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Stereo Review

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A BASIC GUIDE

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Cover. Today's speakers come in all types and sizes: clockwise from upper left, the Celestion A1, the NHT VT 1.2, the Klipsch KLF 30, and the Rock Solid Sounds Solid S100 satellite and Solid PB100 subwoofer.

Photograph by Dave Slagle; digital imaging by Chris Gould

Stereo Review

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LETTERS

Digital Sound Cards

I greatly enjoyed the update on PC audio in June "Peripherals." It didn't, however, answer a key concern of mine. Over the last couple of years, I have archived all of my out-of-print vinyl records by transferring them to DAT, waiting for the day that I could afford to transfer the DAT recordings to a CD-R or CD-RW. Now prices on computer CD drives have come down to an affordable range, and I am ready to make a purchase and begin the transfer. The problem is that because of the poor analog quality of most PC sound cards, I'd like to stay all-digital. Is there anything out there now that will let me do that, or must I wait until USB and FireWire are more mature?

JIM ANDERSON
Nashville, TN

There's a new generation of consumer PC sound cards with digital input/output, such as the Sound Blaster AWE64 Gold (see "New Products," page 18). And if you want some software to edit your digital audio files, consider Sound Forge (see "Peripherals" in July). We hope to report on some of those new digital sound cards in a future issue.

Waiting for DVD-Audio

In Ken Pohlmann's July "Signals" column, "The Holy Grail," he advocates an audio-only DVD capable of storing 200 minutes of five-channel, 96-kHz/24-bit, losslessly compressed program material. I agree, but he also suggests that there is no need for a dramatically longer playing time. I disagree with that part. If 200 minutes can be recorded at 96 kHz/24 bits, over 500 minutes can be recorded at 44.1 kHz/16 bits. All of the Brahms orchestral and concerted music on a single disc! The RIAA must be lying awake at night worrying about this prospect. They know that if it can be done, it will be.

I'll predict that the RIAA is going to do everything possible to prevent the introduction of an audio-only DVD. And I don't blame them.

NORM STRONG
Seattle, WA

After reading Ken Pohlmann's "The Holy Grail" (July), I am confused about the future DVD-Audio discs and their compatibility with present DVD players. When I read David Ranada's "First Look at DVD" in May, where he said that Pioneer's DVL-700 laserdisc/DVD combi-player could play video DVDs as well as music DVDs with 96-kHz, 24-bit audio, I was ready to buy a DVL-700. But Mr. Pohlmann stated that future DVD-Audio discs would *not* be compatible with the DVD players that are now available.

Is there a contradiction between Mr. Pohlmann's statement and Mr. Ranada's? Do

you know if Pioneer or Sony plans to make combination DVD/laserdisc players that are compatible with both DVD-Video and the DVD-Audio discs slated for release late in 1997 or early 1998? I'm confused!

SEAN C. D. LEWIS
Stafford, VA

You're not the only one who's confused, and until the specifications for DVD-Audio — still a subject of fierce negotiations — are actually settled, it's impossible to give any definitive answers. Current North American DVD players are required only to be able to play back a 44.1/48-kHz, 16-bit PCM digital stereo soundtrack as well as a 5.1-channel Dolby Digital soundtrack. When DVDs with alternate soundtracks, such as 96-kHz/24-bit, are encountered, and we don't know of any yet, some current players will convert the PCM signal to 48 kHz and 16 bits for playback, losing any theoretical or practical advantage of the "advanced" spec. Mr. Pohlmann's point was that a future DVD-Audio disc should have 5.1 channels (not just two channels) of 96-kHz/24-bit audio, and such discs, if they are ever produced, would probably not be fully compatible with current DVD players.

I would like to applaud Ken Pohlmann and Corey Greenberg for their sagacious columns ("Signals" and "The High End," respectively) in the July issue. I, too, await news of the development of DVD-Audio. I have resisted taking the home-theater plunge largely because I have no real interest in it. (What? All that extra gear and trouble to get the full theater experience of *Weekend at Bernie's*? Get real.) I will, however, unhesitatingly support the DVD-Audio format to the limit my bank will allow! All provided, of course, that the manufacturers pay close attention to the sage advice offered by Messrs. Pohlmann and Greenberg.

GEORGE M. WEST
Louisville, KY

DVD Starter Kit

I was reading the July issue and noticed in an ad that if you bought a Toshiba DVD player you would receive a "DVD starter kit." What interested me most was DVD movie catalogs that allow you to purchase discs directly from the studios. I already have a Sony DVD player and have been vigorously looking for something like that, as most of the stores in my area are stocking only a trickle of DVDs until Christmas. Is there anywhere I can obtain a catalog similar to the ones Toshiba is giving away with its players?

RICK TARMAN
Baltimore, MD

The most up-to-date listings of available DVD-Videos that we've found are on the World Wide Web pages of two companies

that sell the discs. Laserdisc Enterprises (www.laserdisc.com/dvd.html; telephone, 1-800-347-1941) and DVD Express (piano: symgrp.com/dvd/index.html; telephone, 213-465-1271). We have no other information, however, about these online retailers, good or bad, so caveat emptor.

Hear the Light

In June "Letters," Richard P. Clancy described the astounding improvements in sound quality he had obtained by degaussing (an electromagnetic procedure) his CDs (an optical medium). Fascinating. It made me wonder if the converse was also true — and it was! I found that I could eliminate minor pre-echoes from my tapes by the simple expedient of shining a flashlight on them. Complete erasure was, however, more difficult. After much experimentation, I found that the candlepower of my car's headlights (high beams, of course) did the trick. Bravo! for contributing to the edification of your readers in this manner.

CHARLES J. DOUGHERTY, JR.
Maple Shade, NJ

Turntable Nostalgia

For those of us who still love vinyl, Daniel Kumin's article on turntables in June offered fond memories. Digital technology is fundamentally superior to analog, but it is amazing that the LP is able to give us such a credible image of live acoustic events. And LPs today seem to be manufactured to better quality standards than before.

CARLOS E. BAUZA
San Juan, PR

Star System

I would like to express my disappointment with the new format for CD reviews in your magazine. For years, my primary reason for subscribing to STEREO REVIEW was the rating system used to describe both the performance and sound quality of recordings. Your new system takes the "punch" out of what used to be descriptive commentary.

For example, in the July issue there are reviews of eleven pop CDs. Seven rate four stars ("Very good"), four rate three stars ("Good"). How definitive is that? Your previous rating system was far more descriptive, with one word for performance and one word for quality of the recording.

Sometimes change is good. Sometimes it's better to leave well enough alone.

MIKE BASILE
Bozeman, MT

Dolby Digital Recording?

Something is really worrying me, sort of like the elephant in the parlor that no one wants to mention. The FCC has adopted the

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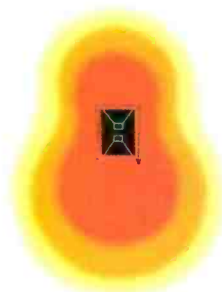
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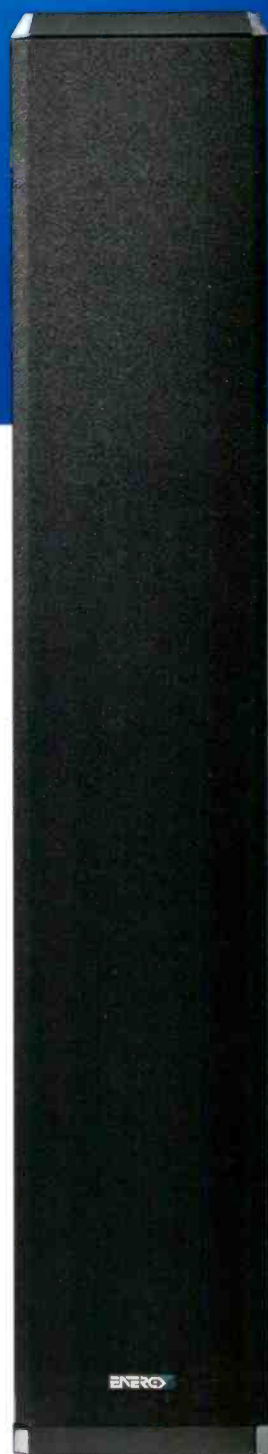
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Grand Alliance plan for the audio standard that will start the new millennium, namely Dolby Digital. Both music and video recordings will be sold in this improved format. Why does no one mention home recording? It has been about a year since AC-3 became available. Will there be no tape recorders? Will there be no VCRs? What is going on backstage? America wants to know!

PASCAL J. IMPERATO
Redlands, CA

Technical Editor David Ranada replies: What's going on is seemingly deadlocked negotiations between the hardware companies and the "content providers" (the record companies and movie studios) to establish the legal and technical bases of copy-limiting and copy-prevention techniques. Digital video recorders are already prevented from digitally cloning the contents, audio or video, of a copyrighted DVD. And even analog copying is inhibited by a DVD player's built-in Macrovision system, in contrast to the single generation of cloning you are allowed from CD to DAT or MD. Things will probably get even more restrictive with the new technologies such as recordable DVDs and general-purpose digital tape recorders ("bit buckets") until the content providers achieve their dream of a pay-per-recording/pay-per-playback system.

Channel Separation

Whatever happened to good stereo channel separation? I recall the vivid left/right distinction I could make when I upgraded to stereo in the early 1960s. By the time CDs became available, we were all so busy proclaiming the new millennium in sound quality that we hardly noticed the diminished channel separation. The Beatles (with George Martin's help) really took channel separation to the next level once they began recording in stereo. Admittedly, some of what they did was studio magic, but by the time they recorded *Sergeant Pepper* their recordings were crystal clear, with each channel separate and distinct.

Recently, I've been listening to several Doobie Brothers CDs. I love the opening of *China Grove*, where the rhythm guitar is stage right and then the band joins in from stage left, and *Black Water*, where the intro to the *a cappella* portion has an acoustic guitar on the left and the counterpoint fiddle on the right, followed by chorus right and lead vocal left. This recording technique seems to have withered in the late 1980s and is now almost completely gone. Why?

STUART A. NAPIER, JR.
Richmond, VA

David Ranada replies: It seems you like the ping-pong separation that characterized even early classical stereo recordings. I like to think the tastes of recording composers and producers have matured and that they are now more sophisticated in their use of finely gauged sound positioning across the whole width of the image and of spatial-enhancement effects to convey musical values. As musical tastes change, so will production

techniques. If you want exaggerated separation effects, just wait until we get multichannel DVD-based music recordings. Ping-pong-ping-pong-pong!

Disabled DVDs

There's no indication anywhere on the boxes or discs, and I found out only by chance, but with the Columbia TriStar DVDs I've purchased you need to go into the menu, choose "spoken languages," then "English Dolby 5.1" in order to play the Dolby Digital soundtrack, which is a real pain. All the Warner DVDs I have automatically play in Dolby Digital if you have the equipment.

Why has Columbia made this choice necessary? It certainly does not have to be that way since friends of mine who do not have AC-3 equipment have no problem playing the Warner DVDs on their equipment.

PAUL A. BECK
San Francisco, CA

David Ranada replies: To my mind, the DVD standard gives the movie companies too much control over how programs interact with players. On some discs you cannot skip over an FBI warning or other video preamble, such as a THX logo. Warner movies can automatically come up with subtitles on. Others, like your Columbia TriStar titles, output only Dolby Surround signals unless you tell the player otherwise. And, if I interpret some cryptic remarks in DVD-player manuals correctly, it is possible for movie companies to lock out certain nice features such as slow motion or fast scanning. Write to the movie companies and complain, or start a campaign on the Net.

A brief browse through DVD movies at a local retailer shows a distressing trend. Few discs contained letterbox or other alternative viewing formats, just the pan-and-scan video versions. One of DVD's advantages is that a single disc can include multiple formats of a movie, which eliminates the need for retailers to double-stock titles or to limit choice by stocking only one format.

If a film was made in widescreen, that is what I want to see. DVD manufacturers may be hoping for a mass market, but this launch will not be successful unless we film buffs are motivated to purchase players. It is our purchases that will generate the sales momentum needed to get DVD off the ground.

JON WAGNER
Yorba Linda, CA

Correction

In the August issue, a photo caption on page 69 gave an incorrect price for the Pinnacle Digital Sub 250 subwoofer. The manufacturer's suggested retail price is \$850.

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

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NEW PRODUCTS



▲ MARANTZ

The Marantz CC-870 101-disc CD changer has a linear mechanism said to be much faster than those of typical rotary changers. A slot allows a single disc to be loaded for playback without disturbing the 100 discs in the changer. Each stored CD can be assigned a name and one of ten musical

categories. Up to eight changers can be linked together as a unified system, allowing its remote control (included) to access 800 discs. The CC-870 measures 17¼ x 7½ x 14 inches. Price: \$600. Marantz, Dept. SR, 440 Medinah Rd., Roselle, IL 60172.

• Circle 120 on reader service card



▲ DENON

The Denon AVR-3200 Dolby Digital A/V receiver can deliver 70 watts to each of five channels, and its subwoofer line-level output has a variable level control. Denon's custom-built Dolby Digital processor circuitry, called Dynamic Discrete Surround Circuit-Digital (DDSC-D), is said to minimize noise and distortion.

The receiver offers a six-channel external-decoder input as well as ten analog audio inputs, one optical and one coaxial digital input, one RF AC-3 input, four composite-video inputs, and four S-video inputs. Price: \$1,200. Denon, Dept. SR, 222 New Rd., Parsippany, NJ 07054.

• Circle 122 on reader service card

▼ BANG & OLUFSEN

The Bang & Olufsen BeoLab 4000 powered speaker, which can be mounted in a variety of positions on a wall or ceiling, measures a diminutive 12⅝ inches high and 5⅝ inches deep, but B&O's Active Speaker technology is said to allow it to produce the same acoustic output as a conventional speaker three times its size.

The magnetically shielded anodized-aluminum bass-reflex cabinet, available in silver, black, or green, houses a 4½-inch woofer, a ¾-inch tweeter, and a 48-watt amplifier. Price: \$900 each. Bang & Olufsen, Dept. SR, 1200 Business Center Dr., Mount Prospect, IL 60056.

• Circle 121 on reader service card



▼ JVC

The JVC XV-10008K DVD-Video player features the AV Complink control system, which allows a JVC receiver and TV to be turned on automatically, with their inputs set correctly, as soon as a disc is loaded. Separate power supplies for analog and digital circuitry are said to eliminate interference.

The player is compatible with audio and video CDs. It has S-video and composite-video outputs as well as an optical digital audio output for connection to a Dolby Digital decoder. Price: \$900. JVC, Dept. SR, 41 Slater Dr., Elmwood Park, NJ 07407.

• Circle 123 on reader service card



NEW PRODUCTS



◀ B&W

The B&W Signature 30 floor-standing speaker is a three-way vented-enclosure design with a 7-inch woofer that has a ceramic-coated aluminum cone, a 7-inch Kevlar-cone midrange, and a 1-inch metal-dome tweeter. Frequency response is specified as 38 Hz to 20 kHz ± 3 dB and sensitivity as 89 dB. The speaker, which measures 40 $\frac{1}{8}$ x 10 $\frac{3}{8}$ x 15 inches, is available in gray tiger's-eye (shown) and red bird's-eye "piano gloss" lacquer finishes. Price: \$12,000 a pair. B&W, Dept. SR, 54 Concord St., North Reading, MA 01864.

• Circle 124 on reader service card



▲ PANASONIC

The Panasonic PT-61XF70 is a combination of a 61-inch rear-projection TV and a DVD-Video player. The set's five-element hybrid lens assembly, 3-D Y/C comb filter, and wide-band video amplifier deliver a horizontal resolution rated at 750 lines. Both variable and fixed audio outputs

are provided, as are four pairs of A/V inputs (one in front) and two S-video inputs. The cabinet, which offers storage for other components, is 26 inches deep. Price: under \$5,000. Panasonic, Dept. SR, One Panasonic Way, Secaucus, NJ 07094.

• Circle 127 on reader service card

UNIVERSAL ▶

The Home Theater Master SL-8000 from Universal Remote Control can control up to eight A/V components, including DVD and laserdisc players, satellite receivers, and audio receivers. The remote allows volume to be changed during a TV or satellite broadcast, and channels can be changed regardless of what mode the remote is in. Price: \$100. Universal Remote Control, Dept. SR, 271 North Ave., New Rochelle, NY 10801.

• Circle 125 on reader service card



▲ PIONEER

Pioneer's DEX-P98R car CD receiver features ID Logic and Radio Data System (RDS) technology, which allows the display of an RDS-equipped station's call letters and format type, traffic announcements, and more. It has a detachable face

with a defeatable reminder beep, and it can also act as a car-security alarm. A wireless remote control, with mounting kit, is included. Price: \$600. Pioneer, Dept. SR, 2265 E. 220th St., Long Beach, CA 90810.

• Circle 126 on reader service card

TANNOY ▶

The Tannoy Mercury m2 bass-reflex speaker measures about 15 x 8 x 10 $\frac{1}{2}$ inches and contains a 6-inch woofer, a 1-inch soft-dome tweeter, and a rear-firing port. It has a rated bandwidth of 48 Hz to 20 kHz and sensitivity of 88 dB. The speaker is finished in black ash woodgrain vinyl with a front panel in cherry or gray bird's-eye. Price: \$350 a pair. Distributed by TGI North America, Dept. SR, Unit 1, 300 Gage Ave., Kitchener, Ontario N2M 2C8.

• Circle 128 on reader service card



The VT-2 Home Theater System

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Two user-selectable crossover topologies adapt to differing soundstage requirements of two-channel and A/V reproduction.

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Tailored impulse response assures perfect synergy between stereo image and visual imagery.

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Radiation:

Smooth, even response over wide range of listening positions.

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Dan Mountain.

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Home theater skeptic turned enthusiast.
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CIRCLE NO. 31 ON READER SERVICE CARD

The logo consists of the letters 'NHT' in a bold, white, sans-serif font, set against a black circular background.

NEW PRODUCTS



◀ KINETIC AUDIO

Kinetic Audio's three-way Direct loudspeaker features a Tapered Acoustical Trapezoidal Line enclosure with a variable vent to adjust the 12-inch woofer's air/mass loading for greater bass detail and extension. The 1- and 2-inch dome upper-frequency drivers are offset diagonally to "eliminate undesirable transducer interaction." There are level controls on the front of the 40-inch-tall cabinet, which is finished in natural or black oak veneer. Price: \$2,500 a pair. Kinetic Audio, Dept. SR, P.O. Box 215, Arlington Heights, IL 60006.

• Circle 129 on reader service card



▲ WRIGHT AUDIO

Wright Audio's LT-3 stereo tube preamplifier (bottom in photo) features a separate, choke-filtered power supply and matched-channel potentiometers, resistors, and metallized polypropylene capacitors. Six inputs and a signal-processor loop are provided. The

optional PH-2 phono stage (top), for moving-magnet and high-output moving-coil cartridges, can be powered by the LT-3's supply. Prices: LT-3, \$1,250; PH-2, \$650. Wright Audio, Dept. SR, 3088 W. 15th Ave., Unit 17, Eugene, OR 97402.



◀ PHILIPS MAGNAVOX

The Philips Magnavox DVD400AT DVD-Video player digitally enhances playback features to provide solid freeze-frame images and clear slow-motion and two-speed forward and reverse scan. Repeat play is provided by title, chapter, track, or any two user-selected

points. The DVD400AT is compatible with such base-level DVD features as multiple camera angles and multiple languages. It can also play audio CDs. Price: \$549. Philips Magnavox, Dept. SR, One Philips Dr., Knoxville, TN 37914.

• Circle 130 on reader service card

CREATIVE LABS ▼

The Sound Blaster AWE64 Gold sound card for DOS and Windows PCs from Creative Labs allows up to sixty-four notes to be played simultaneously. The half-length ISA card has 4 megabytes of RAM (expandable to 28 MB), an SPDIF interface for digital output,

and gold-plated RCA phono jacks. It supports the SoundFont downloadable sound-sample format, so new "instruments" can be added. Price: \$250. Creative Labs, Dept. SR, 1901 McCarthy Blvd., Milpitas, CA 95035.

• Circle 131 on reader service card



VISTA ▲

The SSM2000 stereo noise filter and compressor from Vista is said to improve the signal-to-noise ratio of virtually any line-level source by 25 dB. The noise filter incorporates an automatic adaptive threshold that detects the noise floors of different source material and media and then changes its

own voltage-controlled amplifier and filter thresholds accordingly. The compressor can automatically attenuate loud television commercials. Available factory-direct for \$125 plus \$5 shipping from Vista, Dept. SR, P.O. Box 1425, Bolingbrook, IL 60440; phone, 630-378-5534.

• Circle 132 on reader service card

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“ Ensemble may be “the best value in the world.” *Audio*

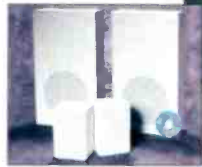
“...stereo imaging is phenomenally sharp...the dynamics are stunning...some of the speakers I'm comparing it to cost \$1,900 to \$2,800.”

High Performance Review

“Ensemble makes a great argument for mail-order everything.” *The Village Voice*

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“ The Ensemble II, like its companions in the Cambridge SoundWorks lineup, performs so far beyond its price and size class that it can be compared only with much larger speakers at substantially higher prices...it represents an outstanding value.” *Stereo Review*

▲ **ENSEMBLE II** Our best value in a high-performance speaker system. Single subwoofer cabinet, two-way satellites. White or charcoal. Factory-Direct Price: **\$499.99**

“ The only speakers you'll ever need... equally at home as high-end PC speakers or as room-filling stereo speakers.” *PC Magazine*

“I haven't heard better speakers at this price.” *PC World*

“In terms of price for performance, it's in a class by itself.” *Macworld*

“It puts out a natural, balanced sound that compares well not just with other computer speakers, but with any speakers.” *Computer Shopper*



“ All in all, this is a lot of speaker for \$1,500 a pair – which is precisely the point of CSW's factory-direct strategy...As soon as I fired the Towers up, it was evident that they threw a big image. The Towers' soundstage was noticeably deep and solid on most material.” *Audio*

◀ **TOWER™** Our new three-way, dual-woofer speaker system. Its dynamic presence, natural tonal balance and the “all-around” sound of its bi-polar design result in sound that is nothing short of incredible. Real-wood black ash or walnut veneers. Factory-Direct Price: **\$1,499.99** ▼



◀ **MICROWORKS™** Our new multimedia amplified speaker system. It has more power, more output and better bass than any other multimedia speaker system we know of. Computer beige or charcoal. Factory-Direct Price: **\$349.99**



Acclaimed Speakers Take Our Word For It.



“ Cambridge SoundWorks’ Powered Subwoofer blew the others away on dynamics...deep powerful bass...31.5 Hz output was obtainable at a room-shaking level...clearly the best subwoofer of the pack.”
Stereo Review

“The Powered Subwoofer’s performance was first rate...” *Home Theater*

“...a winner...sonically the Powered Subwoofer is a knockout. Bravo.” *Sound & Image*

POWERED SUBWOOFER Reproduces accurate bass to below 30 Hz. You’ll hear soundtracks the way they were meant to be heard...better than most theaters!
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“We’ve heard plenty of far more expensive home theater speakers that couldn’t hold a candle to this rig. The Ensemble IV sounds so much better than the other sub/sat systems we’ve tried – at half the price of many – that it’s a hands-down Hot Ticket.” *Home Theater*

“This system is one of the top bargains in today’s market. Hearing is believing!”
Stereo Review

Ensemble IV was recently rated “Best Buy” by a leading consumer publication.



ENSEMBLE IV This home theater package is the most compact, affordable subwoofer/satellite speaker system ever designed by Henry Kloss.
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“ The Cambridge SoundWorks The Surround II speaker sounded absolutely great...the ambience of Pro Logic really snaps in...their dispersion pattern lets them blend easily with a wider variety of front speakers. These will stay on my surround speaker shelves for a long time.” *Home Theater*

The Surround II was recently rated number one by a leading consumer publication.

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TIME DELAY

HiFi/Stereo Review

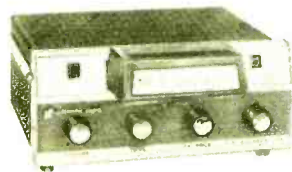
How to House Your Hi-Fi Components • The War on Music Depreciation • Critics Name Their Favorite Composers • Basic Library of Music for the Ballet



30 YEARS AGO

"I've been rough on Sinatra in the past," Rex Reed admitted in a September 1967 review of *Francis Albert Sinatra and Antonio Carlos Jobim*, "but this is a recording so rare, special, and lovely that I have indigestion from eating crow."

Automatic Radio introduced the car/boat Tapedeck Convertible (\$130), whose eight-track tape slot also accommodated an FM or AM tuner cartridge. Among other new products were the Sherwood S-7600-FET stereo-FM/AM receiver (\$340) and the Empire Model 2000 speaker (\$100), dubbed the "Kitten," which could also be used as an end table, pedestal (with marble top), or seat (with cushion). Test reports included Miracord's



Automatic Radio eight-track player with tuner, 1967

PW-50H turntable — at \$150 one of the day's most expensive automatic players.

"A Basic Library of Music for the Ballet" — from Hérold's *La Fille Mal Gardée*, a work originally dating from 1786, to Bernstein's 1944 *Fancy Free* — was offered by Clive Barnes and William Livingstone. And in "The Critics Confess: My Ten Favorite Composers," Mozart and Schubert each got four votes from the seven writers, followed by three votes each for Bach, Beethoven, and Debussy. William Flanagan cast a vote for himself: "I'd be lying if I didn't."



20 YEARS AGO

"You should be ready to change your name to *Quad Review*," advised Don Kaufman of Akron, Ohio, in a September 1977 letter. But in "Audio Q & A" Peter Purrell of Hicksville, New York, questioned, "Whatever happened to quadrasonic sound?," and Larry Klein answered, "If any of the competing four-channel systems had been really impressive to large numbers of listeners,



Foreigner, 1977

quadrasonics would be with us in force today."

Hirsch-Houck Laboratories called Pioneer's SA-9500II (\$450) "one of the top-ranking integrated amplifiers on the market" and deemed the operation of Luxman's R-1050 AM/FM receiver (\$595) "as smooth and bug-free as its fine appearance would suggest."

Music editor James Goodfriend surveyed "All the Young Pianists," including Jean-Philippe Collard, 29 ("he has a great future"), and Murray Perahia, 30 ("a pianist for the long, long run"). A feature on John Kander and Fred Ebb noted the success of their current musical, *Chicago*, but in a review of their material for the *New York, New York* soundtrack, Paul Kresh wrote that "even Liza Minnelli's energy cannot give life to the dismal title tune."

Critic Lester Bangs said of Foreigner's debut, "You have to wonder what is lost in the collective sensibility that lets groups like this become popular."

10 YEARS AGO

"Twenty years ago today, hi-fi was a luxury," recalled Louise Boundas in her September 1987 editorial. But, noting that since then the cost of a record had merely doubled (compared with the cost of living, which had tripled) and the price of a basic stereo system had remained almost flat, she concluded, "Today, hi-fi is a bargain."

Among "CES Show Stoppers" was Ariston's Q Deck turntable, which converted unwanted vibrations into heat by visco-elastic damping material

in the base. Also featured were Marantz's first DAT deck, Soundstream's first components for the home, Polk's first Stereo Dimensional Array speakers for the car, and the first Super-VHS VCR, by JVC.



"Speaker design, once largely an art, is now a well-defined science," wrote Julian Hirsch in "Speakers: State of the Art." And he predicted that "a few years from now, most of us will agree that speakers sound distinctly better than they did back in 1987."



Ariston turntable, 1987

Steve Simels slayed Curiosity Killed the Cat, which on *Keep Your Distance* was "as utterly indistinguishable from the Thompson Twins or the Blow Monkeys as Jessica Hahn is from Donna Rice."

— Ken Richardson

"The Only Speakers You'll Ever Need."¹ *PC Magazine*

About Cambridge SoundWorks.

At Cambridge SoundWorks, we manufacture speakers and music systems designed by Audio Hall of Fame member Henry Kloss (founder of AR, KLH and Advent). *Audio* says we may have "the best value in the world." *PC Gamer* says "Cambridge SoundWorks line of multimedia speakers is one of the leading wonders of the computer world." *Stereo Review* says "Cambridge SoundWorks' lineup performs so far beyond its price class it can be compared only with much larger speakers at substantially higher prices."



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The newest Cambridge SoundWorks multimedia speaker system is also our most affordable. *PC Works* sounds very much like *SoundWorks*. At the introductory event for *PC Works*, members of the press were in awe of its top-level sound quality. We expect that *PC Works* will become the most popular product ever designed by Henry Kloss.

PC Works system with satellite speakers and subwoofer with built-in amplifiers.

\$99⁹⁹

Introductory Price

MicroWorks™ High-Output Speaker System.

MicroWorks is a powerful amplified subwoofer/satellite speaker system - with over four times the acoustic output of most multimedia systems. Its wide frequency range, natural tonal balance and high output make it ideal for presentations, or for a terrific home stereo system or a two-channel home theater system.

"The only speakers you'll ever need." *PC Magazine*

"I haven't heard better speakers at this price." *PC World 2/97*

"...as accurate as systems costing twice as much." *PC Gamer*

"...nothing short of stunning." *Computer Gaming World*

"In a class by itself." *Macworld*

"...nothing short of stunning." *Computer Gaming World*

"...chest-thumpin' bass...crystal-clear highs...no distortion." *Boot*

\$349⁹⁹

MicroWorks system

with satellite speakers and subwoofer with built-in amplifiers.

MicroWorks comes finished in black or white.

SoundWorks™ - The Best Multimedia Speaker Value.

SoundWorks is a compact, affordable, amplified speaker system that produces wide-range, natural, very "big" sound. It has a number of imitators, but *SoundWorks* remains the country's best value in a high-performance amplified speaker system. Here's a sampling of what the critics say...

"The best buy in new PC sound systems." *PC Magazine*

"...the most natural musical timbre." *The New York Times*

"...unquestionably the choice for gamers who also happen to be audiophiles... may outclass your home hi fi." *PC Gamer*

"SoundWorks leaves much of the multimedia competition in the dust with rich, clear sound." *Sound & Image*

"...head and shoulders above the others." *MacUser*

"...exceptionally good." *Audio*

\$219⁹⁹

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CIRCLE NO. 6 ON READER SERVICE CARD



Apparently, someone just bought Sony's 200-CD changer. Smart move. You took your ever-growing collection out of those awkward towers and loaded it into our MegaStorage™ disc changer. Thanks to its Custom File™ System, you can finally hear what you want, when you want it, in the pure sound quality only Sony can deliver. Yeah, life is good. The sun is shining. Nice day for a tag sale.



SONY



SIGNALS

KEN C. POHLMANN

Use and Abuse of History

It's often said that newspapers write the first draft of history. Their role in society is to identify what is immediately new, make some sense out of it, and then communicate it in their next edition. That documentation is our first take on current events, the raw material that will become history.

Magazines such as STEREO REVIEW also write a first draft of history. In particular, we communicate the latest in consumer audio and A/V technology. Each month we review the newest products, identifying their features, describing their performance, and expressing our expert opinions about them. Overall, the job is handled pretty well. If you're interested in buying a new component, these magazines will help acquaint you with the state of the art. If they're not careful, however, audio journalists run the risk of perpetrating a great injustice.

On one hand, audio technology is driven by science. Components are designed by engineers who blend analytical methods with subjective conscience to develop well-built products that sound good. On the other hand, audio technology is driven by hype. Without sales and marketing to provide the education and incentive to induce people to discard their old components and buy new ones, audio evolution would grind to a halt. The question is, how much of audio evolution is engineering and how much is hype? And how should history record that evolution?

Clearly, the ongoing evolution of audio technology has brought great improvements in consumer products. The "Time Delay" feature in each issue of STEREO REVIEW shows an apparently clear progression. On the face of it, this is a textbook example of technological evolution, a history of how things got better. Yet it is not always easy to characterize improvement in audio technology. How much better is a new power amplifier than a thirty-year-old model if the old model has 0.1 percent distortion and the new model has 0.01 percent distortion? By the numbers, the new is much better than the old, but in reality can anyone hear the difference? In praising the new, are we accurately documenting evolution or perpetrating hype?

Perhaps a new amplifier uses more reliable circuitry, or is more energy-efficient,

or weighs less, or offers additional features. Those are all excellent reasons for buying a new power amplifier, and they are valid reasons for audio journalists, who are charged with the responsibility of fairly reporting the evolution of audio technology, to state that the new product is better than the old. But the limitations of the improvements must be carefully considered. Otherwise, we merely expose our infatuation with the new and shiny. I'll argue that greater care should be given to the reporting of new audio technology. I don't think we've always done a particularly good job of it, and I include myself among those who need reminding from time to time. We live in a society that worships at the altar of technology, too easily assuming that newer is better and that older technology was markedly inferior. That is not always the case.

The current vogue among a small group of audiophiles to trash the CD is a blatant abuse of history.

A blatant abuse of history is the current vogue among a small, vociferous group of audiophiles to trash the CD. I have recently read many examples of revisionist history that say something like, "The sound quality of today's CD players blows away the nasty, gritty sound of first-generation hardware." Journalists (or consumers) should not make such a claim unless they have actually tried to verify it. And truth in a matter like this does not involve reflecting back on 15-year-old listening experiences, going along with what other people are saying, or even casually comparing two CD players. The truth of such a statement can only be verified by conducting a double-blind A/B listening test. If you take the time to do that, I don't think you will make such a blanket statement.

Similarly, it is currently fashionable in some circles to condemn the 16-bit, 44.1-kHz specification of the CD as a fatal flaw that has always, and will always,

make CDs sound bad. Some journalists suggest that only a new 24-bit, 96-kHz disc will be barely listenable. While a new specification may be welcome, it is wrong to condemn the CD. Such pundits, most of them high-end audio journalists and LP enthusiasts who failed to smother the CD in its infancy and who are now seeking I-told-you-so retribution, ignore the fact that many audio design engineers consider a 96-kHz sampling rate to be a waste of bandwidth. They also ignore the fact that the CD system can convey superb sound quality.

The original compact disc was a brilliant invention. It introduced consumers to the world of digital technology. Its specifications provide enormous musical enjoyment for the great majority of listeners. No amount of revisionist history can change that. There was no "conspiracy" to eliminate the LP record. If the CD had been inferior, it would have failed, as so many new audio products do. The CD triumphed because it was better. That is fact. Anything else is fiction, and no amount of repeating a lie makes it true. Even first-generation hardware was extremely sophisticated. For example, the first CD player from Philips featured oversampling digital filters and noise-shaping technologies that are still found in virtually every modern player.

In some cases, audio technology takes a great step forward. The CD, 5.1-channel sound, and DVD are technological leaps that deserve great credit. Sometimes, advances are only incremental, or are mainly cosmetic in nature. Like a hemline that rises or falls each year, the new is not necessarily better; it is just different. When considering new products, writers and readers should ask themselves, is it better, or simply newer? The perspective is important. With the wrong perspective, consumers may hesitate to buy new technology because they will expect it to become useless very quickly. When they are trained to expect instant obsolescence, they may not understand that any technology that continues to function and pleases the user is still a good technology. Instead, they may defer purchases or purchase only low-cost products that fit into their idea of the short-lived, disposable nature of audio technology. That, clearly, would impede true evolution.

It is very important for audio writers to be accurate, then, not to muddy up the record. What we say in magazines shapes the beliefs expressed among both audiophiles and general-interest journalists. I do not want history to record the "fact" that the CD was an inferior, low-quality invention. That is wrong, and hurtful to the CD's inventors and everyone who worked hard to promote it. We must use history as a truthful measure of where we've been. Because that's the only way for us to know where we're going. □



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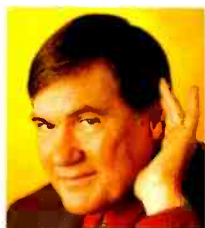


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AUDIO Q & A

IAN G. MASTERS

Analog+Digital Connections

Q My CD player has both analog and digital outputs. At the moment it is connected to my preamplifier's digital input only. Would it make sense if I also hooked it up to the analog input?
ARSENIO SANGIL
San Jose, CA

A No. There might be some virtue in listening to the CD player's analog output as an alternative to its digital one, as that would let you compare the player's internal digital-to-analog (D/A) converter, which feeds its analog output, with the preamp's D/A converter, which processes the signal from the digital input. Frankly, however, I'd be very surprised if you heard a significant difference. In fact, using an optical digital connection is the *only* way to eliminate the possibility of a hum-generating ground loop.

Quiet Power

Q I often listen to my stereo at fairly low volumes to avoid disturbing my neighbors. This is fine for TV programs and videos, but it's a problem with CDs that have wide dynamic range — the soft passages just disappear. I've tried using the loudness control, but that simply produces a tubby sound. Advancing the bass and treble controls helps, but not enough. I've been told that if I traded up to a more powerful amplifier, I'd be able to hear low volumes better. Is this true?
GEORGE NUSSBAUM
Casselberry, FL

A No. Adding power would let you listen at higher levels without incurring distortion, but it won't make low-level signals any clearer at the volume you are using. The only thing that would help is a compressor, which reduces dynamic range, in effect turning up the low-level material while leaving the louder parts alone. Brookline Technologies (1-800-366-9290) has a number of inexpensive "volume stabilizers" that would help in your case.

