CHANGER CHALLENGE
5 MIDPRICE CD CHANGERS GO THE DISTANCE

HOW TO BUY OUTDOOR SPEAKERS

TESTED Fosgate A/V Preamp, AR Speaker, Quad Tuner, and More...
Audio Systems
The Sound of Quality

Compact Disc Player
Compact Disc Radio
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... no other car company has more ways for you to enjoy it.

Audition the exciting line of Ford Audio Systems’ compact disc players, radios, and ten CD changers at your local Ford or Lincoln-Mercury dealer.
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12 mg tar, 0.8 mg nicotine avg. per cigarette by FTC method.

COME TO WHERE THE FLAVOR IS.
EQUIPMENT

User's Report
NHT VT-1 home theater speaker system • by David Ranada

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Car stereo—twelfth in a series • by Ian G. Masters

Classy Carousels
Comparison tests of five mid-line CD changers • by Ken C. Pohlmann

systems
Hi-fi on the high seas • by Bob Ankosko

Loudspeakers for the Great Outdoors
Choosing speakers that don't have to come in out of the rain • by Ian G. Masters

Tape Deck Cleanup
How to get the most out of your cassette deck • by Glenn Kenny

MUSIC

35th Anniversary Special: Jazz Classics
From Mingus to Marsalis, jazz has always been part of STEREO REVIEW's music coverage

Best Recordings of the Month

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Proof you can grow up without becoming square.

Four years ago NHT introduced a literally off-the-wall approach to sound. Our compact Model 1 bookshelf speaker featured an acoustic technology called Focused Image Geometry. Its baffles slanted 21°, projecting sound away from side walls and out into the listening area, dramatically improving the stereo image. It was a hit.

Ever since then, people have expected more from us. Which is why we continue to incorporate this technology in a complete line of NHT loudspeakers, from our bookshelves to our elegant towers.

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

EVERYTHING YOU HEAR IS TRUE.
Every so often, a product is introduced that’s so good, it serves as the benchmark for an entire industry. Yamaha’s critically acclaimed DSP-A1000 is such a product.

And Yamaha’s new DSP-A2070 is another. Unquestionably, the most advanced digital sound field processor/amplifier you’ll find on the market. Due in no small part to a Yamaha development that makes going to the movies actually pale by comparison.

We call it Cinema DSP. An awe-inspiring blend of technology that multiplies the effects of Digital Sound Field Processing and fully-digital Dolby Pro Logic.

The net result is a home theater component that’s a generation ahead of anything else on the market. Giving dialogue more definition. Music, more dynamic range. And sound effects, more graphic detail, superior placement and far greater realism.

And there’s more. All told, there are 12 audio settings for your favorite music. Plus 11 Cinema DSP settings for video alone. Including four 70mm settings—Adventure, Spectacle, Musical and General—to give movies more spatial depth and impact in your home than you probably ever imagined.

All made possible by Yamaha’s new LSI technology. A major accomplishment that creates sound fields three times more detailed than even our critically acclaimed DSP-A1000.

Other notable features include an on-screen display for sound field adjustment. Seven-channel amplification. Pre-amp outputs on all channels to permit additional amplification. Five audio and six video inputs. And split subwoofer outputs to accommodate two front subwoofers.

Yamaha’s exceptional DSP-A2070. We think of it as the most sophisticated audio-video product on the market. Understandably, our competition tends to see it a bit differently.

What the competition will be using for target practice this year.
Musical Articulation. Delicate, elusive qualities of superior sonic reproduction that are rarely found in even the most expensive subwoofers.

Until now! M&K's new MX subwoofers bring you these high-performance qualities—in a smaller cabinet and at a lower price.

In a cabinet the size of a bookshelf speaker, two new proprietary 12" subwoofer drivers produce the massive amounts of bass only expected from much larger cabinets. Better yet, M&K's Push-Pull design produces a much higher quality of bass by virtually eliminating even-order harmonic distortion.

MX-100, MX-90, MX-80 & MX-70
Four MX models, with internal amplifiers between 75 and 200 watts RMS, provide an ideal match for your system.

Building On Excellence
Seventeen years of M&K experience in satellite-subwoofer systems comes together again to create a new subwoofer performance standard. And with the 18" x 16" x 13.5" MX-70, M&K creates a new compact subwoofer standard.

The Ideal Choice
The unprecedented musical articulation and "ultra quick" sound of the MX subwoofers make them the perfect choice to complete any audio or audio/video system.
Letters

Less Than Less?

I despairingly disagree with Ken Pohlmann's defense of perceptual coding in April "Signals." Just when techniques for recovery and enhancement of marginal information are becoming more powerful, the Digital Compact Cassette and MiniDisc eliminate the information itself! Now what I can't hear I will never be able to hear, thanks to perceptual coding. No. Mr. Pohlmann. less is not just less. It's less than less. It's a conscious, avoidable destruction of music.

DENNIS BATHORY KITTS
Northfield, VT

Ken Pohlmann replies: The work of perceptual-coding researchers has radically furthered the frontiers of psychoacoustics. It is my sincere opinion that future perceptual-coding formats will let listeners hear music with resolution not available in today's CD technology.

Sticky Disc Seals

It just me, or are other readers also irritated by those sticky hologram seals that Sony puts on all its CD and MJ jewel boxes? You have to break them to get at the discs—they don't just peel off—and if you try to pick them off, they leave an unsightly, gooey residue that makes jewel boxes stick together. The more you try to rub them off, the more they smear around. They defy all common household solvents, including soap and water, rubbing alcohol, and ammonia. Fingernail-polish remover (acetone) takes them off, but it also eats into the plastic, making it milky looking.

JOHN BERG
Deerfield, IL

It's not just Sony that uses those "dog-bone" seals, as they're called in the industry, and you'll probably see more and more of them. As of April 1, CD jewel boxes are no longer being produced, and the seals on the jewel cases are intended not only to assure consumers that they are buying brand-new discs but also to deter theft.

We agree that getting the sticky residue off is a pain—and so does Sony, which is testing other adhesives. Meanwhile, we found two solvents that work without marring the plastic case: rubber-cement thinner (available in artist-supply stores) and Goo Gone from the Vermont Country Store (telephone 802-363-2400).

DAT Lives

Don't be so quick to write an obituary for the digital audio tape format. For those of us who wish to record our own tapes and have no interest in pre-recorded software by shallow corporate rockers such as Michael Jackson, Michael Bolton, and Mariah Carey, it is obvious that DAT provides the best value and sound quality. DAT recorders can be bought for as little as $600, vs. $750 for MiniDisc and $700 for DCC. DAT has a longer maximum recording time (120 minutes vs. 90 minutes for DCC and 74 minutes for MD). And blank DAT's are much less costly (as low as $7 for a 120-minute tape) than DCC or MD blanks. Most important, a DAT deck records 100 percent of the sound occurring at a given instant.

PHIL COHEN
Bay Harbor, FL

Enough ranting and raving over the new MD and DCC formats! How about more on the superior DAT format?

JAMES YOIE
Albion, MI

Top 10

The real Steve Simels used to rave about Tony K.'s albums as the greatest stuff he'd ever laid ears on. But there's not a mention of Tony K. in S.S.'s list in the March issue of the ten best recordings of the last thirty-five years. Who made up that list? A pod person from the Planet Klipt who's assumed Steve's persona.

NOEL HAUSER
Depot, NY

Steve Simels replies: Tony K.'s "Life in the Foodchain" would have been No. 11.

The Greatest Jazz

My, my! What a tender nerve I apparently touched upon. Messieurs De Angelis, Koch, Jones, and Quinn have taken very emotional issue (March "Letters") with my assessment in an earlier letter of Louis Armstrong as a jazz performer. Taste, of course, is a matter of perception and background, and one cannot argue with it, but I think these gentlemen speak more of influence than of actual talent, and with that I would have to agree. The great god [Art] Tatum essentially influenced only musicians and was unknown to the general listening public; Armstrong is known even today to the younger generations.

If influence, which is a perverse result of the tasteless media, is the most important thing in life, then Bob Dylan, Barry Manilow, and Eric Clapton are far more important to our society than the greatest of jazz musicians. But when the twilight comes, please allow me to sit quietly in my room and listen to the magic of Tatum, Clifford, Dizz, and Bird, and allow me my opinions on jazz.

And say, ain't democracy somethin'?

DONALD J. MANGUS
Chico, CA

Space Phones

Under "20 Years Ago" in April's "Time Delay" appeared the note, "another ad sang the praises of Koss's four-channel Quadraphones, puzzling some readers lacking ears in the front and back of the heads." I can explain this. Quadraphones were obviously designed for Vulcans, of whom Mr. Spock, first officer of the Enterprise, is perhaps the best known. Vulcans have a third ear on the forehead, normally hidden under the hairline; unlike the fontanelle in humans, vestigial from our reptilian ancestors, the third ear developed quite late. It is, of course, known as the final front ear.

Cyril Fleisher
Chester, PA

Getting the Vapors

In a review of Rhino's "D.I.Y.: Punk, Power Pop, and New Wave" series (March), Steve Simels says that the Vapors' "Turning Japanese" is not on CD. I have it on an imported CEMA Special Markets CD titled "Eurobeat: a compilation of alternative titles by various artists.

DAVID HARLEY
Charleston, SC

Steve Simels replies: Thanks to Mr. Harley and others who pointed this out, but now there's no reason to look for an import. Turning Japanese and other alternative acts are in EMI's new U.S. release, "Living in Oblivion: The 80's Greatest Hits, Volume 1."

Mad About Madonna

Enclosed is the cover of the April issue. It offends me to have the queen of porn, punk, and erotica in my home. I have been a subscriber to Stereo Review for most of its thirty-five years, but what once was class is now rapidly becoming trash. Perhaps it's a sign of the times.

HAROLD R. HOEPEKAMP
Jacksonville, NC

I came home from vacation to find Ron Givens's review of Madonna's "Erotica" (February). You need to go past the image and take a hard look at her work; it's more than "bubble-gum pop." As her No. 1 fan, I think she deserves praise for not being scared to deal with the issues.

CRYSTAL CICONE
Allentown, PA

Corrections

The specifications for the Video Acoustics VA 1300 center-channel speaker given in April's "Center Field" article, page 57, contained a misprint. Its rated frequency response is 100 to 19,000 Hz ± 4 db.

Our reply to a letter in April about acoustic albums by Bob Dylan said that he played piano in his third album; it was his fourth, "Another Side." In "35 Years of Music" in March, Parke Puterbaugh said that the guitarist Mike Bloomfield accompanied Dylan in "Blonde on Blonde"; it was in "Highway 61 Revisited."

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.
Actually, considering that we're aiming for the highest quality ever, it isn't hard to understand why we build the new Chevy Camaro Z28 the way we do. Each car has to pass the critical eyes of a series of laser cameras that measure the exactness of the dimensions. A team of inspectors who examine the paint under a bank of hot lights for any defects. A sonic test that checks all windows and doors to detect any noise leaks. And then there are things like a new welding device (called a robogate) that also ensures the dimensional integrity of the body. And a Dynamic Vehicle Test done on rollers at 65 mph to check that the engine, trans-

*Always wear safety belts, even with air bags. †Excludes other GM products. ‡See your Chevrolet dealer for terms of this limited warranty. ‡‡See your dealer for details of
mission, air conditioning, electronics and cruise control all work properly. So much for the science part. Better strap yourself in for the rocket part. The Z28 is propelled by a 275 hp 5.7-liter V8. Harnessed to a 6-speed transmission. With a protection envelope that includes standard dual air bags* and anti-lock brakes (unique in its class†), a 3-year/36,000-mile Bumper to Bumper Plus Warranty with no deductible, and a 24-hour Roadside Assistance Program. The new Chevy Camaro Z28. What else would you expect from the country that invented Rock and Roll? Chevy Camaro
In his column, "The Flip Side," in the June 1958 issue, Editor Oliver P. Ferrell reported the results of a survey of Canadian audiophiles that suggested high fidelity was not a passing fad. Noted Ferrell: "96% [of the respondents] thought it would be going strong—and they along with it—for another ten years."

HiFi-findings: Equipment reviewed this month included the Shure Studio Dynetic tonearm and cartridge ("just about the quietest pickup around"), the Stephens Model 80FR speaker and 814 enclosure ("as the midrange speaker of a three-speaker system, it should be unbeatable"), and the Heath EA-2 amplifier kit, which was praised despite the lack of sturdiness of its aluminum cabinet. "Not that it has any detrimental effect on the electronic performance," the reviewer observed, "but sheet-metal screws and aluminum do not mix."

So there! Reviewing a Vox recording of Arnold Schoenberg's violin and piano concertos featuring Wolfgang Marschner and Alfred Brendel, critic Klaus George Roy declared that "the melodic substance" of these works "will not be whistled—as the composer naively hoped—as long as the human ear is built the way it is."

