to hold audio data. But the

staggering amount of data needed to record high-fidelity music (650 megabytes on a CD) and the relatively high price of memory chips make such storage of music impractical for consumer applications. Even with data compression, the goal of solid-state consumer audio storage would seem to be beyond our reach.

The solution, of course, is a new kind of memory medium whose storage capacity is measured not in megabytes but in hundreds of gigabytes—that is, hundreds of thousands of megabytes. One such technology, now being researched, is photorefractive volume holographic storage, sometimes called holostore, which is a random-access memory system that stores data in the form of three-dimensional holograms.

Holostore works something like this: A green laser beam is directed to the appropriate memory location and split into two sub-beams, a data beam and a reference beam. The data beam strikes a spatial light modulator, which creates a pattern of light and dark spots dictated by the data being read into the holostore. This data pattern is superimposed on the data beam, which, along with the reference beam, enters an array of light-sensitive crystal rods. Inside the crystal array, the reference beam crosses the data beam, creating an interference pattern. The holostore modifies the optical characteristics of the photorefractive crystal to store the interference pattern. As new data enter the holostore, it shifts the reference beam slightly to reach new areas of the crystals. The data signal is thus preserved as a three-dimensional holographic bit-pattern image in the crystals.

To read data from memory, the data beam is turned off, the holostore directs the reference beam to the correct portion of the crystal, the beam illuminates the stored interference pattern, and the original bit pattern reappears. This image strikes a detector array—a charge-coupled device (CCD)—that converts its light and dark areas back into electronic signals. Conventional digital audio processing and digital-to-analog conversion would complete the path to our ears. The crystal memory is nonvolatile and transportable.

Speed? Today's fastest magnetic-disc system would take 5 hours to deliver the same amount of data that a holostore could deliver in 1 second. Durability? Tests have shown that a holostore could be read a billion times without signal-to-noise degradation. Cost? It has been estimated that the cost per bit of holostore will be less than twice the cost per bit in conventional optical media such as CD. Capacity? A removable holostore module, measuring 10 x 10 x 0.5 centi-

Whether spooling tape or a spinning disc, today's audio storage systems remain conceptually identical to Edison's original tin-foil cylinder recorder of 1877.

meters, could store 100 gigabytes. Using data compression as in the DCC format, playing time would be 760 hours—about a month.

Whether consumers really need audio crystals that hold a month of music is debatable. Instead, perhaps manufacturers will use that storage capacity to provide additional audio or video channels, or data from some yet-to-be-invented signal processing that enhances the playback experience.

When holostore eventually works its way out of the laboratory and into consumer products (still a long way off), audio will finally shake off the last vestiges of its origins. But I suspect that Edison, inventor of both the light bulb and the phonograph, would heartily approve of this technology that uses light to store music. Especially if he happened to own the holostore patents. □

WHAT MAKES A MOMENT



A MEMORY



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