Subwoofers for Music

Q I have heard conflicting opinions about the best subwoofer arrangement for music listening. Should I use one subwoofer or two?
ROB MCFEE
Fredericton, New Brunswick

A The acoustic peculiarities of your listening room should be more important to your decision than whether you are listening to music or movies — unless you want to play soundtracks at or above theatrical

sound levels. In many environments a single subwoofer, carefully positioned (often in a corner), will perform admirably. You may have to do quite a bit of experimentation to find the right position, however, and it may turn out to be impossible to defeat all the acoustic anomalies. In that case, a second sub can be useful for randomizing any standing waves, resulting in more linear bass response. But once you've achieved that, it should work for all types of listening. Smooth bass is smooth bass whether it's from a 32-foot organ pipe or an exploding train. With some subwoofers, you won't be able to reach theatrical bass levels (which are very high) without two of them.

Wireless surrounds

Q Running wires to my surround speakers would be inconvenient in my room, so I bought wireless speakers using 900-MHz radio carriers for the surround channels. Then I discovered that they operate from a headphone jack rather than normal speaker terminals. Is there some sort of adaptor that would let me drive the transmitter from my receiver's speaker outputs?
AL LOEBEL
San Rafael, CA

A It used to be possible to buy such an adaptor — a little box with a couple of resistors in it — that allowed you to attach the wires at one end to your speaker terminals and to plug your headphones into a jack at the other. Electronics parts outlets may still have something along those lines, but you can easily rig up a similar device yourself for pennies. Get a couple of 10,000-ohm resistors and a headphone jack, and you'll be in business.

You may not need the resistors, though. It may be possible to drive the wireless transmitter directly from the surround-channel speaker outputs. Start with the receiver's surround level at zero, and gradually increase it until the sound level is adequate. If it's unpleasantly noisy, or if it obviously distorts, you'll have to add resistors to pad it down.

One thing to watch for, though: a lot of Dolby Pro Logic receivers use a single amplifier for the two surround speakers (the DPL surround channel is mono, after all), with the outputs wired in series. If you unhook one surround speaker, both go silent. Your transmitter may fool the receiver into thinking it's seeing two speakers, or it may not. It's easy to check, so be sure to do so. If you hear nothing from the surrounds, connect the transmitter inputs to the terminals

of one surround channel and then simply short the other, black to red, to complete the series connection.

But be absolutely sure this is necessary; if the receiver does have two separate surround amplifiers, and you short one of them, you will almost certainly damage your receiver. If you have any doubts at all on that score, have a pro set it up for you.

Leaving It On

Q I keep the power to my stereo equipment on all the time, as I've been told that's better for it than switching it on and off daily. Is there any merit to this, or am I just wasting electricity?
ROBERT GERRY
Albuquerque, NM

A Many audiophiles believe in this practice, both to protect their gear from turn-on surges and to keep the components at their peak performance, on the dubious theory that it takes a while for the equipment to "warm up" after it's turned on. That was true for tube gear, but modern solid-state equipment doesn't need any warming up to perform properly, nor do speakers. There's certainly little harm in the practice, however. It wastes power, but electricity is relatively cheap, and a typical audio system on standby uses far less than a light bulb kept burning. As for me, I turn my stuff off, and I have some 20-year-old components that perform as well today as when they were new.

Tight Bass

Q Which is better for the quicker, tighter bass required by rock music, a 10-inch or a 12-inch woofer? I know that a lot depends on power and the specific design of the speakers, but is there a general rule?
PHILIP OLSEN
Round Lake Beach, IL

A As you recognize, speaker performance is a product of a lot of factors, only one of which is driver size — and it's not even the most important one. There are plenty of small speakers that produce excellent bass and large ones that sound thin in spite of their size.

But in the case of "tight" or "quick" bass — the ability of a speaker system to reproduce bass transients — the woofer is irrelevant. The onset of a note, even a very low one, is made up entirely of high frequencies that are reproduced by the tweeter or tweeter/midrange combination; only when a bass note settles into its "tail" does the woofer take over. To verify this, find a recording that seems to have tight bass and then shut off all the speakers in your system except the subwoofer. All you'll hear is a series of muffled booms.

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



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CIRCLE NO. 33 ON READER SERVICE CARD



TECHNICAL TALK

JULIAN HIRSCH

Are Things Getting Better?

Progress is, and has always been, a distinguishing characteristic of human civilization. That's a good thing, because a static condition eventually ends in extinction, or something not far removed from it. Human progress is never smooth, however, for we are individuals and have (to some degree, at least) free will. We do not always agree on what progress is. As the saying goes, "One man's meat is another's poison."

Let's move from the general to the specific. In the early years of recorded music, the goal was to be able to enjoy listening to music of your choice at home. The only alternatives were to perform the music yourself or to go to a live performance. Recordings have been able to meet this need for many years, first through a variety of acoustically recorded discs, later with electrical recordings on disc or tape, and now on CDs.

Although the performances of many talented artists have been preserved on records, in the early days there was no way to record and reproduce the *sound* (as opposed to the *music*) in a believably natural way. That changed a half-century after the invention of the phonograph. In the immediate post-World War II period a worldwide technological revolution got under way and soon created (among other wonders) the technology and industry that make possible high-fidelity music reproduction in the home.

When recordings of better (sonic) quality became available in the late 1940s with the development of the long-playing (LP) record, as well as the now obsolete 45-rpm record, the public for the first time had access to recordings whose fidelity was better than that of the existing reproducing equipment. That created a new need, for better playback equipment, and out of this perceived need emerged what eventually became today's home audio and video industry.

One of the early signs of the embryonic consumer audio industry was the appearance of systems composed of separate audio *components*, as distinguished from the one-piece radio/phonograph units or consoles that preceded them. Even more fundamental was the use of separate loudspeakers in sealed or vented enclosures.

This, perhaps more than anything else, marked the end of the era of the open-backed radio console and the emergence of today's home-entertainment industry.

The early separate-component systems were usually based on rather basic components (tuners, amplifiers, record players) whose performance was rarely much better than that of the one-piece radios they superseded. True, the amplifiers could accommodate several input sources and had a little more power output than their predecessors (push-pull mono amps went up to 10 or 20 watts, typically), but the overall sound improvement provided by component hi-fi systems usually came from the use of larger, baffled (enclosed), and generally better speakers.

The evolutionary process continues to this day, and the changes on every level have been enormous and show no signs of

The evolution of home theater, based on digital circuitry, seems to be paralleling that of the early hi-fi industry.

abating. Initially, the transition from monophonic to stereo recording led to a variety of stop-gap measures that frequently backfired, as a public that often had not fully accepted the concept of high-quality home music was faced with junking or at least modifying portions of their music systems.

Other changes have marked the shift of the hi-fi world toward accommodating the needs and tastes of the general populace. This has taken the form of such anomalies as miniature simulated "rack" systems that are really a throwback to the pre-hi-fi days, albeit with the superficial externals of a real music system. They cause little harm so long as people are aware of what they are getting (not always the case, unfortunately).

The evolution of home theater, heavily based on sophisticated digital circuitry, seems to be paralleling that of the earlier

hi-fi audio industry, but with some important differences. The early hi-fi hobbyist often (usually, in fact) built most of his system himself. Even if the electronic assembly was based on inexpensive kits, the kits were usually easy to assemble and matched the performance of much costlier commercial products. Electronic kits, in general, have disappeared because today's manufacturing techniques preclude any cost savings to the home builder for adding his own labor. This sad but unavoidable fact is what caused even such well-known companies as Heathkit and Eico to virtually abandon the kit market.

There are compensating factors, however. Many of today's electronic components are available at bargain prices, almost incredible to those of us who remember the earlier times. Full-featured A/V receivers, from several major manufacturers, with all the bells and whistles and upwards of 100 watts per channel, can be bought for \$200 to \$300. And, as I can testify from personal experience, they are altogether remarkable values.

Home theater has somewhat different priorities from home music reproduction. The equipment is considerably more powerful than most audio-only components and frequently vastly more complex in its front-panel controls and "user friendliness," a term that is hardly applicable to some of the A/V components I have seen. In addition, an A/V system requires more speakers, more room, more careful speaker placement, and a greater financial investment. These are not necessarily disqualifying factors but must be considered in a system's planning and purchase. Fortunately, any A/V system can serve as an audio-only system, with the advantage that its surround-sound enhancement is available when desired and can be bypassed when it is not.

Finally, are there any disadvantages to using an A/V installation for stereo (or even mono) listening? Not fundamentally, but for what it is worth, I have noticed that the tuner sections of most of the A/V receivers I have measured in recent years are not of the same caliber as their audio and video sections. They are certainly adequate for their purpose, but they are a far cry from the separate tuners of yesteryear. Obviously the other sections take a higher priority in the design process.

So there is no single answer to the question posed at the start of the column. Today's A/V components are vastly more sophisticated and versatile than those of even a few years ago, and although they can be more expensive than their predecessors, their capabilities are correspondingly greater. The music lover also benefits from the lowered costs of audio components such as receivers and CD players/changers, to say nothing of the ever-continuing improvements in the value and performance of loudspeakers. □

“...by a wide and clearly audible margin, the Micro90t is the best small-satellite home theater speaker system I have ever reviewed.”

—David Ranada, *Stereo Review*, February 1997

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Its anodized aluminum tweeter with AMD handles lots of power, yet reproduces highs with virtually zero distortion. And its swivel-mount pedestals make for simple shelf or wall mounting. The Micro90 powered subwoofer, with its clean 75-watt amp and 8-inch DCD™ bass unit, produces ample amounts of deep, tight, powerful bass.

Add the tonally matched Micro90 center channel and either direct or diffuse-field surrounds and you've got a system that beats all other satellite home theaters "by a wide and clearly audible margin." You can test-listen the Micro90t at your local Boston dealer. But rest assured, you won't be the first to listen with a critical ear.



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CIRCLE NO. 20 ON READER SERVICE CARD





Technics SA-AX910 A/V Receiver and SH-AC300 Dolby Digital Processor

DANIEL KUMIN • START LABORATORIES

Dolby Digital (DD), the five-plus-one-channel, all-digital surround-sound format that is fast taking its place as the DVD age's de facto home-theater audio standard, has been in wide release for over a year now. And the rollout has been rapid. Most major-brand manufacturers have already introduced second-generation DD audio components, many of which are keyed to a more budget-conscious segment of the market than the first wave of gear.

An excellent example of this trend is presented by two new Technics components. At \$450, the Dolby Digital-ready SA-AX910 is an aggressively priced, high-power A/V receiver equipped with Dolby Pro Logic (DPL) decoding and a six-channel input for use with an outboard DD decoder. The companion SH-AC300 Digital Surround Processor provides both DD and digital-domain DPL decoding. At \$300, it was at press time the least ex-

pensive outboard DD decoder you could buy.

How did Technics accomplish this? Mostly by simplifying things. Ten buttons, a knob, and an electroluminescent display are the AC300's only front-panel features, while its rear offers a handful of jacks, a power cord, and (rather surprisingly) an AC convenience outlet. Among the jacks is a single stereo input pair, labeled "line," that serves only to pass through a two-channel analog audio signal unaltered.

DIMENSIONS: SA-AX910, 17 inches wide, 6 $\frac{1}{4}$ inches high, 12 $\frac{1}{4}$ inches deep; SH-AC300, 17 inches wide, 2 $\frac{3}{4}$ inches high, 11 $\frac{7}{8}$ inches deep

WEIGHT: SA-AX910, 21 pounds; SH-AC300, 5 $\frac{3}{4}$ pounds

PRICES: SA-AX910, \$450; SH-AC300, \$300

MANUFACTURER: Technics, Dept. SR, One Panasonic Way, Secaucus, NJ 07094; telephone, 1-800-222-4213

There are also the requisite six RCA jacks for the "5.1-channel" DD outputs: left, center, and right front, and right surround, and subwoofer. These connect to the corresponding inputs on a suitably equipped A/V pre-amp or receiver, like the SA-AX910, or directly to one or more multichannel power amplifiers.

For economy, Technics omitted analog-to-digital converters, which means that the AC300 can perform Dolby Pro Logic decoding only on a PCM digital signal — from, say, a laserdisc or CD player — fed to its coaxial or optical digital input. It also lacks an input for an AC-3-encoded RF signal from a laserdisc player, so if you want to play Dolby Digital laserdiscs, you'll need an outboard RF demodulator (available from several companies beginning at about \$100).

Inside, the AC300's tidy layout is exceedingly simple, with a shielded "daughter" board containing a Motorola DSP560009 chip for the DD decoding and a Toshiba digital signal processing (DSP) chip that handles crossover and bass-management functions. Chassis, circuit-board, and component materials are all standard-grade but carefully assembled.

Technics supplies a basic remote handset with the SH-AC300 processor that provides a master volume control and selector keys for inputs and mode (Dolby Digital, Pro Logic, 3-Channel

TEST REPORTS

Logic, and Stereo), plus keys to engage the Cinema Re-EQ and dynamic-range-compensation features (more on these later). In fact, the AC300's controls are sufficient (barely) for it to be useful as a stand-alone preamp/processor in a stripped-down, playback-only digital home theater. You could connect a DVD player and a laserdisc/CD combi-player to its digital inputs, a multichannel power amp to its six-channel outputs, and you'd be done — although you'd have no way of reproducing surround sound from common analog sources like TV broadcasts and VHS videotapes.



Clearly, the AC300 was designed primarily to work in tandem with an A/V receiver or preamp equipped with its own analog-input surround processing and six-channel inputs for decoded DD signals. The companion Technics SA-AX910 is relatively conventional, though its power rating is quite substantial for its price: 100 watts to each of five channels in Pro Logic mode, or 120 watts per channel in stereo mode.

The SA-AX910's layout includes knobs for volume, tone, and balance and pushbuttons for everything else, all generally well segregated by function and distinguished by size and shape. The gold-on-dark-brown panel graphics are far from the world's most legible, but they are at least decently sized, and the receiver's display is simple and readable.

Simplicity also rules the back panel. There are no S-video ports, and the only RCA jacks are for CD, phono, and tape in/out plus three sets of A/V

connections. The VCR1 set is a record/play loop, while TV/VCR2 and DVD/DSS are play only. Selecting the TV/VCR2 input routes signals either from the rear-panel TV jacks or from a set of front-panel camcorder jacks.

The DVD/DSS jacks are unusual. In a Pro Logic-only setup, they work conventionally, funneling two-channel analog audio to the SA-AX910's surround processor and then to the amp sections and video to the monitor output. But when an outboard DD processor like the AC300 is used, you connect its front L/R outputs to the receiver's DSS/DVD inputs and its center, subwoofer, and surround outputs to four other SA-AX910 jacks marked center, surround L/R, and sub. Then, when you engage the receiver's 6CH DISCRETE input, the DSS/DVD inputs are routed directly through the volume control (without AX910 surround processing) to the receiver's front left/right amp channels, and the other four jacks feed the three remaining amp channels and the subwoofer line output.

This rather clever arrangement effectively gives the SA-AX910 six discrete input channels for decoded Dolby Digital signals without the expense of actually adding another input beyond those needed for stereo or DPL surround. It's a little confusing at first, but on balance I found the setup a sensible one. The receiver's rear panel also provides input-level trimmers for DD center and L/R surround signals, presumably to compensate for severe sensitivity imbalances among speakers (I left these at their detent settings).

Elsewhere on the rear panel are speaker-output terminals for two selectable pairs of front L/R (main) speakers, a center speaker, and two surround speakers. All these terminals are of the abhorrent spring-clip type, good for perhaps 14-gauge wire at best. (Yes, I know that such terminals may be more cost-efficient at this price level.) Screw terminals serve the 75-ohm FM and AM antenna connections; using a 300-ohm FM download requires adding a balun and a piece of RG59/6 cable — an annoyance.

On David Ranada's test bench, these two components generally performed very well. In *stereo* digital-to-analog conversion, the SH-AX300 performed on a par with a good CD player (nice EN16 number), so you might use it instead of a cheap player's internal converters. That good performance spilled over into its AC-3 decoding, which was quite clean.

The SA-AX910 receiver also did quite well on the whole. Noteworthy are the high power levels we obtained into both 8- and 4-ohm loads. Even with all five speaker outputs driven to full output simultaneously — possible but unlikely with typical Dolby Digital signals — the amplifier was able to deliver slightly more than 100 watts per channel *continuously* for more than 5 minutes before its thermal-protection circuitry shut it down. Not bad considering this is a wildly stressful and unrealistic test condition.

Setup and connection were both quite straightforward. I wired the Technics components to my tower-style front L/R speakers, an extended-range center speaker, and large dipole surrounds. I didn't use a subwoofer at first in order to test the receiver's amp sections more fully. Sources were a Digital Satellite System receiver and a DD-capable laserdisc/CD combi-player. I connected the combi no fewer than three different ways: coax digital (via an outboard AC-3/RF demodulator) to the SH-AC300's DIGITAL2 input, optical digital directly to DIGITAL1, and stereo analog audio to the line-level inputs.

Using a sound-level meter to balance the SA-AX910's five-channel output, I found that the receiver's master volume control tracked very well up to about the 11 o'clock position. Beyond that, the surround-channel output progressively crept up in relative level, becoming about 3 dB higher than the mains at 3 o'clock — a higher overall setting than any sane person would likely employ unless saddled with viciously low-sensitivity speakers. I also discovered that when I used an external test signal (from Lucasfilm's THX laserdisc) for channel balancing, the results were different, with the external source requiring 2 dB more surround-channel level than the internal test-tone generator for a ± 1 -dB calibration. I used the external settings. (This lack of precision is by no means unique to the Technics among budget-price A/V receivers).

The SA-AX910's power-output capabilities were as impressive in use as in the lab tests. In two-channel mode, it comfortably drove my average-sensitivity full-range main speakers to concert levels and well beyond without evidence of strain until the amplifiers reached their limits, when they seemed to clip quite hard.

In Dolby Digital surround mode, power output was equally impressive.

The receiver's surround-channel amps drove my somewhat low-sensitivity dipole surrounds to imposing levels without complaint, and even while auditioning these solo at high levels with demanding movie scenes, I heard only clean, dynamic, quiet reproduction. The same was true of the other three main DD channels. The SA-AX910's full-bore output sagged into harshness when its five-channel limits were exceeded, but only at quite excessive overall levels.

That's good performance for a \$500 A/V receiver. Less good was that, at higher volume settings and with a sur-

round mode engaged, the SA-AX910 degraded composite-video signals that were routed through it. The signal pollution was visible as faint, washed-out horizontal bars pulsing in time with the soundtrack bass whenever the master volume was set higher than 9 or 10 o'clock; the effect worsened progressively as the volume increased. Fortunately, it can easily be avoided by routing important video sources directly to individual monitor/TV inputs instead of through the receiver.

The SA-AX910's Dolby Pro Logic performance was very good: clear, defined, and with relatively minimal

channel leakage and dynamic spitting. Noise was very low: the net hiss from all channels was never audible from the listening position above the hum of the idling laserdisc player, though with the player off, hiss was just perceptible at a very high volume setting.

As good as the SA-AX910's DPL performance was, the AC300's Pro Logic reproduction, using its Surround mode and optical DIGITAL1 input, was even better. Channel separation was better than with the receiver's DPL processor, and the surround channel was smoother, more dynamic, quieter, and noticeably more extended in both

MEASUREMENTS

SH-AC300 DOLBY DIGITAL (AC-3) PERFORMANCE

All data obtained with digital signals from Dolby Labs' test DVD. "Large" speakers and 0-dB volume settings for all channels.

FREQUENCY RESPONSE (all 20 Hz to 20 kHz)	
front left	+0, -0.16 dB
front right	+0, -0.1 dB
center	+0.04, -0.11 dB
surround left	+0.32, -0.09 dB
surround right	+0.55, -0.25 dB

NOISE (A-wtd, re 0-dBFS*) -97 dB

EXCESS NOISE (typical results, with signal)	
16 bits (EN16)	+2.35 dB
18 bits (EN18)	+10.99 dB

DISTORTION (THD+N, 1 kHz, -20-dBFS* input) worst case 0.03%

SUBWOOFER-OUTPUT FREQUENCY RESPONSE rolloff 12 dB/octave above -3 dB point at 100 Hz

HIGH-PASS FILTER FREQUENCY RESPONSES rolloff 12 dB/octave below -3 dB point at 100 Hz

MAXIMUM SUBWOOFER OUTPUT ("small" main-speaker settings) 2.3 volts

SUBWOOFER DISTORTION AT MAXIMUM OUTPUT ("small" main-speaker settings) 7%

CHANNEL SEPARATION (at 1 kHz) worst case (front left in, front right out) >63 dB

RE-EQ RESPONSE -3 dB at 8.5 kHz

* decibels referred to digital full-scale

SH-AC300 STEREO PERFORMANCE

All data obtained with digital signals from STEREO REVIEW's CD-player test CD-R. "Large" speakers and 0-dB volume settings for all channels.

MAXIMUM OUTPUT LEVEL 1.9 volts

FREQUENCY RESPONSE (20 Hz to 20 kHz)	
de-emphasis off	+0, -0.07 dB
de-emphasis on	+0.17, -0.08 dB

NOISE LEVEL (A-wtd, re 0-dBFS* input) normal (de-emphasis off) -93.6 dB de-emphasis on -95.1 dB

DISTORTION (THD+N, 1 kHz) at 0 dBFS* 0.0033% at -20-dBFS* 0.026%

LINEARITY ERROR (at -90 dBFS*) -0.6 dB

EXCESS NOISE (with/without signal)	
16 bits (EN16)	+2.05/+2.35 dB
20 bits (EN20)	+18.01/+18.11 dB

* decibels referred to digital full-scale

SA-AX910 DOLBY PRO LOGIC PERFORMANCE

All data for analog input signals, no-subwoofer speaker configuration, volume set to produce 1 watt into 8 ohms with a 200-mV left-channel input.

FREQUENCY RESPONSE ("large" center-speaker setting)	
front	20 Hz to 20 kHz -0, -2.07 dB
center	20 Hz to 20 kHz -0, -2.84 dB
surround	79 Hz to 6.8 kHz +0, -3 dB

NOISE (A-wtd)	
front	-71.3 dB
center	-66.1 dB
surround	-65.3 dB

DISTORTION (THD+N, 1 kHz)	
front	0.03%
center	0.06%
surround	0.19%

SURROUND-CHANNEL NOISE-REDUCTION CALIBRATION ERROR re Dolby level (251.5 mV) +2 dB

SURROUND-DECODER INPUT-OVERLOAD MARGINS (at 1 kHz)	
front (re 2-volt input)	-0.25 dB
center (re 1.4-volt input)	+2.75 dB
surround (re 1.4-volt input)	-1 dB

CHANNEL SEPARATION (worst case) center out, left driven >30 dB

SA-AX910 AMP/PREAMP PERFORMANCE

All data for stereo analog input signals except maximum power in 6CH input mode.

OUTPUT AT CLIPPING (at 1 kHz)	
8 ohms	154 watts
4 ohms	204 watts

CLIPPING HEADROOM (re 120-watt rating) 8 ohms 0.9 dB

DYNAMIC POWER	
8 ohms	181 watts
4 ohms	266 watts

DYNAMIC HEADROOM (re 125-watt rating) 8 ohms 1.6 dB

DISTORTION AT RATED POWER 0.024%

MAXIMUM POWER 6CH INPUT MODE (all channels driven) 100 watts per channel**

SENSITIVITY (for 1-watt output)	
CD/laserdisc	12 mV
phono	0.16 mV

INPUT-OVERLOAD LEVEL (re 2-volt input) CD/laserdisc 13 dB

NOISE (re 1-watt output)	
CD (500 mV input)	-76.5 dB
phono (5 mV input)	-72.6 dB

RIAA PHONO-EQUALIZATION ERROR (20 Hz to 20 kHz) +0.09, -3.44 dB

FREQUENCY RESPONSE (tone controls centered) 20 Hz to 20 kHz +0.02, -1.79 dB

TONE-CONTROL RANGE	
100 Hz	+8.5, -9 dB
10 kHz	+8.7, -10.2 dB

** see comments in text

SA-AX910 TUNER PERFORMANCE

All figures for FM only except frequency response.

SENSITIVITY (50-dB quieting)	
mono	15 dBf
stereo	24 dBf

NOISE (at 65 dBf)	
mono	-74 dB
stereo	-62 dB

DISTORTION (THD+N at 65 dBf)	
mono	0.56%
stereo	0.25%

CAPTURE RATIO (at 65 dBf) 1.7 dB

AM REJECTION 56 dB

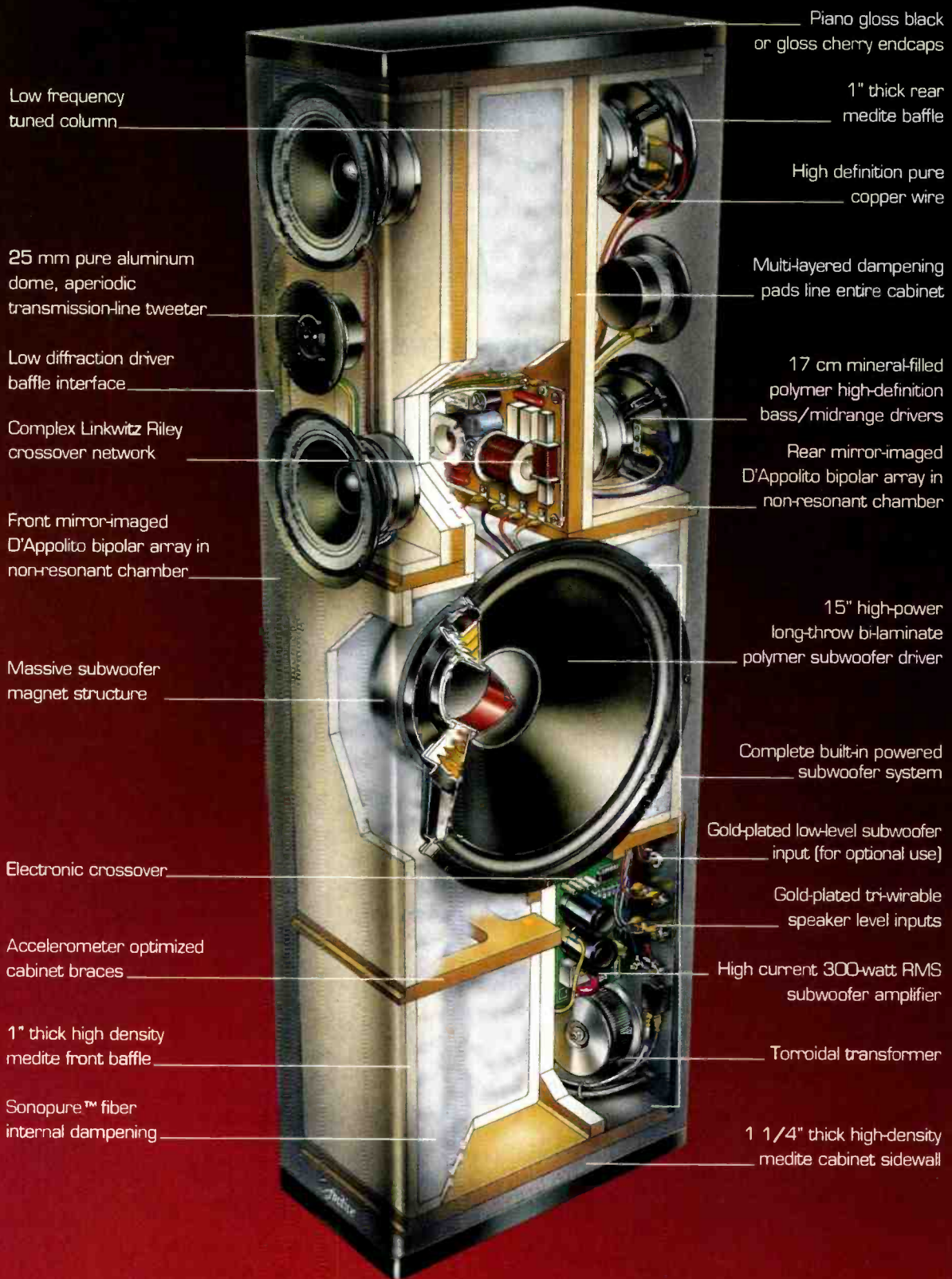
SELECTIVITY	
alternate-channel	68 dB
adjacent-channel	9 dB

PILOT-CARRIER LEAKAGE 19/38 kHz -36/-52 dB

CHANNEL SEPARATION (1 kHz) 43 dB

FREQUENCY RESPONSE	
FM	30 Hz to 15 kHz +0, -1 dB
AM	90 Hz to 2.9 kHz +0, -6 dB

The Advanced Technology Inside Definitive's BP2000



"...I would choose these speakers for myself."

-Julian Hirsch, *Stereo Review*

See our dealer list on page 38

Definitive's Amazing BP 2000 & 2002 Are The World's Most Highly Acclaimed Loudspeakers!

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

—Julian Hirsch, *Stereo Review*, USA

"Literally Staggering"

—*Home Theater*, USA

Top reviewers around the world agree that Definitive's amazing BP 2000s & BP 2002s combine highly advanced technology and superior build quality in order to achieve unsurpassed sonic performance plus unequalled value.

"Astounding...The Stuff of Dreams"

—*Home Cinema Choice*, England

Definitive's revolutionary BP 2000 & BP 2002 combine our incredible bipolar technology with dual built-in high-powered subwoofers (BP 2000: 15"/300 watts ea., BP2002: 12"/125 watts ea.) for extraordinary sound quality beyond anything you've ever heard.

"Absolutely Unsurpassed"

—*Prestige HiFi*, France

Both music and movies are reproduced with outstanding purity, transparency and life-like realism. And the astounding high resolution imaging, magnificent soundstaging, awesome bass and explosive dynamic impact totally envelop you in sonic ecstasy. It is simply amazing!



BP 2000 - \$1499 ea. BP 2002 - \$999 ea.
Definitive's Grand Prix award-winning BP 2000 and BP 2002 combine our revolutionary bipolar technology with awesome built-in powered subwoofers for unsurpassed performance.

CIRCLE NO. 15 ON READER SERVICE CARD

See our dealer list on page 38

BP 2000 - \$1499 ea. BP 2002 - \$999 ea. BP 2000 - \$1499 ea. BP 2002 - \$999 ea.

The breathtaking performance of our award-winning bipolar speakers makes your music and movies really come alive.

CIRCLE NO. 15 ON READER SERVICE CARD

See our dealer list on facing page

"Amazing Music and Home Theater... Most Spectacular Speakers Ever"

—*HiFi Review*, Hong Kong

In addition to being an audiophile's dream, the BP 2000s & BP 2002s are also the main speakers in Definitive's Ultimate Home Theater Systems. These astonishing systems are absolutely the finest sounding available. They recreate a "you are there" virtual reality that actually puts you into the sound-space of the original cinematic action.

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—*V.T.V.*, England

Experts agree these complete Dolby Digital AC-3* ready systems deliver the ultimate listening experience. They combine BP 2000s or BP 2002s with perfectly matched center and rear surround speakers. Dual powered subwoofers are already built into the sleek towers. Experience them today!

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and ultra-wide dynamic range for unsurpassed reproduction of music and movies in your home.

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the upper and lower octaves with those rare recordings that conjoin wide-

fine, though not as dynamic and defined as with the best tuners. AM per-

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LOOK P. 129/130

KEF Q15 Speaker

JULIAN HIRSCH • HIRSCH-HOUCK LABORATORIES

The KEF Q Series is a line of attractive and affordable speakers that are equally suitable for home theaters and high-fidelity music installations. It consists of six models, including four floor-standing columnar speakers and a small bookshelf-size speaker, the Q15, that can be mounted either vertically or horizontally on a stand or shelf. The sixth model in the series is a center-channel speaker for home-theater applications.

Common to the entire Q Series is a newly refined version of KEF's Uni-Q coaxial driver, which has been a feature of the British company's lineup for some years. The Uni-Q driver is essentially a 6½-inch polypropylene cone (effective diameter only about 5 inches) with an integral, concentrically mounted ¾-inch tweeter. The soft dome of the ferrofluid-cooled tweeter is protected by a perforated metal grille that looks like the dust cap of a conventional cone driver.

The KEF Q15 is a simple, conventionally styled speaker whose entire front panel is covered by a removable, slightly curved black cloth grille that completely conceals its drivers as well as the system's bass port. With the grille removed, you can see that the silvery, translucent speaker cone and the port occupy most of the front-panel area. The Q15 is available in three vinyl finishes: black ash (shown), "video gray," and mahogany.

On the rear of the enclosure are two pairs of partially recessed insulated binding-post connectors that are normally linked by gold-plated straps. In a conventional installation, connections are made to the center pair of posts, which accept bare wires, spade lugs, or single banana plugs (British electrical codes do not allow terminal spacing compatible with U.S. dual banana plugs). Removing the jumper straps makes it possible to biwire or biampify the speakers, considered by some to offer sonic improvements.

The manufacturer's specifications give the Q15's frequency response as 50 Hz to 20 kHz, with the low-frequency -6-dB point at 47 Hz. The crossover frequency is specified as 3.3 kHz and the sensitivity as 91 dB. The nominal impedance is 6 ohms, and the speakers are recommended for use with amplifiers rated between 10 and 100 watts per channel.

We placed the Q15 speakers on

DIMENSIONS: 12 inches high, 8¼ inches wide, 10¾ inches deep with grille

WEIGHT: 11½ pounds

FINISH: black ash, gray, or mahogany vinyl

PRICE: \$350 a pair

MANUFACTURER: KEF Electronics of America, distributed by Adcom, Dept. SR, 11 Elkins Rd., East Brunswick, NJ 08816; telephone, 732-390-1130

D

id you actually consider

naming your *first born*

Ringo, Wolfgang, or Miles?



PARASOUND

You live for it. That moment when the violins are soaring and the drums are pounding, and you suddenly realize you've been holding your breath. It's this transcendent moment that keeps us working here at Parascound. That keeps us combining ground-breaking circuit designs with premium audiophile parts. Take, for example, our four most affordable high-current amplifiers. With independent power supplies and direct-coupled inputs, they pull you deep inside the music one moment, and then launch you out of your seat the next. And now they even turn themselves on whenever they receive a 12 volt control signal. They're all part of our obsession to create great sounding audio components that are so well-built you'll be able to hand them down to your son Thelonious.



Been there.

When most people go out to the movies, they grab a bucket of popcorn and a soda to keep them company.

Yamaha sound field engineers, on the other hand, bring something a bit more sophisticated along.

Equipped with an array of advanced measuring systems, they record the way sound waves behave inside an actual theater—in the same way they've measured concert halls and other performance venues. Their research captures the complex acoustic reflections that make the cinema experience seem so much larger than life.

Finally, our engineers translate this

understanding of sound field behavior

into unique, sophisticated new signal-processing devices. Using Yamaha's extensive semiconductor design and manufacturing capabilities.

Just how much they've accomplished you'll hear in the new Yamaha RX-V2092. The first A/V receiver ever offered with on-board Dolby Digital AC-3 decoding as well as proprietary Yamaha 7-channel Tri-Field Cinema DSP.

Dolby Digital gives you 5.1



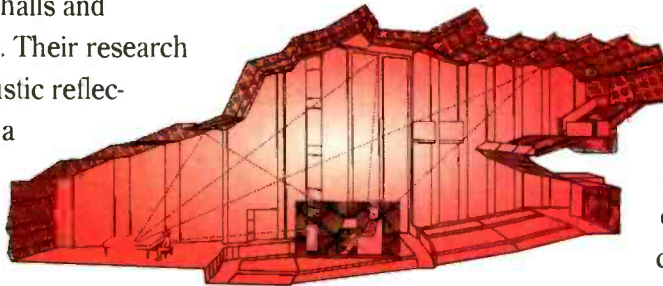
discrete channels of surround sound, positioned precisely as the director intended.

While our 7-channel Tri-Field Cinema DSP gives you the keys to the theater



by adding a whole new dimension of realism.

Measured that.



Tri-Field processing recreates the sonic environment typical of grand movie houses our sound field specialists have measured. By employing Yamaha-manufactured chips expressly designed for the job. Rather than less-efficient general-purpose chips that have to run faster

and hotter to handle the same tasks—less cleanly. And the results?

Imagine the birds in a primeval forest twittering in the treetops a hundred feet above your ceiling. Or the distant song of a steam locomotive beginning miles beyond your walls, then hurtling closer until it highballs through your living room.

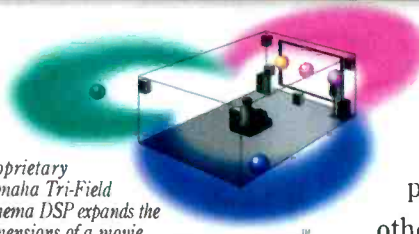
Better yet, give your imagination a rest. Call 1-800-4YAMAHA for the

dealer nearest you and audition our series of new A/V receivers. You'll

hear where we've already been. And precisely how far

other home theater technology still has to go.