The Thanks of a Grateful Nation: In classical News Briefs, readers were alerted to a recent live performance of Saint-Saens's Carnival of the Animals conducted by Misstlave Rostropovich and narrated by First Lady Nancy Reagan. Fortunately, we noted, "there are no plans to record Mrs. Reagan in the work."

Done! In the Letters column, reader Don Richard Cox of Knoxville, Tennessee, reacted to an April article on the CD revolution by dismissing the new medium out of hand. "I will be very surprised if it succeeds," he wrote, "but if I am wrong, you can reprint my letter ten years from now and chuckle over it.

—Steve Simels
Can you spot the Mitsubishi 35" TV in this ad? (Hint: it's the one sitting behind our new 40"")

It's 31% bigger than a 35", 119% bigger than a 27", and 1000% bigger than we could show you in this ad. It's the new Mitsubishi 40", the largest tube television you can buy. Once you've seen it, it's kind of hard to see anything else.
**NEW PRODUCTS**

**ACURUS BY MONDIAL**
The Acurus DIA 100 "direct input" amplifier provides a direct signal path between the source and output transistors by using a passive control section and a high-sensitivity design that eliminates the need for a preamp.

Rated power output is 100 watts per channel. Six inputs, two tape outputs, and volume and balance controls are provided. Price: $995. Mondial, Dept. SR, 2 Elm St., Ardsley, NY 10502.

\* Circle 120 on reader service card

**NILES**
The Niles MS-2 MicroSensor is a miniature infrared receiver that can be used to extend the operation of any remote-controlled audio or video components to areas where secondary speakers or TV's are located. It relays signals, via three-conductor wire, from a hand-held remote to infrared emitters (not included) attached to the components. Measuring ¼ inch in diameter and 2¼ inches deep, the sensor is ideal for flush mounting in a wall. A built-in green LED flashes when commands are received. Price: $100. Niles, Dept. SR, 12331 S.W. 130 St., Miami, FL 33186.

\* Circle 121 on reader service card

**LEBO**
The Voyager MiniDisc carrying case from Lebo holds eight MD's, each in its own mesh pocket, and has a compartment for an MD player. The 8 x 8-inch padded case is made of LeatherTex and includes a shoulder strap. Price: $30. Lebo, Dept. SR, P.O. Box 540, Armonk, NY 10504.

\* Circle 123 on reader service card

**SCIENTIFIC FIDELITY**
Scientific Fidelity's faceted Crown Joule features a 1-inch aluminum-dome tweeter and a 6½-inch woofer with a dual voice coil and an aluminum phase plug, which is said to improve midrange response and heat dissipation. The speaker is 14½ inches tall without the optional stand and is available finished in white, black, almond, or rosewood. Price: $795 each; stands, $400 a pair. Scientific Fidelity, Dept. SR, 6301 Riggs Pl., Los Angeles, CA 90045.

\* Circle 122 on reader service card

**ROCKFORD FOSGATE**
Rockford Fosgate has revamped and expanded its popular Punch car amplifier series. Common features include removable endcaps to conceal wiring and extensive use of discrete surface-mount components, which is said to lower noise and distortion and increase reliability. The Punch 40 DSM (pictured, $279) is rated to deliver 20 watts rms per channel into 4 ohms and can be bridged for 80 watts mono. The series also includes the 30-watt Punch 60 DSM ($389), the 50-watt Punch 100 DSM ($499), and the 100-watt Punch 200 DSM ($579).

Rockford Fosgate, Dept. SR, P.O. Box 1860, Tempe, AZ 85280.

\* Circle 124 on reader service card

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OMNIMOUNT

The Model WB is one of dozens of speaker-mounting kits from OmniMount. It features a wall plate and a hollow steel-tube arm that conceals wiring and a pivoting ball joint. Versions designed to support speakers weighing from less than 1 pound up to 225 pounds are available for $25 to $999 each. OmniMount Systems, Dept. SR, 1501 W. 17th St., Tempe, AZ 85281-6225.

CWD

Custom Woodwork & Design's Woodstock Entertainment Center accommodates TV sets with a screen size of up to 35 inches, making it ideal for home theater systems. The cabinet boasts five adjustable shelves, two large storage drawers, and a second double-door compartment under the TV compartment. Handcrafted from solid birch, the Shaker-style cabinet is available in natural finish (shown) or in cherry, mahogany, spice, satin blue, or hunter green, all with satin black or cherry trim. Price: $1,700. Custom Woodwork & Design, Dept. SR, 180 E. North St., Bradley, IL 60915.

CARVER

Carver's SD/A-390I is the first CD changer to use vacuum tubes in its analog output stage. The five-disc carousel changer also features a Soft EQ circuit, which is said to restore missing ambience information and to correct the tonal balance of CD's made from recordings mastered for release on LP. Volume settings for a hundred discs can be stored in memory. Price: $650. Carver, Dept. SR, P.O. Box 1237, Lynnwood, WA 98046.

POLK AUDIO

Polk Audio's new Mini Monitor can be used either as a main speaker or to reproduce surround-channel information in a home theater system. It has a 1/2-inch dome tweeter and a 5¼-inch woofer. Rated bandwidth is 42 to 25,000 Hz, recommended maximum power 100 watts. Dimensions are 6½ x 10½ x 7 inches, and the finish is black-ash vinyl. Price: $75 each. Polk Audio, Dept. SR, 5601 Metro Dr., Baltimore, MD 21215.
Perfect back flip, with a twist.

Tanqueray®

Imported English Gin. 47.3% Alcohol (94.6°). 100% Grain Neutral Spirits.
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ADA
The MPA-6 power amplifier from Audio Design Associates is made to order for home theater. It boasts 100-watt channels for three front and two surround speakers as well as a bass channel that delivers 150 watts to two subwoofers or 300 watts to one. A parametric bass equalizer covering 20 to 200 Hz is built in. Price: $1,595. ADA, Dept. SR, 602-610 Mamaroneck Ave., White Plains, NY 10605.
- Circle 128 on reader service card

ADI
Car subwoofers in Audio Design Innovations’ CX series feature dual compound-loaded woofers in vented fourth-order enclosures—a design that is said to deliver low bass from relatively small boxes. The 8-inch CX-800 is rated down to 41 Hz ($322), the 10-inch CX-1000 to 39 Hz ($422), and the 12-inch CX-1200 to 40 Hz (shown, $482). Nominal impedance is 2 ohms for all three. ADI, Dept. SR, P.O. Box 402, Osseo, MN 55369.
- Circle 127 on reader service card

ADVENT
Advent’s Home Theater speaker package lets you use an existing pair of main speakers when you upgrade to five channels. It comprises the 13-inch-wide Audio Focus center speaker, which has two magnetically shielded 4-inch drivers, and two 11-inch-tall Indoor/Outdoor Mini-Advents for the surround channels, each with a ½-inch tweeter and a 5½-inch woofer. Power handling is specified as 70 watts for the Focus and 40 watts for the Mini-Advents. Price: $299. Advent, Dept. SR, 25 Tri-State International Office Center, Suite 400, Lincolnshire, IL 60069.
- Circle 129 on reader service card

KADO
Kado claims that you can hide its Signal Master FM antenna under a rug, where it will provide omnidirectional reception and never need to be repositioned. The antenna is a sheet of plastic on which conductors have been bonded in a "square spiral." If it’s suspended vertically, as on a wall, gain is said to be greater than on the floor (about 4 dB), and the reception pattern is directional. Available by mail order for $59.95, including shipping. Kado Engineering, Dept. SR, 6606 Carol Lee Dr., Saint Louis, MO 63134.
- Circle 130 on reader service card
### Music Listings

- **Boz Scaggs:** In the Mood (Capitol) 00562
- **J.J. Cale:** The Breakdown (Capitol) 00121
- **Grateful Dead:** American Beauty (Grateful Dead) 00101
- **David Bowie:** Hunky Dory (RCA) 00474
- **Dire Straits:** Brothers In Arms (Chrysalis) 00425
- **Bruce Springsteen:** Born In The USA (Columbia) 00360
- **Elton John:** Goodbye Yellow Brick Road (Polydor) 00265
- **Van Halen:** 5150 (Warner Bros.) 00231
- **Chicago:**高于 The Love (Columbia) 00131

### Compact Discs

**8 Compact Discs for the Price of 3, available on cassettes**

- **Red Hot Chili Peppers:** What's The 4117 (Elektra) 00885
- **Tangerine Dream:** Opus In C G (ECM) 00114

### Shipping Information

- **Business Reply Mail:** First Class Mail
- **BMG Compact Disc Club:** P.O. Box 91412, Indianapolis, IN 46209-9758
- **No postage necessary if mailed in the United States**

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Megadeth: Countdown To Extinction
(Capitol) 63340
Trisha Yearwood: Hearts In Armor
(Cuff) 21048
Suzanne Vega: 99.9 F
(Angel) 02554
Beauty and the Beast/Silk
(Elton) 10791
Dohnanyi: Ravel, Bolero
(Teldec) 23560
Funky Girl/Silk/ (Broadway Angel) 00362
Wynonna Judd: Wild Horses
(MCA/Cul) 64540
David Bowie: Changesbow/ 
(Ryder) 43693
Guns N' Roses: Appetite For
Destruction (Geffen) 70349
The Best Of The Beach Boys
(Capitol) 23546
Abbie Lincoln: Devil's Got Your Tongue
(Verve) 00860
Bernstein in Berlin: "Ode To Freedom"
(The Crus) 00072
Talking Heads: Stop Making Sence
(Geffen) 54607
Van Halen: For Unlawful Carnal Knowledge
(Atlantic) 51027
Vanessa Williams: The Comfort Zone
(Virgin/Mercury) 25066
fleetwood Mac: Rumours
(Weaver Bros.) 24025

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Aerosmith Bon Jovi
4. POP/ROCK
Madonna Sting
5. CLASSICAL
Paquito D'Rivera Itzhak Perlman
6. JAZZ
Pat Metheny: Yellowjackets
7. HEAVY METAL
Megadeth

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Mr. or Mrs. First Name Last Name
Address Apt.
City State Zip
Telephone, please (Area code)
Swords into Plowshares

The Old Testament is quite adamant about it. In Isaiah 2:4, and again in Micah 4:3, nations are instructed to stop waging war and to beat their swords into plowshares. Only after war is abolished will we find divine truth.

Today, following the end of the Cold War, the transformation from war to peace is apparent almost everywhere in the U.S. The SALT II treaty dramatically reduces the number of nuclear weapons in our arsenals. Our military budget has been cut by 30 percent from its peak during the Reagan administration. Military contractors have shut down assembly lines. And, sadly, thousands of jobs have been lost.

This period of adjustment will be critical to the future well-being of the United States. Our success in transferring knowledge and manufacturing expertise from the military sector to the consumer sector will determine the state of our economy for many years to come. Can we switch from fighter planes to subway trains, from combat simulators to video games, from cockpit displays to high-definition television? We'd better.

Many audio manufacturers are anxious to incorporate sophisticated military technology for the very peaceful purpose of recording and reproducing music. The opportunities are considerable. Defense contractors have huge resources compared with those of audio companies, and they are generatingahead in technical development.

Digital signal processing, in particular, offers the chance to build audio products that are every bit as smart as smart bombs. Snell Acoustics, for example, is one American company that is applying military technology to the chronic problems of loudspeaker performance. In particular, Snell has studied a speaker's interaction with a room's acoustics, and coined a new term—cyberacoustics—to describe how the automated control of acoustics can solve playback deficiencies.

Loudspeakers are far from perfect—their imperfections dwarf those of CD players, for example. The nonuniform frequency response, limited dynamic range, frequency-dependent directivity, and phase nonlinearity of speakers all degrade the audio signal. The listening room is an even bigger problem: Every room reinforces and cancels selected frequencies in different locations and contributes surface reflections, superimposing its own sonic signature on that of the recorded signal. In short, the final link in the audio chain is the weakest. With cyberacoustics, correction signals are applied to the audio signal before it reaches the speakers; because the correction signals are the opposite of the errors introduced by the speakers and the room, they theoretically cancel those errors.

Although that sounds easy, it certainly isn't. And that's why Snell borrows DSP hardware and signal-cancelation software from the military-industrial complex. Speakers are measured as they leave the assembly line, and problems such as nonuniform frequency response and phase nonlinearity are corrected by means of an outboard DSP unit supplied with them. Because small variations exist from one speaker to the next, the DSP program's coefficients are customized for each speaker. Moreover, certain speaker/room problems are addressed. For example, floor-standing speakers have predetermined relationships between their drivers, the cabinet, and the reflecting floor surface. The path-length differences between direct and reflected sounds create a comb-filtered response that can be corrected using DSP.