Built this.



Proprietary Yamaha Tri-Field Cinema DSP expands the dimensions of a movie soundtrack far beyond the limits of your room.

CINEMA DSP
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TEST REPORTS

stands, 8 feet apart and 3 feet in front of a wall. The room response was measured separately for each speaker, with the microphone 12 feet in front of the left speaker. The smoothed, averaged room response was flat within ± 2 dB from 60 Hz to 9 kHz, falling off to -7 dB at 15 kHz and -12 dB at 20 kHz.

The system impedance curve had three peaks of about 20 ohms, at 22, 85, and 1,500 Hz, and it reached a minimum of 3 ohms between 5 and 15 kHz. Although the minimum reading was appreciably below the Q15's rated 6 ohms, our measurements confirmed the speaker's relatively high sensitivity of 91 dB sound-pressure level (SPL) at 1 meter, and there is little likelihood of driving it to unsafe levels in any normal installation.

We measured the quasi-anechoic MLS frequency response of the system at distances of 1, 2, and 3 meters. The results were very similar at all three positions. The response was an excellent ± 2.5 dB from 300 Hz (the lower limit of the measurement) to 8 kHz. Between 9 and 11 kHz there was a notch of about 10 or 12 dB, above which the output returned to the level of the lower and middle frequencies.

Although this response notch is apparently a characteristic of the speaker, it was undetectable when listening to normal audio program material. That is not too surprising in view of the transient nature of music and speech and the typically moderate program levels in the uppermost octave.

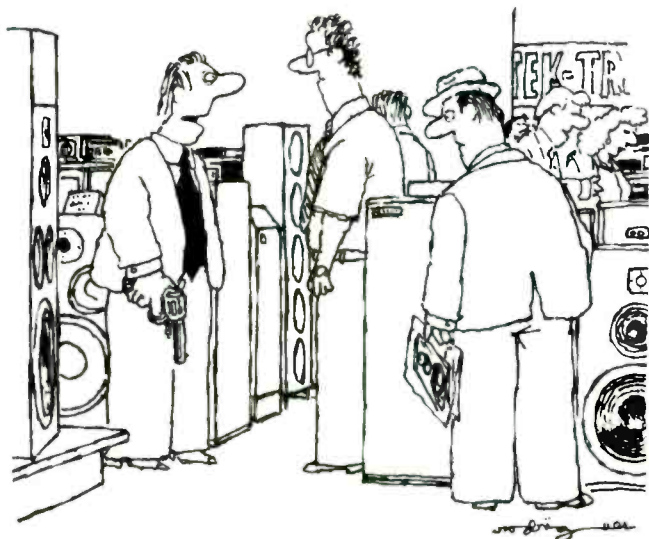
Even a very small speaker such as this one is inherently functional at the middle and high frequencies. But what

about the lower registers? We measured the bass performance of the Q15 separately, simultaneously measuring the frequency response at the cone and port and summing their outputs after correction for the relative areas of the two sources. The bass output reached its maximum in the vicinity of 100 Hz but was flat within ± 3 dB from 200 Hz to 50 Hz, and it continued to slope off below 50 Hz at a 12-dB-per-octave rate, which is typical for a simple vented enclosure.

We also measured the flux level on the exterior of the cabinet to verify the effectiveness of the system's magnetic shielding. It proved to be exceptionally effective, yielding a maximum reading of less than 0.5 gauss at any point on the exterior of the cabinet. In a modest home theater system, it should even be possible to place these speakers right up against the sides of the TV without picture degradation.

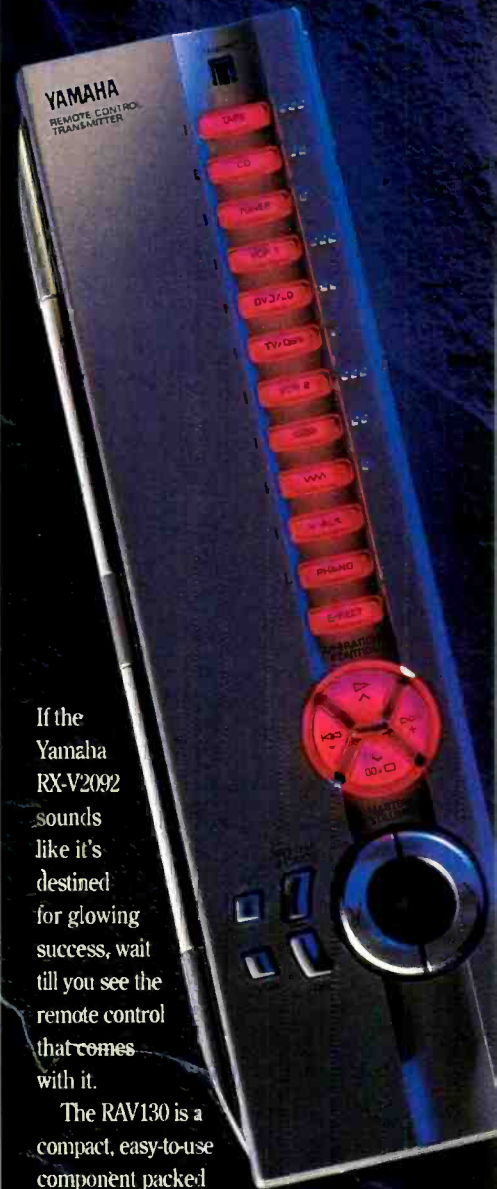
As always, the ultimate proof of a loudspeaker's performance is in the listening. That acid test verified what our measurements had suggested — the little Q15 lived up to its claimed performance in full measure. Even the powerful bass of the organ passages in the Rutter Requiem on Reference Recordings was reproduced believably, albeit without the skin-tingling effects that come only with the bottom octave.

Obviously, we have not tested (or heard) every speaker in the size and price range of the KEF Q15. Nevertheless, the Q15 is unarguably a great value, and I doubt that anyone hearing it blindfolded could guess how small and inexpensive it is. □



"I'm fascinated by those speakers made with Kevlar. Do you happen to carry them?"

Good news for anyone who entertains in the dark.



If the Yamaha RX-V2092 sounds like it's destined for glowing success, wait till you see the remote control that comes with it.

The RAV130 is a compact, easy-to-use component packed with very advanced technology. It can learn up to 57 functions to control virtually any brand of component in your A/V system. You can even program custom macro routines to execute sequences of up to seven commands with a single keystroke.

All of which makes it very simple to operate in broad daylight.

Of course we've also included built-in illumination.

Just to make things even more exciting when the lights go down.

YAMAHA®

WHERE HOME THEATER LIVES.



TEST REPORTS



JOCK P. LEUNG

RCA RC5200P DVD Player

DAVID RANADA • TECHNICAL EDITOR

As DVD players go, RCA's RC5200P is a rather simple affair. It is also among the first generation of DVD machines. It can thus be considered the archetype of a basic, "entry-level" DVD player. In fact, the same design, with minor changes in the faceplate and rearrangements of the front-panel and remote-control buttons, is available from several other manufacturers (this happens all the time with camcorders).

Now, in DVD-land "basic" does not mean "bare-bones": the RC5200P actually contains quite a few convenience features for both DVD and CD playback. Primary among these are a nearly complete set of disc-transport controls. Provided in both forward and reverse are DVD-chapter/CD-track skip, fast scan, and DVD slow motion. DVD frame stepping, however, operates only in the forward direction. There are also two repeat modes: one chapter or a whole title for DVD, one track or the whole disc for CD. A numerical keypad on the remote control lets the user cue individual DVD titles or chapters, or CD tracks, directly. With most DVD's you'll be able to use the remote's menu controls to rapidly cue up selected titles or chapters. For fast re-cueing, up to three "markers" can be designated at any point during DVD playback. Programmed playback for as many as eighteen tracks is available for CDs. Finally, depending on a DVD's encoding, you can change the soundtrack, subtitle language, and camera angle while a disc is playing.

Hookup options are extremely simple. There's one set of stereo analog audio outputs, one RCA-jack composite-video output, one S-video output, and one Toslink optical digital audio output. In DVD playback the Toslink output carries an encoded multichannel Dolby Digital signal, which can be decoded by an external decoder or an amplifier or receiver with a built-in Dolby Digital decoder. In CD playback the optical output carries a standard SPDIF digital audio signal. If you don't yet have a Dolby Digital decoder in your system, you should use *only* the player's analog audio outputs. DVDs that carry a multichannel soundtrack will have it converted in the player to Dolby Surround analog signals suitable for stereo playback or decoding by a Dolby Pro Logic decoder.

The RC5200P's setup procedure is very simple. You can choose among three parental-control levels, whether the on-screen display is on or off, and the default language for DVD soundtracks, subtitles, and on-screen menus. You can also select among three screen formats: letterbox 4:3 (the normal setting), "pan/scan" 4:3 (makes letterboxed movies fill the screen ver-

tically but cuts off the sides of the image), and 16:9 (for widescreen TV monitors). Setup is eased by the user's manual, which is the best of the several manuals we've seen for this player design.

In lab tests, the RC5200P's performance on test signals ranged from very good to excellent. This is one of those DVD players that will not play recordable CD-Rs, which we use for our special audio test signals. (In fact, the manual chillingly cautions that the player "may cause CD-R discs to be erased," but we found no indication that it actually does that.) We resorted to the few dithered test signals recorded on commercial test discs for most of our tests. For the excess-noise measurements we used Dolby Lab's new official Dolby Digital test DVD. In CD playback, the RC5200P's analog audio outputs provided stereo signal quality worthy of a comparably priced CD player, and during playback of DVDs the analog audio tests produced equally good numbers.

Using the RC5200P's composite-video output and test patterns from a Sony demo DVD and Dolby's test DVD, we were at last able to obtain a fairly complete set of numerical indicators of a DVD player's video performance. They all indicate that you have nothing to be worried about with the RC5200P's video. All those "less than" (<) symbols in our unusually large number of video tests — most of which are for color accuracy and for interactions between image color and brightness — indicate results that were better than the accuracy specifications of our test equipment! In many cases, the errors were so small as to be indiscernible on our scope readouts. Our various horizontal-resolution tests also produced excellent results.

DIMENSIONS: 15½ inches wide, 2½ inches high, 11½ inches deep

WEIGHT: 7½ pounds

PRICE: \$499

MANUFACTURER: RCA/Thomson, Dept. SR, 10330 N. Meridian St., Indianapolis, IN 46290; telephone, 1-800-336-1900

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SVA Loudspeaker



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Nobody knows horns like JBL. And JBL's new Constant Directivity horns with soft-dome polycarbonate tweeters allow you to hear horns the way the world's renowned recording artists intend them to be heard. Coupled with high-performance woofers, these unique horns have enabled JBL to create a new benchmark for loudspeaker performance. With superior projection and accurate frequency response, the HLS and SVA loudspeakers deliver smooth, clear sound and ensure listening satisfaction from any position ... in any room.

Available in a range of floorstanding, bookshelf and center-channel configurations, now at specialty retailers throughout the USA.



TEST REPORTS

Too many people fixate on resolution performance. A more relevant indicator of a video player's quality is luminance nonlinearity, an excessive amount of which can cause weird effects during scene-to-scene dissolves or fades to black or white. At present, there is no standard for assessing nonlinearity at all points between black and white. So we judge this parameter by eye during playback of a continuous-gray-scale test pattern. The RCA player did very well in this test, producing only the faintest hints of vertical banding. We've seen only one (more expensive) player with better video linearity.

We had actually expected such test-generator-like performance, since the player's visual performance with DVD movies was superb. Despite our daily contact with it, the DVD system is new enough that we can still be astounded at the spectacular image quality it offers, especially when it is reproduced with as much accuracy and clarity as it is by players like the RC5200P. We had particular fun with the visual effects in *Batman Forever* — aided, in no small part, by its soundtrack, which we listened to through the player's digital output decoded by a Dolby Digital receiver.

Actually, action-noir films like *Blade Runner* and the *Batman* series, containing a predominance of darkly lit scenes, are in several ways less stressful for the DVD system than more naturally lit, effects-free movies. *Legends of the Fall*, a superbly shot example of the latter, looked especially handsome, too.

The only major fly in this ointment was an annoying freezing of the transport-control functions (play, still, scan, and so on) that sometimes occurred when a rapid series of transport commands was issued. We stumbled upon this flaw while trying to cue a scene without using the standard scene-selection menu contained on the DVD. Under certain conditions the player froze and could not be "unlocked" by any control buttons — nor even, in a couple of instances, by attempts to turn it off (pulling out the power cord worked!).

Whether this is a significant fault depends on how often you will attempt precision cueing. If you simply watch movies straight through, only skip between chapters or titles, or utilize only the discs' built-in scene-selection menus, you'll probably never run into the problem. Moreover, it is the kind of fault that is fixable during



a production run, and since RCA already knows about it, the players available by the time you read this may be less prone to such behavior than our *extremely* early sample. Nonetheless, if you're checking out the RC5200P in a showroom, it wouldn't hurt to try issuing a rapid series of cueing commands to see if the player stumbles — though whenever we *tried* to make the player freeze up, it wouldn't (sort of the opposite of Murphy's Law: whatever can occasionally go wrong can't be *made* to go wrong intentionally).

We also never had a problem cueing CDs, although the blanking out of the track number on the front-panel display while the player skips through CD tracks was bothersome. Also bothersome was the player's inability to "store" skip-track/chapter commands: you have to wait till you actually get to the next track before another skip-track command is accepted. The small remote control's buttons are closely spaced and may be difficult to activate cleanly if you have large fingers. Most users, however, will find the remote quite comfortable.

I liked the remote and most other things about this player. True, there are models that will perform frame-stepping in reverse and whose scanning and reverse slow motion are smoother. But the RC5200P provides an excellent picture — use the S-video output if possible — and when hooked up to a Dolby Digital system it will deliver nearly all that the DVD format has to offer. Would that we could say the same for all entry-level consumer-electronics products (especially VCRs). RCA's RC5200P is a DVD player for everyman. □

MEASUREMENTS

DVD TWO-CHANNEL AUDIO PERFORMANCE

Signals from Dolby Labs test DVD.

MAXIMUM OUTPUT 2.05 volts

FREQUENCY RESPONSE
20 Hz to 20 kHz +0.01, -0.23 dB dB

DISTORTION (1 kHz)
at 0 dBFS* 0.0056%
at -20 dBFS* 0.042%

NOISE LEVEL (A-wtd) -90 dB

EXCESS NOISE (with signal)
16 bits (EN16) +5.6 dB
18 bits (EN18) +16.8 dB

LINEARITY
at -90 dBFS* +0.7 dB

* decibels referred to digital full scale

DVD VIDEO PERFORMANCE

Test patterns from Sony and Dolby test DVDs using composite-video output.

SETUP LEVEL +7.5 IRE**

COLOR PHASE INACCURACY <1°

CHROMINANCE-TO-LUMINANCE GAIN INEQUALITY chroma low by 9%

DIFFERENTIAL PHASE <1°

DIFFERENTIAL GAIN <1%

CHROMINANCE NONLINEAR PHASE <1°

CHROMINANCE NONLINEAR GAIN 2.5%

CHROMINANCE-TO-LUMINANCE INTERMODULATION <1%

HORIZONTAL LUMINANCE FREQUENCY RESPONSE
at 5 MHz -1.3 dB
at 6 MHz -6.4 dB

EQUIVALENT ON-SCREEN RESOLUTION
>480 lines

** An IRE is a standardized unit of contrast.

CD AUDIO PERFORMANCE

MAXIMUM OUTPUT 2.05 volts

FREQUENCY RESPONSE (20 Hz to 20 kHz)
de-emphasis off +0.01, -0.24 dB dB
de-emphasis on +0.01, -0.23 dB

NOISE LEVEL (A-wtd)
de-emphasis off -93.4 dB

DISTORTION (1 kHz)
at 0 dBFS* 0.0035%
at -20 dBFS* 0.029%

LINEARITY
at -90 dBFS* +0.03 dB

DEFECT TRACKING
(Pierre Verany test disc) 1.500 μm

* decibels referred to digital full scale

**“What the
heck
have you been smoking?”**

Yours have additives.*



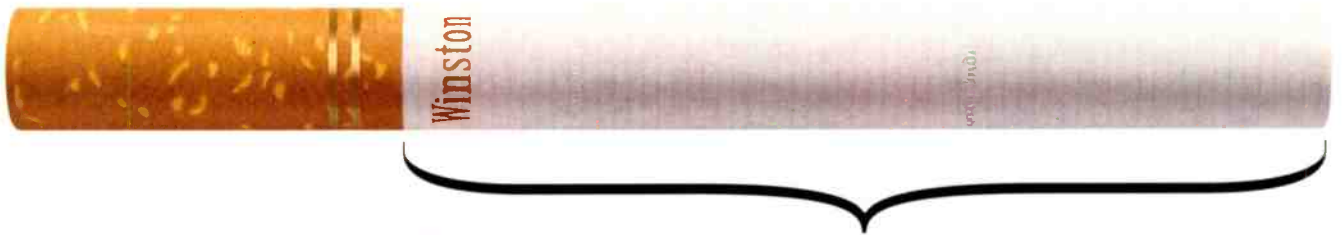
94% tobacco
6% additives

*Laboratory analyses of the top ten U.S. non-menthol brand styles show all of their tobaccos contain a minimum of 6% additives on a dry weight basis.

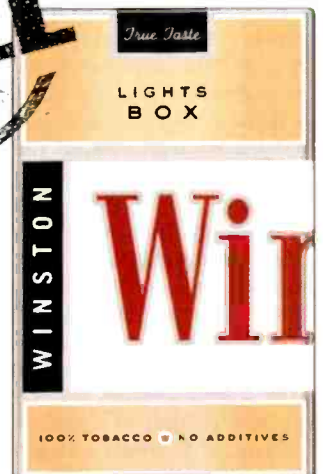
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TEST REPORTS



ROCK P. LEUNG

Parasound Nomad Ten Outdoor/Surround Speaker

JULIAN HIRSCH • HIRSCH-HOUCK LABORATORIES

Parasound, well known for its electronic components, also designs and manufactures small loudspeaker systems suitable for use in either indoor or outdoor installations. The speakers' compact dimensions and light weight, as well as their acoustic performance, make them equally useful as surround speakers in home-theater setups.

The Nomad series currently consists of five models, similar in their basic design and application but covering a broad range in their bass performance and pricing. The Nomad Ten, the top model of the series, is a redesign of a previous model bearing the same name. It is a light, compact speaker housed in a white molded-plastic cabinet with a white perforated-metal grille. Either acrylic or water-based paint can be used to match the cabinet to its surroundings, according to Parasound. The cabinet shrinks in steps toward the rear, culminating in a truncated pyramidal stub containing two binding posts for wires, lugs, or single or dual banana plugs.

The Nomad speakers are all two-way systems with a small woofer and a dome tweeter in a sealed enclosure. Although designed to be weather-

resistant, they should never be immersed in water or located directly on the ground. Each Nomad Ten comes with a stainless-steel wall-mounting bracket that can support the speaker in a variety of positions, including angling it in various directions. It can be installed vertically or horizontally or placed on a table, stand, or shelf.

Although the installation booklet advises that the metal grille should not be removed, we had to remove it in order to view the drivers, which are otherwise invisible. The woofer, nominally a 6½-inch driver, has an effective diameter of about 5½ inches. Above it is a 1½-inch (nominal) soft-dome tweeter whose active portion is about 1⅛ inch in diameter. The speaker's exterior, and the speaker baffle itself, have no obvious signs of special wa-

DIMENSIONS: 12¼ inches high, 8¾ inches wide, 8½ inches deep

WEIGHT: 8½ pounds

FINISH: white plastic (paintable)

PRICE: \$499 a pair

MANUFACTURER: Parasound, 950 Battery St., San Francisco, CA 94111; telephone, 415-397-7100

terproofing features other than the rugged plastic and a complete absence of visible openings in the enclosure.

According to the manufacturer, the Nomad Ten has a frequency response of 38 Hz to 20 kHz ± 3 dB, a nominal impedance of 8 ohms, and a sensitivity of 89 dB sound-pressure level (SPL) at 1 meter with a 1-watt input. It is recommended for use with amplifiers rated between 10 and 120 watts.

The woofer has a polycarbon cone with a butyl rubber surround and a 1.8-pound magnet. The tweeter has a 0.8-pound magnet. Both drivers are damped with ferrofluid. Their crossover frequency is specified as 2.2 kHz, with a 12-dB-per-octave slope.

We measured the speaker's sensitivity as 90 dB SPL, slightly greater than the rated 89 dB. The impedance was close to 6 ohms over most of the audio range, with a minimum of 3 ohms at 3.5 kHz and a maximum of 40 ohms at 90 Hz.

For both measurement and listening, we placed the speakers on stands that put them 35 inches above the carpeted floor, 8 feet apart, and 3 feet in front of a wall. We derived the room response by averaging the outputs of the left and right speakers, measured at a point on the axis of the left speaker and 12 feet in front of it.

The averaged room-response curve was flat within 1 dB from 100 to 500 Hz, rising about 6 dB to its maximum at 1 kHz and sloping off to its original level at 5 kHz, then smoothly declining by 5 dB from 5 to 20 kHz, the upper limit of the measurement. At the low-frequency end of the spectrum, the room response dropped 7 dB between 100 Hz and 50 Hz.

This measurement, of course, reflects the characteristics of the room and speaker placement as well as those of the speaker itself, and the results would certainly be different in any other room or with any other placement within the same room. To isolate (as much as possible) the speaker characteristics from those of the room, we make additional response measurements of the low frequencies with close microphone spacing, and of the middle and high frequencies at distances of 1, 2, and 3 meters, using the Audio Precision digital MLS quasi-anechoic measurement system.

The close-miked woofer response reached its maximum level at about 100 Hz, falling off at 12 dB per octave below that frequency. It sloped off by about 4 dB from 100 to 300 Hz and

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TEST REPORTS

was flat from 300 Hz to the 500-Hz limit of that measurement. These results agreed quite closely with the corresponding range of the room-response curve. The MLS measurement (which is useful only at middle and high frequencies) yielded a ± 2 -dB variation from 500 Hz to 3 kHz and a ± 5 -dB variation from 300 Hz to 20 kHz.

Confusing as these numbers may seem, they clearly indicate that the Nomad Ten can deliver a very good, useful response over the full audible range from 20 kHz down to the region of 50 Hz. Parasound's low-frequency rating of 38 Hz seems a bit optimistic, though placement in a ceiling/wall junction (which the installation instructions recommend for maximum bass) should help somewhat.

Listening tests confirmed our impressions of these unusual small speakers. "Unusual" because there is little in their external appearance that gives a hint of their sonic capabilities, which are quite consistent with their price range. They are solidly built,

**The Nomad Ten can deliver
a very good, useful
response over the full
audible range down to the
region of 50 Hz.**

though not as heavy as some conventional speakers in the same price range. The difference is that the Nomad Ten consists principally of speaker components, including fairly heavy magnets in the drivers, but apparently has relatively little cabinet mass compared to conventional home speakers in the same size and price range.

Listening to the Nomad Ten speakers provided the ultimate confirmation of their quality. Given the dynamics and frequency range of home-theater surround channels, I am quite sure the Nomad Ten would acquit itself very satisfactorily in that role. And a pair of them would do justice to any reasonably good home music system in a recreation room or den, where conventional furniture-wood cabinets might be unwarranted or even undesirable. Certainly in our 15 x 20-foot listening room there was no problem in playing them at levels that precluded ordinary conversation. □

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USER'S REPORT



BOOK P. LEUNG

AKG K290 Surround Headphones

KEN C. POHLMANN • HAMMER LABORATORIES

The booming popularity of home-theater technology has opened the ears of many listeners to the exciting possibilities offered by multichannel audio playback. The at-home moviegoing experience is hardly credible unless you're completely surrounded by sound. Moreover, it's increasingly probable that, like the new DVD video format, audio-only formats of the future will employ 5.1 audio channels. As a result, consumers are investing in surround-sound receivers and placing loudspeakers all around their rooms. That's terrific, but what happens when you want to use headphones?

A stereo recording played back over headphones makes perfect sense — two channels, two ears. But how do you play a four- or six-channel recording over headphones? One solution would be to mix the channels into two for playback over conventional stereo headphones. That is certainly workable, but it loses the *raison d'être* of surround — the experience of being enveloped by sound. To address this

conundrum, companies like Virtual Listening Systems, maker of the Auri headphone system (reviewed in the April 1997 issue), have turned to sophisticated digital signal processing to synthesize a surround environment. AKG Acoustics, a company that has been making headphones for twenty-five years, has taken a decidedly different approach, borrowing a simple technique first introduced in the 1970s, when surround audio (then called quadraphonics) was first developed. AKG's new K290 surround headphones (\$320), although conventional-looking from the outside, contain four independent drivers, two in each earcup, one for the front and the other for the rear channel.

Closer examination reveals four identical dynamic transducers. The K290's front drivers are placed slightly forward of the ear opening, and the rear drivers are placed slightly behind it, and all four are angled into the ear. Thus, each of the drivers conveys one of the four main surround channels. The shape of the outer ear helps our

brains to localize a sound from front or rear, and because the front and rear drivers are aimed at the outer ear from front and rear directions, a surround effect is created. Using more familiar psychoacoustics, the center-channel signal of a Dolby Surround or Dolby Digital recording is mixed into the front channels and reproduced identically by the two front drivers so that it is localized as a phantom center channel. That accounts for the four or five main channels (the K290 does not reproduce the ".1" or low-frequency-effects channel of a 5.1 Dolby Digital recording).

The headphones are hard-wired to a 20-foot cable terminating in an eight-pin DIN plug. A short adaptor cable converts this DIN plug into a stereo miniplug. Also included is a stereo adaptor terminating in a 1/4-inch stereo plug. Finally, AKG supplies an adaptor cable that converts the DIN plug into eight multicolor pigtail leads for connection to an A/V receiver or another multichannel sound source. Although they're a bit bulky, the headphones are light, weighing in at 10 ounces without the cord. AKG rates them for a bandwidth of 20 Hz to 20 kHz, sensitivity of 92 dB/mW, maximum sound-pressure level (SPL) of 120 dB, and impedance of 150 ohms (surround), 75 ohms (stereo).

In the future, perhaps multichannel amplifiers will have multichannel headphone jacks. In the meantime, there's the problem of connecting surround headphones to your surround receiver or amplifier. One solution is AKG's optional K290 Surround Switchbox (\$221) which feeds four audio signals to the headphones and also switches between loudspeaker and headphone playback. The black plastic chassis measures about 8 inches wide, 6½ inches deep, and 2½ inches high, and it has two eight-pin DIN sockets, so that one or two K290 headphones can be plugged into its front panel. Around back, there are twenty wire terminals for input and output of five speaker-level channels (four main plus center). The switchbox also has a pushbutton for turning the center channel on or off, which determines whether or not the center-channel signal is mixed into the headphone's front two elements. This provides extra flexibility, but AKG recommends that you turn off your center-channel speaker at the A/V receiver, by setting it for "phantom center" so that the center-channel signal is

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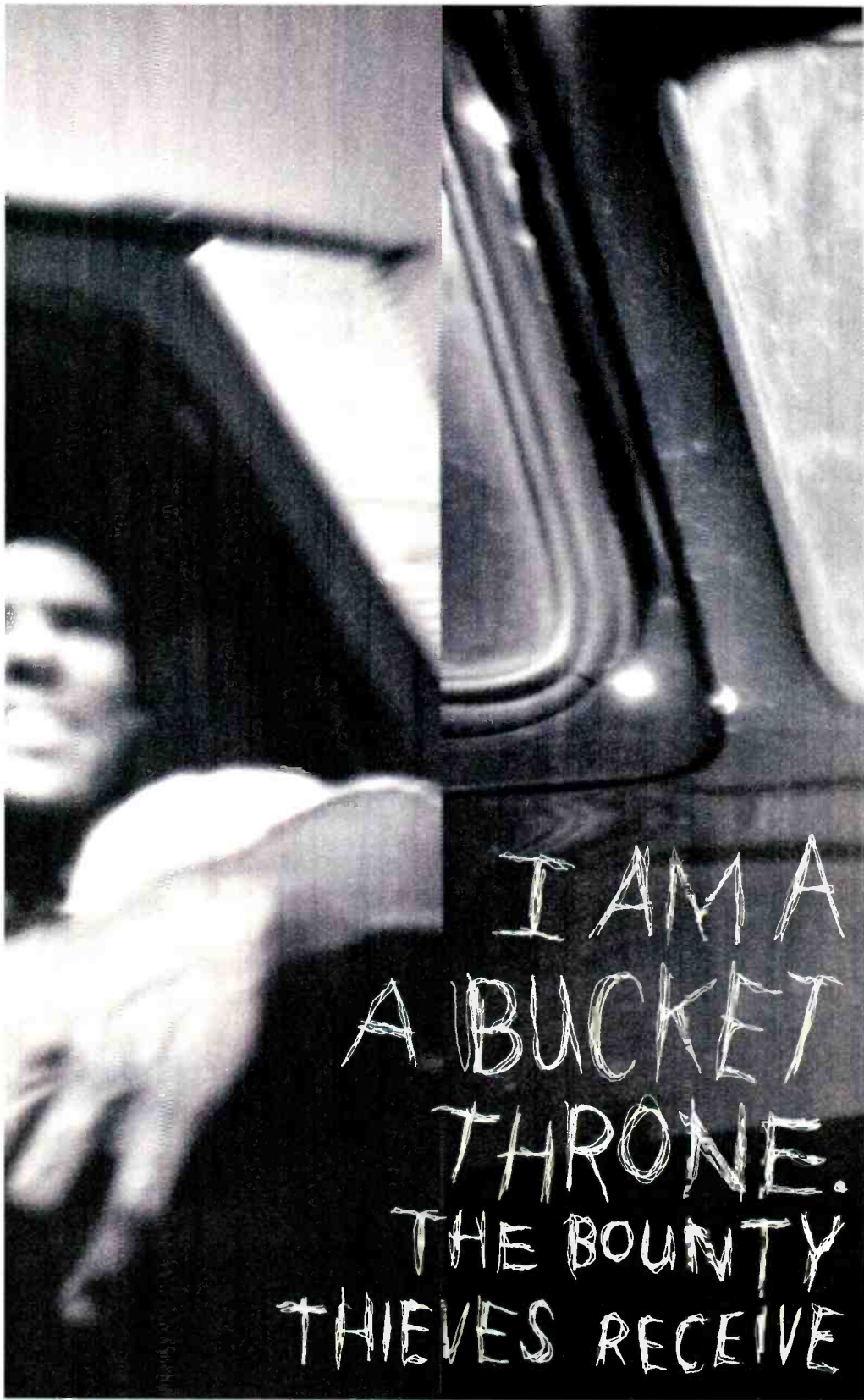


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USER'S REPORT

mixed into the front mains at the receiver, and then turn off the center-channel feed at the headphone box.

The switchbox is passive — no batteries or AC cords. AKG supplies five short (20-inch) lengths of two-conductor stranded wire for connecting an amplifier's speaker outputs to the switchbox. As noted, on the theory that the low-frequency-effects channel operates at frequencies too low for headphones, the effects channel is not applied to the headphones. However, using your own wiring makes it possible to mix the effects channel to all four headphone feeds to create an omnidirectional effects feed.

I've always enjoyed headphone listening (headphones offer a tremendously superior fidelity/cost ratio compared with loudspeakers) so I was anxious to audition the K290. For this particular test, I used a Pioneer Elite DVL-90 DVD/laserdisc player, a Marantz SR-96 A/V receiver, and a Marantz DP-870 Dolby Digital processor. I began with the 1/4-inch stereo adaptor, using the headphones to reproduce conventional CD stereo via the SR-96's headphone jack; in this mode, all four drivers are active. I was generally happy with the sound quality. The sound was quite transparent with a reasonably flat subjective frequency response. Compared with other headphones, however, the K290 seemed somewhat lacking in bass punch — nothing dramatic, just a slight lack of low-frequency impact with very dynamic music. Also, the K290 did not play as loud as some other headphones at the same output level. If you're driving these headphones with a headphone jack, as opposed to a speaker output (through the switchbox), make sure sufficient output level is available.

Next, I turned my attention to the surround mode, using Dolby Digital DVD playback. It was easy to connect the receiver's speaker outputs to the switchbox inputs and then connect the switchbox outputs to the speakers (although the pigtail wiring color code in the owner's manual was printed incorrectly). The switchbox is then used to switch between speakers and headphones; moreover, the system is designed so that the headphones and speakers will play at a similar volume. Because the switching is passive, there is no degradation to the audio signal. However, this pass-through method may create a small problem: the box's speaker terminals are tiny — heavy-gauge speaker cables won't fit.

Once playback was under way, I was fairly impressed with the sense of surround imparted by the angled transducers reproducing four channels. Although it was not nearly as strong as that conveyed by the speakers, there was a good sense of front/rear direction. When I accidentally put the headphones on backwards, the dialogue came from the back and the effects came from the front, verifying that more than my imagination was at work.

There is no way that headphones can duplicate the sense of space of a good listening room, but the K290 did provide a greater sense of ambience than most stereo headphones because of its ability to provide front/back psychoacoustic cues. On the other hand, even these headphones could not escape the "inside your head" quality of the soundstage that is evident with all headphones. Instead of a surround sound that was outside and around me, I felt that the sound was ambient but located mainly inside my head. In other words, there was a good sense of ambience, but it was "headphone ambience" as opposed to true room ambience.

Although the listening experience differed from room listening, the K290 provided very enjoyable playback. I spent some quality time with several DVD movies and found that I adjusted very rapidly to this new kind of surround acoustics. Dialogue was intelligible, and the surrounding sound field did not seem unnatural. I should also note that the K290 headphones

were extremely comfortable. The roomy area inside the earcups means that the pressure is on your skull, not your ears. Most headphones start hurting my ears after a while, but these never did. When 17-gigabyte DVD discs arrive on the market with their 8 hours of playing time, these headphones will be ready to oblige.

Overall, I was quite satisfied with the AKG K290 headphones, especially given their relatively modest price. If you're still in a stereo mode, they would provide good two-channel playback, and when you move to surround playback, they'll be ready for that, too. On the downside, I am concerned about the cost of the switchbox. For a small plastic box with a few connectors, two pushbuttons, and a few internal resistors, it's wildly overpriced.

The introduction of the AKG K290 headphones is another piece of evidence that surround playback is a technology whose time has come. Movie theaters were originally built as palaces, seating thousands of moviegoers. Then those spaces were subdivided into cineplexes with each box holding hundreds of people. With the advent of home theater, many cinemas shrunk to the size of a big living room. Now, with surround headphones such as the AKG K290, you can enjoy the theater experience all by yourself, in complete privacy — a theater of the mind, if you will.

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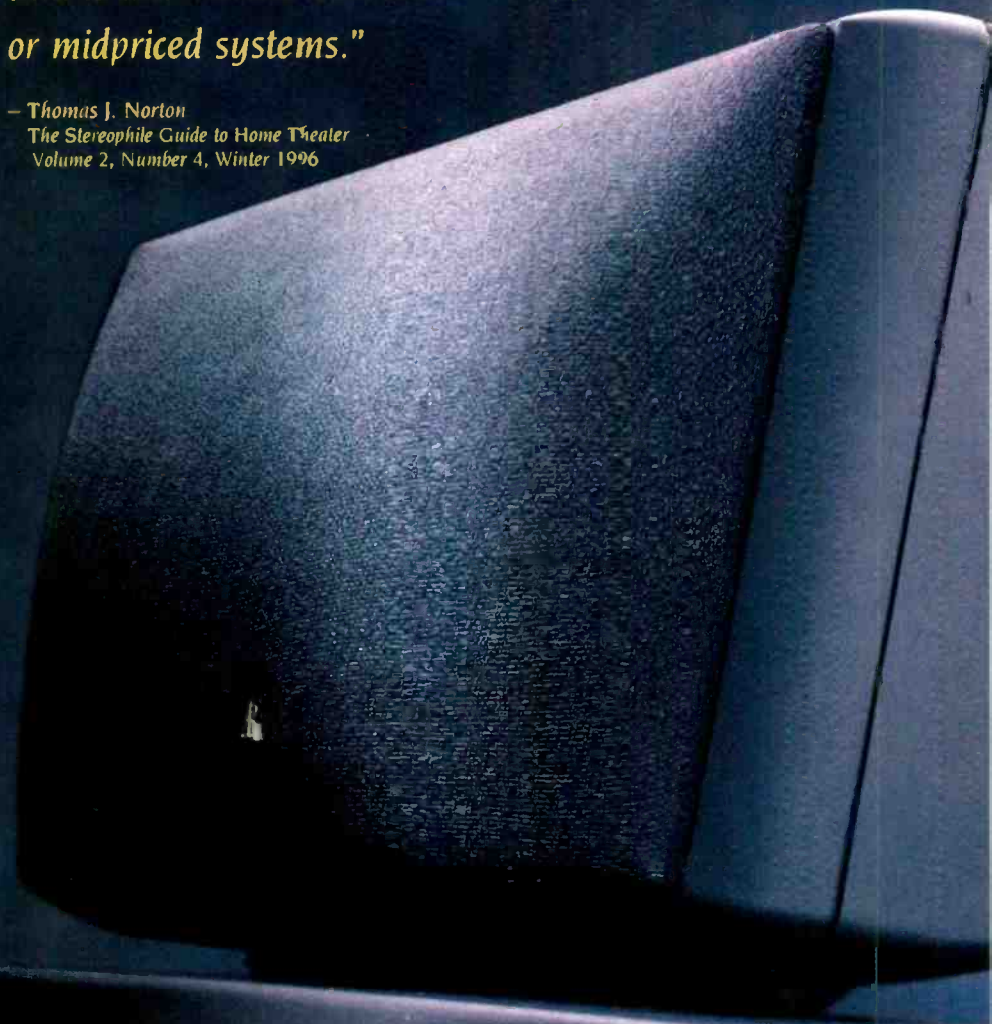
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*- Thomas J. Norton
The Stereophile Guide to Home Theater
Volume 2, Number 4, Winter 1996*



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CIRCLE NO. 40 ON READER SERVICE CARD

YOU CAN agitate about which CD player to buy if you wish. Work up a sweat deciding whether an 18-bit DAC is worth fifty bucks more or less than a 1-bit converter. Spend your nights poring over amplifier spec sheets so you won't "make a mistake." Whatever turns you on. But, as many have written in the pages of STEREO REVIEW over the years, the sonic differences among amplifiers and CD players of reasonably comparable price and specification are subtle to say the least. That's not true when it comes to speakers.