Other listening-room reflection problems can be addressed with DSP methods developed by contractors for a very special military application. Specifically, Snell's cyberacoustics borrows a page from Stealth fighter technology. An important component in Stealth technology is radar cancellation. A radar station transmits a signal and uses the reflection from an object to locate and identify it. To avoid detection, a radar-evading Stealth plane senses the incoming radar signal and generates its own radar signal designed to cancel the reflection. The result is a blank radar screen.

When this approach is employed in an adaptive loudspeaker/room correction system, the loudspeaker generates audio signals to correct the unwanted signals reflected from the room. The Snell Digital CQ 10 processor performs this task using a unique integrated-circuit chip that contains four 50-MHz DSP devices. In fact, it employs two of these chips, laying claim to being the most powerful hardware ever used in a consumer audio application. In addition, sophisticated software coding methods, adapted from techniques used by the military, enable the CQ 10 to process adapting algorithms even for very low frequencies—where the computation demands are most severe, as are the problems of room modes.

Snell loudspeakers employing this technology come equipped with powerful DSP computing engines and embedded software to control them. Low-frequency phase delay, amplitude and phase errors throughout the audio band, and floor reflections can all be compensated for with plug-in cards. Room-acoustics correction starts with room analysis, performed on-site by a Snell dealer. Using a test CD, the speaker/room characteristics are collected by an instrumentation microphone and processed by a program that generates room-specific coefficients, which are dumped to a plug-in card. The result is a smart loudspeaker that compensates for its own deficiencies as well as anomalies introduced by its placement in a particular room. Moreover, a customer's room measurements are archived so that as room-correction algorithms improve it will be possible to update a system's correction coefficients without having to remeasure.

Clearly, the world remains a very troubled place. The Cold War may be over, but many smaller hot ones are raging. Still, the use of advanced military research to increase the joy of listening to music is a very hopeful sign. Maybe our ongoing effort to clarify the sound of music, and to bring it to more people, is carrying us closer to divine truth. After all, the Lord works in mysterious ways.
Preamp Power

Q I have a powerful preamplifier that will put out 18 volts at 2.5 amps, or 45 watts. Would it be possible to run small speakers directly from the line outputs without going through a power amplifier?

A It's not a good idea. Although the preamplifier may be able to produce that power level, it would certainly be unhappy doing so for more than a very brief time. More to the point, a preamplifier is designed to feed a relatively high-impedance load—the input circuit of a power amplifier—so using it to feed the 4 to 8 ohms typical of a speaker system might well cause the preamp's innards to fry.

Used CD's

Q As a student, I have been buying used CD's to save money. I clean them thoroughly before playing them and have had no problems. But I have also been told that a compact disc will lose sound quality with age. Am I right, or am I being paranoid?

A CD sound quality will not deteriorate from age alone, though it is possible for a disc to become damaged in ways that will interrupt playback. Certainly the more times a disc has been played the greater the chance that it has been mishandled, but most problems are detectable by eye. If there are scratches on the label side (where the disc's aluminum layer, causing it to oxidize and lose protective plastic coating is thinner), it is possible that air could eventually reach the aluminum layer, causing it to oxidize and lose reflectivity. A close examination should reveal that sort of damage. Problems on the playing side are of much less concern—damage there has to be fairly severe before it will seriously interfere with most players' ability to read the disc.

Speaker Stuffing

Q My speakers are ported but appear to have no internal insulation or bracing. Would I get better performance if I stuffed and reinforced them?

A Probably not. Designers for the major audio companies tend to know what they’re doing (although there are certainly exceptions), so unless your speakers are secondhand and you suspect that a former owner has tampered with them, you can usually assume that the way the manufacturer chose to construct them will yield the best sound. By all means experiment, but don’t expect dramatic improvements.

Head Wear

Q I hesitate to make copies of my recordings because I have heard that the recording process causes more wear than simple playback. Is that true?

A I confess that, in forty-odd years of fairly enthusiastic tape recording, I have never heard that one before! Wear is caused by the tape grinding against the surfaces of the heads, a purely physical process that has nothing whatever to do with electrical functions, such as recording or playback. So hesitate no longer—relax, hit that little red button, and tape your heart out.

Double-Sided CD's

Q A friend asked me why CD's are recorded on only one side, while laserdiscs use both. I tried to convince him that double-sided CD's would be impractical, but he became curious about it myself. Is there any good reason for the absence of double-sided compact discs?

A Technically, no. In fact, a laserdisc is simply two one-sided discs stuck together, back to back. But there are some practical considerations with the compact disc—above all, where would you put the label? And how many times do you really need more than 70-70 minutes of music? In addition, players are set up for skinny single-sided discs; double CD's wouldn't fit in many machines.

Power Matching

Q My amplifier puts out 250 watts a channel, while my speakers are rated at only 200 watts. The level control is graduated from 0 to 30; how far can I safely advance it before risking damage to my speakers?

A It's very unlikely that your speakers are vulnerable. A 250-watt amplifier has a lot of reserve power to handle momentary peaks without distortion, and that's good, but most of the time the system will be loading along at 2 or 3 watts. Speaker power-handling ratings are notoriously capricious, but 200 watts—however vague that might be in reality—should be plenty for your amplifier. With numbers like those, any level that threatens to be damaging to your equipment will be well beyond exhilarating to your ears.

As for your calibrated volume control, it should be pointed out that the numbers are entirely arbitrary. The knob can be used to compensate for unduly low (or high) signal sources, or to suit your mood, but it has nothing to do with the output power. Half rotation—"15" in your case, but "12 o'clock" might express the same thing—does not mean that you are feeding 125 out of a total of 250 watts to the speakers, but rather that you have adjusted the combination of signal level, amplifier gain, speaker sensitivity, and a number of other factors for the most comfortable listening.

Boombox Batteries

Q On a recent camping trip, the batteries in my cassette/CD boombox began to expire. I had no replacements at hand but still wanted music for as long as possible. Should I have played my CD's or my tapes? Which system uses more power?

A Miss Manners is happy that she was not in the next tent during this investigation. But so we resorted to science and asked around. Although few of our sources had direct experience with boomboxes, the consensus was that most belt-hanging CD portables can play a couple of discs on a single charge, or a bit more at most, while tape units can usually last at least twice as long. Since the actual amplifier drain would be the same in either case, we conclude that tape is the more efficient medium. But we're willing to accept new evidence.

Center-Channel Phase

Q My Dolby Pro Logic receiver provides only a line-level output for the center channel. I am using a mono amplifier for that speaker, but I'm not sure it is in phase with the rest of the system. In two-channel stereo, checking phase by ear using a mono source is easy. Is there a similar simple test that will reveal phase reversal in the center channel?

A It's not a simple problem, I agree. Even if your receiver did provide center-channel amplification, there's no guarantee that what appears to be correct wiring is so: Center and main speakers are often different models or brands, and while the red and black color-coding might mean the same on all three sets of terminals, they equally well might not. Adding an amplifier complicates things, because the output phase might be the same as the input, or it might be inverted, so how you wire the speaker tells you nothing.

With conventional stereo, the easiest way to check phase is to put the speakers close together, play a mono signal through them, and stick your head in between. If the sound appears to come from the middle of your brain, the phase is correct; if not, the leads to
one speaker should be reversed. With Dolby Pro Logic, however, it's difficult to coax an identical signal from the center channel and one (or both) of the main channels. A mono signal will be removed from the main channels and played only by the center speaker. Switching to "phantom" mode will restore the signal to both the main channels but shut down the center.

Fortunately, if your receiver has line outputs for the main channels, as well as for the center, there is a solution. Temporarily unhook one of the main speakers. Then disconnect the center-channel amplifier from its usual jack and plug it instead into the line output for whichever main channel you have silenced. Then, with the Dolby Pro Logic decoder in phantom mode, feed a mono signal through the system. The center channel and the functioning main speaker in this configuration should act as a stereo pair, and you should be able to check phase normally.

If your receiver lacks line outputs for the main channels, about the only thing you can do is switch the Pro Logic decoder to the "wide" mode, which feeds full bass to all three front speakers, place the center speaker next to one of the main speakers (it may help to disconnect the other), and switch the wiring at the terminals of the center speaker back and forth while something with lots of low-frequency content is playing. If there's a noticeable loss of bass with the speaker wired one way compared to the other, it's out of phase.

The effects may be quite subtle, however, particularly as the speakers may not be well matched, so prepare to spend quite a bit of time on this test.

**Bugs in the System**

When I opened my CD player to insert a disc, a small spider ran from behind a pile of discs and disappeared into the machine. I left the tray open for a few hours, but I don't know whether or not it ever got out. Is it possible that it could stay inside the player? And could it cause any harm?

DANIEL COTTEN
Buffalo, NY

Second question first: Unless your inky dinky decides to joyride on the laser mechanism and gum up the works—a long shot—there's very little damage it could do. As for taking up residence, it's unlikely that it would find enough to eat in a piece of hi-fi gear to tempt it for long. But lest you decide to leave the CD tray open permanently just in case, it's far more likely that it would escape through the ventilation openings than the grand entrance.

**Extending Reception**

I live in a rural area, where most of the FM stations I listen to are 25 to 50 miles away. There are some that I would like to receive that are as much as 100 miles distant, and sometimes these come in fine. But sometimes all I get is static. Could I extend my range by some sort of signal booster or by adding a rotor to my rooftop FM antenna?

MATTHEW K. DAVIS
Lynn, AR

A hundred miles might be pushing it a bit, but it may be a reasonable range—depending on the terrain between you and the transmitters. Don't put too much faith in electronic antenna boosters unless you're already receiving a pretty clean signal; if not, the booster would probably serve only to amplify the noise. A rotor is definitely a good idea if the signals come from different directions, as they probably do, but what you need most for distances that great is height. FM signals travel in straight lines from the transmitting antenna to your roof; if the curvature of the earth gets in the way, it blocks the signal, so the higher you can mount your antenna, the better. With that as a start, however, you might be well advised to add the rotor as well—and perhaps even the booster—to make the most of whatever signals are within reach.

If you have a question about hi-fi, send it to Q&A, Stereo Review, 1633 Broadway, New York, NY 10019. Sorry, only questions chosen for publication can be answered.
Pitfalls of Speaker Selection

I regularly read the loudspeaker reviews in other publications. Sometimes a speaker's sound is described in non-sonic terms ("woolly," "dark," etc.) that are not easily correlated with other listeners' reactions. Outside of a few of the obvious terms, such as "bright" or "soft," I really have no idea what the reviewer is trying to say. Often, when I have reviewed the speaker myself, I still cannot relate my own experience to someone else's.

Another idiosyncrasy of many speaker reviews is the exhaustive listing of every piece of equipment used in the listening installations. Some description of the setup is certainly valid and perhaps necessary—the dimensions of the room, its acoustic treatment, placement of the speakers and listeners, etc.—but the details of the wires and cables used, for example, have nothing to do with the reality of the listening experience. I cannot see much justification for involving the reader in such extreme, not to say trivial, subtleties. Even if they do have some effect on the perceived sound, it is probably unique to the particular reviewer and not detectable by other listeners in different environments.

I also have reservations about the emphasis sometimes given to specific recordings (and even specific passages from them) that show up certain properties of the speaker. That information might be useful to someone who wishes to duplicate the reviewer's experience, and perhaps deserves mention in a footnote or appendix, but if you're interested in getting speakers for listening to music of your own choice, what is the point of wading through several paragraphs about how a speaker reproduces music of a reviewer's choice? Is such information useful to you in evaluating the quality of a speaker?

All of this is leading me to the real point of this discussion—what should we really expect from a loudspeaker? Apart from the qualities imparted by the speaker itself, what anyone hears (or measures) from a loudspeaker is determined almost exclusively by the following factors: the specific program material, the listening room and its acoustic character or treatment, the placement of the speakers and listeners in the room, and, though to a far smaller degree than many would have you believe, the system's other components, including the program source (tuner, record player, CD player, tape deck) and amplifiers.

What this means, first of all, is that regardless of what anyone hears from a particular music system, it is virtually impossible to duplicate that exact effect in a different location, such as your own home. You may, with luck and perseverance, come close enough to such a duplication to satisfy yourself, but that is not very likely.

I base this conclusion on more than forty years of attending audio shows, during which I have heard more hundreds of different speakers than I care to think about demonstrated in the manufacturers' exhibit rooms, with the benefit of their skill in setting up the system for optimum results. I have also had the opportunity to personally test some six hundred loudspeakers, including many that I had previously heard demonstrated at audio shows or elsewhere and a far greater number that I had never heard before, in familiar surroundings that were not modified in any significant way in order to accommodate them. In other words, the speakers were installed much as they might be in your home, in the best locations that were possible without seriously disrupting other normal activities.

From this experience I have learned that a speaker so installed will almost never sound the same as it would in a carefully designed room in which normal family activities would not be practical. It may not necessarily sound worse, mind you, but it will certainly sound different! That is true even if you go to the bother of acquiring the same discs or tapes that were used in the manufacturer's demonstration.

This does not mean that you shouldn't attend audio demonstrations—just that you should be careful what conclusions you draw from them. I have heard demos that caused me to flee the room in a few moments, yet have later tested the same speakers and found them to be perfectly satisfactory. Not all manufacturers are as competent at conducting demonstrations as they are at building loudspeakers.

Aside from such obvious considerations as a speaker's size, price, and appearance, which can have a profound effect on your choice, I suggest that you listen for balance in the sound quality with recordings of conventional acoustic instruments. A good speaker will not unduly emphasize or diminish any part of the audio frequency range. It should not scream or sizzle at you, nor should it have a muddy or tubby quality. Surprisingly, there are many inexpensive speakers that are free of these effects, and there are a few at much higher prices that can drive you out of the room.

When I test a speaker, the measurements merely give a rough indication of its capabilities. The proof is in the listening. I do not have a library of esoteric recordings that are used only for speaker testing. I listen to FM radio and CD's, which can disclose quite a lot about a speaker's assets and weaknesses. A good speaker sounds good with these sources, and a bad one sounds bad. It really doesn't take unusual recordings to evaluate a speaker. To me, it makes more sense to use my everyday program sources for that purpose.

If you want to live dangerously, attend a live concert, as I have been doing regularly for at least the past thirty years or so. When you get home, turn on your stereo system and listen (if you have a good recording of one of the works played at the concert, so much the better). I do this occasionally, but if you do, be prepared for disappointment. No matter whether your system cost $2,000 or $20,000, it won't match the sound of live music. This does not mean that hi-fi is no good or that you can't derive great enjoyment from your audio system—only that exact replication of a live acoustic event is more than we can reasonably expect from the current state of the loudspeaker art.
You can afford to get more with Bose® speakers.

Now!
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Bose Direct/Reflecting® speakers are engineered to provide both reflected and direct sound. That's the way you hear music in the best concert halls. And that's the way you hear music with Bose.

Get more choices
From our most highly acclaimed 901® system, to our best selling 301® and 4.2® bookshelf speakers, there is Bose sound to fit your budget.

Now, get more for less
You'll understand the value of Bose speakers just as soon as you hear them. And now, for a limited time, you'll get even more. Purchase a 901 speaker system and get the optional pedestals free (value $159). You'll also save on 301 or 4.2 speakers. Call for details and names of participating Bose dealers near you.

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Featured during our special limited time offer. The Bose 901 speaker system (shown with optional pedestals), and the best-selling 301 (left) and 4.2 (right) speakers.
After going round and round about how to improve our CD player, it finally hit us.

"This is it!" cried Phil, "Now all we need is a laser beam!"
It has been, perhaps, Adcom's toughest act to follow. The GCD-575 CD Player achieved breakthroughs in musicality unsurpassed by CD players at almost any price. Stereophile writes, "...in the under $1000 class the Adcom is the player to beat — or, more to the point, the player to buy." Stereo Review credits the GCD-575 with "in general pushing the state of the art in digital-disc playback."

So when the engineers at Adcom went back to the drawing board to try to top their latest success, they were hard-pressed to find areas for improvement. The electronics and sound reproduction were already near perfect. And then, Voila! The idea: add a carousel changer.

Round and round she goes.

One disc, superbly reproduced, was a magnificent accomplishment...but five discs mean five times the enjoyment. In typical user-friendly fashion, the Adcom GCD-600 lets you change four discs while one is playing, offers true random capability for one disc or all five, allows direct clockwise or counterclockwise access for faster searches, and plays 3" discs without an adapter. The standard remote control gives you complete access to all playback features—including variable volume control—from the comfort of your favorite chair.

Class "A" without compromise.

The GCD-600's Class “A” analog audio amplifier section uses very fast, low noise, linear gain semiconductors. These no-compromise audio circuits — based on the proprietary amps used in Adcom's GFP-565 preamplifier — more clearly define low-level information for superior resolution and dramatically more musical CD reproduction. You will not find such superb component parts in any other CD player at any price.

The cure for "digititis".

The GCD-600's technically advanced analog and digital circuits and the user-selectable polarity inversion switch are designed to overcome the problems inherent in CD sound. Midrange harshness and glare are dramatically reduced. Sound stage imaging is deeper, more focused, more musically natural. The benefits of digital sound are realized, without the accompanying drawbacks.

Take the GCD-600 for a spin.

If you've been searching for a CD player that offers the convenience of a carousel changer and the sonic superiority of high-end single-disc models, take the GCD-600 for a spin at your authorized Adcom dealer. You won't have to go round and round to decide which CD changer gives you the most sound for your money.

*Peter W. Mitchell, Stereophile, Vol. 12 No. 6, June 1989
** Stereo Review: 1989
Seven components make up NHT's complete VT-1 home theater speaker system. They are sold separately as the VT-1C center-channel speaker ($300), the HDP-1 surround speakers ($350 a pair), and a special version of NHT's SW2 subwoofer, the SW2P, that comes with its own MA-1 mono amplifier ($650 for the combination). Each of these units has an interesting design twist, some of which go against widespread beliefs about how home theater speaker systems should behave.

At the very least, the magnetically shielded VT-1 front speakers look unusual, being slender 5½-inch-square, 40-inch-tall columns resting on screw-mounted 10-inch-square bases. A detachable grille cloth covers each speaker's three drivers: two 4½-inch woofers stacked beneath a 1-inch fluid-cooled dome tweeter. NHT says the crossover between the woofers and the tweeter is at approximately 2,800 Hz, although with considerably more overlap between their operating ranges than is usual. The two woofers operate in a proprietary mode called Tuned Column Loading, which is said to combine the efficiency of a vented speaker with the extended response of an acoustic-suspension design.

The magnetically shielded VT-1C center-channel speaker has the same driver complement as the other front speakers, but with the woofers flanking the centrally mounted tweeter in an acoustic-suspension enclosure.

The VT-1C can be placed vertically or horizontally; lying down, it measures 5½ inches high, 22 inches wide, and 9 inches deep. It weighs 16 pounds.

All three front speakers have a rated sensitivity of 90-dB sound-pressure level (SPL) at 1 meter with a 2.83-volt input; impedance is nominally 8 ohms, with a minimum of 5 ohms. Maximum power handling is given as 120 watts. These speakers all have multiway binding-post connectors.

Push-type connectors are used on the HDP-1 surround speakers, which are designed to be mounted on the walls to the sides of the listening position (most "rear" speakers in home theaters should be installed to the sides). The manual for the HDP-1 suggests placing them at least 6½ feet from the floor "to provide proper head clearance."

Each HDP-1 contains three drivers operating in an unusual configuration, with none of them facing the listener when the speakers are properly placed. The two 3-inch tweeters, facing forward and backward, are driven out of phase in quasi-dipole fashion to increase sound diffusion and make the speaker harder to localize. (Many speakers designed specifically for surround-channel use, most notably Home THX models, take this approach to ensure that listeners get a genuine surround sensation, as opposed to a discrete "rear-channel" effect.) The HDP-1 surrounds are labeled left and right so that the tweeters in each speaker are in phase with those of the speaker across the room. Frequencies below the 450-Hz crossover point are radiated by a single 4½-inch acoustic-suspension woofer mounted on the inner surface of the small cabinet, facing the wall. The supplied mounting brackets hold the woofer side of each 7-pound speaker away from the wall by about 2 inches.

Rated impedance of the HDP-1 surrounds is nominally 8 ohms, with a 4.4-ohm minimum. Sensitivity is given as 86 dB SPL, maximum power handling as 100 watts. Each HDP-1 measures 9¾ x 5¼ x 5¾ inches.

Except for the fact that the SW2P comes with its own amplifier, which is separate from the speaker, not built-in, the subwoofer is altogether more conventional. It is a vented system with a 10-inch woofer operating in a 16-inch cubical enclosure. Impedance is nominally 8 ohms. 6.2 ohms minimum. Sensitivity is rated as 89 dB and...
maximum power handling as 200 watts. These numbers are not very important, however, since the MA-1 amplifier is designed specifically for the purpose of driving an SW2.

The MA-1 is a single-channel power amplifier with a front-panel level control and an internal crossover filter that can be set to remove frequencies above 50, 100, or 200 Hz, or you can set it to bypass, which turns the MA-1 into a conventional full-range amplifier. It is rated to deliver 80 watts into 8 ohms, or 120 watts into 4 ohms on short peaks. Given the subwoofer’s impedance and sensitivity specifications, that means a single SW2P can produce levels exceeding 108 dB SPL, plenty loud for domestic reproduction of the soundtrack from any action/adventure movie.

Because the MA-1 and SW2 are available separately, the MA-1’s manual covers three hookup options: as a subwoofer amplifier in a surround-sound system, as a subwoofer amplifier in a standard audio system, and as a wide-band center-channel amplifier in a surround system. Using the MA-1 as a center-channel amplifier is straightforward: Just connect it to a surround decoder’s center-channel output and set its crossover switch to the bypass position. In an audio system that lacks a suitable volume-controlled line-level output to feed the MA-1, you can feed it instead with speaker-level signals via a pair of push connectors. The system’s main speakers would then be hooked up to another set of back-panel push connectors. The instructions give directions for setting the crossover frequency appropriately for the speakers being used.

The last hookup option—employing the MA-1 as a surround-system subwoofer amplifier—is the one I used. It involves running a standard audio cable from the surround processor’s subwoofer or mono output to the MA-1 and a speaker cable from the amplifier’s multiway binding-post outputs to the SW2 subwoofer, which takes the 100-Hz crossover setting.

Connecting the rest of the VT-1 system was equally simple. The Yamaha DSP-A2070 A/V amplifier I used has a handy subwoofer test-tone feature that I employed to balance the subwoofer’s output with the rest of the system’s. Neither of the pamphlet-like manuals for the MA-1 and the SW2 discusses setting subwoofer levels much beyond the standard adjust-to-your-taste clichés—an approach that leads to excessive subwoofer levels in many cases. In the Stere REVIEW listening room, the MA-1’s volume control never went past the three o’clock position.

When all the system’s levels were properly adjusted for Dolby Pro Logic reproduction, I found that the VT-1 system sounded distinctly different from other home theater speaker systems I have heard. The imaging, while preserving very well the various shades of front-center/surround directionality that Pro Logic decoding provides, was less precise than usual. The various sound sources were slightly more blurred—less like pinpoint sources—than I’ve heard with other systems.

A phone conversation with the VT-1’s designer, NHT co-founder Ken Kantor, confirmed that this effect was deliberate. Because a typical home theater system’s speakers are spaced much farther apart than the TV screen’s width, he feels that extremely precise stereo imaging can localize sound sources at positions that conflict with the visual impression, a disparity that can distract from the home viewing experience, which he believes should be screen-oriented. Consequently, Kantor wanted as much localization blur as was compatible with good frequency balance. The VT-1’s deliberate blurring of the stereo image (obtained by designing for a very wide sound dispersion and by the crossover overlaps mentioned earlier) is intended, Kantor says, to create less “cognitive dissonance” between sonic and visual images.

This design approach is radically different from the most highly touted alternative, which aims to approximate the sound on a movie-studio dubbing stage as closely as possible, even though most home theater systems have screens that are much smaller than the ones on such stages. I have long thought that the consequences of a size mismatch between sonic and visual images have not been considered thoroughly enough in some circles. If you can afford a front-projection monitor, a wall-filling, sonically transparent projection screen, and a device called a line doubler to reduce the visibility of scan lines on that screen, then Kantor’s objections probably don’t apply, and you can go for broke with a studio-like sound system, too. But using a 25-inch monitor, I was never troubled by the deliberate blurriness of the frontal imaging.
If you agree with Kantor, or aren’t too concerned with the apparent size of reproduced sound sources, the VT-1 system has a great deal more to offer. Qualities I noticed during my listening included:

- A very close sonic match between the center speaker and the front left and right speakers. In fact, when placed vertically the VT-1C sounded practically identical to the VT-1 front speakers, even when playing pink noise — an extremely difficult test — and they still matched unusually well when the VT-1C was placed horizontally (at close to ear level).
- A good diffusion of the sound from the surrounds without the “phasy” hole-in-the-head effects that many other speakers designed for the surround channel can create. This quality probably stems from their monopolar radiation at low frequencies in combination with the narrow dispersion of the wide-diameter dipole tweeters at high frequencies.
- Very well-balanced sound with a wide variety of popular and classical music as well as movie soundtracks. Voices sounded especially natural, exhibiting neither low-frequency heaviness nor midrange stridency and forwardness.
- An ability to play loud enough to bring knocks on the sound-room door from people in neighboring offices.