Whether it's used for music listening or home-theater applications, no component has a greater impact on sound quality than the loudspeaker. The other weak links in the sound chain — phono cartridge, turntable, and tape deck — have been replaced by a far closer to perfect one (the CD player), and they've left the speaker holding the bag. Unlike other components, there's no direct relationship between a speaker's price and its sound quality. There might be a rough one, perhaps, but it's easy to pay more for less. Specifications don't necessarily mean much either; there's not even one generally agreed-upon method of testing loudspeakers.

While everyone complains about speakers, no one has figured out how to do without them. Speakers have been studied, analyzed, and examined with laser interferometers. As much technical know-how has been devoted to developing speakers as to any other hi-fi component, yet today's loudspeakers are far more similar to those of a half-century ago than a CD is to a shellac 78-rpm record.

That's not to say that today's scien-

tists don't know more about acoustics (and engineers about speaker design) than their forebears, but the perfect loudspeaker has yet to be created. I can't select the perfect speaker for you, then, but I can map a road through the technicalities so you'll understand how different factors interact and can make an informed choice.

What Loudspeakers Do

It seems simple. A speaker's only job is to move air, or, more precisely, to set up variations in air pressure that propagate through the room as sound waves. When these pressure variations impinge upon the eardrum, we perceive sound. I put it this way not because I want to get into a philosophical discussion of whether a tree falling in the forest makes a sound if there's no one there to hear it, but to emphasize that the sound from the speaker travels through the room to the listener, and, as we'll see, there is a strong interaction between the speaker and the room. The interaction is more acute with some speakers than with others, but it's always present.

Although moving something as light as air might seem easy, a loudspeaker faces conflicting requirements. Human hearing is generally considered to span a music spectrum of ten octaves and a dynamic range of about 100 to 120 decibels depending on frequency and other factors. The numbers don't seem large viewed this way because octaves and frequency are related exponentially, and decibels and power are related logarithmically, which, in both cases, reflects the way we hear. Each octave increase is a doubling of frequency, and each 10-dB increase in sound-pressure level

(SPL) is a tenfold increase in power. When expressed in the physical world in which loudspeakers operate, a ten-octave musical spectrum is a range that has a bit more than a thousand-to-one frequency ratio from top to bottom. A 120-dB dynamic range implies a power range with a ratio of 1,000,000,000.000 to 1 (a thousand billion to one). The numbers suddenly seem more impressive!

"Cycles per second," the old nomenclature for hertz, was a much more descriptive term. A frequency of 20 Hz means 20 cycles (increases and decreases) in air pressure each second; a 20-kHz signal means 20,000 complete cyclic variations per second.

Loudspeakers face a problem because the laws of physics require that a lot more air be put in motion to develop the same SPL (volume) at bass frequencies than in the treble. Thus, the speaker diaphragm that puts the air in motion must be physically large, or move back and forth a considerable distance, or both, to develop high SPLs in the bass. On the other hand, the diaphragm must be extremely light and delicate if it is to respond linearly and accurately to a signal that's executing 20,000 variations each second. Elephants don't pirouette.

The earliest and still most common type of loudspeaker driver, the dynamic cone driver, uses a cone-shaped diaphragm that's suspended at the outer edge by a compliant *surround* (often formed of foam or butyl-rubber) and, at the neck, by a *spider* that usually takes the form of a concentric-ringed waffle. The "motor" that drives the cone consists of a *voice coil* (a coil of wire wrapped on a *former* and attached to the small end of the cone)

PHOTO BY DAVE SLIGUE; DIGITAL IMAGING BY CHRIS GOULD

BY EDWARD J. FOSTER

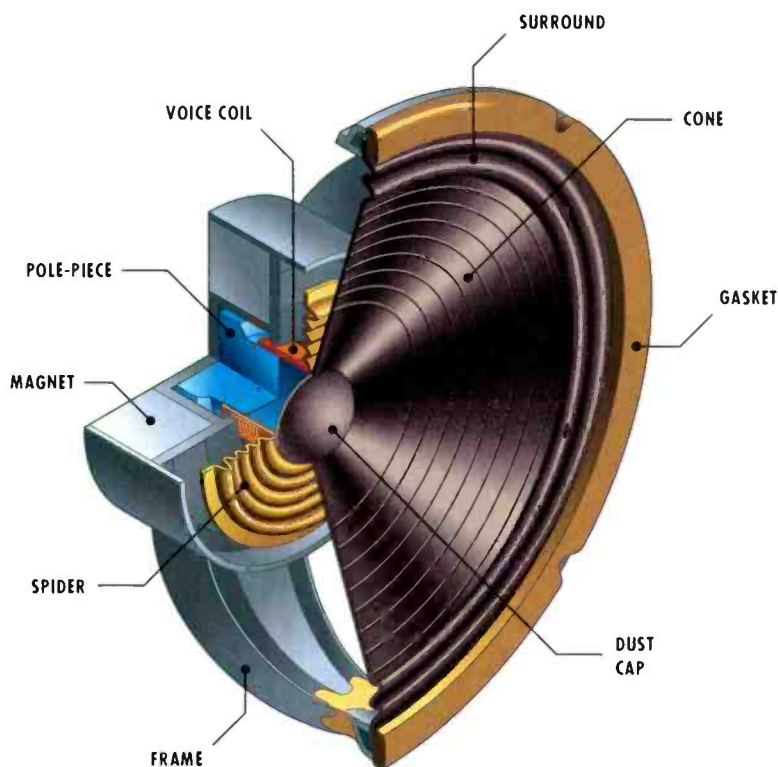
Speakers Inside

Left, a two-way Celestion A1 bookshelf speaker (\$1,499 a pair) with three pieces from the Rock Solid Sounds Solid Solutions home-theater system (\$999; see page 74); center, the 45 1/4-inch-tall Klipsch KLF 30 horn-loaded tower (\$1,800 a pair); right, NHT's VT 1.2 three-way tower with a side-mounted woofer (\$1,100 a pair).



and Out

CONE DRIVER (CUTAWAY)



The dynamic cone driver is, by far, the most popular kind of speaker element. The "motor" that drives the cone consists of a voice coil in the field of a permanent magnet. Current from an amplifier flows through the voice coil, creating a varying magnetic field that causes the coil to move the cone in and out.

ILLUSTRATION BY JARRED SCHNEIDERMAN DESIGN

that's immersed in the magnetic field created by a gap in the *magnet assembly*, which is made up of a permanent magnet and a *pole piece*. There, you've got all the terms!

Current from the power amp flows through the voice coil and creates a magnetic field that follows the musical wave. This field interacts with the fixed one created by the speaker's magnet assembly and moves the voice coil in a manner that reflects the original sound wave you're trying to reproduce.

So far, so good. The voice coil follows the music. But does the cone? Well, that depends. Clearly, the part of the cone close to the voice coil probably follows the coil motion pretty accurately, and if the cone is being driven relatively slowly (in the bass range), there's a good chance that it will move as a whole. Engineers call this "piston-like" motion because the cone moves as a solid piston, which is what we want.

But as the cone is driven faster in the midrange and treble ranges, strange things begin to happen. By the time

the outer edge of the cone gets the signal to move, the inner portion by the voice coil may already be reversing direction. Different portions of the cone are pushed in different directions at the same time, and the cone "breaks up." Although it doesn't really disintegrate, it no longer vibrates as a whole but in segments. If nothing else, this affects the frequency response and directionality of the sound wave that is produced. Usually, cone breakup is a major source of distortion as well.

Cone-type drivers work best over a relatively limited range of frequencies, a range determined by the size and construction of the cone, motor assembly, and so on. To maximize the range, engineers seek light, rigid materials and adopt cone designs that promote structural rigidity. You're likely to see many claims made for the wonderful attributes of this or that cone material, but don't be taken in. If there were one perfect material, everyone would use it, so the very fact that cones are made of everything from paper to metal,

with a variety of plastics in between, is proof enough that nirvana has not been attained.

Hard cones like the metals and stiff plastics may resist breakup, but when they *do* break up, the sound can be quite unpleasant since stiff "high-Q" cones may emit a characteristic sound of their own. Softer materials like felted paper and some plastics have better internal damping and resist ringing, but because they are softer they're usually heavier for a given structural strength and are often relegated to bass reproduction.

Multiway Speakers

Since no cone driver can deliver high-fidelity sound over a ten-octave range, speaker systems almost invariably divide the frequency range into segments and use drivers of appropriate size and design for each segment. A two-way system divides the audible range into two segments, a three-way system into three, and so on.

Crossover networks are filters that direct signals to the appropriate drivers. In a three-way system, the drivers consist of a *woofer* for the bass, a *midrange* for the middle frequencies, and a *tweeter* for the treble. In a two-way system, the bass and lower midrange are sent to a "woofer/midrange" or "bass/midrange" driver.

Woofer cones usually range from about 8 to 12 inches in diameter; midranges run from about 3 to 5 inches in diameter. The bass/midrange driver in a two-way system is likely to be between 5 and 8 inches in diameter. Drivers larger than 8 inches have difficulty reaching high enough into the treble to hand off to a tweeter without the aid of a midrange, while the bass-output capability of drivers smaller than about 5 inches is quite limited unless more than one is used.

Almost invariably, the bass and midrange are handled by cone drivers as described above; the most common tweeter is shaped like a *dome*. Dome drivers work in a manner similar to cone drivers, but the dome is mechanically supported only at its outer edge. That limits its maximum feasible diameter. Dome tweeters are usually 1 inch or less in diameter, although there have been a few midrange domes about 3 inches in diameter.

Domes are driven by a voice coil that's usually attached at the periphery near the support point. Many people think that domes radiate like the theoretically ideal "pulsating sphere" be-

cause of their spherical shape, but that's not true. Driven from the periphery, domes simply move in and out; they don't expand and contract like a pulsating sphere. (Dome-like drivers have been developed that more closely approximate a pulsating sphere, but they're not in common use.)

The voice coil of a dome tweeter sits in the gap of a magnet structure just like the coil of a cone driver. Because the tiny tweeter coil doesn't dissipate heat well, it's common to fill the magnetic gap with *ferrofluid*, a thermally conductive magnetic fluid that's held in place by the magnetic field and wicks away the heat. (Ferrofluid is also used to cool some larger drivers.) The dome may be made either of a light cloth impregnated with a stiffener, a light plastic with or without a stiffener, or a light metal like aluminum or titanium. The advantages and disadvantages of each material parallel those of cone materials: high stiffness-to-mass ratio at the risk of ringing or high internal damping with a less attractive stiffness-to-mass ratio.

Crossover Networks

"Passive" crossover networks are usually built into the speaker cabinet and use inductors, capacitors, and resistors to direct the energy from the power amplifier to the appropriate drivers. "Active" electronic crossovers divide the spectrum *before* power amplification. Some powered subwoofers use a combination of both: an active low-pass section that feeds the internal power amplifier and a passive high-pass section that feeds the main speakers.

Electronic crossovers require separate power amplifiers for each driver or group of drivers, which is costly but has certain advantages. A power amp can control a driver better if it is connected directly to it rather than through passive components, and an electronic crossover is unaffected by level-dependent changes in driver impedance, which can occur with passive crossovers. (Current flowing through the voice coil causes it to heat up, which, in turn, affects the crossover characteristics.) Efficiency is higher, too, because power isn't lost in intervening components, and it's easier to design exotic adjustable crossover slopes with active circuits than with passive components.

On the other hand, if an electronic crossover isn't designed specifically for the speaker system, it is unlikely that you will be able to adjust it optimally without test equipment and a good set of ears. Even with test equipment, the results may not match what can be achieved with a dedicated crossover, which can be designed to compensate for problems in the various drivers.

The crossover network affects the sound of a speaker system far more than many audiophiles realize. In the crossover region, both drivers radiate the same signal, but the two sound waves may not be synchronous (in phase) because of different phase shifts that occur through the two paths of the crossover network.

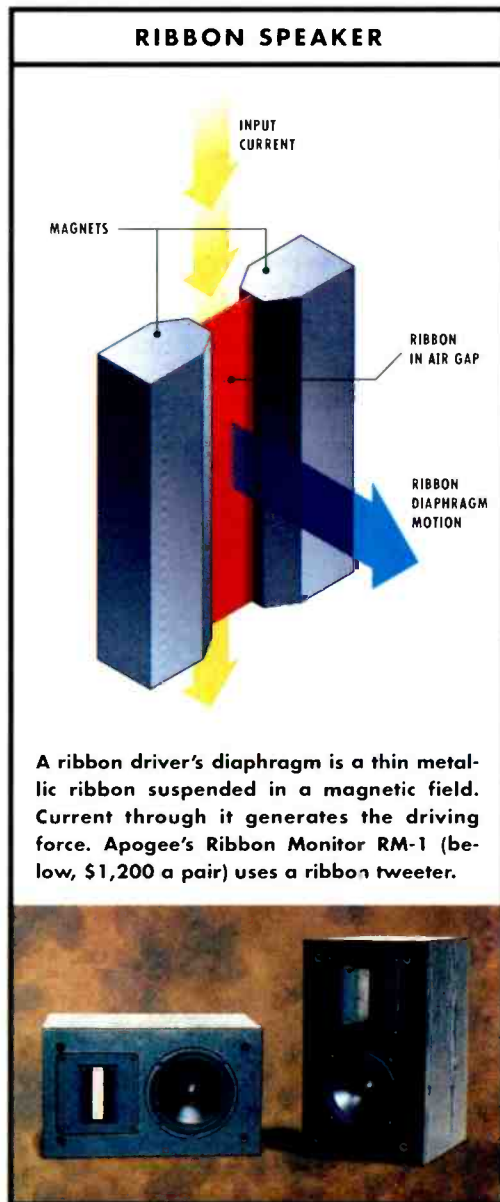
Even if the two drivers are in phase through the crossover region, there will be interference between the sound waves in the room because of the physical separation between the drivers and the resulting different path-lengths from each to the listener. Interference causes the waves to add constructively (increasing sound pressure) at some points in the room and destructively (decreasing sound pressure) at others, both of which depend on frequency and driver placement. That's why it's important for a speaker and crossover to be designed as a unit.

With potential problems occurring in every crossover region, we are faced with another of the unending questions to be answered: Is it better to minimize the number of crossover points and choose a two-way system at the risk of forcing each driver to work over a wider frequency range than it's comfortable with? Or is it better to choose a three- or four-way system, relieve the stress on the drivers, and take your chances with multiple crossovers? There's no answer, but the laws of physics apply. Powerful deep bass requires a lot of air motion, which translates into a large cone area, a large cone excursion, or usually both. You can get fairly deep bass response from a small two-way system, but not at high sound-pressure levels without excessive distortion. Deep bass response with loud clean sound means a large system.

Putting Interference to Good Use

Nothing in the laws of physics precludes increasing the radiating area by using several small drivers — each of which is better able to handle the midrange — rather than one large driver. In the bass region, where the wavelength of sound is longer than the distance between the drivers, all drivers act together and interference problems are essentially nonexistent. The problems come at higher frequencies, where multiple sound sources give rise to the phase effects mentioned earlier. Let's see how this works.

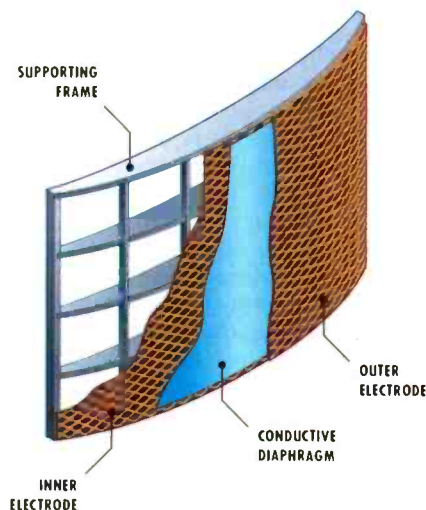
The wavelength of sound is equal to its speed (roughly 1,000 feet per second) divided by the frequency. A 100-Hz signal, for example, has a wavelength of about 10 feet. It's easy to get a number of small drivers to act together at 100



A ribbon driver's diaphragm is a thin metallic ribbon suspended in a magnetic field. Current through it generates the driving force. Apogee's Ribbon Monitor RM-1 (below, \$1,200 a pair) uses a ribbon tweeter.

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ELECTROSTATIC SPEAKER



The diaphragm of an electrostatic speaker, a thin sheet of metallized plastic suspended between metal grids, is charged by applying a voltage between them. Most electrostatic speakers, like the Martin-Logan Aerius i (right, \$1,995 a pair), use a cone woofer to augment their bass output.

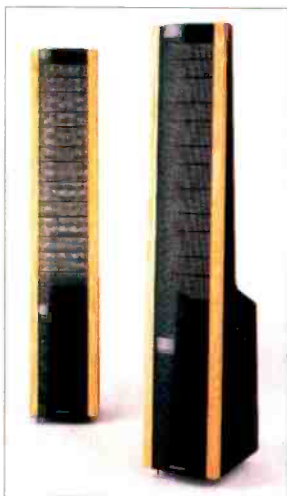


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each other, and with the direct sound wave from the speaker, causing peaks and dips in response at different frequencies in different places in the room. It's generally considered helpful to minimize these effects.

One way to reduce floor and ceiling "bounce" is to control the radiation pattern (directivity) of the speaker to minimize sound propagation in the vertical plane while maintaining uniform spread horizontally. This can be accomplished by using multiple drivers in a vertical line array and operating them over the same frequency range. The drivers must be spaced and phased properly to get the desired effect, but it can be done and is, in fact, the most common way of achieving the directivity pattern required for THX-certified front speakers. The primary goal, in the case of THX speakers, is to enhance the clarity of dialogue and other on-screen action.

Alternatives to the Cone

Many of the problems associated with cone speakers come from driving them from a point at the narrow neck and expecting the whole cone to move as a unit. Wouldn't it be better if the diaphragm were driven uniformly over its entire surface rather than from a point? Since structural rigidity would no longer be important, a light, fast-responding diaphragm could be used. That's the idea behind the electrostatic speaker and its close cousin, the electromagnetic (or planar-magnetic) panel. Of the two, the electrostatic is far more common, so we'll examine it.

An electrostatic diaphragm is a thin sheet of metallized plastic suspended between a grid of metal rods. The system is charged by applying a voltage between the diaphragm and rods or by using a permanently charged diaphragm called an electret. Under static conditions, the system is stable and the diaphragm doesn't move. However, when the voltage is varied by a music signal, the diaphragm is attracted alternately to the front and rear of the grid and moves accordingly, thus setting air in motion. The diaphragm doesn't move far, so it must be large to deliver bass, but the driving force is applied uniformly across the entire surface. (Actually, the force distribution can be controlled by the geometry of the gridwork so that a nonuniform drive can be employed if desired.)

Electrostatic speakers are known for fast transient response and a bright, open sound. Although a large electro-

Hz because they're almost certain to be much closer together than 10 feet. But at 1,000 Hz, where the bass/mid-range drivers are still active in a two-way system, the wavelength is only 1 foot and interference sets in. The interference can be ameliorated by using a more complex crossover to reduce the midrange output of the more distant

drivers and effectively shrink the number of drivers as the frequency rises.

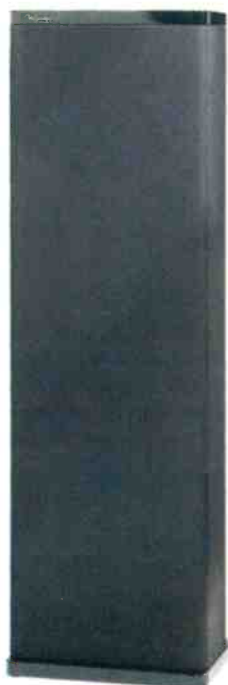
We can also put interference effects to use. As noted earlier, every speaker interacts with the room because sound reflects from every rigid surface — floor, ceiling, walls, furniture. The reflected sound waves interfere with



The Martin-Logan Logos (\$1,750) is an electrostatic center-channel speaker with a cone woofer for the bass.



Cambridge SoundWorks' Surround 5.1 Multipoles (\$400 a pair) let you select either bipolar or dipolar operation.



Bipolar speakers like the Mirage M-7si (\$1,500 a pair) have front and back drivers that operate in phase.

static panel can span a wide frequency range by itself and avoid the problems of multiple drivers and crossover networks, most electrostatic systems use a cone woofer to augment the deep bass and have a crossover network for it. Some power amps have difficulty driving an electrostatic speaker because it presents a capacitive rather than a resistive load. Electromagnetic panels share many characteristics of an electrostatic driver and present an easier load on the amplifier. However, like the "ribbon" tweeter, another fast-responding device, they are difficult to make large enough to qualify as a quasi-full-range transducer.

Enclosures and Radiation Patterns

By itself, a loudspeaker driver has a *dipolar* radiation pattern; as its diaphragm moves forward, compressing the air in front of it, it causes a rarefaction (reduction in pressure) behind. If placed unenclosed in the middle of a room, two diametrically opposed (out-of-phase) sound waves are created, one propagating forward, the other rearward. At wavelengths greater than the distance around the speaker (in the bass), the air sloshes around the driver, the two waves cancel, and little useful sound results. That's why cone drivers are enclosed.

Electrostatic panels are free-standing because they're physically large enough that cancellation doesn't occur until a relatively low frequency. At lower frequencies, the panel is usually augmented by an enclosed cone woofer anyway. In the upper bass, midrange, and treble, however, the electrostatic panel does radiate forward and rearward, and the sound is strongly affected by its placement in the room.

The simplest speaker enclosure is a sealed box that contains and absorbs the back sound wave. If such an enclosure is large, it is called an *infinite baffle* because it is physically equivalent to mounting the driver in the center of an infinitely large board (or baffle) so that the back wave can't get around to the front. When a small box is used, the system is described as *acoustic-suspension* because the air trapped in the box acts as an acoustic spring or "suspension" behind the woofer cone. The acoustic spring aids the mechanical suspension (the surround and spider) in restoring the cone to rest quickly, and acoustic-suspension systems are characterized as having "tight bass." Since the acoustic spring is like-

ly to be more linear than the mechanical suspension, acoustic-suspension systems are also noted for low-distortion bass reproduction.

Efficiency is not the strong suit of acoustic-suspension systems, however, because half of the sound energy is trapped and absorbed in the box. In fact, it's important that a sealed box be built sturdily and have adequate absorbent material within so that the trapped energy does not cause the sides of the box to vibrate and become

sound sources of their own. And efficiency is not a minor consideration. Loudspeaker efficiency can vary over a range of 10 dB or more, which means that ten times more amplifier power can be required by a low-efficiency speaker to produce the same volume as a high-efficiency system.

One way to increase bass efficiency is to *vent* the box and make use of the back wave's sound energy. Obviously, this has to be done properly, because the point of the enclosure is to prevent



The DCM TimeWindow 7 (\$1,600 a pair) is an example of a speaker with a transmission-line vented enclosure.



Magneplan's Magneplaner MMG (\$500 a pair) combines a planar-magnetic bass/midrange driver and a ribbon tweeter.

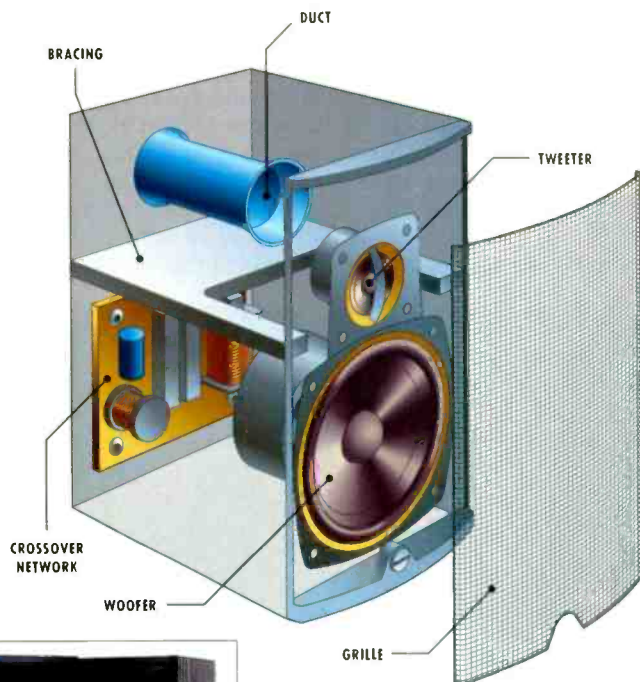


Acoustic Research's three-way AR-303A (\$1,300 a pair) is a classic acoustic-suspension (sealed-box) speaker.



The Klipsch KLF 30 (\$1,800 a pair) uses horns to control its treble and midrange directivity and improve efficiency.

BASS-REFLEX SPEAKER



A bass-reflex speaker enclosure is designed so that the woofer's back wave emerges through a vent or port opening, often by way of a tube or duct, which reinforces its bass output. Boston Acoustics' CR7 (\$260 a pair) has a ducted port.

horn-like structure is placed in front of a driver. This provides unusually high efficiency because the horn acts as an acoustical transformer, or impedance-matching device, coupling the diaphragm to the air. Horns became popular in the 1930s because they could increase the amount of air that a driver and amplifier could move. The power amps of that time were weak by today's standards, so increasing the driver's efficiency — often by several orders of magnitude — was very important. Because today's amps are so powerful, efficiency is not as critical as in the past, and most horns are used in professional sound-reinforcement applications. However, besides its ability to act as an acoustical transformer, a horn can also act as a waveguide, which makes it ideal for controlling a speaker's directivity in both home and professional applications.

Typically, the throat of a horn has a smaller area than the driver to which it is attached. The driver is usually coupled to the horn through a compression chamber or a phase plug, the job of which is to collect the sound from the diaphragm and "compress" it down to the size of the horn throat while maintaining the complex phase relationships of the sound.

Another alternative enclosure is the *transmission-line* cabinet, which, its adherents believe, combines the best characteristics of the sealed and vented variety. The transmission-line enclosure simulates an infinitely long tube with a tapered chamber and sound-absorbent material.

Direct and dipolar radiation patterns are not the only ones available. *Bipolar* speakers have drivers front and back that are operated in phase to approximate the radiation pattern of a "pulsating cylinder" — uniform horizontally, controlled vertically.

Whatever the design, there's a general tradeoff between enclosure size, bass output, bass extension, and efficiency. A small system *can* be designed to have good bass extension, but only by sacrificing efficiency, maximum bass output, or both. That's the theory — not every loudspeaker designer is equally adept at reaching those limits. Your job is to find the ones that are! A final thought: Since the sound of a speaker depends on the listening room, especially its dimensions and furnishings, speakers are likely to sound different at home than they do in the store. Moral: Return privileges are nice to have. □

ILLUSTRATION BY JARED SCHNEIDMAN DESIGN

out-of-phase sound at the back from canceling front sound. By tuning the box with a *port* or *passive radiator* — a cone or panel that is driven by the sound energy within the box rather than by a voice coil — the phase of the back wave is inverted over a band of frequencies so that it emerges in phase with the front sound. At lower frequencies, the sound from the port

or passive radiator is out of phase with the main driver, and the speaker's response falls off more rapidly than that of an acoustic-suspension speaker. At higher frequencies, absorbent material within the box soaks up the back wave and prevents it from emerging.

Sealed and vented enclosures are the most popular, but there are alternatives like *horn loading*, in which a



The Bose Acoustimass 5 Series II (\$749) is a compact three-piece subwoofer/satellite speaker system.



The B&W AS 6 (\$950) is a powered subwoofer with a 12-inch paper-cone driver and a built-in 100-watt amplifier.

SPEAKER GLOSSARY

ACOUSTIC-SUSPENSION A type of loudspeaker using a sealed enclosure in which the air trapped behind a *woofer* cone provides a portion of its restoring force; known for "tight bass" and low distortion. Also see *infinite baffle*.

ANCHOIC Without echo; an environment where no sound is reflected.

ANCHOIC CHAMBER A room with sound-absorbing walls, floor, and ceiling typically used for loudspeaker and microphone testing.

BAFFLE A panel on which speaker *drivers* are mounted. It serves to increase the acoustical path length from the rear of the driver to the front. Also see *infinite baffle*.

BASS-REFLEX Alternate name for a vented enclosure in which a woofer's back wave emerges through a *vent* or *port*, often via a duct, to reinforce the low-frequency output.

BIAMPING The use of separate power amplifiers to feed the *woofer* and *midrange/tweeter*. Also see *biwiring*.

BIPOLE A speaker with an essentially equal complement of *drivers* mounted on the front and rear panels, all operating in phase. It approximates the radiation pattern of a pulsating cylinder: uniform in-phase radiation in the horizontal plane over a portion of the audible spectrum. Also see *dipole*.

BIWIRING The use of separate wires between one power amplifier and the *woofer* and *midrange/tweeter* drivers. Also see *biamping*.

COLORATION A subjective description of the sound of a loudspeaker often denoting nonuniform *frequency response*.

COMPLIANCE A measure of the flexibility of a suspension system in terms of displacement per unit of applied force.

CONE A *diaphragm* shaped in the form of a cone suspended at its periphery by a *surround* and at its neck by a "spider."

CROSSOVER NETWORK Electrical filters that divide the audible spectrum into two or more frequency bands for distribution to separate loudspeaker *drivers*.

DAMPING The decay of motion after a stimulus has been removed; the way in which a loudspeaker *cone* ceases to vibrate after the driving force has been removed.

DIAPHRAGM The moving element in a loudspeaker *driver* that is primarily responsible for generating sound waves.

DIFFRACTION A phenomenon that causes wave-propagated energy, such as sound, to change direction (bend) when reaching a sharp edge. The angle of diffraction depends on wavelength, so sound diffraction at the edges of an enclosure is more pronounced at short wavelengths (treble region) than at long wavelengths.

DIPOLE A loudspeaker that radiates equally in opposite directions but in which the front and back

sound waves are radiated 180 degrees out of phase.

DIRECTIONALITY Refers to the radiation pattern of a *driver* or loudspeaker and is often a function of frequency.

DOMED A *diaphragm* shaped in the form of a dome suspended at its periphery, usually 1 inch or less in diameter; commonly used in *tweeters*.

DRIVER A single sound-generating element in a *loudspeaker* system. Also see *woofer*, *midrange*, and *tweeter*.

EFFICIENCY The ratio of acoustic output power to electric input power, usually expressed as a percentage.

ELECTROSTATIC DRIVER A driver whose *diaphragm* is driven by electrostatic rather than electromagnetic forces.

FERROFLUID A magnetic and thermally conductive liquid used to conduct heat from a *voice coil* to the magnet structure; often used in *tweeters*.

FREQUENCY RESPONSE Applied to loudspeakers, frequency response describes the uniformity of acoustical output as a function of frequency; expressed in terms of a frequency range (in hertz) and the maximum deviation in response (in decibels) over that range.

HORN An acoustical transformer used to match the high acoustical impedance (high-pressure/low-velocity output) of a *diaphragm* to the low acoustical impedance (low-pressure/high-velocity) of the room. Horn loading greatly improves loudspeaker *efficiency*.

IMPEDANCE The resistive and reactive load that a loudspeaker presents to the power amplifier driving it.

INFINITE BAFFLE An infinitely long and wide board that prevents a loudspeaker's rear-emanating sound from reaching the front and vice versa without affecting the compliance of the moving system. (Also see *baffle* and *compliance*.) In practice, an infinite-baffle enclosure is a large sealed box that accomplishes the same thing.

LOUDSPEAKER Although the term can refer to a single sound-generating element, or *driver*, it is preferable to restrict its use to a speaker system comprising one or more drivers in an enclosure and usually including a *crossover network*.

MIDRANGE In a three-way loudspeaker, the *driver* that is primarily responsible for reproducing the middle frequency range, from approximately 500 Hz to approximately 2 kHz.

MONITOR A descriptive term suggesting that the loudspeaker in question is of adequate quality to monitor recordings in professional studios.

NEAR FIELD The spatial region sufficiently close to the sound source (loudspeaker) that direct radiation predominates and reflections and other room effects can be ignored. Small studio monitors are frequently designed to be used in the near field.

PASSIVE RADIATOR A *diaphragm* mounted on the surface of a loudspeaker enclosure and driven

by the sound pressure within the cabinet rather than electrically by a *voice coil*. A passive radiator serves the same technical function as a *port* or *vent*.

PORT In a vented loudspeaker enclosure, an opening that "tunes" the enclosure and permits the sound energy within the cabinet to emanate in a useful fashion over a range of frequencies. A port may be "ducted" (fitted with an internal tube or duct). Port and vent are interchangeable terms. Also see *bass-reflex*.

REVERBERATION TIME The time taken for the sound-pressure level in a room to decay by 60 dB after the cessation of the input signal. Reverberation time depends on room dimensions and absorption characteristics and is also usually frequency dependent.

RIBBON DRIVER A driver whose *diaphragm* is a thin metallic ribbon suspended in a magnetic field. Current through the ribbon generates the driving force. Ribbon drivers are delicate and are most often used as *tweeters*.

SENSITIVITY Related to *efficiency*, loudspeaker sensitivity is usually specified in terms of the sound-pressure level (SPL), in decibels, generated at a specified distance (usually 1 meter) from the loudspeaker, when a specified signal level is applied. The most common signal level is 2.83 volts rms (equivalent to 1 watt into an 8-ohm resistive load).

SUBWOOFER Usually refers to a loudspeaker (often self-powered) designed to reproduce the lowest bass octaves, from, say, 20 to 100 Hz; may also refer to a *driver* designed for that purpose rather than a separate loudspeaker.

SURROUND A compliant suspension, often made of foam or butyl-rubber, at the outer edge of a *cone-shaped diaphragm*. Also used to refer to the speaker in a home-theater system, placed toward the rear of the listening room, that reproduces ambience, special effects, and other surround-channel information.

TRANSMISSION LINE A loudspeaker enclosure design in which the back wave from the woofer is coupled to the room through a waveguide or transmission line.

TWEETER In a multiway loudspeaker, the *driver* that is primarily responsible for reproducing treble frequencies above approximately 2 kHz.

VENT See *port*.

VOICE COIL The driving element of a dynamic *driver*. A coil of wire, wound on a "former," physically connected to the *diaphragm* and immersed in the magnetic field within the gap of a magnet assembly. Electrical current through the wire creates a magnetic field that interacts with the fixed field of the magnet, causing the voice-coil assembly to move.

WOOFER In a three-way loudspeaker, the *driver* that is primarily responsible for reproducing bass frequencies below approximately 500 Hz. In a two-way system, the woofer may be called a *woofer/midrange* and operate up to a higher frequency.