My principal complaint about the VT-1 system, and it is a minor one, is with what computer types call “documentation.” The manuals for the individual components are okay as speaker-hookup instructions go, but they say nothing about how to approach the various options available from surround decoders. In particular, I had to ask the system’s designer whether to use the normal or wide-band center-channel setting on the amplifier’s surround decoder. He recommended the wide-band position, as I would for any surround system having significant low-frequency (below 100 Hz) capability in the center speaker.

While one might quibble over the owner’s manuals or quarrel with the design philosophy behind the VT-1 system, you can’t argue with its overall sonic excellence. It is a well-thought-through and well-executed alternative to the standard surround-sound party line.

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Fosgate Audionics Model Four Audio/Video Preamplifier

JULIAN HIRSCH
HIRSCH-HOUCK LABORATORIES

The Fosgate Audionics Model Four is a control center and surround processor for both audio and video sources. It has six selectable audio and video inputs and six line-level outputs for driving left, center, and right front speakers, left and right surround (rear) speakers, and a subwoofer.

The Model Four provides two movie surround modes: Dolby Pro Logic and Fosgate's proprietary 70mm Motion Picture Surround, an enhanced version of Pro Logic with faster steering-logic time constants. In addition, it has several surround modes designed to enhance various types of music. Labeled Rock, Popular, Jazz, and Classical, they differ principally in their degree of front-to-rear separation and soundstage width.

Fosgate says that the proprietary Digital Servo Logic circuitry incorporated into the Model Four is the only surround technology that accurately recovers directional and spatial information from conventional stereo sources such as CD’s, LP’s, tapes, and stereo TV broadcasts without creating unnatural sound effects. The company claims that the Model Four gives the same level of performance with both movies and recorded music.

Digital Servo Logic is said to operate ten to a hundred times faster than the steering logic of any other surround processor, generating corrective directional steering signals within 5 milliseconds. The actual audio signal path is entirely analog, however, with wide bandwidth.

The Model Four, like most other high-quality surround processors, has an autobalance circuit that automatically adjusts the channel balance of any input signal for maximum separation. To simplify setting up the system, it has a noise sequencer that sends a random-noise test signal sequentially to each of the speakers while the user adjusts the output level in each channel.

In addition to its signal-processing capabilities, the Model Four has all the basic features of a conventional preamplifier, and then some. You can select any of its six audio or video input sources for listening or viewing, or independently select any of them for recording, viewing, or listening in another room. The sources, which have both video and stereo audio input

Dimensions
17 inches wide, 3 3/4 inches high, 12 inches deep

Price
$999

Manufacturer
Fosgate Audionics, Dept. SR
P.O. Box 70, Heber City, UT 84032
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Sony  > The catalog you've always wished you could find—over 150 pages of full color photos, complete descriptions, exclusive comparison charts and "no jargon" explanations of features and functions.
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Measurments
Output at clipping  8.5 volts
Distortion (THD + N at 0.5-volt output, 20 to 20,000 Hz) 0.03%
Frequency response (left and right front) 20 to 20,000 Hz +0, -0.35 dB
Channel separation 20 to 1,000 Hz 60 dB
20,000 Hz 35 dB
Center-channel response 1,000 to 20,000 Hz flat
250 Hz -3 dB
100 Hz -10 dB
Subwoofer output response 10 to 45 Hz +0, -1 dB
65 Hz -3 dB
110 Hz -10 dB
Bass EQ (maximum) +11 dB at 12 Hz
HF EQ -4 dB at 10,000 Hz

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Unlike most preamplifiers, the Fosgate Model Four has no knobs on its front panel. In addition to the power button, there are rectangular light-touch buttons that operate the Mode Select, Source Select, Record Select, and Noise Sequencer functions. A wide, center-pivoted volume button adjusts the output level of all channels simultaneously. The only other controls are six finger-operated level-trim adjustments on the rear apron for setting the levels of the output channels.

The most prominent feature of the front panel is its display window. Two vertical rows of lights show the selected program (listening) and recording sources. A Time Delay display shows the amount of delay between the front and the surround channels, which is adjustable (via the remote control) from 15 to 30 milliseconds (ms) for the Dolby Pro Logic mode and up to 45 ms in the 70mm and Classical modes. Delay is not used in the Rock, Popular, and Jazz modes. A Steering Logic Display in the center of the window shows the relative levels of the five directional channels of the Model Four. Five red LEDs are at the corners of a pentagon, with the center front at top, left and right front on either side, and the two surround outputs at the bottom.

The remote control has buttons for switching the power, selecting the input source and surround mode, and adjusting the master volume and surround levels. Other buttons provide up/down adjustment of delay, switch the center channel on or off, control various equalization functions, and bypass all signal-processing functions.

The selected surround mode (Classical, Pop, etc.) and equalization functions are indicated in the display window. The EQ functions include Bass EQ to boost low-frequency response up to 12 dB (in 4-dB steps), center-channel boost of 4 dB, high-frequency equalization (rolloffs to tame overbright soundtracks), and a sibilant filter to reduce dialogue "splatter" from the front into the surround channels.

As with most signal-processing accessories, the dynamic characteristics of the Fosgate Model Four are not readily measurable through the normal signal input and output connectors, nor would they be particularly informative to the user if they were known. Fosgate does include a number of externally measurable characteristics in the product specifications, which we confirmed in our tests.

The left and right front-channel frequency response (with the surround circuits bypassed) was essentially perfectly flat from 70 to 20,000 Hz and down a barely measurable 0.25 dB at 20 Hz. The Bass EQ circuit was essentially flat from 70 to 20,000 Hz and down a barely measurable 0.25 dB at 20 Hz. The Bass EQ circuit primarily affected frequencies below 100 Hz, boosting the response by a maximum of 11 dB at 30 Hz. The HF EQ circuit gave the response a gentle downward slope above 1,000 Hz, reaching a maximum cut of 5 dB at 20,000 Hz.
Why won't conventional hi-fi speakers work for Home Theater?

You need three front speakers - left, right and center - to achieve realistic home theater, because a stereo pair would place the dialog in the center (where it belongs) from only one listening position. You can't use conventional hi-fi speakers for the center channel, even shielded models, because their dispersion patterns prohibit raising them too high or laying them on their sides.

KEF's proprietary Uni-O'driver, which places its tweeter at the center of the woofer, allowed KEF's engineers to create the ideal center channel speakers, the Models 100 and 90. Their uniform dispersion patterns let them be placed beautifully above or below the screen, creating the impression that the sound is coming directly from the screen.

Moreover, the Models 100 and 90 are both Reference Series, which not only ensures their quality and consistency, it permits their use as satellites (front or rear/with or without a subwoofer) and their seamless integration with other KEF Reference and Q-Series loudspeakers.

The Uni-O driver. One of a series of KEF scientific achievements dedicated to one goal: the most realistic performance in your home.
The center-channel frequency response was flat from about 600 to 20,000 Hz, rolling off at low frequencies to -3 dB at 250 Hz, -10 dB at 100 Hz, and -35 dB at 20 Hz. The subwoofer channel’s output varied about 1 dB overall from 10 to 45 Hz, rolling off to -3 dB at 65 Hz and -9 dB at 100 Hz, then continuing downward at a 12-dB-per-octave rate above 100 Hz.

The Model Four’s noise spectrum, measured at the front outputs in the Classical mode, was very low. Its major peak in the audio range was the 60-Hz hum, a totally inaudible -118 dB referred to a 0.5-volt output. Other noise components ranged from -122 dB at 20,000 Hz to about -135 dB at 1,000 Hz and below.

The Model Four’s rated maximum output is a rather high 7 volts, and its distortion is specified as less than 0.05 percent at half that level. At its maximum volume setting, the Model Four clipped between 8 and 9 volts, although at the EIA-standard unity-gain setting (0.5 volt out for 0.5 volt in) it clipped at 1.2 volts. The distortion just below clipping was about 0.015 percent. The distortion was a constant 0.03 percent from 20 to 20,000 Hz at outputs of 0.5 and 3.5 volts.

For listening tests, we installed the Model Four in a five-channel music system, using compact, high-quality speakers for the main front and surround channels, a columnar subwoofer for the center channel, and a pair of Hsu Research subwoofers. The program material consisted of FM broadcast, cassettes, and CDs, and we experimented with most of the Model Four’s operating modes.

As with any surround-sound system, a considerable amount of experimenting was required to obtain the best results. Being restricted in the possible locations of the speakers (normally an important variable), we were limited to varying the Model Four’s operating-mode and internal parameters, as well as the program material and our listening position.

It soon became apparent that the Fosgate Audionics Model Four is not an environment synthesizer, like some of the advanced digital signal processing (DSP) devices that attempt to mimic the acoustics of specific music halls and auditoriums. (The manufacturer

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SECOND OPINION

The Fosgate Model Four is unlike most other surround-sound decoders, whether stand-alone or built into another component (such as a receiver). Although it performs a version of Dolby Pro Logic decoding, it does so neither by means of digital signal processing (DSP) nor with one of the single-chip analog Pro Logic circuits now being built into many TV’s and most A/V receivers. As a glance inside the unit will tell you, Fosgate does it the old-fashioned way: lots of discrete analog components (resistors, capacitors, diodes, op amps, solid-state switches, etc.). The result, however, is a surround decoder of unusual merit—one that provides significant enhancement to ordinary popular music in addition to excellent decoding of Dolby Surround movie and television soundtracks.

There is digital circuitry in the Model Four, justifying the front-panel label of “Digital Servo Logic Surround Processor.” But most of it is used in the decoder’s delay line, which itself is unusual in that it incorporates Dolby Laboratories’ Time Link delta-modulation analog-to-digital technique. Unlike most other surround-sound decoders, however, the Model Four does not use the delay line in any of its music-enhancement modes except the one labeled Classical.

Besides the unusual aspects of the Model Four’s sound processing (about which more later), there are also some peculiarities regarding its setup and use. For example, our sample seemed to be much more sensitive to static electricity than other pieces of equipment. I learned by experience that a spark to the Model Four’s chassis, such as from my hand on a dry day, could make it behave in an unpredictable and undesirable fashion. At the very least, such an electrostatic discharge can instantly change the overall volume setting. A couple of times the volume happened to go down, but it could just as easily go up, perhaps all the way, possibly causing serious damage to your domestic tranquility. Consequently, you might want to discharge yourself, so to speak, before touching the Model Four’s front-panel controls.

This problem—which would be significant only under conditions of low humidity—was exacerbated by what I consider the processor’s most serious ergonomic flaw. Unlike any other preamp/surround-sound decoder (indeed, unlike any other surround-sound decoder I know of), the Model Four has no indicators for the setting of the overall volume or of the surround-channel level—no rotating knobs, no strings of LED’s, no numerical readouts, no meters, nothing. You don’t realize how much you need such indications until they are missing. It is a serious omission for a surround-sound component (in which interchannel balances are crucial to the effect) that is also promoted as an A/V preamp.

Several less serious annoyances cropped up during setup. The remote has no on/off button for the internal noise generator used to balance the speaker levels. That lack, coupled with the back-panel placement of the six individual channel-level controls, means that at least two people (or one person with a sound-level meter) are needed during setup, one to push the front-panel noise-sequence switch and turn the controls, the other to check the effect at the listening position. And setup would also be easier if the six level controls were reduced to four, with one for the two main front speakers and another for the two surround speakers.

The noise generator itself doesn’t switch instantly between the right front and the surround speakers, and the lag is difficult to compensate for if you are setting levels by ear (the manual does recommend use of a sound meter).

Exploiting the Model Four’s full potential will require that you pay close attention to associated equipment, especially the power amplifiers and speakers. Unlike other surround-sound processors we have used, it delivers full bandwidth to the surround-channel outputs in its music-enhancement modes, with essentially flat frequency response from 20 to 20,000 Hz. Accordingly, for best results in those modes the surround speakers should have a suitably wide frequency range (which will depend in part on whether you use a subwoofer). Ideally, they would be identical to the left and right front speakers. And though the surround channels do have high- and low-frequency rolloffs in the Model Four’s Dolby Pro Logic and 70mm soundtrack-decoding modes, their bandwidth is still wider than normal for Pro Logic decoders, with no hint of the rather steep 12-dB-per-octave rolloff above 7,000 Hz required in standard Dolby Pro Logic units. In this case, however, the wider bandwidth shouldn’t cause decoding errors since Dolby Surround encoders roll off the surround channel above 7,000 Hz anyway.

The center channel is often given short shrift in home theater systems, usually on the assumption that its output will be primarily movie dialogue with a rather
The Fosgate Audionics Model Four is much more than just a Dolby Pro Logic decoder.

sound and its relationship to the picture, and to do these things better than other, more conventional products. Lacking audio/video facilities, we could only guess what it would add to such a system (but see David Ranada's "Second Opinion" below). Based on what we heard, however, the Model Four should be an ideal choice for serious A/V listening and viewing. It does a fine job of creating the sense of space (and immediacy, when required) so important to that type of program material. In fact, used with a center speaker, it provides a totally different listening effect from that of conventional two-channel stereo. The left and right speakers disappear, and one experiences a seamless, well-defined wall of sound across the front of the room.

The Model Four is not exactly inexpensive, nor is it particularly easy to operate (unless you have already weaned yourself from turning knobs), but it delivers what it promises—and then some. Altogether, it is a very interesting and rewarding product.

restricted frequency range. In fact, the center channel in a Dolby Surround soundtrack normally carries music and sound effects as well, and the Fosgate Model Four makes use of the center speaker even in its music-enhancement modes. You can switch on the center speaker from the remote in any of the processor's six operating modes, and in my tests that often increased the precision and stability of the front stereo image. If you want to hear the Model Four at its best, you should make every effort to use a center speaker whose sound at middle and high frequencies closely matches that of your front left and right speakers, even to the extent of putting three identical speakers across the front. I would, however, prefer more extended low-frequency response out of the center channel, which the Model Four rolls off below about 300 Hz, an octave and a half above the standard Dolby Pro Logic "bass splitting" frequency. It almost forces you to use a subwoofer.

The Model Four's tendency to direct considerable amounts of signal to the center and surround outputs in its music-enhancement modes also suggests that you may want to make more power available for those speakers than is typical in home theater systems. With this processor, you could profitably use equal amounts of power for all channels.

Paying attention to at least some of these considerations will yield significant sonic benefits: Except with some types of simply recorded classical, jazz, and folk material, the Fosgate Model Four's music-enhancement modes are among the best I have ever heard, recalling the best demonstrations of quadraphonic sound I heard twenty years ago. The primary effect of the Rock, Popular, and Jazz modes is to distribute sound sources all around the listening area, but without the increased sense of distance or spaciousness imposed by most DSP-based sound processors. The most obvious sonic difference between these modes was the Model Four's decreased "willingness" to put information in the surround channels when I moved from Rock to Jazz. I never heard any volume pumping or improper movement of a source caused by other sources in the mix. True, the precise effect obtained is neither predictable nor likely to be what the record producer intended. But it can be interesting, and it is far better than the thrill-sapping addition of spaciousness where none is needed or welcome.

Where it is welcome, such as with recordings of classical music performed in a large concert hall, the Model Four was less successful. It makes no attempt to simulate multiple hall reflections or reverberation, and in the Classical mode the delay line is used to provide only a single delayed signal. Although one delay is better than none, a good DSP unit can generate a better sense of envelopment by a hall. On the other hand, turning on the center speaker in the Classical mode can help to firmly anchor the front image of an otherwise nebulous-sounding solo instrument, something DSP units often are not particularly good at.

The two movie modes sounded excellent. Both seemed to decode Dolby Surround soundtracks well, though the Pro Logic setting is probably more accurate for this purpose. In neither mode, however, did I notice any grossly untoward behavior with normal movie soundtracks. The faster-than-Dolby sound steering said to occur in the Fosgate's 70mm mode was really evident only with special test tones that jump directly from center to the surrounds; these flipped faster with the 70mm processing than with standard Pro Logic processing, though not instantaneously, either. The 70mm mode also seemed to make the surrounds louder than in the Pro Logic mode and to make the processor more willing to move ambient sounds and music to them. These effects can, as the manual puts it, provide "a heightened sense of spaciousness with software which has little or no encoded surround information." You might also want to experiment with the 70mm mode on music, but be forewarned that high-level high-frequency signals directed to the surround outputs may be distorted by slew-rate limiting of the delta modulators in the delay line, which was otherwise well behaved.

The Fosgate Model Four's success with both surround-encoded movies and unencoded music should stand as a model for other manufacturers who seek to add meaningful sound-enhancement capabilities to their equipment. The typical use of DSP to simulate reflection patterns is not appropriate for all types of music. DSP can also be used to obtain Fosgate-like effects, but it isn't as easy as just generating reflections, so the music-enhancement modes of DSP-based products usually don't. You don't have to wait around for DSP engineers to catch up, though, when Fosgate's wonderful analog technology is available today in the Model Four.

—David Ranada
Acoustic Research M.5 Loudspeaker System
JULIAN HIRSCH
HIRSCH-HOUCK LABORATORIES

The Acoustic Research Holographic Imaging (H.I.) series of loudspeaker systems was designed, as the name implies, to provide a broad, natural soundstage with accurate imaging. With the addition of the new M.5, the H.I. series now comprises nine models, in a wide range of prices and sizes, that share the same spatial properties in their sound. The M.5, near the low end of the series, is a small two-way speaker whose 5 1/2-inch polypropylene-cone woofer operates in a vented enclosure. At 6,000 Hz, there is a crossover to a liquid-cooled 1/2-inch polypropylene-dome tweeter.

The M.5's enclosure resembles the upper sections of the larger H.I. systems. Both the front and rear panels slope backward at an angle of about 12 degrees. The woofer occupies the upper portion of the front panel, and the tweeter is located near the bottom, offset toward one side. The woofer's port is on the rear panel below the recessed spring-clip input terminals. The M.5 speaker comes in mirror-image pairs, designed to be installed with the tweeters toward the outside. The M.5's nominal impedance is 6 ohms, and its sensitivity is rated as 88 dB sound-pressure level (SPL) at 1 meter with a 2.83-volt drive level. Response is given as 68 to 23,000 Hz at the -3-dB points.

We placed the speakers on 39-inch pedestals, which put their tweeters close to ear level for a seated listener. They were about 6 feet apart, 4 feet from the side walls, and 2 1/2 feet from the wall behind them.

The averaged room-response curve from the two speakers was impressively uniform, within ±2.5 dB from 100 to 2,500 Hz and remaining strong down to 60 Hz. The averaged output dipped about 5 dB at higher frequencies but climbed back to its lower-midrange level in the range of 15,000 to 20,000 Hz.

The close-miked woofer response, combining the separately measured cone and port contributions, reached its maximum between 60 and 110 Hz and dropped off smoothly above that, to -5 dB at 1,500 Hz; the measurement was no longer valid at higher frequencies. This curve spliced smoothly to the room-response curve above 1,000 Hz, resulting in a composite frequency-response variation of ±2.5 dB from 42 to 2,300 Hz, ±2 dB from 2,000 to 12,000 Hz, and ±2.5 dB from 12,000 to 20,000 Hz.

Nonetheless, the effective lower limit of the speaker's response was actually in the vicinity of 65 to 70 Hz, as rated. Although some audible fundamentals were present at 50 Hz and lower, the distortion and fluttering as the cone approached its excursion limits rendered the system ineffective at those frequencies.

The on-axis frequency response at 1 meter, measured with swept one-third-octave pink noise, was generally similar to the room measurements, without their extended bass response. It varied ±2 dB from about 150 to 3,000 Hz, dipping another 2 dB between 4,000 and 9,000 Hz. The high-frequency dip was strongly affected by the position of our test microphone, apparently being caused by interference between the outputs of the tweeter and woofer.

A similar measurement, smoothed and repeated at 45 degrees off-axis, indicated good high-frequency dispersion from the M.5's tweeter. Starting to diverge slightly above 1,000 Hz, the off-axis response (on the side near the tweeter) was down by a fairly constant 3 dB all the way to 10,000 Hz and down only 6 dB at 20,000 Hz. When we measured with the microphone offset in the opposite direction, the curve was identical to the first up to 4,000 Hz, with an off-axis loss of almost 5 dB at 10,000 Hz and almost 10 dB at 20,000 Hz. Either way, the horizontal dispersion of the M.5's tweeter was better than that of most speakers we have measured.

The system's quasi-anechoic MLS frequency response exhibited the usual slight irregularities, on the order of ±2 dB, between 300 and 5,000 Hz. Measurements at different angles and distances confirmed that a response peak or null at about 8,000 Hz was truly an interference effect, changing widely with slight changes in test conditions.
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The tuning of the system’s enclosure and port was close to ideal, as evidenced by its nearly identical bass impedance peaks of 12 and 13 ohms at 40 and 110 Hz. The impedance reached lows of 4 ohms at 60 to 70 Hz and 3.6 ohms at 300 Hz.

Sensitivity at 1 meter, with a 2.83-volt input of pink noise, was 90 dB on the axis of the woofer and 88 dB on the tweeter’s axis. When we drove the speaker with single-cycle tone bursts at 1,000 and 10,000 Hz, our amplifier clipped in the range of 1,200 to 1,500 watts without damage to the speaker or audible distortion. At 100 Hz, the woofer cone reached its physical limits with alarming rasping sounds at an input of 74 watts into its 9.5-ohm impedance, though the distortion had already become unpleasantly audible (and visible on an oscilloscope) with as little as 27 watts input.

With 2.83 volts input, the woofer’s distortion was between 0.5 and 2 percent over the range of 42 to 2,000 Hz. The effective crossover to the port output occurred at about 120 Hz, however, and its distortion at that frequency was about 5 percent, rising to about 15 percent at the speaker’s rated lower limit of 68 Hz.

Although the shape of the M.5’s response curve might suggest that it would sound muddled or distant, the actual sound was quite the opposite—smooth, crisp, and well defined. Its bass extension was sufficient to prevent most music from sounding thin, and the absence of artificial emphasis in the upper bass was notable. Best of all, it shared the outstanding imaging qualities of its larger (and costlier) siblings in the H.I. line.

Few speakers of comparable size and weight can deliver as balanced and musical a sound as the M.5. It could benefit from the addition of a subwoofer, but if that level of performance is desired it would seem more sensible to get one of the larger AR H.I. speakers in the first place.

Perhaps the M.5’s chief limitation (though for most people it should not pose any problems) is its power-handling ability at frequencies below 100 Hz. This speaker leaves no doubt in the listener’s mind when the woofer cone (whose actual effective diameter is only about 4 inches) has reached its limits, and almost any amplifier or receiver has more than enough power to make that happen from time to time. For listening to music below lease-breaking levels, however, the Acoustic Research M.5 is a truly fine-sounding speaker, and a notable value at its price.
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"Muddy" or "boomy" sounding bass is the by-product of **TONAL HARMONIC DISTORTION (THD)**, the result of an increase in sound pressure level and a decrease in definition. THD is caused when a speaker is unable to accurately reproduce the required musical signal, creating extra harmonics that don’t belong in the music. **And surprisingly, 25% THD is a typical accepted distortion specification for most of the subwoofers on the market today.**

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This device is mounted directly to the speaker’s voice coil, specifically to measure the acceleration of the speaker cone. The information is then sent to a comparator circuit, which compares the differences between the pure signal from the source and the signal derived from the speaker’s motion. These differences represent distortion.

The signal going to the woofer is then corrected (at 3500 times per second), to match the source signal. The result – clear, powerful bass with virtually no distortion – is the sound of a Velodyne.

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"The Bottom Line In Bass

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San Jose, CA 95112
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*CIRCLE NO. 41 ON READER SERVICE CARD"
The Quad 66FM tuner is a recent addition to the company's line of deluxe audio components, which includes the Model 66 preamplifier and the Model 66CD player. Each of the components is designed for complete compatibility with the others, and all are controlled from a single remote unit, which is supplied with the preamplifier (tested for the August 1990 issue).

Consistent with its place in an integrally designed and operated system, the Quad 66FM has no controls other than a barely visible power button. On the assumption that it will usually be used with the Quad 66 preamplifier, no remote control is supplied with the tuner, although it can be purchased separately. If you want to use the tuner without the preamp, you might also prevail upon your dealer to program a learning remote with the necessary commands from the big Quad integrated remote.

The tuner matches the preamplifier in size and external appearance. Its principal front-panel feature is a status display. At the right of the panel, the current preset channel number (nineteen are available) and its frequency appear in large amber numerals. To their left is a wider window with a row of numbers from 1 to 19 across its top. A long arrow points to the currently selected channel number, which is also enclosed in a small box, and there is a slanted row of illuminated squares whose length is proportional to the received signal strength. The word mono or stereo appears in the window as required.

**Dimensions**
12¼ inches wide, 10 inches deep, 3⅛ inches high

**Price**
$1,050; remote control, $250

**Manufacturer**
Quad U.S.A., Dept. SR,
111 South Dr., Barrington, IL 60010

On the tuner's rear apron are the AC power-cord socket, an unswitched AC convenience outlet, the audio output phono jacks, and a coaxial connector for a 75-ohm antenna feed.