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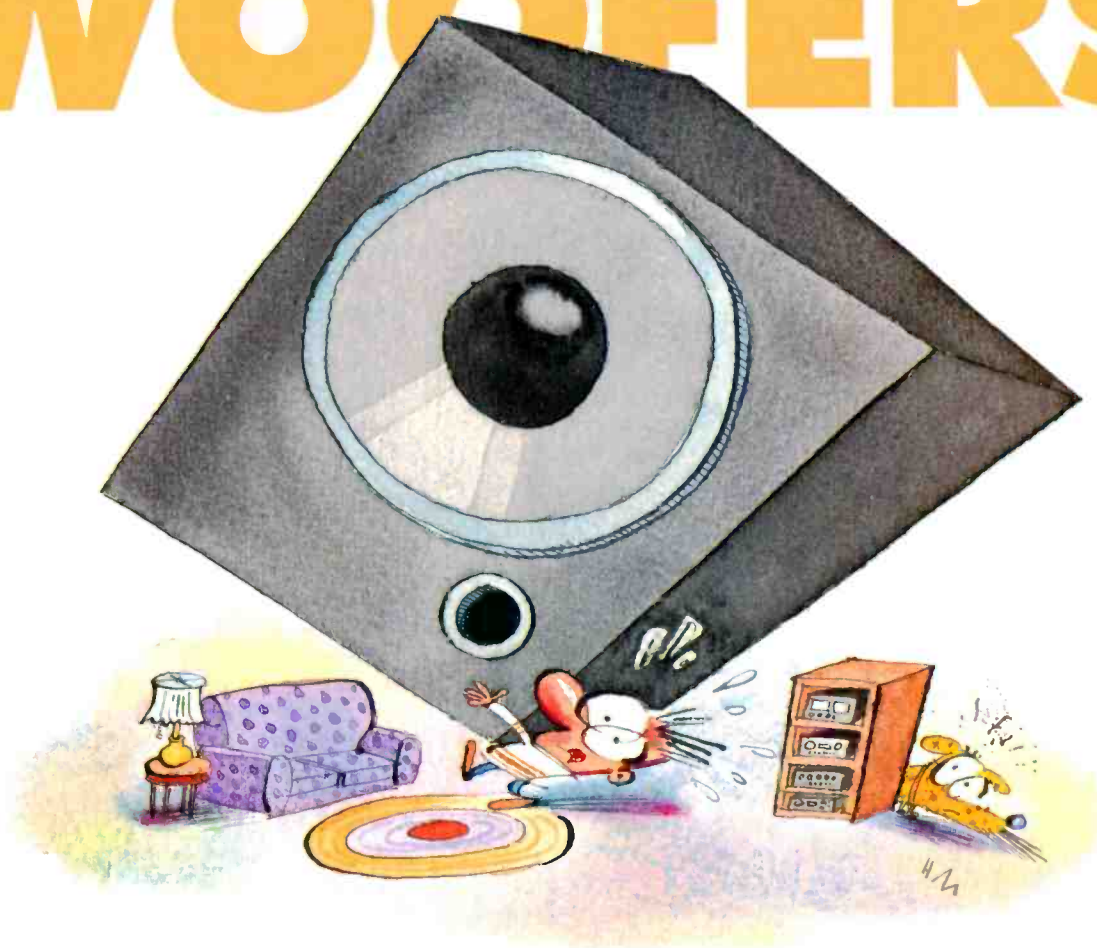
How does it work? It operates as two separate speakers: one a point source direct radiator with a 5 1/4" woofer and 1" tweeter, and the other a dipole with two 3 1/4" poly mid-tweeters. It has two main user-selectable modes: THX dipole or Tripole, plus six custom modes to suit

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HOW BIG IS BIG ENOUGH?

BY TOM NOUSAINE



WHETHER T-REX IS RUMBLING through the jungle or an F5 twister is ripping through the back roads of Oklahoma, the low-frequency energy in many of today's movie soundtracks is enough to make you run for cover. And that's without any significant bass content below 25 Hz, where even Hollywood's biggest boom-and-crash flicks stop booming. So as long as your subwoofer can

play down to 25 Hz with reasonable loudness and low distortion, as many subs with 10-inch or larger drivers can, you're all set, right? Well, it's not quite that simple.

First off, many music recordings contain frequencies well below 25 Hz. Although some "bass" instruments, such as electric or acoustic bass, do not produce any very low frequencies, sonic spectaculars such as Beethoven's

Wellington's Victory on Telarc have content down to 10 Hz. Many organ recordings contain music with 16-Hz fundamentals. And some synthesizer-heavy "bass-head" CDs have high output in the low 20s. A subwoofer with a 25-Hz lower limit might be adequate, but only if you stay away from some of that good stuff.

Then again, even if you confine yourself to movie soundtracks, the average subwoofer won't produce loudness levels that match those you hear in a good movie theater. The typical powered subwoofer has a 10- to 12-inch driver and is able to produce a sound-pressure level (SPL) of between 98 and 103 dB with less than 10 percent distortion over the frequency range spanning 25

Modern subwoofers are paragons of efficiency, but the average model falls a little short of full-service capability.

to 62 Hz. These are real-world numbers from my measurements of more than fifty subwoofers taken at a listening position 2 meters from the speaker in my reasonably typical room. (Add 6 dB to the numbers if you want to compare them to SPL measurements made 1 meter away from the speaker.) Such performance can sound mighty impressive, but it still doesn't match the low-end oomph that you get in a well-equipped movie theater.

Thus, while the modern powered subwoofer is a paragon of design efficiency, offering excellent extension and output at a very reasonable cost, the average model falls a little short of, shall we say, full-service capability. A basic subwoofer is more than adequate most of the time, but what does it take to go all the way all the time?

To find out, we put four Velodyne powered subwoofers to work to reveal precisely what you get when you move up, step by step, to bigger, more powerful bass speakers. We chose Velodyne because the company offers a full range of subwoofers, including 10-, 12-, 15- and 18-inch models, all of which incorporate a special distortion-limiting servo mechanism that makes measuring maximum output much easier.

TEST SETUP

The subs used for the comparison were the \$949 F-1000X (10-inch driver with an 80-watt amplifier), the \$1,299 FSR-12 (12 inches, 120 watts), the \$1,699 FSR-15 (15 inches, 250 watts), and, finally, the \$1,999 F-1800RII (18 inches, 600 watts). All include an integrated electronic crossover and a full set of inputs and outputs. Naturally, the subwoofers grow in size as they move up

the scale. The F-1000X weighs 49 pounds and consumes 1.7 cubic feet of space, while the F-1800RII weighs in at 105 pounds and gobbles a whopping 5.3 cubic feet of space.

For the tests, I placed each subwoofer in turn in the right rear corner of my listening room (a location-performance map of the entire room indicated that corner as the optimal placement relative to the main listening position). Then I subjected each subwoofer to a series of measurements followed by a series of listening tests.

MEASURED RESPONSE

I measured each subwoofer's frequency response at 85 dB SPL with the microphone in the listening seat. I measured the frequency response again with the subwoofer at full throttle — the level control set to a point just before the servo mechanism began limiting system output. Then I ran a complete set of SPL measurements for each sub with a 10-percent distortion limit using a special tone burst at one-third-octave frequencies in the bass range from 12.5 to 80 Hz.

Frequency-response measurements using a MLSSA analyzer showed that the Velodyne 10- and 12-inch models go lower than most basic subwoofers of comparable size. I measured the F-1000X's half-power point (the frequency at which its output drops 3 dB below maximum) as 23 Hz in my room, while the FSR-12's half-power point was 21 Hz, which was identical to those of the 15- and 18-inch subs measured at an approximately 85-dB SPL at the listening position. When the level control was turned up to the point where the servo limited output, the F-1000X delivered 3 dB more output, the FSR-12 delivered another 2 dB on top of that, the FSR-15 another 8 dB extra, and the F-1800RII yet another 7 dB more SPL over the entire bass range — overall, 17 dB more than the F-1000X could deliver.

When I measured output with a 10-percent distortion limit, I found that all four of the subwoofers were capable of playing down to 16 Hz with low distortion. However, even the 18-inch model had a maximum output of only 102 dB SPL at that frequency.

Measuring output levels using a sine-wave/tone-burst technique excites the speaker one frequency at a time. (The MLSSA, by comparison, uses a noise signal that excites all frequencies simultaneously and therefore produces different results.) In this measurement the 12-inch subwoofer was 2 dB louder than the 10-incher, the 15-incher added another 8 dB, and the 18-inch model drove the level up by another 4 dB. The spread here was 14 dB more output from top to bottom over the 16- to 80-Hz range. At full throttle, the F-1800RII cranked out an average of just under 112 dB SPL over the 25- to 62-Hz range and just under 110 dB when the range was expanded to 16 to 80 Hz. The graph on the facing page clearly shows the test results.

LISTENING — AND FEELING

The measurement results, while informative, are just numbers. What do they mean to your ears and your body?

To find out, I stacked the subs one atop the other in the corner of my room and carefully balanced each one as part of a 5.1-channel home-theater system. I matched them as closely as possible in level and crossover blend. Then, with the aid of a five-position dB Systems switchbox, I listened to a variety of film and music programs, switching between each of the four subwoofers. The listening ran the gamut from straight two-channel stereo on CDs to DTS-encoded 5.1-channel music and movies to 5.1-channel Dolby Digital films on laserdiscs. The idea here was to get a full head-to-head comparison of the subjective performance of various subwoofer sizes and output levels.

For music I used "You Look Good to Me" from the Oscar Peterson Trio's *We Get Requests* (acoustic bass), Melissa Etheridge's "Similar Features" (electric bass), "It's Live" from Bass Erotica's *Bass Ecstasy* (strong 22-Hz fundamental), and organ passages from Strauss's *Also Sprach Zarathustra* on Delos and from Opus One's *Cantate Domino* collection. Sonic spectaculars included "Jurassic Lunch" (a recreation of the attorney-eating scene in *Jurassic Park*) from Telarc's *The Great Fantasy and Adventure Album* and the 10-Hz black-powder cannon shots on the Telarc CD of Tchaikovsky's *1812 Overture*.

For film material I used Chapter 14 from *Clear & Present Danger* (Dolby Digital laserdisc), where a missile blows up a drug kingpin's country home. The chapter also contains several sequences where jet planes zoom in and out of the main picture. Chapter 7 from the DTS-encoded laserdisc of *Last Man Standing* provided another listening sample; it has louder-than-life pistol shots, their sound doctored to make them more impressive.

On my test tracks with acoustic and electric bass I could hear absolutely no difference between any of these four subwoofers. Adding a subwoofer to the system was a big improvement over having no subwoofer, but I switched among all four Velodyne subs with no perceptible change in sound. With my eyes closed as a friend spun the switch knob, I just couldn't tell the F-1000X from the F-1800RII. I am not kidding. Conclusion: If you never listen to organ music or to movies or music with special sonic effects — in other words, if you stick to material in which 40 Hz or so is as low as it gets — then a good 10- to 12-inch subwoofer is all you'll ever need.

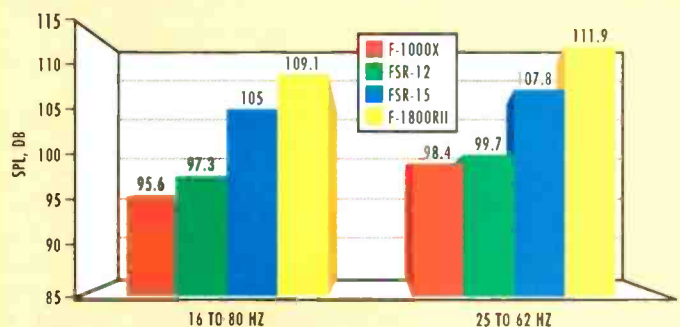
On the other hand, with the big-bass stuff, a bigger and more powerful subwoofer will give you an increasing sense of acoustic depth and envelopment. For example, with organ music I got a real sense of the audio spectrum's being "completed" when a subwoofer was introduced into

my system. Even the treble seemed better. Without the subwoofer, the system strained at loud levels and screeched as I increased the volume to compensate for the limited low-frequency extension. When I moved to larger, more powerful subwoofers, the pitch seemed to deepen slightly at louder levels as more very low information was represented better (human hearing is also more linear at louder volumes). At each step up the subwoofer ladder, the performance became more enveloping, with a larger apparent acoustic space and a greater sense of realism.

When I switched from Oscar Peterson and Melissa Etheridge to the Bass Erotica CD, with its isolated 22-Hz passage, turning on the F-1000X gave the system some oomph. The bass became a tactile experience, simple as that. Moving to the 12-inch sub made the experience subjectively a little louder and somewhat deeper. The difference was just audible, not nearly as big as when the first sub was added. Moving to the FSR-15 made everything feel deeper. The presentation became more immediate and much more physical. Finally, turning on the 18-inch sub just lit up the room.

With the big-bass material, moving up in size through the subs was like upgrading to a progressively better set of "magic fingers" in a vibrating lounge chair — each time the effect was stronger, deeper, and more thrilling. Yet the basic extension of the system hadn't changed all that much, and the overall volume levels were exactly matched. Bigger subwoofers increase the overall dynamic capability of the system, and because they extend the low-frequency bandwidth as well, you don't need to increase the overall volume level to get the benefits. In other words, a

OUTPUT VS. SIZE



THE MAXIMUM OUTPUT sound-pressure levels, measured at a distance of 2 meters with less than 10 percent distortion, of the four Velodyne subwoofers used for this test. The bars on the left represent measurements over a frequency range spanning 16 to 80 Hz; the bars on the right represent measurements over a more restricted range spanning 25 to 62 Hz. In either case, the bigger and more powerful the sub, the higher its output level.

subwoofer lets you go both louder and deeper, but just deeper can be worthwhile all by itself.

Twelve seconds into "Jurassic Lunch" is the first distant dinosaur step, which became progressively more noticeable with each subwoofer upgrade. With the F-1000X the effect was barely perceptible — lesser subs simply don't convey it. With the FSR-12 the first step was decidedly audible, making me pop to attention. With the FSR-15 it was startling — I sat bolt upright. The F-1800RII made tremors in the floor, as though

A subwoofer lets your system go both louder and deeper, but just deeper can be worthwhile all by itself.

someone had accidentally backed a garbage truck into the far end of my building. It was terrifying. During the louder parts, the 10- and 12-inch subs shook the couch, the 15-inch sent ripples through the floor, and the 18-inch seemed to shake the entire room.

Telarc's *1812 Overture* has several cannon-shot highlights. As I moved upward in subwoofer output, I got a progressively better sense of envelopment and space. The great outdoors seemed "bigger." The playback was dynamically more impressive, what I call "scarier."

With films having special sound effects the range was, not surprisingly, just as pronounced. In *Last Man Standing* Bruce Willis has a pair of supersonic pistols. These guns have a report that is much louder and deeper than any handgun ever made — a pair of hand-cannons, if you will. The sound of the guns being fired has a very strong initial crack that you get with or without a subwoofer. It's a higher-frequency sound, so you don't need a low-frequency loudspeaker to reproduce it.

What is missing when the lows are absent is the aftershock and decay. With bigger subs I felt a progressively harder oomph and decay. The bigger subs pulled me into the sound and the story by thumping me in the chest, moving the floor under my chair, and giving me the natural decay that comes with powerful low-frequency information. This is partly a function of the decay of room modes, which vary from room to room. But if you've ever felt the "whoomph" of a passing train, you already know that low bass is not a quick phenomenon. If it is loud and low it shakes structures, it shakes the earth, it thumps your chest. It always leaves an aftershock. So will a good subwoofer. No aftershock, no decay, means no lows. Contrary to popular myth, there is no such thing as a "fast" subwoofer.

THE LOWDOWN

What you get as you move up the subwoofer scale is more output and a more realistic presentation, but only when the program's frequency content calls for it. With a carefully installed subwoofer there is no intrusion on the upper ranges of your system. I never noticed any coloration of the voices or midrange sounds during these tests. My system did not become boomy or obnoxious when there was no low bass to be heard. In fact, the subwoofers were squeaky clean throughout. True, it is possible to set bass levels so high that they turn the weatherman into a basso, but that's not a general byproduct of a properly subwoofered system.

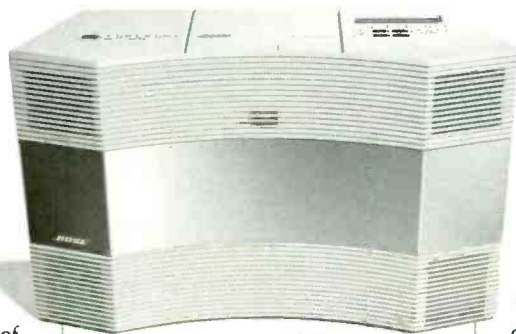
If you don't listen to programs with much low-frequency content, a bigger subwoofer won't give you better performance. On the other hand, as we have discovered in past research, even if you already have two or more full-range speakers, directing the low bass to a separate subwoofer that can be optimally placed usually results in a big performance improvement (see "Subwoofer Secrets," STEREO REVIEW, January 1995). Since the optimal location for a sound source below 80 Hz is different from the optimal location for one at higher frequencies, adding a dedicated subwoofer is important for all kinds of listening.

While progressively bigger subs can make the sound more and more lifelike in the low ranges, it matters only if the program material you listen to has the requisite frequency content. If big-band music or acoustic jazz is your life, you don't need anything more than a basic subwoofer. If you enjoy video drama or classic movies, a basic sub will do just fine. But if you like organ music, recent action movies, and sonic spectacles, each step upward in power (driver and amplifier size) will give you more enjoyment even without changing the volume setting.

ALL SHOOK UP

One more thing: If loud low bass shakes structures, you might wonder what a big subwoofer will do to your home. Let me reassure you. I have used an 18-inch home-brew subwoofer capable of 110 dB SPL in the 16- to 80-Hz range since 1980 with no hint of damage. I have tested over fifty powered subwoofers in a single listening room over the past six years, including the four in this test, with no structural damage of any kind. I have friends with custom subwoofers capable of over 120 dB SPL at infrasonic frequencies who have experienced no damage (although one worries that his garage door will be knocked off the track at very loud levels, and another, who owns an old house, had a water pipe fill up with scale in a nearby bathroom during a particularly enthusiastic demonstration). In general there is no cause for concern — at least about the structural integrity of your dwelling. How your friends and neighbors react is another matter. □

LESS THAN A FOOT TALL, YET LOOKED UP TO BY SO MANY.



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BABY G

I LOVE REVIEWING affordable home-theater speaker packages. It's easy for even a mildly talented speaker designer to provide good sound and effortless dynamics in a multikilobuck rich man's rig, but delivering the same performance from a six-piece speaker system that sells for less than a thousand bucks can drive even the most talented designers to burp at the barkeep, "Make mine Maalox!"

If every budget and midprice speaker system that UPS dropped on my doorstep sounded great, reviewing them would be a snooze. But the fact is, listening to most of the stuff in this category is almost as depressing as watching today's youth saunter past without so much as a fare-thee-well while they drop the waistbands of their Levi's down to the midhigh level. Although there's no end to the entrants in the midprice "home-theater-inna-box" speaker arena, the unfortunate truth is that good, musical sound quality is all too often AWOL. Cheap drivers, under-

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damped cabinetry, and just plain mediocre design work abound, with poor sound being the rule rather than the exception.

Most manufacturers have a hard enough time designing a \$1,000 pair of speakers that combines true full-range frequency response with good dynamics and clear, accurate sound, let alone a six-speaker system that meets those cost/design objectives. That's why we didn't kid around when choosing a trio of home-theater speaker systems for a head-to-head comparison. Energy, JBL, and Rock Solid Sounds are all proven players in the affordable-loudspeaker arena, so we asked them to send us their best \$1,000-or-less home-theater speaker packages. I compared the systems over a period of several weeks using test tones, favorite laserdisc and DVD movie "torture tracks," and, of course, plenty of music — after all, what good is a home theater if it can't do equal justice to the Beatles' *Revolver* and *Austin Powers: International Man of Mystery*?

The evaluation procedure was identical for all three systems. I played high-level pink noise through the entire speaker system for two full days, and then, in accordance with the manufacturer's instructions, set up the system in its best-sounding configuration. To insure a fair comparison, I matched

the individual speaker levels in each system to within 0.2 dB and played all three systems at the same reference level for the entire evaluation period. In each setup, the subwoofer was placed just to the right of the right front speaker and approximately 1 foot out from the front wall (not in a corner), which was the location that produced the best combination of a strong output and extended bass as well as a seamless blend with the satellite speakers.

The left and right speakers were mounted on 26-inch sand-filled steel stands located a bit forward of and several feet to each side of a Pioneer Elite big-screen projection TV. I plopped the center speaker directly on top of the TV and mounted the surround speakers on 40-inch stands located slightly behind and about 6 feet from the ends of the couch. I placed four small wads of sticky Blu-Tak between each speaker and its supporting surface to anchor it securely and to reduce cabinet vibrations that could muddy the sound.

The same reference components were used to evaluate all three speaker systems. The electronics comprised an Aragon 8008ST 200-watt-per-channel stereo power amplifier for the left and right front speakers, a three-channel Aragon 8008x3 with 200 watts each for the center and surround speakers, a

Theta Casablanca digital surround pre-amplifier, a Toshiba SD-3006 DVD player, and a Theta Data III laserdisc/CD transport. I fed the system everything from *Blade Runner* to Chuck Berry's "Run, Run Rudolph." Kimber and Canare A/V cabling was used throughout, and all of the electronics, as well as each system's powered subwoofer, were plugged into Audio Power Industries' Power Pack AC line filters.

ENERGY TAKE 5

When I realized that the list price of the Take 5 system submitted for review was \$200 less than the other systems, I called the folks at Energy to explain that they could upgrade the system with the larger ES-10 subwoofer and still make the cut. I was told to relax — they were confident that the \$800 version of the Take 5 system would compete favorably with the \$1,000 packages. I was a little surprised, because most hi-fi manufacturers would be uncomfortable going into a face-off with such a large price differential. Not Energy.

Energy's Take 5 system starts with a quartet of Take 2 minispeakers (\$180 a pair), two in the front left/right positions and two in the rear surround positions. Did I say mini? At just 6¾ inches high, 4 inches wide, and 5⅝ inches deep, these guys are *tiny*. The Take 2 is a sealed system featuring a 3½-inch carbon-graphite "bass/mid" driver that crosses over at 2.5 kHz to an Energy-designed ¾-inch "multi-laminate Hyperdome" tweeter. Both drivers are magnetically shielded and mounted to a Spherex composite-plastic front panel, which is bolted to the small and very rigid medium-density fiberboard (MDF) cabinet. In a very wise move for a speaker this woofer-challenged, the Take 2's built-in crossover includes a 90-Hz high-pass filter that removes the strain of deep bass from the little satellite in order to squeeze as much dynamic mileage as possible out of its tiny woofer.

Like all of the speakers in the Take 5 package, the Take 2 has a removable fabric-over-plastic-frame grille, a metal screen that protects the tweeter from curious fingers and paws, and a high-gloss black finish, which lends it a more elegant profile than you'd expect for a speaker that costs just ninety clams. It is also available in a matte-white finish. Its back panel sports a



ENERGY TAKE 5

DIMENSIONS: Take 2 satellites, 6¾ inches high, 4 inches wide, 5⅝ inches deep; Take 1 center speaker, 10¾ inches wide, 4 inches high, 5⅝ inches deep; ES-8 subwoofer, 15¾ inches high, 9¾ inches wide, 10¾ inches deep. **SYSTEM WEIGHT:** 43 pounds. **FINISH:** High-gloss black or matte white. **PRICE:** \$800. **MANUFACTURER:** Energy, Dept. SR, 3641 McNicoll Ave., Scarborough, Ontario M1X 1G5; telephone, 416-321-1800.

pair of high-quality five-way binding posts instead of the cheaper spring-loaded connectors used on many moderately priced speakers, including the JBL and Solid satellite speakers reviewed here. There's also a keyhole for simple one-screw wall-mounting and four holes for securing Energy's optional Megamount pivoting wall bracket (\$35 a pair). For those who prefer stand-mounted speakers, Energy offers the optional HT-1 floor stand (\$100 a pair).

Center-channel duties are handled by Energy's Take 1 speaker (\$150), a horizontal version of the Take 2 satellite with two 3½-inch drivers flanking a ¾-inch dome tweeter. It measures 4 x 10¾ x 5¾ inches and, like the Take 2, is equipped with binding-post connectors.

As for the rather small and unassuming ES-8 powered subwoofer (\$300), it combines an 8-inch driver, a 100-watt amplifier, and a crossover in a ported cabinet measuring roughly 10 x 15 x 11 inches. Frequency response is given as 29 to 100 Hz ±0, -3 dB and crossover slope as 18 dB per octave. Rear-panel controls include a bass volume knob and a low-pass filter control that's continuously variable between 50 and 100 Hz. A pair of RCA inputs are provided; one bypasses the ES-8's internal crossover for use with an A/V receiver/processor that has its own subwoofer crossover, and the other engages the crossover for systems that send the ES-8 an unfiltered, full-range audio signal. Pairs of speaker-level inputs and outputs are supplied via spring-loaded connectors for hookup to an A/V receiver that lacks a line-level subwoofer output. The ES-8 also has two excellent features normally found in more expensive subs: an auto-power circuit that turns its amplifier on in the presence of an audio signal and off after a period of silence, and an auto-limiter circuit that monitors the amp's output and throttles it back if necessary to avoid distortion on high-level peaks.

JBL SCS115

The JBL Simply Cinema SCS115 (\$1,000) is a smaller version of the \$1,400 SCS120 home-theater-in-a-box system I reviewed last November. Simply put, the Simply Cinema series is all about modern, modular functionality. Square wooden cabinets? Uh-uh. That's, like, so five-minutes-ago . . . The system's five satellites sport a compact 6½ x 3¾ x 4¼-inch black

plastic cabinet molded into a wedge shape meant both to reduce coloration-inducing resonances and to accommodate all kinds of mounting possibilities. JBL supplies two shelf stands for the sat10 front satellites (the third sat10 serves as the center speaker and can be placed horizontally on top of the TV) and a pair of wall brackets for the sat10S surrounds. Additional wall brackets and floor stands are available from JBL for \$25 and \$30 a pair, respectively. Spring-loaded speaker connectors are recessed into the rear panel of each satellite.

Although the sat10 front satellite looks identical to the sat10S surround speaker, the former is magnetically shielded and marries a ¾-inch treated-paper "midrange" to a ¾-inch titanium-composite dome tweeter, while the latter contains only one 3½-inch

channels of the newer Dolby Digital format want to see the same extended-bandwidth speakers in the back of the room as in the front. Cutting what appear to be fairly inexpensive tweeters out of the surround speakers is a questionable move on JBL's part, especially given the proliferation of affordably priced Dolby Digital receivers. It certainly puts the SCS115 system at a disadvantage when compared with the Energy and Solid systems, both of which use identical two-way speakers to reproduce the front left/right and rear surround channels.

The SCS115's bass16 powered subwoofer is a ported design with a 100-watt amplifier that drives a pair of downward-firing 6½-inch woofers and a low-pass crossover fixed at 150 Hz. Frequency response is



DIMENSIONS: sat10 satellites and sat10S surrounds. 6½ inches high, 3¾ inches wide, 4¼ inches deep; bass16 subwoofer. 15¾ inches high, 8½ inches wide, 19¾ inches deep. **SYSTEM WEIGHT:** 42½ pounds. **FINISH:** Black plastic. **PRICE:** \$1,000. **MANUFACTURER:** JBL, Dept. SR, 80 Crossways Park West, Woodbury, NY 11797; telephone. 516-682-6410.

driver and no tweeter. The sat10S surround is not magnetically shielded, nor does it need to be since it's unlikely that it will be placed near a TV. Frequency response is given as 150 Hz to 20 kHz ±3 dB for the sat10 and 100 Hz to 15 kHz ±3 dB for the sat10S.

Now, using a surround speaker with a rolled-off treble response is perfectly kosher in a Dolby Pro Logic home theater where the top end of the mono audio signal sent to the surround speakers is already limited to 7 kHz. But the full-bandwidth stereo surround

given as 40 to 150 Hz ±3 dB. A large port with a flared opening dominates the front panel of the rectangular MDF cabinet, which measures 15¾ x 8½ x 19¾ inches; four plastic feet raise the sub off the floor so that the woofers can woof. Unlike the powered subs supplied with the Energy and Rock Solid speaker packages, the JBL sub lacks line-level RCA inputs. The only way to hook up the SCS115 system is to run the cables from your A/V receiver's (or power amp's) left and right speaker outputs to the bass16's

spring-loaded input connectors, and then snake another pair of cables from the sub's speaker-level satellite outputs to the front left and right sat10 speakers. A level control is provided on the rear panel as well as a three-position power switch with an auto setting that turns the bass16 on in the presence of an audio signal and off after a suitable interval of silence.

ROCK SOLID SOUNDS SOLID SOLUTIONS

One of the world's most respected loudspeaker manufacturers, England's B&W, entered the affordable "lifestyle" market several years ago with

wedge-shaped S100 satellites (\$200 a pair) and the C100 center speaker (\$150) cut a hip, high-fashion figure in my living room. The subtly curved S100, in particular, has a very shallow molded-plastic cabinet that's designed to be positioned either on or very close to the wall behind it for the best sound; Rock Solid supplies a bracket for mounting the S100 flat against the wall or in a corner. Rock Solid also sent me a pair of optional stands (\$150 a pair) for the front left and right S100s, and let me just state here for the record that these brushed-aluminum works of art ramp an already cool-looking set of speakers up into

When the S100 is used with a subwoofer, the company recommends plugging up the port with the "foam bung," which turns the speaker into a quasi-sealed system in order to improve the woofer's dynamic performance. The drivers are magnetically shielded so that the S100 can be placed near a TV without distorting its picture, and connections are made via a pair of spring-loaded terminals on the back panel. The S100 comes in black or white with matching fabric-on-plastic-mesh grilles, and if you want to get *really* artsy, you can order red or blue grilles, which I'll be all over if I ever move into Superman's Fortress of Solitude.

The C100 center speaker is a horizontal version of the S100 with a pair of 4-inch drivers flanking a 1-inch dome tweeter and a rear-mounted port. It has the same frequency-response rating as the S100 and measures 16½ inches wide, 5½ inches high, and 5¾ inches deep. Some way-out curvy contours are molded into the front panels of both the S100 and C100 speakers, so this is one system you may prefer the looks of with the grilles off.

The PB100 powered subwoofer is a ported design with a front-firing 10-inch plastic-cone woofer loaded by a large flared port in the bottom of the cabinet and driven by a 70-watt amplifier. Four pointy plastic feet lift the 16¾ x 13¾ x 15¾-inch bass module off the floor for proper port clearance. Frequency response is rated as -3 dB at 32 and 80 Hz. Line-level RCA inputs and outputs are provided as well as spring-loaded speaker-level input and output connectors. The PB100 lacks an auto-on circuit, but it is the only sub in this group that has a phase switch. The only other rear-panel control is a level knob. To match satellite and subwoofer outputs, the PB100 is equipped with a fixed crossover network comprising a 12-dB-per-octave active low-pass filter, an 18-dB-per-octave active high-pass filter for the line-level outputs, and a 6-dB-per-octave passive high-pass filter for the speaker-level outputs; all use the same 80-Hz crossover point.

HOW THEY SOUND

I have to say that of these three speaker systems, the JBL Simply Cinema SCS115 was the least to my liking. Although my earlier experience with JBL's larger and more expensive SCS120 system led me to expect a warm, forgiving tonal balance, the



DIMENSIONS: S100 satellites, 10⅞ inches high, 8⅞ inches wide, 3½ inches deep; C100 center speaker, 16½ inches wide, 5½ inches high, 5¾ inches deep; PB100 subwoofer, 16¾ inches high, 13¾ inches wide, 15¾ inches deep. **SYSTEM WEIGHT:** 46 pounds. **FINISH:** Black or white plastic. **PRICE:** \$999. **MANUFACTURER:** Rock Solid Sounds, Dept. SR, 54 Concord St., North Reading, MA 01864-2699; telephone, 508-664-3406.

the Solid brand of speakers from its Rock Solid Sounds division. Solid speakers are designed to blend attractively into their surroundings. But while many lifestyle speakers sacrifice too much life in their pursuit of style, Rock Solid has managed to endow its line with respectably good sound while still turning out some of the best-looking speakers on the market.

Visually, the \$999 Solid Solutions speaker combo is easily the artsiest-looking of the three systems reviewed here. The PB100 subwoofer (\$450) may look conventional enough, but the four

the realm of the seriously hip. And this even though, as noted earlier, I auditioned the S100s on the same steel stands used for the Energy and JBL systems' satellites to insure a fair comparison.

The S100 speaker is a two-way, ported design measuring 10⅞ inches high, 8⅞ inches wide, and 3½ inches deep. Its 4-inch paper-cone "bass/mid" driver crosses over at 3.5 kHz to a 1-inch polypropylene-dome tweeter, and there is a small port on the front panel. Frequency response is given as 95 Hz to 20 kHz ±3 dB. Interestingly, a second, fake port on the front panel houses a small cylindrical foam plug.

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SCS115 had a significantly brighter and less refined treble. With speakers using inexpensive tweeters, it's best to err on the side of treble warmth rather than brightness if long-term listenability is the goal. JBL was smart to voice its SCS120 system with a laid-back top end, and they should've done the same with the SCS115 system.

I was also disappointed with the performance of JBL's sat10S surround speakers. As you'd expect from speakers with single 3½-inch drivers and no tweeters, they sounded noticeably duller than the sat10 front speakers. This difference in timbre between the front and rear speakers was unmistakable when I played pink noise through each speaker in turn around the room, and it was quite noticeable with movie soundtracks that had any significant surround energy. During the jungle scenes of *Apocalypse Now*, for instance, the insects and other ambient sounds were not nearly as pronounced as they were with the Energy and Solid systems. Dolby Digital soundtracks on DVD, with their full-range stereo surround channels, suffered an even greater degree of ambience reduction.

To be fair, the SCS115 system did have its share of strengths. The bass16 subwoofer was quite powerful and tight-sounding for its price class and able to deliver an impressive foundation of deep bass. Still, I'd like to see JBL tame the tweeters used in the sat10 speakers and get rid of the tweeter-less surrounds. Then they'd have a \$1,000 home-theater-in-a-box speaker package as impressive as the SCS115's big brother, the \$1,400 SCS120 system.

From the very first movie scene I watched with the Solid Solutions hooked up, I knew I'd heard that sound before. Then it hit me — it sounded like a sound system you'd find in a movie theater. Not like an accurate, audiophile-approved speaker system, nor even a THX "dubbing studio," but like a typical movie-theater sound system with its somewhat dark treble, clear, cutting midrange, and powerful bass output.

As you'd expect from a system that uses the same speaker all around, the timbre match between speakers was excellent, which made complex surround mixes snap into focus much more realistically than with the JBL SCS115 system. And, as in a real movie theater, dialogue reproduction was crisp, with a bit of lower-mid-

range forwardness that emphasized the spoken word. The treble range was slightly subdued overall, but it was just enough to warm up overly bright movie soundtracks without sounding dull on the music.

While not a deep-bass powerhouse, the PB100 subwoofer was nonetheless very good at reproducing subtleties in the bass range that most inexpensive subs sloppily rumble over. It filled in the bottom end nicely and was a very good sonic match to the sat10/sat10S satellites, but it did not go as deep or play as loudly without audible distortion as Energy's ES-8 subwoofer.

Rock Solid's Solid Solutions system is an affordable yet stylish movie surround-sound system that delivers more than a dollop of good sound quality. If you're looking for a nice, easy, theaterlike presentation, the Solid system is the best choice of the group.

Here's where my critical stance falls to pieces, because I was totally blown away by the Energy Take 5 system. Given my extremely positive reaction to Energy's larger and more expensive speakers in the past, I expected this budget-priced home-theater system to sound good. But it didn't just sound good — it sounded *great!* In terms of absolute sound quality for movies and music, the Take 5 system was far and away the best of the three systems reviewed here.

From the moment I sat down to listen to it, the Take 5 speaker system put up an absolutely stunning sound field with the kind of clean, clear focus I just didn't expect to hear from an \$800 speaker rig. There was an ease to the system's sound that is, well, totally unheard of in this price range, where a little strain is the price you pay for not paying the price of a larger, more expensive rig. Now, I have to point out that the Energy system doesn't sound much like a movie theater, so if you prefer a theaterlike presentation, you're probably better off with the Solid system. But if you prefer a speaker system that sounds as right with music as it does with movies and TV, then the Take 5 is your best bet.

Tonally, the Take 5 was far more neutral-sounding than either the Solid or JBL systems. Timbre-matching was excellent all around the room, and the ambient sound field came across with a tangibility that the other two systems couldn't match. I heard detail and air in the high end that was largely absent from the other two systems. As a result, the Take 5 package sounded great

no matter what I threw at it — I spent hours listening to familiar CDs, LPs, and laserdiscs, marveling at how much better this tiny, inexpensive system sounded than many expensive high-end speakers I've heard lately.

While the tiny Take 2 satellites and Take 1 center speaker sounded open, clean, and musical, the Energy's ES-8 powered subwoofer was the real star of this show. Even though it is the smallest sub in the group, it played lower and subjectively louder than either the JBL or Solid subwoofers. The little ES-8 won't make life difficult for the \$750 to \$1,000 subs of the world, but it will deliver a deep-bass wallop that is totally out of sync with its size and price. In my large open loft, it developed a great sense of low-end heft while remaining tight and well defined. Credit for that must go to Energy's auto-limiter circuit, which made the ES-8 sound much larger and more powerful than any 8-inch woofer has a right to — and without any audible artifacts.

Energy's Take 5 system is, hands down, the best-sounding under-\$1,000 home-theater speaker system I have heard to date — which is why I left it hooked up for a week after the listening comparisons were finished.

THE BOTTOM LINE

While JBL's Simply Cinema SCS115 system couldn't really keep up with the Solid and Energy speaker packages, the fact remains that, given its usual mass-market competition, the SCS115 will most likely be the best-sounding system in the stores where it's sold. And although the Energy Take 5 system was my favorite overall, Rock Solid's Solid Solutions will definitely have greater appeal if you're looking for a more stylish package as well as a more theaterlike sonic presentation. As good as the Take 5 system looks in its high-gloss black finish, the Solid Solutions would be right at home in the swankiest *Architectural Digest* dream crib.

But if you want a system that delivers the absolute best home-theater and music performance for less than \$1,000, you owe it to yourself to hunt down the Energy Take 5 system at your local specialty audio dealer. Rarely have I been as impressed with a budget speaker system as I was with this high-value, high-performance package. For the bucks, you simply can't do better. □

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CONVERGENCE CLOSEUP

Sony VisionTouch PC Interface and 200-Disc Changer

BY KEN C. POHLMANN

It is true that about 99 percent of the DNA of man and monkeys is absolutely identical, but the 1 percent difference is critically important. The same can be said of CD players and computers. Their silicon brand of DNA is essentially identical, and both contain microprocessors that can be used to call up digital data from optical storage devices. Yet the small design differences between CD players and computers give them clearly different areas of expertise. Of course, the evolutionary process called convergence is changing that.

Specifically, Sony's CAV-1 VisionTouch hardware/software interface (\$360) brings home audio/video equipment directly under the control of the home computer. This is, in fact, a prime example of what convergence is all about. The Sony CDP-CX270 CD megachanger (\$1,000) is another pivotal product — not because it holds up to 200 discs or is remarkably better than its ancestors, but because its functionality is remarkably different. Specifically, it accepts input from a keyboard, provides its own output to a video display, and can be controlled through a personal computer using the CAV-1 VisionTouch interface. Together, these hybrid products show that the future of computers and CD players will be interwoven and, more important, that the future of home music play-

back may emulate the server-client model of computer networks.

CAV-1 and VisionTouch

The Sony CAV-1 is officially described as "a computer and home A/V system interface." It comprises a hardware interface and a software program, running on either a

play and control for a wide variety of components. Although your PC runs the software, the CAV-10R is the heart of the control center. It accepts radio-frequency (RF) signals from the Air-Egg, communicates with the PC, and controls components via either cables or infrared (IR) codes. A variety of IR



Windows or Macintosh computer, that allows interactive control of A/V components. The CAV-1 system includes an egg-shaped wireless mouse dubbed the Air-Egg, an interface box (CAV-10R), and VisionTouch software on CD-ROM. Together, they turn a PC into a command center for a home A/V system, allowing sophisticated dis-

codes are already stored in the CAV-1, and others can be entered manually. With this capability, the system can operate both Sony and non-Sony A/V components along with such devices as lighting equipment, projection screens, and motorized curtains.

The front of the small CAV-1 interface box contains three LEDs: a

power indicator that lights when the unit is powered, an IR-code indicator that lights when an IR code is emitted, and an Air-Egg battery indicator that lights when the mouse's batteries are weak. The CAV-1 connects to the PC and controlled components via several connectors. There are three mouse connectors: PS/2 (for IBM and compatible PCs), ADB (for Macintosh computers), and PC-98 (unused in North America); you choose the one appropriate for your computer and plug it into the computer's mouse port. An RS-232 connector connects to one of the computer's serial ports; COM2 is the default. There are also two mini-jack connectors for daisy-chaining Sony components using the company's Control A1 or LANC serial data-bus protocols. The CAV-1 is powered by a supplied AC adaptor.

The Air-Egg, powered by two AA batteries, sends RF signals to the CAV-1 over a distance of about 15 feet. In turn, the CAV-1 sends mouse-compatible signals to the PC to control on-screen operations. As with other wireless handheld pointing devices, the Air-Egg contains a gyroscopic positioning system. When its large click button is pressed lightly, you can move the onscreen cursor by tilting the Air-Egg. To activate a function, simply click the same button harder. A second, smaller button functions as a righthand PC mouse button if needed (it's non-functional for Mac users). The CAV-1 and Air-Egg are equipped with switches so that unique addresses can be assigned to multiple Air-Eggs.

The brains of the system reside in the VisionTouch software, which is easily installed on the host computer's hard drive. The VisionTouch program is comparatively small, occupying about 4 megabytes of storage space. Once installed, VisionTouch lets you control attached components, display information from them, and set up a CD library management system with track information and even jacket graphics. Its attractive main screen comes with icons already installed for a variety of components, including a CD player, 100- and 200-disc CD changers, a DAT recorder, a camcorder, a Mini-Disc recorder, and a tuner. Up to fifteen such icons can be installed, and they can be created and deleted at will. If you have the necessary software, you can also create your own custom graphics (in BMP or PICT file format)

and use them to replace the supplied icons. Before you can control IR devices, you must select the appropriate IR codes from a library or use the learning function to enter the code by pressing the component's remote-control buttons.

Once everything is set up, the fun begins. When you click on a component icon, a control box appears with buttons that are appropriate for the component. For example, the amplifier's box contains volume and source-select buttons. These boxes can be customized to fit a specific component, and up to three component boxes can be open at once. In addition, you can set up macro commands so that a series of components are activated and operated in sequential order, with an optional time lag between operations. Each macro can perform up to ten different operations, and the software can handle up to five different macros.

CDP-CX270 Megachanger

Leaving the software world aside for a few moments, I turned my attention to the CDP-CX270 megachanger, which I used to explore the utility of the VisionTouch interface. Even at first glance, the CDP-CX270 is clearly a changer of massive capacity, but its true innovation is more subtle. Behind the big drawbridge door of this imposing-looking component is a turntable used to store and retrieve up to 200 CDs. Each disc is loaded by slipping it vertically into the turntable's notched circumference. Slots are accessed by merely flicking the spring-loaded jog wheel; slot numbers are written beside every five slots and also appear in the changer's display. After loading a CD, you can substitute a title for its number by using the jog wheel to enter alphanumeric characters; the title will appear each time the disc is selected. You can select a disc with the jog wheel or by using the changer's remote to enter its number. Moreover, a Memo Scan feature scrolls disc titles across the changer's display so that you can select a disc by simply hitting the play button when you see its title.

The CDP-CX270 is also engineered to serve as a master controller when a second changer is connected to it (more on that in a moment) and to play the new CD-Text discs, which are encoded with disc and track titles, artist names, and other information. When a CD-Text disc is loaded into the CDP-

CX270, this information is automatically displayed. In addition, some CD-Text discs have a feature that lets you play just the musical highlights from the disc; this can be engaged by pressing the Extra button. Of course, the changer also offers all the usual amenities such as numerous modes of repeat play, shuffle play, programmed play, and so on.

Understandably, with up to 200 CDs on tap, the changer provides three different ways to sort discs, by number, title, or artist name, all selected with the Sort button. Of course, to use title or artist sorting, this information must be available to the changer, either through manual entry into memory or CD-Text. The jog wheel and remote cursor buttons let you search by disc numbers. To search by title or artist, you call up the first alphanumeric character of the entry. You can also create custom files to store and recall information on as many as 400 CDs — the 200 loaded in the CDP-CX270 plus 200 in a second, "slave" changer (which must have Sony's proprietary S-Link connector). You can create and individually name up to eight group files, create a hit list of favorite songs, and "delete" unwanted tracks from discs. Even if you have the patience of a saint, entering alphanumeric information for 200 discs with the jog wheel is a huge job. To make it easier, the CDP-CX270 has a front-panel connector for a standard IBM-compatible computer keyboard (not supplied).

If you wish, you can also connect the CDP-CX270 to a TV set via a rear-panel video jack. The changer internally generates a video menu that shows all the title, track, artist, and timing information for the current disc. The on-screen display also eases the chore of selecting discs. Whether you are sorting by disc number, title, or artist, the pertinent information is displayed for up to ten consecutive disc slots; empty slots are shown as blank entries in the list. In addition, the on-screen menu is handy for checking the group labels, hit lists, and other information you have entered. You can use either the remote's cursor buttons or the PC keyboard to manipulate the on-screen menu.

The rear of the changer sports four analog jacks for stereo audio input and output. The inputs are for routing signals from a second, "slave" CD changer) through the CDP-CX270, which

permits crossfading and "no-delay" playback if tracks are selected from both changers. In addition, an optical output can be used for digital interconnection. A video-monitor output connects to an A/V receiver or directly to a TV. There are also two Sony Control A1 jacks, which are used to daisy-chain up to ten Sony A1-compatible components so that they can be controlled from a single remote, perform synchronized recording, and so on. A slide switch sets the Control A1 jacks to one of three Command Modes, each of which designates a different Control A1 line so that pieces of equipment can be grouped and controlled as separate systems.

Convergence in Action

Anxious to experiment with these hardware/software ramps onto the Information Superhighway, I first turned to the CDP-CX270. I found it quite easy to install the changer; in fact, I had it wired into my home system, along with keyboard and video display, in a matter of 10 minutes. I focused first on the changer's core feature, its huge disc capacity. After fooling around with five- and six-disc changers, I was immediately impressed with this unit's 200-disc appetite. I loaded in 200 of my favorites, a task that took less than 30 minutes. Thereafter, selecting and playing discs was pure pleasure. No more searching rows of shelves (or under seat cushions) for the right one, no more awkward jewel boxes — I could simply jog through my collection and start playing in seconds. More important than convenience was sound quality. In the old days of LP changers, disc convenience equated to sonic sacrifice. With today's CD changers, there is no such correlation, and the Sony CDP-CX270 sounded very good.

Next I focused on the changer's keyboard and video-display options. It is certainly true that with this many discs on hand, you'll want to take the time to enter at least their titles. Without question, the keyboard eases the pain involved. I suspect that all serious users will want to take advantage of this feature. And because entering text isn't a daily chore, you won't need to buy a keyboard just for use with the CD changer. You can borrow the one you already have for your PC when you need to do some CD library work.

The TV hookup is a less impressive

feature. Although it is nice to see the CD text and time information on a big screen, the display is neither very attractive nor very useful. The essential information is smartly displayed in the changer's own fluorescent display, so the TV is mainly extraneous. I suspect that, once the novelty has worn off, most people, like me, won't take the trouble to fire up the TV when they listen to CDs. The problem is that a TV is simply a display and thus does not add much to music playback. On the other hand, a display that combined interactivity with music playback would be a different matter . . .

To explore that possibility, I turned my attention back to the CAV-1 VisionTouch PC interface. I made all the necessary computer connections and hooked up the CDP-CX270 changer via a Control A1 cable. I entered information for a bunch of individual CDs, such as disc and song titles, track times, artist information, recording venue, and recording date. I also added genre graphics from a supplied library as well as some custom-scanned graphics. When I finished compiling the information, all of it was accessible from an attractive screen. As with the CDP-CX270, I could select CDs by number, artist, or group. (VisionTouch changer functions are available only with Sony changers.) Although the preproduction software I used did not support it, I am told that when you play a CD-Text disc, much of the text information can be off-loaded directly from the disc and displayed on your computer monitor. In addition, if the disc is of the "enhanced" variety and contains audio/video clips or other CD-ROM-like information, you should be able to access that through the host computer, too.

All computer users are familiar with the on-screen displays and controls provided by CD-ROM drives during playback of audio CDs. The VisionTouch screens are much more comprehensive, and, most important, whereas the signal from a CD-ROM drive passes through the computer's sound card, the audio signal does *not* pass through the PC or the CAV-1, avoiding possible signal degradation. My only serious complaint with the setup is that the Air-Egg replaces your computer's own mouse. While the Air-Egg works well for VisionTouch's simple screen controls, it is not suitable for other computer work, so you have to change

mice from time to time depending on what you're doing. More flexibility is needed and a way to switch between mice without unplugging them. (We're told some computer stores sell a device called a "mouse splitter" that enables you to do this.) Of course, if you are using your computer on a nearby desktop (even if the stereo components are placed at a distance), you can omit the Air-Egg altogether and simply use an ordinary wired mouse.

The CAV-1 and VisionTouch can bring almost any dumb A/V component into the computer world, and that is a remarkable achievement. It is the coupling with the CDP-CX270 that is most interesting, however, because the changer's 200-disc capacity adds a very important feature. Specifically, you can load in a substantial collection of discs, enter appropriate information, and not touch the discs again. They can be remotely controlled via your computer like a client and a server in a computer network. This out-of-sight online operation, in my opinion, is the future of music playback in the home. Because of the size of many CD collections, and the complexity of the playback devices, the home PC should and must become the integrating force to simplify operation. Instead of fumbling with individual discs and pushing numerous buttons, playback should happen automatically according to easy, menu-driven controls from the PC without your ever touching the actual storage or playback devices. Because this Sony trio provides exactly that kind of operation, it establishes the new paradigm.

Technology such as Sony's CAV-1 VisionTouch PC interface will pull the consumer A/V market in two directions. For some people, PC keyboards and CD-ROMs will complicate everything and bring only frustration. For others, they will simplify operation and bring new pleasure. This technology, designed for the latter, will be a revelation to them; soon it will be the norm. Hardware and software like Sony's CDP-CX270 and CAV-1 VisionTouch are the missing links between traditional A/V components and computers, and they point toward a shared future.

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ELVIS

WHY
THE
KING
STILL
MATTERS
BY
ALANNA
NASH

The day the syndicated newspaper story ran in May, you could feel the collective blood pressure rising among Elvis Presley fans all across the nation. Mike Barnicle, a writer for the Boston *Globe*, had called the King of Rock-and-Roll “a pig.” Furthermore, he said, “if Elvis had been unable to sing, he could have made a living as a human beanbag chair.”

Barnicle just didn't get it. “What's the deal with Elvis anyway?” he continued. “How come he remains a factor in so many lives two decades after he exploded from devouring quarter-pounders and kung pao pork? A huge number of Americans have no idea who Franklin Roosevelt was — yet they cling to Elvis as if he were a truly important figure. Was he? I don't know. Do you?”

Congratulations, Mike. Not many journalists are brave enough to admit they have the sensibility of a turnip. Every serious student of pop culture knows that Elvis Presley was one of the most groundbreaking musicians America has ever produced. And that's not just Yankee pride talking. The late John Lennon (whom you may have heard of, Mike) understood Presley's essence, and his greatness, too. “Before Elvis,” he said, “there was nothing.”

With the twentieth anniversary in August of Presley's death, plenty of folks are turning on their TVs to see the memorials — and remembering him only as a bloated, jumpsuited cartoon, a symbol of the decadence of celebrity, a relic from another age. But there's a whole new generation of Elvis Presley fans, who were crawling around in diapers or who weren't even alive when he walked the earth, and they're not the blank-faced crowd that buys Elvis shampoo and the Franklin Mint plates. They take a more intellectual approach to the King, even though they may know him only from his recordings. They don't pay much attention to his cheesy movies when they air on TV, either. That's because they've got music ringing in their ears.

“I like to think of him as one of the first performers to blur the racial lines and bring together some varied musical genres, like rhythm-and-blues, country, gospel, and rockabilly,” explains Jennifer Recktenwald of Louisville, Kentucky, who was four years old when Elvis nose-dived into the red shag carpet in his bathroom on August 16, 1977, at the age of 42. She first found her way to him in *Rolling Stone* magazine and in rock biogra-



phies. “Everything I read,” she says, “led back to Elvis.”

“Stella,” an 18-year-old high-school student on the alt.elvis.king Internet newsgroup, feels the same way. “Yes, there *are* young Elvis fans,” she wrote. “Why do we love him? For the same reasons everybody else does! Elvis's music is at the same time personal and universal. It has always had mass appeal that crosses generational, racial, and national boundaries.”

They also appreciate Elvis the performer. For these young fans who grew up watching MTV, Elvis Presley — even in the grainy black-and-white footage of an early stage appearance, where he's clad in his gold lamé jacket and winding an atomic arm to summon rock's pagan Zeitgeist — looks as fresh and alien-cool as if he just stepped out of a spaceship. As Recktenwald puts it, “Seeing Elvis after seeing the MTV bands changes your perspective. He seems outrageous by those standards. He was new and — original.”

Elvis as cultural icon is a subject fit for an encyclopedia-length work. But those coming to his records for the first time, or who simply want to take

a second look, might do well to examine the popular music of the pre-Elvis 1950s. Except for Pat Boone and Bill Haley, the scene was dominated by older singers: Tony Martin, Frank Sinatra, Perry Como, Tony Bennett. Elvis, arriving in 1956 with his first national single, “Heartbreak Hotel,” kicked the door down to give young people their own music. James Dean had given them their own identity on screen, and Elvis, who idolized Dean, gave them a voice.

He didn't invent rock-and-roll. Jackie Brenston's “Rocket 88” was probably the first rock-and-roll record, coming along in 1951 and following a style that evolved after World War II with black performers like Wynonie Harris,

Fats Domino, and Amos Milburn. But after Elvis, rock-and-roll was in full swing, and everyone who followed — Chuck Berry, Jerry Lee Lewis, the Everly Brothers, Ricky Nelson, Bobby Darin, and manufactured teen idols like Fabian and Bobby Rydell — owed him a debt of gratitude for harnessing the heat and energy of blues-based rock. Especially the black artists. Before Elvis, white parents didn't want their kids listening to “race music.” Black records weren't even sold in white record shops or played on white radio stations. For a time, this worked against even Elvis.

“When he first started,” the late Bob Neal, Elvis's manager before Colonel Tom Parker, told me in 1977, “very few of the country radio stations would play him. I'd send them records, and the country DJs would say, ‘We can't play that.’ I tried it the other way. Sent them to rhythm-and-blues stations. They said, ‘No, he sounds like a damn hillbilly.’ But the day after Elvis played a town, the record stores were jammed. Radio finally caught on. And things loosened up all around.”

It's a testament to Elvis's artistry that

his very first records, made in 1954 and 1955 for Sam Phillips's tiny Sun label in Memphis, still crackle with the fire of discovery. The songs on two current RCA collections, *The Complete Sun Sessions* and the five-CD *The Complete Fifties Masters*, throb like a radioactive reminder of what a truly great, organic artist he was, fusing blues and hillbilly into the rockabilly form that no one could even yet name.

Unremarkable in many respects as a human being — with no real thought paid to how he did what he did — Elvis was as important in his field as Picasso was in his. And no less talented. Don't believe it? Listen to his baritone, raised to tenor, caress the words

The late Marty Robbins caught on early. Robbins, who first toured with Presley in the summer of 1955, once told me. "Elvis was the first country-rock artist, because of a lot of those early ones like 'I'm Left, You're Right, She's Gone.' He changed everything."

One of the things he changed was the background texture of recordings. He added the Jordanaires, the gospel singers who supplied the *oohs* and *aahs* and *doowahs* on his records from 1956 to the Vegas years. "There were sounds like that on records before we started doing them," recalls Neal Matthews, the Jordanaires' arranger and second tenor. "And we were doing some of that before Elvis with

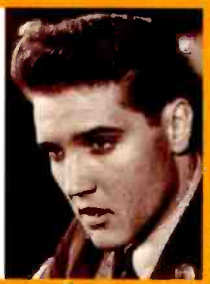
ent in largely vapid soundtracks for most of the 1960s. But in 1969 Elvis overrode him with the legendary, self-rejuvenating Memphis sessions, turning out "In the Ghetto," "Suspicious Minds," "Kentucky Rain," and other hits that drew on his primal roots — a seamless integration of black and white music. You can hear it on three RCA albums, *From Elvis in Memphis*, *The Memphis Record*, and *Back in Memphis*. After that, there were occasional hints of eminence, including the Stax sessions of 1973. But for the most part, anyone going to Elvis purely for his music will be disappointed by the rest of his 1970s catalog. For a career overview, check out RCA's new four-CD boxed set, *Elvis Presley Platinum: A Life in Music*, which contains 100 recordings — seventy-seven of them previously unreleased tracks from the vaults, including demos, alternate takes, rehearsals, live performances, and private tapes.

In the years just before his death, Elvis, once as sleek and handsome as a god, mutated into the specimen of ridicule that Mike Barnicle finds so delicious. Today, Donna Deen, a frequent and articulate voice on the Elvis Internet newsgroup, poses an interesting question about the deceased Elvis as shaman: "If Elvis had died in 1969 when he was in his prime, right after his Las Vegas comeback, how do you think the media would portray him? Would he be as popular now if he'd died before the concert years in the '70s? Certainly we wouldn't be subjected to the 'fat guy in a jumpsuit' jokes. Elvis would probably be held higher on a pedestal — but I don't think he would be the cultural icon he is now."

Probably not. And perhaps that's the tradeoff. With his death, Elvis himself was spared the annoying synthesizers, fake drum beats, and fluorescent clothes of the 1980s. Elvis Presley Enterprises, which guards his name and likeness with the ferocity of a junkyard dog, continues to grow unspeakably rich. Meanwhile, we who hear the early music and come away awed are left to wonder how a simple-hearted teenager made such a magnificent noise that rocked the world. □

Alanna Nash, whose book *Elvis Aaron Presley: Revelations from the Memphis Mafia* was published in 1995 by HarperCollins, is currently at work on a biography of *Colonel Tom Parker for Morrow*.

ELVIS WAS AS
IMPORTANT IN HIS FIELD AS
PICASSO WAS IN HIS.
AND NO LESS TALENTED.



of "Harbor Lights." Or hear him snap off the syllables like an angry predator in "Baby, Let's Play House." And keep listening. For when he stops the action during "Milkcow Blues Boogie" to tell guitarist Scotty Moore and bassist Bill Black, "Hold it, fellas! That don't move me. Let's get real, real gone for a change," he gives beatnik panache a whole new twist. And popular music a new starting point. The seminal Sun sessions amounted to a primer for nearly everyone who came after.

It almost didn't happen, even though producer Phillips did everything he could to push the trio toward a fire-brand white-on-black sound. When things got especially frustrating in the session of July 1954, everyone took a break. Nineteen-year-old Elvis, fooling around, started in on Bill Monroe's bluegrass waltz "Blue Moon of Kentucky" in a souped-up, rhythmic fray. Phillips stopped in his tracks: This was much closer to the sound he'd envisioned. He twisted the knobs for a slapback echo. "That's what I'm talking about! We're just about on it, now!" he said in the oft-repeated description of the genesis. And as Elvis settled into the revolutionary grooves, the delighted Phillips exclaimed, "Hell, that's different! That's a pop song now, nearly about."

Hank Snow and Elton Britt and George Beverly Shea. But we came up with a lot of different background patterns on Elvis's records, and after that everybody wanted vocal backing on their sessions."

Yet for all of his vision and style, it could also be argued that Elvis was born to greatness through his remarkable set of vocal equipment, capable of spanning two and a third octaves and nailing high G's and A's in full voice. During his Army stint in Germany, which began in 1958, he practiced songs that would expand his power and range. When he returned to the States two years later, he looked for songs like "It's Now or Never" that would show off his new flexibility.

"Elvis was so versatile that he could sing anything he wanted, and he could sing it believably," Presley's late producer Felton Jarvis remembered in our 1977 interview. "Somebody like Robert Merrill or Robert Goulet could sing operatic music or Broadway show tunes, and they could really sell them to you. But they couldn't sing 'Hound Dog' believably. Elvis was good on everything he sang. And there are very few singers like that."

It is the most shameful blundering in pop music that Colonel Parker squandered his client's enormous tal-



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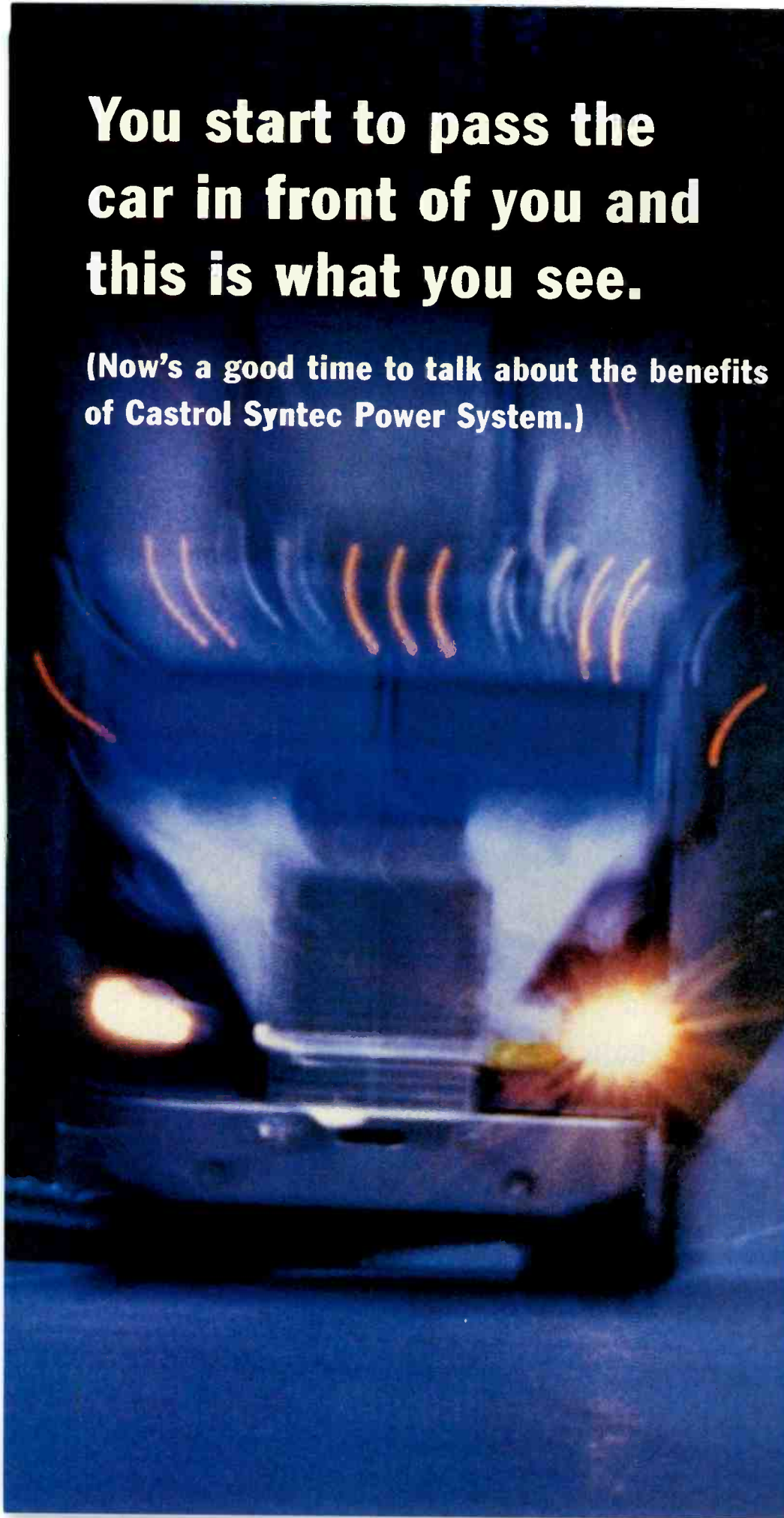
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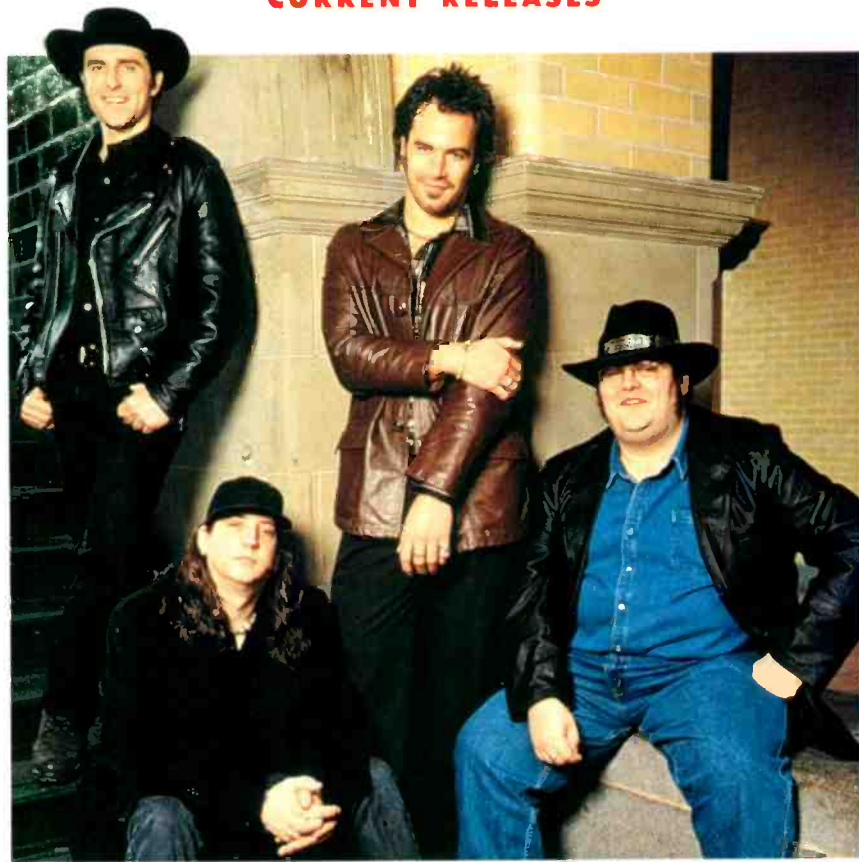
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BEST OF THE MONTH

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



FRANK OCKENFELS III/ABM

Blues Traveler Hits Its Stride

Jam bands whose métier is road-work seldom make good records by the fourth or fifth go-round. Blues Traveler is a happy exception, mainly because there's substance, and soul, beneath the group's ample chops. *Straight On Till Morning* is its fifth and strongest studio album to date, marking another step forward for a band whose staying power is now beyond doubt.

It's also a long disc, running more than an hour, but for once the length is justified. The thirteen songs are solid and free of filler. They roll into one another with split-second segues and a surprise around every corner of what turns out to be a quixotic musical odyssey, taking us from ferocious rockers to ballads with strings. And it's not just the album's range that's exceptional, but the high quality of the in-

dividual songs. You get the sense of a band that is, as the hip-hoppers say, in full effect. Having entered that charmed zone through hard work, personal chemistry, and planetary alignment, Blues Traveler now can do no wrong.

Once frontman John Popper's harmonica solos, however virtuosic, threatened to become speedy clichés, but here he's more subtle and deliberate. Just listen to his organ-like chromatic playing in the delightful "Felicia" or his casual huffing in "Battle of Someone," where he seems to have learned that sometimes the notes he doesn't play are as important as the ones he does. Similarly, guitarist Chan Kinchla has made notable strides; always a high-energy rhythm player, he is now capable of compelling leads as well. His brief but effective solo in "Carolina Blues" and Lonnie Mack-style fills throughout may be his best work on record. As for bassist Bob Sheehan and drummer Brendan Hill, just listen to how they anchor a song like "Business as Usual" with rumbling bass lines and funky syncopations.

Heretofore, my favorite Blues Traveler tracks have been "Love & Greed" and "NY Prophesie" (from *Save His Soul*), but they are now rivaled for energy and bite by, respectively, "Great Big World" and "Business as Usual." For social commentary, there's "Psycho Joe," a tale of a "quiet loner" who kills an innocent victim, the government that kills him, the media that exploit it all, and the public that derives sick solace from the electric chair's eye-for-an-eye. For sheer catchy fun, there's "Canadian Rose," a smile-filled song with toe-tapping appeal.

Straight On Till Morning passes from strength to strength clear through to the dying notes of the gospel-tinged closer, "Make My Way." It's a fine showing from a band whose commitment continues to pay rich dividends. *Parke Puterbaugh*

BLUES TRAVELER:

Straight On Till Morning.

Carolina Blues; Felicia; Justify the Thrill; Canadian Rose; Business as Usual; Yours; Psycho Joe; Great Big World; Battle of Someone; Most Precarious; The Gunfighter; Last Night I Dreamed; Make My Way. A&M 540 750 (65 min).

The Takacs Quartet Plays Late Schubert

Schubert's last string quartet, No. 15, in G Major, was supposed to complete a trilogy begun with two 1824 masterpieces, Quartet No. 13, in A Minor, and No. 14, in D Minor ("Death and the Maiden"). By the

BEST OF THE MONTH



KEITH SAUNDERS/AGNES BRINNEAU ASSOC.

Takacs String Quartet

time intensive work on No. 15 got under way, however, it was late June of 1826, and Schubert had virtually completed his Ninth Symphony, the "Great" C Major. Perhaps as a result, Quartet No. 15 has neither the sustained pathos of No. 13 nor the sustained drama of No. 14. Instead, its four movements seem to shift between the Classical realm of the Ninth Symphony and the more subjective world of the two earlier quartets.

The nearly 20-minute duration of Quartet No. 15's opening movement bespeaks the grand Classical manner. The musical gestures, in the first movement especially, shift between one realm and the other. The slow movement, in E Minor, borders on the bleak world of the *Winterreise* song cycle, and the fierce outbursts midway anticipate those in the horrific slow-

movement climax of the A Major Piano Sonata, two years further down the road. The scherzo is a tense and edgy affair, though the central *Ländler* eases things a bit. Some see the finale as a frolicsome Rossini-style tarantella. For me it is a "ride to the abyss" similar to that in "Death and the Maiden" — and, for that matter, parts of the Ninth Symphony's final movement.

At all events, the Quartet No. 15 presents a major challenge in terms of both execution and interpretation, and the Takacs Quartet has met it superbly in a new recording on London, amalgamating Schubert's two realms of musical discourse into a powerful and coherent whole. The players strike just the right balance between untrammelled romanticism and classical poise, and they have been accorded a sonic envelope that conveys textural detail and embracing warmth at one and the same time.

By way of a bonus, pianist Andreas Haefliger joins with the first violinist and the cellist of the Takacs Quartet, Edward Dusinberre and Andras Fejer, in a lovely reading of Schubert's "*Notturmo*," or Nocturne, in E-flat Major, which seems to have been a discarded adagio movement for one of the two great piano trios. There is nothing negligible about this fragmentary piece — it's a beauty, and it makes a lovely soft landing after the formidable intensities of the G Major Quartet. I would recommend this entire CD without reservation!

David Hall

SCHUBERT: *String Quartet No. 15, in G Major (D. 887); Adagio in E-flat Major for Piano Trio ("Notturmo," D. 897).*

Takacs Quartet; Andreas Haefliger (piano). LONDON 452 854 (58 min).

Joy Lynn White: Country in The Key of Heartache

Joy Lynn White came out of Arkansas to make two mainstream country albums in recent years, but neither of them got close to capturing her potential as an emotional interpreter of wrenching ballads. And so, despite a nomination for the Academy of Country Music's Best New Female Vocalist, like many others before her White vanished without a trace.

Or so it seemed. Now she's back, this time on artist/producer Pete Anderson's label, Little Dog, with the album she was born to make, *The Lucky Few*. Under the direction of Anderson and co-producer Dusty Wakeman, White blossoms into

a big-voiced, incandescent purveyor of pain. A mite of a girl, she is a fiery redhead with a wild-and-wounded delivery and an attitude that says she is not to be ignored. With this record, she probably won't be.

Anderson has worked with multifaceted female vocalists before — most notably another Arkansas traveler, Michelle Shocked — and Wakeman is best known for his work with Lucinda Williams. The two producers recognize that women are more emotionally complicated than men and can be their musical equal in range of material. And White, who expresses the raw and palpable vulnerability of

Williams in that singer's "I Just Wanted to See You So Bad" and "I Lost It," demonstrates that she is just as capable of delivering the seething discontent and anger of a Steve Earle ("The Lucky Few") and the torchy R&B of so many great artists before her ("Why Do I Love You," the album's best scorcher). In Jim Lauderdale's "It's Better This Way" she even bests duet partner Dwight Yoakam, and in "Try Not to Be So Lonely" she matches him in emulating Bakersfield authenticity. Yet the

LITTLE DOG/MERCURY



White: purveyor of pain

album's instrumental backing, concise and sparkling, avoids making this too much of a showy California-country record, and White shakes off any of the poseur's patina that seems to coat so many of the West Coast country-billy acts.

In short, *The Lucky Few* is one of the finest meetings of vocal performances, song selection, and arrangements to come out of country in a coon's age. Get your pencil ready: you'll want to put this one on your "must have" list. *Alanna Nash*

JOY LYNN WHITE: *The Lucky Few.*

Too Big for This Town; Try Not to Be So Lonely; Why Do I Love You; I Doubt If It Does to You; It's About Me; I Just Wanted to See You So Bad; It's Better This Way; The Lucky Few; Life's Just Too Short; I Lost It. LITTLE DOG/MERCURY 534 642 (34 min).

A Fresh Look At Beethoven's "Eroica"

Period-instrument performances of Beethoven symphonies ceased to be a novelty some time ago, and now, after enjoying enormous acceptance for a dozen years or so, the phenomenon seems to have crested. Jordi Savall's new "Eroica" with his Catalonia-based ensemble Le Concert des Nations, on a French Fontalis/Auvidis CD distributed here by Harmonia Mundi, could certainly breathe new life into it. In a thoughtful note with the CD, Savall refers to the "Eroica" as being not only a revolutionary work but "above all the explosion of an inner drama." To a greater degree, I think, than any of his predecessors, Savall not only succeeds in realizing the *dramatic* impact inherent in this work without sacrificing an iota of "historical authenticity," but in so doing he illumines a defining relationship of the one factor to the other.