The remote control is as unconventional as the components it was designed to operate. Several times as large as typical infrared remotes, it weighs about 2 pounds and matches the other Quad components in finish (a distinctive brownish-gray satin). Most of its controls, both buttons and knobs, are dedicated to operating the preamp and CD player, but among them is a button for selecting the tuner and pairs of search and track buttons that also control the CD player. Pressing the RADIO button turns on the tuner and switches the preamplifier input to it. The track and search buttons can then be used to select a desired preset number or to tune up or down the band. The STORE button is used to assign a tuned frequency to a selected preset. The track buttons step the tuning sequentially through the preset channels. The Quad 66FM, unlike most FM tuners, changes its tuning in 25-kHz increments, although it normally displays only the usual 50-kHz intervals. The manual, which is quite...
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complete, describes how to tune stations on intermediate channel frequencies (unlikely to be required in the United States, but possibly needed in other parts of the world).

In our lab tests, the tuner's frequency response was very flat, ±0.2 dB from 20 to 10,000 Hz and down only 0.7 dB at 15,000 Hz. Stereo channel separation was 40 to 45 dB in the midrange, narrowing to 25 dB at 30 and 15,000 Hz. Capture ratio, AM rejection, and image rejection were all well above average. Sensitivity and selectivity were adequate, though not well above average. Sensitivity and 15,000 Hz. Capture ratio, AM response was very flat, ±0.2 dB.

Once we had become familiar with the Quad 66FM's somewhat unconventional controls, using it became easy and natural. In general, it sounded better (under less than ideal conditions, with indoor dipole antennas) than most FM tuners we have used, by virtue of being essentially immune to extraneous noise radiated from nearby personal computers or compact disc players, which can inject considerable garbage into the spectrum at certain FM frequencies.

The remote control, despite its apparent clumsiness, weight, and size, proved to be one of the handiest we have used. It radiates a stronger infra-red signal than most, enabling it to be placed on a table at a convenient location and pointed in any direction. It is not necessary, in most cases, to point it toward the controlled component, unlike most conventional remote controls. If all the major system components are Quad 66 series units, the Quad remote becomes a literal extension of the system controls.

The Quad 66 components, including the 66FM tuner, are not inexpensive, but I would judge that their value to a user easily justifies the investment. Considered either as a system or as individual components, their design is very user-friendly, and the audible results are thoroughly satisfying.

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**MEASUREMENTS**

<table>
<thead>
<tr>
<th>Parameter</th>
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<tr>
<td>Usable sensitivity (mono)</td>
<td>14.2 dBf</td>
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<td>50-dB quieting sensitivity</td>
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<tr>
<td>mono</td>
<td>19 dBf</td>
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<tr>
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<tr>
<td>Stereo-to-noise ratio (at 65 dBf)</td>
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<tr>
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<tr>
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<tr>
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<td>AM rejection</td>
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<tr>
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<td>10,000 Hz</td>
<td>29 dB</td>
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<tr>
<td>Frequency response</td>
<td></td>
</tr>
<tr>
<td>30 to 15,000 Hz ±0.2, -0.7 dB</td>
<td></td>
</tr>
</tbody>
</table>
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- Julian Hirsch, Stereo Review

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CIRCLE NO. 15 ON READER SERVICE CARD
MARTIN-LOGAN is well known to serious audiophiles as a manufacturer of high-quality electrostatic loudspeakers. Wide-range electrostatic speakers are typically large and expensive—until the recent introduction of the Aerius, Martin-Logan speakers ranged in price from $3,000 to $60,000 and in weight from 85 pounds to almost a ton. The Aerius makes the unique qualities of an electrostatic speaker practical and affordable for a larger number of audio enthusiasts.

Unlike conventional dynamic loudspeakers, electrostatic speakers do not use a cone or similar element, driven by a voice coil, to create a pressure wave in the air. Instead, a thin plastic sheet, treated during manufacture to give it an electrically conductive coating, is mounted between two perforated metal surfaces supported by a rigid frame. A high-level audio voltage is connected between the perforated plates, creating a strong, variable electrostatic field that acts uniformly on the entire surface of the plastic diaphragm, which carries a fixed electrostatic charge. Changes in the audio signal cause the diaphragm to move accordingly, creating a sound wave in the air.

It is possible for an electrostatic speaker to generate all audio frequencies from the low bass to the highest treble. Among other problems, however, such full-range speakers tend to be very large and costly. A more practical solution, found in most of the Martin-Logan systems, is to use a conventional dynamic woofer for the bass and cross over to the electrostatic diaphragm at the lowest frequency consistent with its dimensions.

The Aerius's 9-inch-wide electrostatic element is curved to form a 30-degree section of the surface of an imaginary cylinder about a yard in diameter, giving the speaker a 30-degree horizontal dispersion. The transparent diaphragm, sandwiched between two perforated plates, is a dipole radiator, generating equal (and opposite-phase) outputs to the front and rear. It also provides a fair view of the area behind the speaker.

The electrostatic element, operating from 500 to 20,000 Hz, is about 3 feet high and occupies the upper two-thirds of the Aerius. Below it is a forward-facing 8-inch cone woofer, in a sealed enclosure, that handles the frequencies below 500 Hz. The crossover network has 12-dB-per-octave slopes. The woofer's response is rated as ±3 dB down to 40 Hz.

The woofer's enclosure serves as a base for the electrostatic radiator. It also contains the crossover network and the power supply for the electrostatic diaphragm, which uses only a few watts and is normally left energized at all times. A perforated metal grille covers the front of the speaker.
HERE’S TO ANOTHER SUMMER OF HIDDEN PLEASURES FROM SEAGRAM’S GIN.

Those who appreciate quality enjoy it responsibly.
Specifications for the Aerius include a system frequency response of 40 to 20,000 Hz ±3 dB, nominal impedance of 4 ohms (with a minimum greater than 2 ohms at 20,000 Hz), and sensitivity of 89 dB sound-pressure level (SPL) at 1 meter with a 2.83-volt driving signal. The speaker is recommended for use with amplifiers delivering from 60 to 200 watts per channel.

Our test samples were biwirable, with separate binding posts for the bass and electrostatic portions, normally connected in parallel by jumpers. The speaker is also available with a single pair of binding posts for a conventional single-cable connection to the amplifier. The insulated multiway posts accept bare wires, lugs, or banana plugs.

The averaged room response of the Martin-Logan Aerius was very flat, within 3.5 dB overall from 70 to 20,000 Hz except for a dip of about 4 dB at about 10,000 Hz. The close-miked woofer response was flat within ±1 dB from 50 to 150 Hz, falling at 12 dB per octave below that range and with a gentle drop-off from 150 to 500 Hz, where the crossover began cutting off its response.

Splicing the woofer response to the room measurement produced a composite frequency response that correlated very well with what we heard from the Aerius. Except for the high-frequency dip (which appeared to some degree in virtually every response measurement we made), the system response was flat within ±2.5 dB from 45 to 20,000 Hz and fell off at 12 dB per octave below 45 Hz.

The directivity of the electrostatic element was rather unusual. Although the response curves measured on-axis and 45 degrees off-axis began to diverge above 1,000 Hz, the difference between them varied only slightly from 1,500 to 10,000 Hz, remaining between 4 and 6 dB over that range. At higher frequencies the gap between the two response curves opened to a maximum of only 7 dB at 20,000 Hz. In other words, although the level of the midrange and treble was reduced somewhat at moderately off-axis listening angles, their relative balance was affected only minimally.

Quasi-anechoic MLS frequency-response measurements showed typical variations of several decibels between 300 and 10,000 Hz, as well as a slightly reduced output between 9,000 and 12,000 Hz. These effects were generally similar to the variations observed in room response.

Impedance was an almost constant 6 ohms from 80 to 500 Hz. The woofer resonated at 43 Hz, where the impedance rose to 20 ohms, and there was another 20-ohm maximum at about 1,200 Hz, above which the impedance fell off smoothly to a minimum of 2.4 ohms at 20,000 Hz.

The Aerius's measured sensitivity, 85.5 dB SPL at 1 meter with a 2.83-volt input, was slightly lower than rated (the manufacturer makes this measurement at a 3-meter distance), but it was within the normal range for most home speakers. The woofer distortion at a 4.73-volt level (equivalent to a 90-dB SPL) was surprisingly low, remaining between 0.6 and 1.2 percent from 500 Hz down to below 50 Hz and rising to 3 percent at 40 Hz, 6.5 percent at 30 Hz, and only 10 percent at 20 Hz.

The Aerius also showed that its small woofer can play in the big leagues when it comes to power-handling ability. Unlike most cone speakers, whose voice-coil movement often limits their low-bass performance, this one was undisturbed by an 1,100-watt single-cycle burst at 100 Hz, which was the clipping point of our amplifier into the speaker's 5.7-ohm impedance at that frequency. The electrostatic radiator also took everything the amplifier could deliver, including a 2,100-watt burst of 10,000 Hz into 2.7 ohms, the maximum it could deliver, including a 2,100-watt burst of 10,000 Hz into 2.7 ohms, the maximum it delivered.

The most surprising quality of the Martin-Logan Aerius was its bass performance. Unlike most cone speakers, whose voice-coil movement often limits their low-bass performance, this one was undisturbed by an 1,100-watt single-cycle burst at 100 Hz, which was the clipping point of our amplifier into the speaker's 5.7-ohm impedance at that frequency. The electrostatic radiator also took everything the amplifier could deliver, including a 2,100-watt burst of 10,000 Hz into 2.7 ohms, without damage or undue distress.

As always, the proof of a speaker's performance is in the listening, and here the Martin-Logan Aerius acquitted itself handsomely. We placed the speakers as recommended, about 4 feet from the side walls, 4 feet from the wall behind them, and 7 feet apart, angled slightly inward. As our measurements would suggest, the frequency response was audibly smooth and extended. Like any large-area radiator, the electrostatic element generated sound that could be enjoyed at almost any distance.

The stereo image was accurate and stable, and the bidirectional pattern of the output produced a startling effect as we walked toward the plane of the speakers and on behind them. From the front, the soundstage extended across the room somewhere behind the speakers. When we reached the plane of the speakers, the apparent sound source suddenly shifted to a greater distance behind them, typically well beyond the wall only a few feet away. The back radiation of a dipole can easily be reflected from the wall behind it, normally reaching listeners in front of the speakers after a delay of 8 to 10 milliseconds. This delay can add an element of spaciousness to the overall sound that I find one of the most appealing qualities of a dipole radiator. A sound-absorbent wall surface can reduce or eliminate this effect if desired, however.

To me, the Aerius's most surprising quality was its bass performance. The bass enclosure is all but invisible behind the slim front panel, but the 8-inch woofer delivered a clean, deep bass output with very solid fundamental content at 40 Hz and even a perceivable fundamental at 30 Hz. Although the Aerius, like almost any full-range speaker, can benefit at times from a true subwoofer, you don't really need one with this system unless you are a bass freak.

Summing up, the Aerius is a very successful combination of an 8-inch acoustic-suspension woofer and a moderate-size electrostatic element, with the best qualities of each type of driver. It won't visually dominate even a small room, yet it should easily fill any home listening room with first-class sound. And it won't overtax the budget of almost anyone who is serious about good sound.

Finally, although this has nothing to do with the speaker's sound, the user's manual is unique in my experience. Not only does it tell you all you have to know about installing and using the Aerius, but it explains in reasonable (and not-too-technical) detail how and why the speaker works. I also found its two-page "History of Loudspeaker Development" to be both objective and good reading. Consider it a bonus with this fine speaker.
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A car without some sort of sound system is as unthinkable these days as one without rear-view mirrors. For most of us, music is an indispensable companion to driving, and there are many audio companies more than willing to satisfy this need. Picking your way through the maze of options is not easy, though.

Or maybe it is. One thing that has changed in the last few years is the nature of the stereo gear that comes with the car, factory installed. Faced with the audio community's predilection for ditching the supplied radio and buying elsewhere, car makers have upgraded the components they use; some have even formed alliances with the JBLs and Boses of the world to provide systems engineered for specific vehicles. So perhaps you can avoid the angst and take what comes.

Probably not, however. After-market car stereo provides a much wider range of options in terms of function and quality, and it still tends to be the choice of discriminating listeners. Also, as is the case in home audio, car stereo equipment is fun to shop for and to play with. Shopping for it can also be frustrating, of course, because there is so much stuff out there, but knowing what to look for will simplify the process.

WHAT MATTERS

In many ways, it's far harder to achieve a high level of audio performance in a car than anywhere else. The very environment militates against it, so in a sense practically everything about the equipment you choose is important. Some things, however, should be given priority.

- SQUEEZING IT IN. It should be obvious (but often isn't) that the best piece of gear made will be a dud if you can't fit it into your car. So before you consider buying anything, do a physical survey of your vehicle to determine what it can and can't accommodate. Does the dash have only a three-hole cutout, or will it accept a flat-face DIN head unit? Is there any room in the doors for speakers? Are there speaker cutouts in the rear deck? What size are they? Where else can you mount speakers? Is there room for extra power amplifiers, a subwoofer, or a CD changer in the trunk or hatch? How about under the seats? Getting a handle on these things before you go shopping will narrow the field considerably.