Besides scaling his forces to about the same number used in the earliest public performances of the "Eroica" (a total of forty-six instruments, including thirty-two

strings), tuning to A = 430, taking repeats, and stressing the characteristics of the old instruments, Savall adheres almost without exception to Beethoven's metronome indications. He reminds us, though, that while Beethoven was concerned enough about tempo to indicate metronome settings, he also indicated the necessity for flexibility in this respect once a piece is under way.

Savall maintains that Beethoven did not so much show disregard for the limitations of the instruments of his day as simply push them to the limits of their capacities by way of achieving greater dramatic tension. The playing here, vigorous and incisive, supports this notion — and the work's heroic character — with an agreeably earthy quality conspicuously at odds with polished Olympian gestures, as well as a collective warmth of heart that insures against the more energetic passages' becoming overdriven. It is all uncontrivedly noble and exultant, but on a thoroughly human scale.

This is definitely not the only way to enjoy the "Eroica," but Savall has given us the most powerful validation so far of the "historical reconstruction" approach to Beethoven. More than a few collectors with firm allegiances to various conventional recordings are bound to find Savall's an irresistible "second opinion." The appended *Coriolan* Overture is no

TONI CATANY/AUVIDIS



Conductor Jordi Savall

mere filler. In this context it's a further certification of the suitability of this reconstruction of Beethoven's original image in the tragic mold so closely related to the heroic one. Both performances are enhanced by sonics of exceptional warmth as well as clarifying detail.

Richard Freed

BEETHOVEN: Symphony No. 3 ("Eroica"); Coriolan Overture.

Le Concert des Nations, Jordi Savall cond. FONTALIS/AUVIDIS/HARMONIA MUNDI 8557 (52 min).

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POPULAR

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PAUL SIMON: Graceland.

WARNER BROS. 46430. Now on *enhanced* CD to mark the album's tenth anniversary, with interviews, studio footage, track-by-track comments, and more.

SMALL FACES:

The Anthology 1965-1967.

DERAM 533 284 (two CDs).

HUMBLE PIE: The Scrubbers Sessions.

ARCHIVE 80001. After a long battle with multiple sclerosis, Ronnie Lane died in June. *The Anthology* features his earliest work



with Steve Marriott, who died in a fire in 1991.

The Scrubbers Sessions is soulful 1974 material by Marriott's later band, meant to follow the album *Thunderbox* but never released. A children's charity, Small Faces, is being established in honor of Lane and Marriott.

TAMMY WYNETTE:

Stand by Your Man.

KOCH 7946. Believe it or not, the first CD appearance of the country legend's 1969 album.

CLASSICAL

HAYDN: Symphonies Nos. 97-99.

Cleveland Orchestra, George Szell cond. SONY

62979. Nos. 97 and 99 were remastered from rare 1957 stereo tapes and are here released in the original stereo for the first time.

SLAUGHTER ON TENTH AVENUE.

Boston Pops Orchestra, Arthur Fiedler cond. RCA VICTOR 68550. "Living Stereo" recordings of dance music from 1958, including the title piece by Richard Rodgers and selections by Falla, Copland, Bernstein, Gould, Shostakovich, Ginastera, and Khachaturian.

TCHAIKOVSKY: The Nutcracker.

Bolshoi Theater Orchestra. Gennady Rozhdestvensky cond. BMG/MELODIYA 40067 (two CDs). A remastering of the 1960 recording that was available on Columbia in the 1970s and praised here for "color and drama . . . despite its rather coarse recorded sound" (March 1975).

THE VIRTUOSO TRUMPET, VOL. 2.

Helmut Wobisch (trumpet); I Solisti di Zagreb. Antonio Janigro cond. VANGUARD 2535. Works for one, two, and six trumpets from the Baroque and Classical periods, including Haydn's Trumpet Concerto.



POPULAR MUSIC

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

AUNTIE CHRIST:
Life Could Be a Dream.
LOOKOUT 176 (49 min).

★★★
Now this is an odd one: Exene Cervenkova (formerly Cervenka), the ex-X frontwoman, trying her best to sound like a teenage punk and even succeeding. Auntie Christ is more three-chord primitive than X ever was, with Cervenkova handling all the guitars even though she has never played



a lick of guitar on record before. She's backed by X drummer D.J. Bonebrake and Rancid bassist Matt Freeman, but X fans will probably miss Tony Gilkyson's roots-rock chops and will definitely miss John Doe's harmonies as well as the eclectic sound of X's later work.

On its own terms, however, *Life Could Be a Dream* is a damn fine punk album, sporting the same mix of hooks and energy that sent Green Day and Rancid up the charts. The difference is that Cervenkova is (still) good and angry, and the lyrics have the topical venom of her spoken-word disc with Lydia Lunch: "Bad Trip" (a leftover X song) includes had alternative rock in its

swipe at complacency, and "The Nothing Generation" is a nasty, on-target look at Gen X marketing and celebrity worship. The hidden bonus track repeats the entire album, in case you didn't get the point the first time. *B.M.*

BUSH TETRAS: *Beauty Lies.*
TIM/KERR 644 830 149 (56 min).

★★★★★

CAKE LIKE: *Bruiser Queen.*
VAPOR/REPRISE 46601 (33 min).

★★

How often does a great cult band get back together with the same members and pick up exactly where it left off? It happened a few years ago, when the Athens, Georgia, band Pylon made a brief but terrific reappearance. And it happened in 1995, when the Bush Tetras suddenly returned to the club circuit. Best remembered for the single "Too Many Creeps," the Tetras were a female New York answer to Gang of Four. It was a potent sound in the mid-1980s, and it isn't any less grabbing now.

In fact, the band has improved slightly on *Beauty Lies*, the first decently produced recording in its history. The approach is a bit more rock and less funk nowadays, but the basic elements are here: Cynthia Sley's sultry/ironic vocal delivery, Pat Place's ra-

zor-edged guitar, and a nasty whomp of a rhythm section. They've also let some pop hooks into the mix; the aptly titled "The Ballad," for instance, sports a jaded but unexpectedly romantic feel. On the other hand, "Mr. Love Song" and "Dirty Little Secret" find Sley's eye for screwed-up relationships as cynical as ever.

If you want proof that the Tetras were influential, listen to Luscious Jackson. Or check out *Bruiser Queen*, the second album and major-label debut by Cake Like, a heavily hyped New York band that comes off as a friendlier version of the Tetras. The sound is remarkably similar, but the effect, true to the band's name, is a lot fluffier. Blame that on the lyrics, which are purposely kept to a preteen level, and on the image, which flaunts an MTV-style sexuality (sure enough, singer/bassist Kerri Kenney was in the MTV comedy troupe the Slate). But it's not bad as major-label alternative rock goes these days. *B.M.*

LINDA EDER: *It's Time.*
ATLANTIC 82977 (67 min).

★★★★

DEBBIE GRAVITTE: *The MGM Album.*
VARESE SARABANDE 5742 (52 min).

★★★★

For the last few decades, the major influence on musical-comedy singing has been a pseudo-folk, nasal drone best suited to the minimal melodies of Stephen Sondheim or Andrew Lloyd Webber. Thankfully, Linda Eder (from *Jekyll and Hyde*) and Debbie Gravitte (winner of a Tony for *Jerome Robbins' Broadway*) are very welcome throwbacks to the glamorous leading ladies of the Forties and Fifties.

Stressing Gravitte's connection to her Hollywood upbringing, *The MGM Album* is a program of classic Metro movie tunes. (It's worth noting, however, that only a few of the songs — including "Where The Boys Are," hardly a standard — were written directly for MGM.) Roughly simulating the mood changes of a musical score, Gravitte gets sultry in "Too Late Now," melodramatic in "Smoke Gets in Your Eyes," jubilant in "Get Happy," campy in two languages in "Tico Tico," and irresistibly silly in a wacky sendup of the Richard Strauss *Zarathustra* theme from *2001: A Space Odyssey*.

It's Time is largely a showcase for *Jekyll* composer Frank Wildhorn. But other than "Someone Like You," the big love theme

STAR SYSTEM

Excellent ★★★★★
 Very good ★★★★
 Good ★★★
 Fair ★★
 Poor ★

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The reunited Bush Tetras: potent then and now

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POPULAR MUSIC

from *Jekyll*, and "Only Love," from the forthcoming *Scarlet Pimpernel*, none of his songs here are show numbers, and most of them, except for a few rockish arias at the end, are quite good. Eder sings like a young Barbra Streisand — or, rather, like she's trying to find her own identity in Streisand's shadow. Between Eder and Gravitte, the future of Broadway leading ladies is in most attractive hands. *W.F.*

JOHN FOGERTY: Blue Moon Swamp.
WARNER BROS. 45426 (43 min).

★★★

It is amazing that in the two years of 1969 and 1970 Creedence Clearwater Revival released five albums, representing the meat of its catalog: *Bayou Country*, *Green River*, *Willy and the Poor Boys*, *Cosmo's Factory*, and *Pendulum*. It is similarly amazing that over the next 27 years Creedence figurehead John Fogerty has released merely the same number of albums, a track record that makes Don Henley look prolific.

Still, Fogerty sounds fresh and reinvigorated on *Blue Moon Swamp*, his voice seemingly younger and higher, without its

Creedence-era growl. Tight as a drum and pristinely recorded, the album is a lively, crackling heap of swamp-rock fun with nods to Memphis and Nashville. Loping rhythms have given way to a mostly driving attack, but "Hot Rod Heart" and "Ram-bunctious Boy" could race up the country charts. Delightful detours include "Joy of My Life," a rare Fogerty love song built around spiky dobro, and "Bring It Down to Jelly Roll," an earthy tune that sounds like something cooked up by the Rolling Stones in their "Honky Tonk Women" era.

As for the rest, it certainly sounds good, though overall the songs lack the depth and resonance of Fogerty's best work. That is to say, he sentimentalizes from a distance subjects whose warts-and-all realities he formerly knew on intimate terms. Fogerty has talked of making repeated treks to the Mississippi Delta in search of inspiration. Maybe if he keeps plugging at his craft without dropping from sight again, his muse will speak without having to be jump-started by field trips. After all, he is a pretty talented guy who's just a little out of practice, you know? *P.P.*

FOO FIGHTERS:

The Colour and the Shape.

CAPITOL 55832 (46 min).

★★★

Technically this is the first Foo Fighters album, since the nominal debut record was made by Dave Grohl with no outside help. But otherwise it's a classic-model sophomore album — moodier, more ambitious, and less consistent than the first but with higher peaks.

This time Grohl zeroes in on a sound that has less to do with Nirvana and more to do with Hüsker Dü. The best moments — "Monkey Wrench," "Up in Arms," "My Poor Brain" — are the same kind of bitter-sweet pop songs that Grant Hart wrote for the Hüskers, while the darker, semi-acoustic numbers recall Bob Mould's contributions. There are also Hüsker echoes in the songs' subject matter — existential crises prompted by romantic ones — and in the massive guitar sound that the band creates with ex-Pixies producer Gil Norton.

The only problem is that Grohl's songwriting is more hit-and-miss, and he's beginning to fall back on trademarks: When

STILL REMASTERING, STILL DREAMING

The latest wave of Jimi Hendrix reissues marks the *fourth* time the catalog has been remastered for CD. I thought I'd take his most ambitious album, *Electric Ladyland*, and compare the packaging and especially the sound of all existing versions. (The only one that proved impossible to find was the very first CD issue, the Reprise two-disc set.) The results were often surprising:

Original design and notes. The Reprise single CD wins pride of place for being the only reissue to honor the LP's artwork, including decent reproductions of all thirty B&W photos by Linda (Eastman) McCartney. The first MCA deletes both Hendrix's letter and the back-cover color photo.

Reissue design and notes. The first MCA was lambasted for featuring a new front cover, and, yes, the redesign is dumb. But this set has by far the best new liner notes, including track-by-track coverage. They could have been edited, but they're more useful than both the one-page synopsis in the Reprise and the rambling recollections of Derek Taylor in the Experience Hendrix/MCA version. The new CD, however, does add handwritten instructions by Hendrix.

Cueing. Only the Experience Hendrix CD has the correct cue point for "Moon, Turn the Tides" (the "song" is just a minute's worth of effects at the very end of "1983"). The first MCA lists the timing correctly but still has the wrong cue point.

Sound. Joe Gastwirt, who remastered the Reprise single CD, maintains that he used the original master



Original Reprise double LP, 1968

tapes. Eddie Kramer and George Marino, who did the new CD, claim that, no, their version is the first to use the masters. We may never hear the end of that argument, but after comparing all available versions I can safely say that the sonic differences among them are not as huge as certain folks would have us believe. (The missing version, Reprise's double CD, was in fact made in-house from equalized tape copies meant for LP pressings and therefore, by all accounts, sounded pretty bad.)

PHOTOS BY LEN LACORRA



The biggest leap in sonics is still the jump from LP to Gastwirt's Reprise CD, where bass and drums are resurrected in tracks like "Crosstown Traffic" and "Still Raining, Still Dreaming." It was Gastwirt, again, who remastered the first MCA, and the improvements are subtle — and in at least two cases, "Burning of the Midnight Lamp" and "Voodoo Child (Slight Return)," the MCA seems *less* clear than the Reprise.

The new Kramer-Marino version does lend the fullest bass to "Still Raining" and the sharpest bass and drums to "Voodoo Child." And it certainly is *louder* — but everyone should know by now that louder doesn't necessarily mean better. Indeed, all levels being equal, the new version makes the already trebly guitar of "House Burning Down" too bright, and it heightens background buzz and hiss on both "Voodoo Child" and "Voodoo Chile." Further, the limitations of the original recording must be remembered: Can any remastering bring back the notoriously sunken rhythm section of "Midnight Lamp"? Apparently not.

Should you upgrade? Or even "downgrade"? If you're a collector, you may want to have all booklets. But if you're concerned that the sound of your Reprise single CD or first MCA is vastly inferior to that of the new version, don't fret, because when Kramer boasts that the difference in the new sound is "quite stunning," "just frightening," and "like lifting a cloth from the speakers," he's just blowing propagandistic smoke.

— Ken Richardson

a song starts off gentle and acoustic, you can bet it's going to turn into a big guitar outburst. And his screams would be more effective if he didn't do them on every second song. The only real surprise is "Walking After You," a quietly intense love song that makes its point through a convincing lyric and a vulnerable vocal. Along with the better loud-pop moments, it suggests that Grohl has a lot of emotional territory left to explore. *B.M.*



BILL FRISELL: Nashville. NONESUCH 79415 (63 min).

★★★★
Deadline's here and I still haven't completely sorted out my feelings for Nashville, jazz guitarist Bill Frisell's "country album." The project must have seemed a natural, given the rural accent of Frisell's improvisations and the pervasive melancholy they share with country music. The problem is that Frisell's style is so understated that to emphasize one aspect of it risks throwing everything off balance. It doesn't help that Robin Holcomb, whose voice drips with the milk of human kindness, turns Skeeter Davis's "The End of the World," one of the great pop songs of the early 1960s, into dead-earnest folk.

Yet there are performances that measure up to anything I've heard all year, regardless of genre. Frisell voices his solos as he might in a jazz or experimental setting, with his Nashville sidemen providing more than just local color. "We're Not from Around Here," for example, features knotty collective improvisation by the guitarist, bassist Viktor Krauss, and dobroist Jerry Douglas. And in "Keep Your Eyes Open," Adam Steffey's mandolin helps to identify what Frisell and country guitarists have most in common: a certain Hawaiian influence that reveals itself in the use of a singing vibrato. As for Holcomb, she redeems herself with her sprightly delivery of Neil Young's "One of These Days," the most successful of Nashville's covers.

All in all, then, this is another fine effort from Frisell, even though it falls just short of his albums with his own groups. *F.D.*

INDIGO GIRLS: Shaming of the Sun. EPIC 67891 (50 min).

★★★★
Don't judge the new Indigo Girls album by its hit single. "Shame on You" isn't bad, but the radio-friendly guitar sound is a little too obvious, and the mix of personal/political lyrics could have been smoother. Still, it's only the first of many departures on *Shaming of the Sun*, which is otherwise their most ambitious and surprising album.

Amy Ray and Emily Saliers must have realized that they couldn't survive forever on the earnest acoustic sound of their first few albums. They began toying with bigger production on their last studio disc, *Swamp Ophelia*, and take a few giant steps here, but the musical experiments are tied to the songs' subject matter. A distant gospel choir gives a spooky undertone to "Leeds," which refers to the burning of black churches. And "Shed Your Skin," a plea against street violence, layers a haunting pop melody against a hip-hop rhythm track.

The two best tracks aren't topical at all; they're breakup songs placed back-to-back. Saliers's "Caramia" is about longing, Ray's "Don't Give That Girl a Gun" is about guilt, and both reach the kind of melodic and emotional heights that the Indigos have long been aiming for. And, yes, their love songs are addressed specifically to women for the first time, but this minor revelation is handled with depth and honesty — as is most everything on *Shaming of the Sun*. *B.M.*

ROBERT EARL KEEN: Picnic. ARISTA AUSTIN 18834 (44 min; enhanced CD).

★★★★
Laced with haunting guitar and fueled with the energy of a madman, "Undone" sets the tone for Robert Earl Keen's new album, where the topics are mostly anything but a *Picnic*. The song profiles a bitter loser who can't see he's his own worst enemy, and who's headed for a very bad end: "You'd kill yourself but you hocked your gun / You built a noose but it come undone." Things don't get much better in "Over the Waterfall," a Dylanesque ballad of beautiful sadness colored by Tim O'Brien's fluid mandolin and the exquisite monotone drone of Margo Timmins. Keen, whose voice approximates the rustle of dry branches in a West Texas wind, reaches his writing zenith in the tension-filled "Shades of Gray," about three boys who swipe some cattle on a moonshine-soaked joyride.

Fans looking for the smart-ass humor that drove Keen's live albums will be disappointed, but aficionados of his more serious work will be richly rewarded, not only with his own material but with songs by James McMurtry and Dave Alvin. One caveat: This enhanced CD does little more than help you connect to Keen's Web site. As long-time fans know, his best pictures are the ones he inspires inside your head. *A.N.*

THE MINUS 5: The Lonesome Death of Buck McCoy. MALT/HOLLYWOOD 62115 (41 min).

★★★★
TUATARA: Breaking the Ethers. EPIC 67908 (56 min).

★★
The Minus 5 is a shifting aggregate of musicians organized by Scott McCaughey of the Young Fresh Fellows. Despite the group's incidental status, *The Lonesome Death of Buck McCoy* is a fully realized record of well-plotted songs that unfurl with a bright folk-pop sheen. It presents itself rather tongue-in-cheek as a concept album, with the title making a play on

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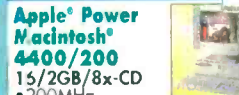
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the key collaborators, McCaughey (pronounced "McCoy") and Peter Buck of R.E.M. (Other notables include Jon Auer and Ken Stringfellow, both of the Posies and the revamped Big Star.) Still, who needs concepts when you've got individual songs as delectable as "The Rest of the World," a winsome, piano-driven meditation in solipsism, and several songs ("Empty Room," "Wasted Bandage") whose progressions call to mind thematic and musical ground covered by those solo Beatles-with-soul, George Harrison and John Lennon. Throughout, Buck provides the sort of sturdy support that's so undriven by ego you might not notice it unless it wasn't there.

Tuatarā's *Breaking the Ethers* is a horse of another color. Again, it's a bassman's holiday for various musicians — including, again, Peter Buck. The others are Barrett Martin of Screaming Trees, Justin Harwood of Luna, and Shrik of Critters Buggin. The terrain here, however, is strange: instrumental noodling around an axis of tabla drums and modal music. Because these are rock musicians foraging in New Age pastures, rather than vice versa, they bring some structure and life to the proceedings. All the same, their music is like most world music — a dilution of cultures that winds up seeming directionless. Exception: "The Getaway," which sounds almost comically like a porn-movie soundtrack. *P.P.*

MÖTLEY CRÜE: Generation Swine.

ELEKTRA 61901 (49 min).

★★★

SAMMY HAGAR: Marching to Mars.

TRACK FACTORY/MCA 11627 (51 min).

★

Who gave these guys permission to get all sensitive on us? The release of new albums by Mötley Crüe and Sammy Hagar should be an occasion for big, dumb fun, but both seem determined to prove their depth (a scary prospect in Hagar's case). And though the Mötley Crüe album is hard-rocking and great-sounding, it could still use more of the old rampant hedonism.

Yes, the reunited Crüe still rock, but they're in a rather serious mood for *Generation Swine*. Fortunately, they still write great hooks, and the album continues the pop-flavored direction of *Dr. Feelgood*. The best numbers could easily be mistaken for vintage Alice Cooper ("Find Myself") or post-comeback Cheap Trick ("Glitter," their purest pop number yet). The modernized, techno-style sound works surprisingly well, especially on the single "Afraid," but it still means that Mick Mars's guitar tends to take a back seat.

Hagar's first solo record in a decade is nothing less than a concept album about getting kicked out of Van Halen. Splen-venting numbers like "Little White Lie" and "Leaving the Warmth of the Womb"

(how obvious can you get?) reveal more about his hurt feelings than you'd ever want to know. There's an overload of ballads plus a couple of attempts at blues but not a single full-fledged rocker — not even when Hagar gets the old Montrose lineup back together. After all these years, it seems he's finally learned to drive 55. *B.M.*

SKELETON KEY:

Fantastic Spikes Through Balloon.

CAPITOL 36688 (35 min).

★★★

What a racket. What a *glorious* racket. Skeleton Key is a quartet, but that's like saying the King Crimson of *Discipline* was just a foursome. Add that album to the old punk of Gang of Four's *Entertainment!* and the new punk of Nirvana's *In Utero* and you get *Fantastic Spikes Through Balloon*, driven by two guys who hit things — one guy a drummer and the other a percussionist who favors scrap metal. It's positively mad with rhythm, but it offers much more. You like frayed guitar? Stand back for "Watch the Fat Man Swing." Nasty chord progressions? Catch the sinister "Wide Open." Funk? Gyrate to "All the Things I've Lost." Want to put all that stuff together? Done, in "Scratch," where Jawbox comes to mind. Overall, I hear early Hunters and Collectors as well, but, despite the various influences, Skeleton Key is as startling as, well, spikes through a balloon. The only thing missing from this bracing debut album is more playing time. *K.R.*

RICHARD THOMPSON

+ DANNY THOMPSON: Industry.

HANNIBAL 1414 (44 min).

★★★

Richard Thompson and Danny Thompson (no relation) first met in the 1960s, when guitarist Richard was in Fairport Convention and bassist Danny was in the visionary rival band Pentangle. Now, on their first co-billed studio album, the Thompsons turn a sharp eye to the history of industrialized Britain (though it may as well be all the modern world) in settings that range from folk and jazz to countrified noodlings and semi-classical treatments.

Danny's five instrumentals — especially "New Rhythms," which approximates the precision and metallic repetition of a workman's tools — are both emotionally moving and technically impressive. But it takes Richard's chilling lyrics in the seven full-scale songs to hammer home the measure of human sacrifice to the workplace. "Sweetheart on the Barricade," for example, takes a look at women on the job through the decades, and when Richard's troubadour-of-the-ages voice meshes with his guitar filigree, the song turns into a thing of humbling beauty, as does much of the album. I would have preferred fewer instrumentals — and I pray that someday one of them, the desperately sad "Children of the Dark," written in remembrance of wee ones who worked in coal mines with only a candle for comfort, will have the lyrics it so well deserves.

The Thompsons insist *Industry* isn't a

THE LAST CD-ROM SHOW?

Don't look now, but . . . actually, you'd *better* look now, because music CD-ROMs may not be very long for this world. While enhanced CDs are finally making some headway, full-fledged music-video CD-ROMs, as opposed to games and learning titles, are in danger of extinction after years of sluggish sales. Indeed, word has it that Peter Gabriel's *Eve* may be the last major release of its kind; its distributor,



CD-ROM could have no finer swansong than *Eve*, winner of the "most outstanding achievement" prize at the recent Milia Multimedia Awards in Cannes. In this "music and art adventure," Gabriel and four visual artists invite you to take a journey through four "worlds" — Mud, the Garden,

Profit, and Paradise — in search of *Eve*. (Beware a fifth world, *Ruin*.) It took more than two years to create, following Gabriel's previous foray into CD-ROM, *Xplore 1*, and it requires both patience and ingenuity to solve its riddles, as you rerecord Gabriel themes, interact with the artwork, and just plain gape at the graphics.

The spine of the package (which includes a lavish book) says, "Recommended for age 12 and over," while the back has a sticker saying, "Mature (17+): Mature Sexual Themes." All I've seen so far is tasteful male and female nudity, though I haven't yet made it to Paradise. Still, this material is entirely appropriate for a program devoted to "human relations" and the procreation of all forms of life. The central metaphor, remember, is *Eve*. It's just a shame that a CD-ROM as stunning as this one may foreshadow the end of a music format that was often highly inventive, if poorly promoted. *K.R.*



Ignite/Graphix Zone, has already pulled out of any future music productions (as has Philips Media). If these reports of death aren't exaggerated, then the music

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political record, although any examination of the drudgery of daily work ("Big Chimney") and the psychological turmoil that comes with the loss of employment ("Drifting Through the Days") can't help but be political in one way or another. When in "Saboteur" a worker cannot carry out his plan to jam his unyielding and deafening engine because he is so mesmerized by its beauty, he's fallen victim to a wicked politics of the soul. That's the kind of thing Richard Thompson has always done best. Any small sample is not to be missed. *A.N.*

WORLD PARTY: *Egyptology*.

THE ENCLAVE/CHRYSALIS 11716 (60 min).

★★★★

Actually, that should be *Anthology*, as in Beatles, because World Party honcho Karl Wallinger has finally made the Sixties album of his dreams, and much of it sounds like the stuff on those Beatle retrospectives. He's been threatening to do this forever, but in the past he would temper his Lennon-McCartney obsession with some of his other icons (Dylan, Stones) plus pastiches of post-*Purple Rain* Prince, just to show he wasn't a complete fogey. Here, however, he's thrown caution to the winds, and the results are often impressive, retro or not.

The opening "Is It Time," for example, is as catchy a piece of faux Merseybeat as you're likely to hear any time soon, and "Strange Groove" has eerie echoes of "Strawberry Fields Forever"-period psychedelia. *Egyptology* runs out of gas toward the end, but by and large this is a pretty estimable piece of work from a guy who recreates the past without pedantry or parody. *S.S.*



JAZZ

HARRY "SWEETS" EDISON/ EDDIE "LOCKJAW" DAVIS:

In Copenhagen.

MOBILE FIDELITY SOUND LAB 696 (76 min).

★★★★

In the early Sixties, when tenor saxophonist Eddie "Lockjaw" Davis and trumpeter Harry "Sweets" Edison began their occasional partnership, it was a natural pairing of swing masters who shared a background with the Count Basie orchestra and so ex-

actly generated the combination of spirit and lyricism that characterizes Basie-ites. *In Copenhagen* was made for the Danish Storyville label in 1976 on a European tour. The accompaniment is by Danish trombonist John Darville's quartet, whose star player at the time was pianist Kenny Drew, a former Edison sideman.

The program kicks off with "Lester Leaps In," a typical vehicle for stomping duos, then slows down for Edison's mellow, muted reading of Kurt Weill's "September Song," then picks up again for Coleman Hawkins's "Spotlite," giving both players a good opportunity to strut their stuff. Davis is at his lyrical best in "Angel Eyes" and "You Are Too Beautiful" and at his funkier in "Blues Walk." With the fine remastering by Mobile Fidelity, it all adds up to an hour and sixteen minutes of excellence. *C.A.*

HERBIE HANCOCK/ WAYNE SHORTER: 1+1.

VERVE 537 564 (62 min).

★★★★★

A few years back, Herbie Hancock and Wayne Shorter rated high with the fusion crowd — Hancock in his own excursions, Shorter in the genre's most fulfilling group, Weather Report. Both have since re-

QUICK FIXES

JAMES BONAMY: *Roots and Wings*.

EPIC 67878 (34 min). ★★

A bona fide success the first time out, Bonamy returns with charisma intact but with a far less interesting program, aside from the infectious rhythm number "The Swing." With the right material and an eye on something other than airplay, he could have a long run. *A.N.*

THE BRAND NEW HEAVIES: *Shelter*.

DELICIOUS VINYL 5019 (59 min).

★★★★★

Lead singer N'Dea Davenport is replaced by Siedah Garrett, who pilots the Heavies with her energy and style. As a result, they move away from the raunchy and experimental edge of acid jazz and closer to tuneful R&B-based funk. Approaching the mainstream while retaining their basic musical personality, they are bound to win a broader audience. *P.G.*

ROSEMARY CLOONEY:

Mothers & Daughters.

CONCORD 97009 (55 min). ★★★★★

On recent albums, Clooney has blurred the line between autobiography and interpretation, taking both classic and obscure songs and forging them into programs that reflect her own life. This record concentrates on the concept of family, and although she turns 70 next May, her voice is more than strong enough to put over her emotions. *W.F.*

THE FALLING WALLENDAS: *Belittle*.

IMI 7453 (44 min). 541 N. Fairbanks Court, Chicago, IL 60611. ★★★★★

Their previous album was a little too soft for my taste, but *Belittle* kicks, with tougher guitars, longer-lasting hooks, and a much bigger pop sound. Plus the subjects are more interesting, to wit: "Eligible Bastard," "Brothers Grim." There's one smash after another here, yours for the rocking. *K.R.*

MOXY FRUVOUS:

You Will Go to the Moon.

BOTTOM LINE 97301 (42 min). 740 Broadway, 6th floor, New York, NY 10003. ★★★★★

Right from the start, these Canadians show their debt to eclectic pop (read: XTC), and it all sounds a little too calculating and tied up in ribbons. But it's hard to resist the plentiful melodies, harmonies, exotics, and jokes. And I'd love to hear the Bobs sing "Kick in the Ass," if it weren't for the fact that Moxxy already does the Bobs perfectly. *K.R.*

JOE PASS: *The Best of Joe Pass*.

PACIFIC JAZZ 54944 (62 min). ★★★★★

Here is a wonderful collection of performances recorded for Pacific Jazz between 1961 and 1964, featuring the guitarist in a variety of contexts, from Gerald Wilson's star-studded big band to a torrid twelve-string version of "More." It's swinging music by a master. *C.A.*

MARTIN SIMPSON/WU MAN:

Music for the Motherless Child.

WATER LILY ACOUSTICS 49 (64 min).

★★★★★

Wu Man's exotic pipa blends with Simpson's laid-back guitar, suggesting languid

Music for the Motherless Child
Martin Simpson
Wu Man



Water Lily Acoustics

siestas in the Asian tropics. The conversation may be playful, meditative, virtuosic, or melancholy, but it is always enchanting.

William Livingstone

SONS OF THE DESERT:

Whatever Comes First.

EPIC 67619 (44 min). ★★★★★

Sons of the Desert blow a fresh breath across country's arid landscape. They seem to have grown up with their ears pointed more toward California country-rock than Austin folk-storytelling, but they approach their sound with more heart than hipness, not to mention quality musicianship and splendidly layered vocals. *A.N.*

JEAN-YVES THIBAUDET:

Conversations with Bill Evans.

LONDON 455 512 (61 min).

★★★★★

Eloquence permeates classical pianist Thibaudet's loving jazz tribute. Eight of twelve selections are almost verbatim transcriptions, but he brings a different sense of dynamics while capturing the delicate aura of the originals. Elsewhere, he takes respectful liberties, overdubbing in a few instances, as Evans himself did when conversing. *C.A.*

turned to acoustic environments (to their senses, some say), and a new duet album brings their journeys to a most eloquent juncture. *I+I* has Hancock's acoustic piano and Shorter's soprano saxophone in a series of intimate dialogues that won't set any feet tapping or fingers snapping but offers plenty of music for thought.

The two are superb artists who, together (with Miles Davis) and individually, have made extraordinary recordings in the past. I suspect that many fans of their early work will now return to the fold, but even the hard-core fusion crowd may be ready to turn an ear or two in this direction. As captured here on ten tracks of timeless performances, the duo's acoustic partnership may lack the energy and excitement of a Weather Report or V.S.O.P. track, but there is no dearth of intensity and idea flow. And Hancock, ever on the cutting edge of technical advances, is already preparing an expanded DVD-Video release of *I+I*. C.A.

ABDULLAH IBRAHIM:

Cape Town Flowers.
TIPTOE/ENJA 888 826 (51 min).
★★★★

DOLLAR BRAND: Duke Ellington
Presents the Dollar Brand Trio.
REPRISE ARCHIVES 6111 (33 min).
★★★

SATHIMA BEA BENJAMIN:
A Morning in Paris.
ENJA 9309 (43 min).
★★★

Among the musicians recorded by Duke Ellington in his capacity as an A&R man for Frank Sinatra's Reprise label in the early 1960s was a black South African pianist then living in Paris and going by the name of Dollar Brand — now better known as Abdullah Ibrahim. *Duke Ellington Presents the Dollar Brand Trio*, a long-out-of-print 1963 LP making its first appearance on CD, introduced a pianist and composer of strikingly unusual gifts, albeit one then still heavily under the influence of Thelonious Monk. *Cape Town Flowers*, recorded just last year, also with bass and drums, shows the extent to which Ibrahim has since grown into his own man by drawing on the musical traditions of his own country. The two CDs share one tune, Ibrahim's "The Stride." The later version is more rhythmically potent and varied, its jittery melody closer to the surface. *Cape Town Flowers* lacks the scope of Ibrahim's albums with horns, but it has the virtue of presenting a modern-day master in a lyrical mood.

The same day that Ellington brought Ibrahim into the studio, he also recorded a session with Ibrahim's wife, the singer Sathima Bea Benjamin. This session, not released at the time and long believed lost, has finally surfaced, and it would merit attention if for no other reason than because Ellington and Billy Strayhorn provide majestic accompaniment in two numbers each. Benjamin's time and intonation were a bit uncertain back then (they still are), and her way of breaking up her vowels will drive some listeners up the wall. What I respond to, and what Ellington presumably responded

to, is the emotional commitment she brings to a lyric. Give her half a chance and she'll win you over with her utter sincerity. F.D.

SUSANNAH McCORKLE: *Let's Face the Music — The Songs of Irving Berlin.*
CONCORD 4759 (61 min).
★★★★

Trust the classiest and most knowledgeable of contemporary female jazz singers to come up with an obscure Irving Berlin gem: "Waiting at the End of the Road,"

introduced by the charismatic Daniel Haynes in the 1929 all-black film *Hallelujah!* Trust Susannah McCorkle to perform it winningly, too, as she does here backed up by Al Gafa on guitar. Elsewhere, Rich DeRosa's octet arrangements get a little busy, a recurring problem on McCorkle's Concord albums. My advice to the label is to team her with Scott Hamilton's tenor saxophone and commission Alan Broadbent to do string arrangements. You've got all three of 'em on your roster, you know. F.D.

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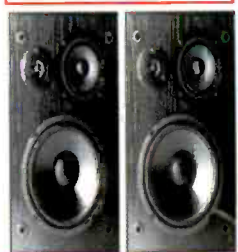
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BACH: Orchestral Suites; Preludes from Cantatas Nos. 18, 31, 152, and 207 and the Easter Oratorio.

New London Consort, Philip Pickett cond.
L'OISEAU-LYRE 452 000 (two CDs, 117 min).

★★★

When the Bach Orchestral Suites — they are really French *ouvertures* with sets of dances attached — are performed on period instruments with a bit of bounce and a lot of style, as they are here, they could actually inspire you to move out onto the dance floor. These performances have a strong physicality that comes from



the way the lines are shaped and the forward motion is maintained. Tempo is only partly a question of speed; it is also a way of speaking, and the New London Consort musicians have a remarkably fluent way of turning a phrase. The program note describes one of the movements as “rumbustious,” a rare word whose meaning seems to be well expressed in this recording.

In addition to the suites, the set also includes the instrumental preludes to several cantatas and to the Easter Oratorio (variously called “sinfonias,” “concertos,” and other things). The *sinfonia* from the Cantata No. 18, “*Gleich wie der Regen und Schnee vom Himmel fällt*” (“Like the rain and snow that falls from Heaven”), has an exquisite scoring for four violas and offers one of the few moments of deep introspection in this lively set. Most of the rest of the music is literally and figuratively upbeat and, yes, rumbustious. *E.S.*

BARTOK: Violin Sonatas Nos. 1 and 2.
Isaac Stern (violin); Yefim Bronfman (piano).

SONY 69245 (56 min).

★★★★★

The latest recording in Isaac Stern and Yefim Bronfman's continuing survey of the violin-sonata literature is this CD of the two formidable violin sonatas of Bartok, composed in 1921 and 1922. The first movement of No. 1 displays the Hungarian master in his most uncompromising take-no-prisoners mode. This is fiery and brilliant stuff, and both artists play it at a furious pace. Things calm down before the close, and the succeeding slow movement is one of Bartok's most grippingly visionary, haunted midway by a ghostly funeral procession. The finale, though marked *allegro molto*, is cast in his ferocious *allegro barbaro* manner.

The Sonata No. 2 is considerably more listener-friendly, with the Magyar element more to the fore than in No. 1. The first of the two movements is slow and the second fast, unified by a motto theme heard at the



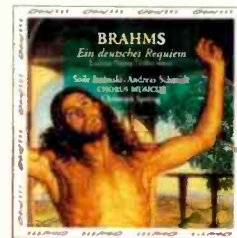
start and recurring in both, a pattern found in the Liszt Hungarian Rhapsodies. Both sonatas make fearsome demands on violinist and pianist alike. The performances, handsomely recorded from a pair of Paris concerts in May 1995, find Stern, at 75, in remarkable form and Bronfman at his virtuoso best. I got the sense that in the fast movements the players were egging each other on. In any event, what emerges from the speakers has a crackling vitality. *D.H.*

BRAHMS: A German Requiem.

Soile Isokoski (soprano); Andreas Schmidt (baritone); Chorus Musicus Köln; Andreas Grau, Götz Schumacher (piano); Christoph Spring cond. OPUS 111 OPS 39-140 (66 min).

★★★

It's a bit of a shock the first time you hear the opening measure of the Brahms German Requiem with piano four-hands instead of the rich orchestral pedal point. But it's genuine Brahms; the composer himself



transcribed the work's orchestral parts for a July 1871 private performance with keyboard accompaniment. In what appears to be a first recording of that version, the chorus is a well-balanced group of forty-two voices and the piano a Blüthner of 1850s vintage.

The choral work is excellent, and the soloists are absolutely first-rate. Andreas Schmidt is richly expressive in the “*Herr, lehre doch mich*,” and Soile Isokoski floats a lovely soprano line in the famous “*Ich hab' nun Traurigkeit*” that Brahms added for the 1869 Leipzig performance. Nonetheless, the lack of orchestral underpinning is for me a serious drawback. The modest studio ambience of the recording is wholly appropriate to the performance, which seems likely to be of more value to Brahms specialists and choral directors than to the general listener. *D.H.*

BRITTEN: Piano Concerto.

DEBUSSY: Fantasy for Piano and Orchestra; Pour le Piano.

Barry Douglas (piano); Orchestre Philharmonique de Radio France. Marek Janowski cond. RCA 68127 (72 min).

★★★★★

About the only things Debussy's Piano Fantasy and Britten's Piano Concerto have in common are that both are early works and neither lurks anywhere near the so-called standard repertory; both are out-and-out rarities in our concert halls and hardly overexposed in recorded form. The neglect of the Debussy is frequently termed “understandable,” but the piece receives unusually strong advocacy here. What is especially striking is Marek Janowski's handling of the orchestral part, which seems so alive with Debussy's own unmistakable

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Poor ★

characteristics. As soloist, Barry Douglas, too, is at his most persuasive. He takes the piece seriously enough to let it open up on its own terms instead of settling for what is generally expected of it. And it was a nice idea to follow up the fantasy with solo material as a sort of buffer between the two big concerted works. Douglas's sober, straightforward approach is very much to the advantage of the suite *Pour le Piano*, particularly in the central sarabande, which tempts so many pianists toward overindulgence in the name of expressiveness.

The Britten concerto comes across as a more mature work, though Britten composed it at an even younger age than Debussy's at the time of the fantasy. The concerto as we hear it now is a somewhat different work from the one introduced in 1938; the third of its four movements, Recitative and Aria, was replaced in 1945 by the very substantial Impromptu, which takes the form of a passacaglia. Douglas and Janowski, fully involved and abetted by wide-open sonics, offer a persuasive and illuminating reading. *R.F.*

DEBUSSY: Pelléas et Mélisande.

Mireille Delunsch (Mélisande), Gérard Thérue (Pelléas), Armand Arapian (Golaud), Gabriel Bacquier (Arkel), Hélène Jessoud (Geneviève).

others; chorus; Lille Orchestra, Jean-Claude Casadesus cond. NAXOS 8.660047 (157 min).

★★★

Debussy's *Pelléas* is an opera not of moments but of long, flowing lines, and that's where this performance succeeds. If it never generates really great excitement, neither does the score: rather, it captures the neurotic, brooding atmosphere of the imaginary medieval kingdom where two half-brothers quarrel over the mysterious Mélisande. The orchestra plays with fluid delicacy for conductor Jean-Claude Casadesus, but the recorded sound is a bit flat and monochromatic — far from desirable for Debussy, of all composers.

The fine singers are well cast dramatically: for example, the baritone half-brothers present a clear contrast, with Armand Arapian, as Golaud, sounding darker and older than Gérard Thérue's Pelléas. The opera's characters span four generations, and for once the singers all sound like they're the right ages. Mezzo-soprano Hélène Jessoud, as Geneviève, sounds appropriately matronly, and Arkel, sung by veteran bass Gabriel Bacquier, sounds old enough to have a great-grandson (sung here, as is often done, by a lyric soprano, an acceptably boyish-sounding Françoise Golfier). Mireille Delunsch is a more vibrant Mélisande than we

usually hear, which doesn't quite work in her drooping and sighing passages in the early acts, but the love scene with Pelléas in Act IV comes to passionate life.

In lieu of an English translation of the libretto, the set comes with a detailed, thorough synopsis. *J.J.*

KORNGOLD: Violin Concerto. WEILL: Concerto for Violin and Wind Orchestra.

KRENEK: Violin Concerto No. 1. Chantal Juillet (violin); Berlin Radio Symphony. John Mauceri cond. LONDON 452 484 (77 min).

★★★

Korngold's Violin Concerto (1947) is lush, easily assimilated music permeated with melodies from several of his film scores. It has been a grateful vehicle for virtuosos from Jascha Heifetz and Itzhak Perlman to Gil Shaham. Chantal Juillet here de-



livers a comparatively cool performance, with a small but well-centered tone. She is much more at home with the mid-1920s concertos by Weill and Krenek, having in ample measure all the agility and rhythmic know-how that they demand. The Weill starts off as a somewhat dour and sardonic piece, then shows its best face in a middle waltz/foxtrot movement with saucy xylophone coloration. It also has a knockout cadenza, which Juillet brings off to a fare-thee-well.

The Krenek concerto, apparently a first recording, is a real find. Not only entertaining and attention-getting as music but somewhat autobiographical as well, it in effect describes Krenek's love affair with the soloist to whom he dedicated the work (the late Berthold Goldschmidt's notes are delightful on this point). The music is by turns passionate and lighthearted — and at the end just plain funny as the soloist fades off into nothingness. By itself this work is worth the price of the CD. John Mauceri is a fine collaborator here and has the orchestra players with him all the way. Good clean sound. *D.H.*

MAHLER: Songs of a Wayfarer; Five Rückert Songs. ZEMLINSKY: Six Songs to Poems by Maeterlinck.

Anne-Sofie Von Otter (mezzo-soprano); NDR Symphony. John Eliot Gardiner cond. DEUTSCHE GRAMMOPHON 439 928 (56 min).

★★★★★

Instead of more obvious programming (*Kindertotenlieder*), Deutsche Grammophon has inventively interposed between the two familiar Mahler song collections what may be the first recording of an early song cycle by Alexander Zemlinsky (1871-

The Bard's Band

Reconstructing Shakespeare's Globe Theatre was the dream of American film director Sam Wanamaker. His dream came true in June with the official opening of the Globe in London near the site of the original theater. Given that the recreation is as authentic as possible — no roof, no electrical lighting — it is not surprising that the house band, the Musicians of the Globe, plays authentic instruments. Under the musical direction of

Philip Pickett, they perform at the Globe during its summer season, elsewhere in winter, playing music that would have been heard in the seventeenth century before, during, and after plays by Shakespeare and his contemporaries. In July Philips Classics released the first two CDs in a series of recordings by the ensemble: *Ben Jonson's "The Masque of Oberon"* and *Shakespeare's Musick: Songs & Dances from Shakespeare's Plays*.

The Musicians of the Globe: playing music of Shakespeare's time



PHILIPS CLASSICS

CLASSICAL MUSIC

1942), a bridge between Mahler and Schoenberg and a close associate of both. Zemlin'sky's 1910 settings of six Maeterlinck poems bathed in impressionist ambiguity are colorfully orchestrated in an essentially tonal yet harmonically advanced idiom. The songs present a fascinating amalgam of the musical crosscurrents in 1910 Vienna, and mezzo-soprano Anne-Sophie Von Otter captures their spirit magnificently.

This remarkable artist is also an outstanding interpreter of the Mahler songs, alertly responding to their shifting moods. In fact, one of her most impressive qualities

is that she keeps her vocalism under firm control through Mahler's emotional extremes. She can make "*Ich Hab' ein Glühend Messer*" ("I Have a Shining Knife") vividly dramatic without resorting to the kind of histrionics that would compromise the purity of the singing line. The five Rückert songs also range over a wide emotional compass, finally arriving at the cathartic "*Um Mitternacht*" ("At Midnight") and the world-weary "*Ich Bin der Welt Abhanden Gekommen*" ("I Have Lost Track of the World").

The live recording is faultless, and con-

ductor John Eliot Gardiner and the Hamburg-based NDR Symphony capture the richness and transparency of these two master orchestrators in support of this extraordinary singer. *G.J.*

SAINT-SAËNS: Symphony No. 3 ("Organ"); Cyprès et Lauriers.

Matthias Eisenberg (organ); Orchestre du Capitole de Toulouse, Michel Plasson cond. EMI 56362 (52 min).

★★★

SAINT-SAËNS: Symphony No. 3 ("Organ"). FRANCK: Symphony in D Minor.

Daniel Chorzempa (organ); Berlin Philharmonic, Zubin Mehta cond. TELDEC 98416 (76 min).

★★★

A coupling of Saint-Saëns's two big works for organ and orchestra was bound to come along sooner or later. The EMI disc seems to be only the second recording to date of *Cyprès et Lauriers* (*Cy-*

Come to the Cabaret

Back in my record-producing days, I got the idea of doing an album of music by Friedrich Hollaender, who wrote the famous Marlene Dietrich *Blue Angel* song, "I'm Made for Love from Head to Toe." Hollaender, a refugee from Hitler, ended his days as the Hollywood

cha Spoliansky) and the witty, mocking lyricists (Kurt Tucholsky, Marcellus Schiffer, and Hollaender himself) — created the sound of an era and a genre that still has bite. It was, I suppose, only a matter of time before someone discovered the real gems hidden in this treasure trove.

These songs are not just lighthearted froth. The subjects include hypocrisy, open eroticism of several varieties, the foibles of the German bourgeoisie, some darker impulses, and even the fast-arriving rise of fascism, all in a manic frenzy of catchy tunes, jazzy licks, verbal snickers, and good old Deutsche oom-pah. Even the most pop and kitsch moments are bathed in or masked by the piercing white light and the ominous dark shadows of German expressionism. As they say, wonderful material.

The rediscovery of these songs could not have been accomplished without the right kind of singer. I have not always liked everything Lempere has done, but she is in her element here: sexy, bitter-sweet, leering, knowing, sad, even violent, with a mastery of words that rivals Lotte Lenya's and a superb vocal projection that is both highly musical and intensely theatrical. The effect is of a spooky seance in which the ironic voices of another era speak through her.

Major credit for the success of this CD must go to the Matrix Ensemble and its leader, Robert Ziegler. Ziegler helps create the seance with arrangements that evoke those surprisingly brief years when the music was created without falling back on camp or self-conscious kitsch. I have only one caveat: German texts are provided, but the English versions on the CD are singing adaptations that often stray far from the originals.

—Eric Salzman

UTE LEMPER: Berlin Cabaret Songs.

Ute Lemper (vocals); Jeff Cohen (piano); Matrix Ensemble, Robert Ziegler cond. LONDON 452 849 (73 min). [On LONDON 452 601 Lemper sings the original German lyrics.]

★★★

MIRIE OWEN/LONDON



Ute Lemper: sexy and bittersweet

film composer and arranger Frederick Hollaender. I was sure that there was (may still be) a trunkful of Berlin songs to be found somewhere in Beverly Hills. Alas, I never found the trunk, and, in any case, I never found a latter-day Berlin-style chanteuse who could do justice to the material. But now here are the songs on a London CD, sung by Ute Lemper, and it's a perfect match.

In spite of the fame of the Berlin cabaret, its repertoire was almost forgotten. Real Berlin cabaret songs were not created by Kander and Ebb, nor even by Weill and Brecht. The true stars of the cabaret — the composers (Hollaender and Mis-



presses and Laurels), one of the octogenerian composer's very last creative efforts, written to celebrate the end of World War I. Its first part, for organ alone, pays respects to the fallen, while the second is a victory celebration with fanfares and flourishes from the oversized brass contingent. Matthias Eisenberg and Michel Plasson give it their all, and the fine recording makes the most of the thunder and the fanfares, but this is really pretty thin stuff, a demonstration of craftsmanship without much substance. The "Organ" Symphony is a good deal more substantial but doesn't come off as well here, lacking the drive and brilliance essential to its appeal — possibly in consequence of Plasson's finding himself in a church with a big reverb instead of his orchestra's regular recording venue.

In respect to playing time, the new Teldec disc is far more generously filled, and Zubin Mehta's live remake of the Saint-Saëns not only surpasses his earlier Los Angeles recording but is one of the most compelling in some time: urgent, fluid, spontaneous, brimming over with conviction. It's a remake, too, for Daniel Chorzempa, who recorded the work a few years ago with Peter Maag in Bern, but not as feitchingly as in the new version on Teldec. Mehta's Franck, however, is a nonstarter. His pacing throughout the three movements is not merely deliberate but downright ponderous; momentum sags, and overall the performance is as self-consciously rhetorical as that of the Saint-Saëns is spontaneous and impassioned. Fine live sonics in both works, though. *R.F.*

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QUICK FIXES

BRAHMS: Double Concerto.

MENDELSSOHN: Violin Concerto.

Itzhak Perlman (violin); Yo-Yo Ma (cello); Chicago Symphony, Daniel Barenboim cond. TELDEC 15870 (59 min). ★★★★★

The intensity of happy involvement on everyone's part illumines this vigorous yet affectionate performance of the Double Concerto, which now supersedes Yo-Yo



Ma's earlier recording with Isaac Stern and the same orchestra under Claudio Abbado (Sony), and various others as well. Itzhak Perlman has recorded the Mendelssohn several times; this is not a new version but an appropriate and eminently welcome recoupling of a recording issued a few years ago on Erato. R.F.

DONIZETTI: String Quartets Nos. 13-15.

The Revolutionary Drawing Room. CPO/NAXOS 999 280 (65 min). ★★★★★
Donizetti's String Quartets Nos. 13-15 date from 1821, just before the young composer found success on the opera stage. They are sprightly pieces, written very much in the shadow of Beethoven's middle period; what they lack in Beethovenian depth they make up for, to some degree, in Donizettian sunniness. The Revolutionary Drawing Room, a British period-instrument ensemble, performs these agreeable oddities with style and conviction in a very closely miked recording. J.J.

KHACHATURIAN: Piano Concerto; Concerto-Rhapsody for Piano and Orchestra.

Oxana Yablonskaya (piano); Moscow Symphony, Dmitri Yablonsky cond. NAXOS 8.550799 (59 min). ★★★★★

Nearly fifteen years ago Dmitri Yablonsky recorded some cello sonatas accompanied on piano by his mother, Oxana Yablonskaya; the intimacy of their collaboration, with Dmitri as conductor now, is again a positive factor in their performances of these Khachaturian showpieces, which have brilliance to burn and make the most of the lyric element as well. The coupling is unarguably apt, the sound is first-rate, the annotation is unusually helpful, and the Naxos price is definitely right. R.F.

TCHAIKOVSKY: Liturgy of St. John Chrysostom, Op. 41; Seven Sacred Choral Works.

St. Petersburg Chamber Choir. Nikolai Korniev dir. PHILIPS 446 685 (68 min). ★★★★★

A substantial portion of Tchaikovsky's church compositions are contained on this appealing disc. The Op. 41 liturgy is virtually complete, omitting only the contributions of the officiating clergyman. The seven individual choruses of later origin are freer in style and more elaborately harmonized, with the vocal parts more effectively deployed between male and female voices. The St. Petersburg Chamber Choir is a highly disciplined unit with three fine female soloists. The sustained pianissimos are most impressive. G.J.

ELIOT FISK: Plays Segovia's "Canciones Populares" and Other Works.

Eliot Fisk (guitar). MUSICMASTERS 67174 (76 min). ★★★★★

Segovia's recently rediscovered settings of folk songs from various countries provides the core of this pleasant album. Eliot Fisk has combined them with other Segovia arrangements, a few originals (including a *macarena* from Seville), and musical homages written for Segovia by four of the guitarist's contemporaries: Tansman, Roussel, Milhaud, and Castelnuovo-Tedesco. The result is a lighthearted but sympathetic portrait of an old master by a young one. E.S.

LEILA JOSEFOWICZ: Bohemian Rhapsodies.

Leila Josefowicz (violin); Academy of St. Martin in the Fields, Neville Marriner cond. PHILIPS 454 440 (70 min). ★★★★★

The young virtuoso Leila Josefowicz is heard here in a program of short concerted works: Sarasate's *Carmen Fantasy* and *Zigeunerweisen*, Saint-Saëns's *Introduc-*



tion and Rondo Capriccioso. Wieniawski's Op. 4 Polonaise, the *Méditation* from Massenet's *Thaïs*, Ravel's *Tzigane*, and Chausson's *Poème*. Oddly enough, her lyrical muse seems paramount in the pyrotechnical favorites, which are brilliant to a fault but seem a bit faceless. She comes into her own with the corruscations of the Ravel and the lush effusions of the Chausson. A fine hour-plus of listening despite minor reservations. First-rate orchestral backup and sound throughout. D.H.

SHOSTAKOVICH: Chamber Symphony (orch. Barshai). VASKS: Musica Dolorosa. SCHNITTKE: Trio Sonata (orch. Bashmet).

Stuttgart Chamber Orchestra. Dennis Russell Davies cond. ECM 21620 (68 min). ★★★★★

The overall title of this CD, *Dolorosa*, suggests the somber character of the powerful musical fare. The Shostakovich is by far the most familiar work, having been recorded more than a dozen times both in its original form, as the String Quartet No. 8, and in the composer-sanctioned Rudolf Barshai orchestration. Shostakovich dedicated the quartet "to the victims of war and fascism;" but the more I listen to the music, the less doubt I have that this work, with its parade of quotations from the composer's earlier compositions and the pervasive D-S-C-H signature theme, is in essence a harrowing self-portrait depicting Shostakovich's sufferings under Stalin and his immediate successors. Dennis Russell Davies and his Stuttgart musicians take a weightier than usual view of the score that increases the emotional impact of their performance.

In the *Musica Dolorosa* of the Latvian composer Peteris Vasks, who is around 50 years old, I hear a mix of Mahler and Penderecki, but it adds up to something less powerful than the Shostakovich Chamber Symphony. Certainly it is not as bold as the Trio Sonata by Alfred Schnittke — an orchestration by Schnittke's close friend, the violist Yuri Bashmet, of the 1985 String Trio — that concludes the CD. The essentially expressionist music of its two movements is alternately bitter, sardonic, violently angry, and intensely sorrowful. The second, an adagio, is particularly gripping in its sustained emotionality, but in terms of volatility Davies and the Stuttgart orchestra are definitely outclassed by the Moscow Soloists under Bashmet on RCA Victor. The ECM recording is up to the finest standards of the label, but musically the CD is something of a mixed bag. D.H.

VAUGHAN WILLIAMS: Symphony No. 9; Job.

BBC Symphony. Andrew Davis cond. TELDEC 98463 (79 min). ★★★★★

Andrew Davis's project of recording all of the major Vaughan Williams orchestral works makes slow but steady progress, with *A Sea Symphony* (No. 1), *A Pastoral Symphony* (No. 3), and the *Sinfonia Antartica* (No. 7) still to come. The current installment is an extraordinarily generous CD, with nearly 80 minutes of playing time, offering the last of the symphonies and *Job: A Masque for Dancing*, inspired by the celebrated William Blake engravings of the Book of Job.

The Ninth Symphony is akin to the unforgiving landscape of the *Antartica*, but leavened to a degree in the scherzo by some of the Eighth Symphony's sardonic quirkiness. Like those works, the Ninth explores new sonorities, in this case the mellow flugelhorn and a trio of saxophones. The first movement, with freely treated elements of

sonata form, suggests a lowering northern sky with occasional breaks of sunlight (think Salisbury Plain in the vicinity of Stonehenge). This is followed by a brooding *Andante sostenuto* with sharply contrasting episodes. The ensuing scherzo is a kind of *danse macabre* with touches of madcap humor, especially in the episode toward the close where the saxophones behave, in the composer's words, "like demented cats." The bipartite finale starts in ruminative fashion but eventually coalesces into a series of epic statements culminating in several huge climaxes and fading "into the sunset" at the end. Davis delivers a strong reading, perhaps a bit too deliberate in the opening pages of the second movement.

Job dates from 1927-30, and it presages the mystical and satanic elements found in the later symphonies. This is music on the grand scale. The dramatic climax is Job's curse on God, with thundering organ, which follows his encounter with the Comforters, represented by the oily-sleazy solo saxophone. Much of the remaining music is Vaughan Williams at his most radiantly beautiful; the "Pavane of the Sons of the Morning" is equaled in his output only by the Tallis Fantasia. Again, Davis and his BBC players deliver a fine reading (I would take issue only with the too-fast tempo in the "Gaillard of the Sons of the Morning"), and both performances benefit from altogether resplendent sonics. *D.H.*

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The Emerson

Every time the Emerson Quartet confronts Beethoven, it discovers a host of previously unsuspected musical dilemmas. In order to resolve them, the quartet must reach some sort of interpretive consensus. But that process is neither easy nor rapid, since the members of the ensemble often express resolutely divergent points of view.

Actually, the Emerson seems to thrive on the disputatious, rapid-fire exchange of ideas among four players who clearly regard each other as equals. Their rejection of the string quartet's traditional hierarchy is nowhere more apparent than in the absence of a designated first violinist — Eugene Drucker and Philip Setzer take turns filling that role. Lacking a leader to whom everyone must defer, the quartet makes communal decisions after much lively debate. During a recent rehearsal that I attended, one particularly evocative chord in Beethoven's Op. 127 prompted a lengthy and heated discussion. You might have imagined they were learning a new work, not revisiting one they've played for most of their lives.

So it was surprising that the Emersonians, when asked to characterize the spirit of their seven-CD set of the sixteen Beethoven quartets, recently released on Deutsche Grammophon, responded with absolute unanimity.

"I know that our recordings are challenging," said violist Lawrence Dutton. "None are going to be safe for the listener. Because I think we looked hard at what Beethoven would have wanted, to the point where we really pushed the envelope. I haven't heard any other quartet recording go this far, to such extremes, and I think some people don't like to be pushed that hard. But that's what Beethoven was about."

"We were simply trying to do justice to Beethoven," insisted Setzer. "We weren't trying to make a controversial set of performances. We had to allow ourselves to be pushed to the edge, just as he was. When you listen to these recordings they will grab you whether you like it or not. Just like Beethoven. If he were sitting in this room, I can't imagine him having a relaxing effect on people."

The Emerson's Beethoven recordings underscore the ensemble's predilection for highly charged, visceral interpretations. Perhaps living on the edge, musically speaking, unleashes their creative

energies. After all, how many other ensembles test their mettle by performing the six Bartok quartets in a single day, or the sixteen Beethoven quartets over eight consecutive days?

But how to suggest the blistering intensity of these live performances in recordings? The Emerson's solution was, not surprisingly, uncommon. Typically, a quartet may take three or four years to record the Beethoven cycle, with the fruits of their labors released in bits and pieces.



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The Emerson Quartet finally records its on-the-edge Beethoven.

No such leisurely approach for the Emerson. Within a span of fourteen months, they set aside three intensely concentrated periods to record all sixteen quartets. "We tried to submerge ourselves so that we would not produce something that was scattered or separate," said Dutton. "You tackle that much repertory, and by the time you've gotten to the end you're ready to start all over, because your interpretations have evolved naturally. If we took longer to record them, it would have seemed like we were doing them at different stages of our lives."

Although founded during the Bicentennial, the Emerson Quartet did not leap to international prominence until 1989, when its riveting, relentless recording of Bartok's six quartets won two Grammy awards. The set's unexpected success cemented the ensemble's exclusive relationship with Deutsche Grammophon.

Even after the Bartok triumph the Emersonians did not feel ready to commit their Beethoven interpretations to disc. By now they had spent nearly twenty years doing their best to avoid the inevitable. "There was always a sense we would do it sooner or later," said Eugene Drucker. "If you're at the midpoint of a career you can both look back toward the time of youthful ebullience and forward toward a later, more autumnal feeling."

The five late quartets in particular undermine the confidence of every eager, young, and overly ambitious string quartet. Composed at the very end of Beethoven's life, when deafness cut him off from musical sound and isolated him from society, these quartets are the mystical vision of a man who has detached himself from the temporal realm and withdrawn into a private universe.

Still in awe of the late quartets, the Emersonians are reluctant to characterize them in words. Eventually they offered their insights with great caution.

Dutton: "Those pieces are like the keys to the spiritual kingdom. I think when he was very sick he probably did get out of his body and travel away from his earthly being."

Drucker: "Beethoven was always a master of extreme contrast, but here he reaches the very frontier of human expression. You have this gorgeous melody that gets torn apart, almost as if you've let yourself get too vulnerable."

David Finckel (the group's cellist): "You don't think of the late quartets as being German music; you don't think of them as being Classical or Romantic music. You don't think of them as being anything other than what they are — like an absolute, like space."

Setzer: "Beethoven was at the end of his life, standing on the edge of a cliff. That's why these quartets can't be put into words, because I don't think too many people have been where he was — an incredible genius filled with emotion and sadness, teetering on the edge of madness."

Now, perhaps, it's easier to understand why the Emerson Quartet delayed bringing Beethoven to the studio. First their interpretations had to ripen, solidify, and assume coherent form. But that could not happen until they had tasted a substantial amount of life's pain and pleasure — enough to imagine Beethoven's.

"All of us have gone through a lot of different experiences," said Drucker. "We've become fathers, we've lost loved ones, and every bit of this goes into the total of what you bring to this music."

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RS 9402	SR 6390	SR 6390
RS 9602	SR 6530	SR 6530
RS 9802	SR 6670	SR 6670
RS 10002	SR 6810	SR 6810
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RS 10602	SR 7230	SR 7230
RS 10802	SR 7370	SR 7370
RS 11002	SR 7510	SR 7510
RS 11202	SR 7650	SR 7650
RS 11402	SR 7790	SR 7790
RS 11602	SR 7930	SR 7930
RS 11802	SR 8070	SR 8070
RS 12002	SR 8210	SR 8210
RS 12202	SR 8350	SR 8350
RS 12402	SR 8490	SR 8490
RS 12602	SR 8630	SR 8630
RS 12802	SR 8770	SR 8770
RS 13002	SR 8910	SR 8910
RS 13202	SR 9050	SR 9050
RS 13402	SR 9190	SR 9190
RS 13602	SR 9330	SR 9330
RS 13802	SR 9470	SR 9470
RS 14002	SR 9610	SR 9610
RS 14202	SR 9750	SR 9750
RS 14402	SR 9890	SR 9890
RS 14602	SR 10030	SR 10030
RS 14802	SR 10170	SR 10170
RS 15002	SR 10310	SR 10310
RS 15202	SR 10450	SR 10450
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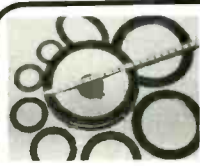
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THE HIGH END

COREY GREENBERG

Stooge-o-Phonics: Moe Better Stereo

There's a scene in *Apocalypse Now* where Martin Sheen's tugboat is choo-chooing up the river somewhere deep in the bowels of Vietnam on the trail of Kurtz (Marlon Brando) that sums up my feelings about stereo and surround sound quite nicely. Sheen is reading through a classified intelligence file on the guy the Army had originally sent to hunt Kurtz down, except the guy wound up losing his mind and joining up with Kurtz instead, apparently because of the jungle's primal allure and the incessant playing of Doors music. At the end of the last letter this guy sent to his wife back in the States, the writing breaks down into this nasty, ripping scrawl: "Sell the house. Sell the car. Sell the kids. Find someone else. Forget it! I'm never coming back. Forget it!!!!"

Well, that's just how I feel about stereo, and even 5.1-channel surround sound. Sell your stereo! Sell your Dolby Digital processor! Forget it! I'm never coming back. Because I have seen the future of audio realism, and its name is Stooge-o-Phonics. But beware, gentle reader, for this bold new idea in audio realism does not come in a box with knobs to twiddle, nor on a newly minted disc format to decode. No, I'm talking about a method of listening to existing stereo recordings that is so boldly ridiculous and full-frontally insane that no audiophile in his or her right mind would ever attempt it, except for two guys named Ralph and Keith who wrote a book about it.

Remember all those Three Stooges episodes where Moe would try to poke Curly's eyes out by stabbing him in the face with his fingers in a V, whereby Curly would counter by raising his hand in front of his nose to block Moe's fingers? Well, that's sort of what Stooge-o-Phonics is all about. Except instead of throwing up your hand the way Curly did, what you do is throw up a wall that runs down the center of your listening room, from the tip of your nose all the way to the space between your two front speakers. That's right, and in order to listen to all of your favorite stereo CDs and LPs in full Stooge-o-Phonic sound, you must sit

with your nose pressed against the wall, at which point, these two guys claim, you will hear "a full-width proscenium image so realistic that the ear-brain system believes it is in the same space as the performers were."

Notice how I'm not saying "Nyuck, nyuck, nyuck" or even "Ohhh, wise guy, eh?" Because I'm not making this up. An audio engineer named Ralph Glasgal came up to me at a hi-fi show a few weeks ago and gave me a book he co-authored with Keith Yates, *Ambiophonics: Beyond Surround Sound to Virtual Sonic Reality* (Ambiophonics Institute, \$29.95; for more information, check the Web

**To listen in full, glorious
Stooge-o-Phonic
sound, you sit with your
nose against a wall
running down the middle
of your listening room.**

page, www.ambiophonics.org). Glasgal is a physicist who has designed audio components for Fisher, while Yates, a former hi-fi dealer, currently designs media rooms and home theaters. Both men are members of the Audio Engineering Society and known in their fields, which makes their book all the more . . . well, I might say disturbing, but it's really awesome! I haven't enjoyed a book on hi-fi so much since, well, ever. Because these guys are nuts! Gone fishin'! Cuckoo for Cocoa Puffs!

The thing is, hard-core audio engineers are not like you and me. These guys would think nothing of hauling a bathtub full of mayonnaise into a listening room and diving right in if they thought it would improve the sound, without the slightest thought given to whether there's a single soul in the entire world who'd ever actually consider trading in his

Barcalounger for a bathtub full of Hellmann's. So the thought of erecting a wall down the middle of the room and leaning against it to listen to music is really quite tame in the audio-engineering realm of "Why don't we?"

There's actually a good idea behind Stooge-o-Phonics, and that's interaural crosstalk cancellation, or isolating the left-channel audio in the left ear and the right-channel audio in the right. The more you can keep the two stereo audio channels separated all the way to each ear, the greater the opportunity for enhanced reproduction of depth and imaging. You can achieve much the same effect with digital signal processing (DSP), or even a \$20 pair of headphones, but then you wouldn't look quite as fabulously ridiculous as you would sitting there with your snout pressed against the edge of a wall running down the middle of your living room. And looking fabulously ridiculous is what Stooge-o-Phonics is all about. Think the age-old "audiophile squint" makes you look like a freak among the civilians? Brother, get ready to look like a Grand Master Geek when your buddies come over and see you pressing your face against the edge of your Stooge-o-Phonics barrier as you shout, "Yes! Yes! Finally, concert-hall realism as I always dreamed it could be! Say, what are you fellas staring at? Bob, put down the phone. Put it down *now*."

Me, I love this kind of deep-dish craziness, especially when it comes to hi-fi. I mean, let's face it, this can be a pretty dry hobby. And when you're on your tenth speaker upgrade and fourteenth cable swap and you're still not hearing live musicians in your rumpus room, you start looking for something new and different to try. Well, it doesn't get a whole lot more new and different than *Ambiophonics*. There's even a chapter devoted to what the authors call Glasgal's Domestic Concert Hall, or, as I like to call it, Every Wife's Worst Projectile-Sweat Nightmare: an all-out Stooge-o-Phonic living-room rig featuring eight tower speakers, eight power amps, a Lexicon CP-3 surround processor, and a JVC XP-A1010 digital ambience synthesizer. The photo of this system and the description of its operation are well worth the \$29.95 price of the book all by themselves.

Now, I'm not saying that Stooge-o-Phonics doesn't work. For all I know, it may make stereo recordings sound so real you'll yelp with joy. But if erecting a wall in the middle of my living room and leaning my nose against it is the price of admission for true stereo realism, then it is with much regret that I must pass. That said, my hat's off to Glasgal and Yates for boldly going where no audiophile has gone before. If you're into audio and the absurd, *Ambiophonics* will teach you a thing or two about both. □



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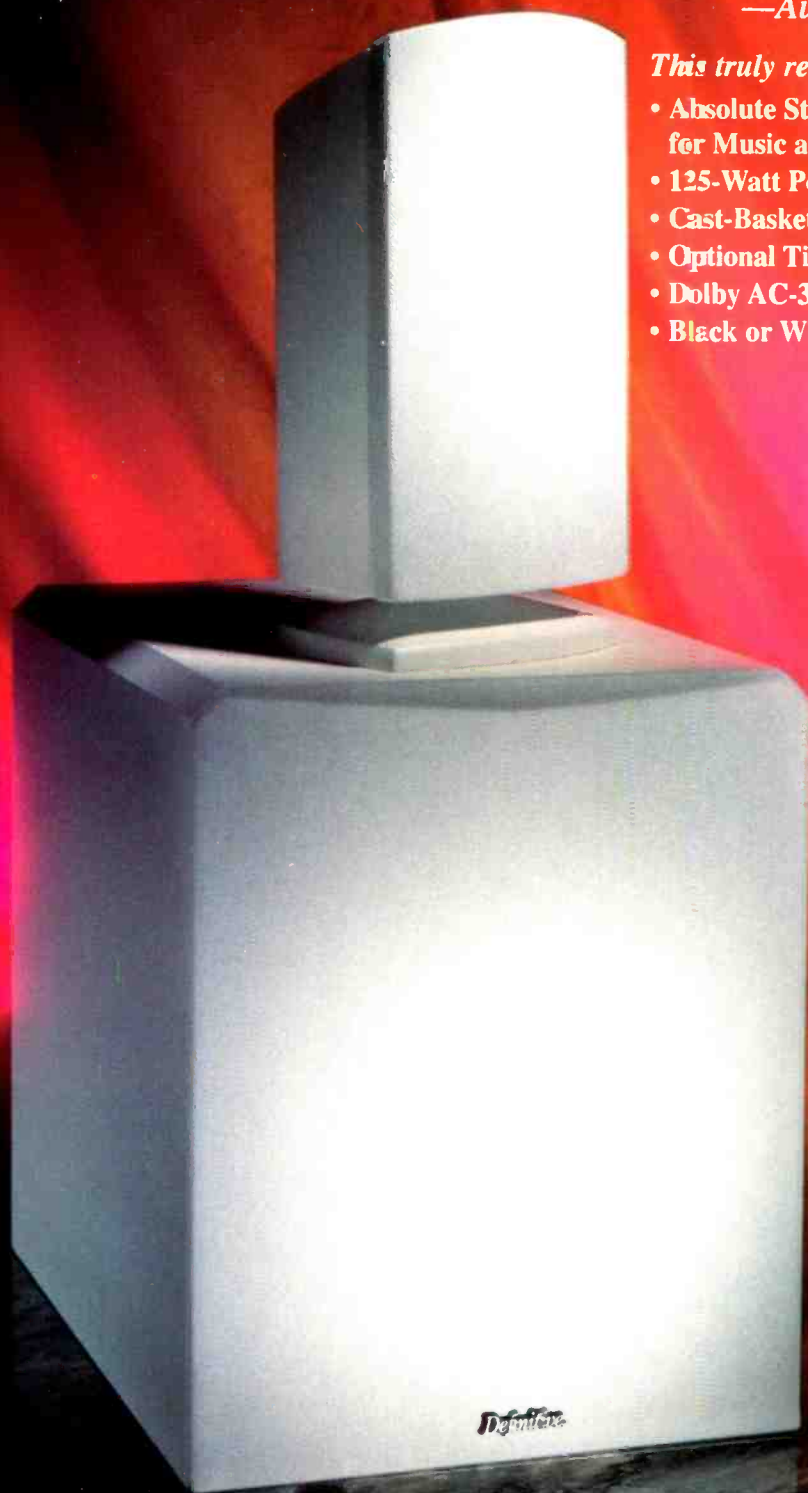
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