- USING IT. You will inevitably spend some time searching for a radio station or cueing up favorite songs while doing 65 on the Interstate, so the head unit you choose had better be simple and intuitive to use. Fiddle with its controls in the store—if they seem awkward, illogical, or just plain difficult, pick something else. Also check out the head's shock tolerance: The last thing you need is a CD player that skips or a tape deck that makes wobbly noises when you drive over railroad tracks (a couple of firm raps—vertical, sideways, and front-to-back—should tell you what you need to know). If cassette is your medium, look for automatic shutoff, which dis-engages the tape mechanism when the ignition is turned off, to protect the...
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Ensemble and Ensemble II are subwoofer-satellite speaker systems designed by Audio Hall of Fame member Henry Kloss (founder of AR, KLH and Advent). Cambridge SoundWorks makes and sells Ensemble and Ensemble II (and a number of other audio components) factory-direct, with no expensive middle-men, so you can save hundreds of dollars. All purchases are backed by a 30-day money-back satisfaction guarantee, so there's no risk.

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We Know How To Make Loudspeakers.
Car stereo is mostly straightforward audio and uses the same vocabulary, but the need to fit components into a novel—and sometimes hostile—environment requires some distinctive terminology.

GETTING A HEAD. The electronic heart of a car stereo system is its head unit. Few head units are mere radios anymore. Instead, the term receiver refers to a component that contains an AM/FM tuner, a preamp, and another sound source. One that contains a cassette deck is a cassette receiver; one with a CD player is a CD receiver. If it lacks an amplifier section but does include the AM/FM facility, it’s a cassette (or CD) tuner. If it has no radio at all, it’s a cassette or CD player, whether or not it contains an amplifier. Add-on CD players have largely given way to CD tuners and receivers or CD controllers—cassette receivers or tuners with the added capability of being able to control a CD changer, which is usually mounted in the trunk. Advanced systems often have one or more separate power amplifiers (also usually in the trunk) fed by the in-dash head unit; a growing number of heads provide line-level (or preamp) outputs, and often inputs.

How head units are mounted in the car also varies to some extent: Nearly all cars provide for in-dash installation of at least one head unit, but it may be a three-hole mounting configuration (a pair of knob holes on either side of a small rectangular cutout for the display/tape area) or a DIN-mount configuration (a 2 x 7-inch rectangular slot that will take the whole component). In some cases, under-dash bracket mounting may be required. Unless you’re prepared to pay the price for extravagant rebuilding of the dash, add-on components can also be mounted under it; some equalizers and signal processors use mini-chassis or half-DIN cases to make things easier.

SPEAK TO ME. Achieving something akin to hi-fi in the interior of a car (or truck or van) is a tall order, which is why autosound speakers come in such a mind-boggling variety. Perhaps the most common is the flush-mount speaker, which drops into a hole cut in the rear deck or a door, venting its back wave into the door or the trunk. A surface-mount speaker has its own enclosure, usually fixed by a bracket of some sort. Large enclosed speakers, sometimes called truck boxes, are designed for pickup trucks, vans, hatchbacks, and other vehicles in which conventional approaches don’t work; these can be full-range systems or bass-only units. Hybrid plate speakers usually contain more than one driver; while they require a surface area larger than the standard cutout, the woofer’s cone and magnet can fit into the standard hole.

The simplest speakers are full-range devices using a single driver to reproduce all sound, from bass to treble. To assist with high-frequency dispersion, a smaller diaphragm—sometimes called a whizzer—is often attached to the center of the main cone, making it a dual-concentric speaker. This is different from a true two-way (or three-way) speaker that uses separate drivers to reproduce various parts of the audio spectrum, which is divided up by a crossover network. A two-way might have the tweeter mounted in front of the woofer so that the two will fit in the same hole, in which case it’s a coaxial speaker (a triaxial is a somewhat misnamed device that has a tweeter and a midrange driver mounted side by side in front of the woofer). Multiple speaker arrays are often biamplified—separate amplifiers for each driver—in which case an electronic or active crossover is inserted before the amps.

OFF THE AIR. Whereas most source components in cars are similar to their homebound counterparts, autosound tuners face distinctive problems caused by corrupt or changing signals. Pulling in weak stations is a matter of tuner sensitivity, but a tuner that’s good at low-level signals should have a local/distant sensitivity switch to prevent overload when transmitters are nearby. A mono/stereo switch can make noisy signals listenable, as can high-blend or auto-blend circuits, which reduce separation, mainly in the treble, when necessary. Station presets let you program a number of favorite frequencies, to be selected at the touch of a button, and many tuners let you scan the spectrum to find what you want without taking your eyes off the road. In unfamiliar territory, best-station memory (or auto memory) automatically stores a handful of strong signals in a preset bank for quick access.

Car tuners can suffer from a distinctive type of fluctuating multipath distortion called picket-fencing. Good tuner design will minimize this effect, but in a diversity-tuning setup the cleanest signal from two or more antennas is automatically fed to the input.

- THE USUAL VIRTUES. Car stereo is (or can be, at least) a form of hi-fi, so whatever else a car system does, it should sound good. Unfortunately, it’s very difficult to predict how a piece of equipment will perform until it’s been installed, but there are a few things you can do to lower the risk of problems. Provided you stay with name-brand components, tape and CD players are unlikely to have a significant effect on your system’s overall sound quality, but you should still put them through their paces and check for things like speed stability in the case of tape decks and access time in the case of CD players and changers. A spin around town with the head unit temporarily hooked up will give you some idea of FM performance and provide an opportunity to gain first-hand experience operating it. If it’s a receiver with on-board power, your test drive will also shed some light on...
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At the press event where we introduced our new surround sound speakers and systems, we startled members of the audio and video press literally “jumping out of their seats.” These Henry Kloss products are startling not only because of their performance and quality, but also because of their affordable, factory-direct prices.

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Powered Subwoofer & Slave Subwoofer.

Our Powered Subwoofer uses a heavy duty, 12 inch long-throw acoustic suspension woofer integrated with a 140 watt amplifier. A control panel includes a bass level control and an 18 dB per octave, electronic crossover frequency selector. It reproduces accurate bass down to below 30 Hz—better than most theaters! $599 factory-direct. For all-out performance, you can add our Slave Subwoofer, which uses the amplifier and controls built into the Powered Subwoofer. Amplifier output jumps from 140 to 200 watts when it’s connected. The combination of the two speakers can reproduce a 30 Hz signal cleanly to a sound pressure level of over 100 dB! That’s enough clean, deep bass for the largest home theaters, and the most demanding listeners. The factory-direct price of the Slave Subwoofer is $299.

The Surround & The Surround II.

Both The Surround ($399 pr.) and The Surround II ($249 pr.) speakers use dipole radiator technology to recreate surround sound effects the way they were meant to be heard. Out-of-phase drivers face to the front and rear of the listening room, for best-possible ambient sound reproduction.

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whether external amplification will be necessary—it usually is if you want to be able to play the system at moderate listening levels without distortion.

Alas, there is no easy way to tell in advance how what you want to buy will actually sound, which is determined mostly by your speakers, where they're placed, and how they interact with the interior of your vehicle. A similar system in another car might give you a clue, and temporarily parking speaker prospects in your car (if they’re surface-mount models) will approximate the final sound. In the end, the safest bet is to make sure your dealer/installer will exchange speakers that sound bad and work with you to correct matters.

- KEEPING IT. Somebody out there wants your equipment as much as you do, and he won't be shy about trying to get it. There is a vast range of antitheft options on the market, from detachable-face and pull-out head units, to security codes that disable the head if anybody but you tries to use it, to cheap-looking false faceplates, to stand-alone security systems that hurl verbal abuse at anyone who approaches your car. What you'll need depends on your circumstances, but chances are you'll need some sort of protection, so you should include security in your budget from the start.

- DROP THAT SCREWDRIVER! Installing a car stereo system is one of the most finicky and frustrating things in audio, and one that you can screw up with incredible ease. So do yourself a big favor: Pay the money and have your system installed by a pro who can show you examples of his work.

WHAT DOESN'T

For the most part, the miniaturization necessary in car audio reduces the risk of unnecessary features. Still, there are a number of things that can largely be ignored.

- NUMBERS GAMES 1. Autosound companies, like other audio manufacturers, tend to sprinkle their literature liberally with specifications, but many are of little value. Unless you plan on spending lots of time listening to the system while your car is parked—in which case you had better have a very healthy battery—specs like signal-to-noise ratio (S/N) and channel separa-
Installing a car stereo system is finicky, frustrating, and very easy to screw up, so do yourself a big favor: Pay the money and have your system installed by a pro who can show you some samples of his work.

**NUMBERS GAMES** 2. Big numbers do not necessarily mean great sound. Sure, 2,000 watts of amplifier power and twenty-four separate speakers may impress the dude in the next car, and may even get you high marks at the local sound-off contest (although not necessarily), but such overkill will really only make the sound loud—louder, probably, than you can stand. Some of the best-sounding systems use only six or so drivers and a few hundred watts of power (or less). By the same token, you’ll never need thirty FM presets in your tuner. If they add only minimally to the cost, fine, but if you have to pay extra for more than about a dozen, forget it. How many favorite radio stations can one person possibly have?

**EQUALIZERS.** It’s tempting to think of a graphic equalizer as a magic cure-all for any audio ill that might arise. It isn’t, and you can cause more harm than good to the sound with one if you’re not careful. Parametric equalizers can be useful for correcting basic sonic maladies caused by the vehicle’s interior, but they are tricky to adjust and, therefore, are best left in the hands of a competent installer.

**GET WITH IT**

One absolute must is something to hold your tapes or CD’s so they don’t ratttle around your car. There’s a wide variety available, from padded CD holders to small suitcase-like boxes with handles. Several companies manufacture car caddies—containers designed to keep food or drinks cold (or hot) on long trips—and they are also ideal for storing CD’s, tapes, and small accessories like tape-head cleaners. Since these containers don’t look like audio gear, they might not be as attractive to thieves, and their insulation may help protect your recordings from temperature extremes.

---

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**Includes 6 Page Guide To Surround Sound.**

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STereo REVIEW JUNE 1993 53
ACK in the old days, record changers carried a heavy burden of social stigma among audio ma-
vens, and with some justification. The convoluted mechanical methods used to change records
almost invariably affected the player’s basic job of spinning the disc, if only slightly in the best
models, and careless disc stacking could lead to record damage. Eventually, most people turned a deaf ear to
record changers in favor of single-play turntables.

Times change, though. Compact discs have replaced phonograph records, and today’s CD changers can
deliver all the fidelity of single-disc players. Once a disc is loaded and clamped to the spindle of the drive-motor
shaft, it is fully independent of the loading platter. Servo loops are used to maintain rotational accuracy
within CD standards, and data read from the disc are relocked inside the player to insure a precise, stable bit
stream to the digital decoding circuitry. Indeed, any variation in data rate outside the CD standard would
cause a player to mute. Downstream circuitry is completely independent of the disc-loading mechanism and
can be built to deliver all the fidelity of high-end single-disc players. Simply put, the disc-selection mechanism
in a well-engineered CD changer does not affect the precision of disc rotation or the fidelity of the output
signal.

Along with great sound and uninterrupted playback of multiple discs, CD changers typically offer such
benefits as the ability to play only a few tracks selected from several discs without having to reload the player
and to play a random or programmed sequence of many tracks on several discs. Because of these advantages,
CD changers now outsell single-disc players.

CD changers come in two flavors: cartridge and carousel. Although some cartridge models offer com-
patibility with trunk-mounted car changers, most people seem to favor carousel models because of their
greater convenience. You don’t have to fumble with cartridge loading, and most contemporary carousels let
you listen to one disc while you change the others, something cartridge models do not permit. With this in
mind, we rounded up five recent-vintage five-disc carousel changers—the Denon DCM-440, Harman
Kardon TL8500, Philips CDC-935, Sony CDP-C601ES, and Yamaha CDC-735, all in the $300 to $500 price
range—and set their platters spinning.

To check their sound quality, I listened to each changer over a high-end system consisting of a Conrad-

BY KEN C. POHLMANN
CAROUSELS
Johnson Motif MC 10 preamp and MS 2001 power amplifier and B&W Matrix 801 Series 3 loudspeakers. As usual, I was careful to match the output levels of the changers being compared; if you don’t do this, it’s easy to mistake small level differences for quality differences that aren’t really there. To measure their audio performance, I fired up my trusty Audio Precision System One test set and subjected each changer to a battery of tough tests, ranging from frequency response to low-level digital-to-analog (D/A) conversion linearity. And to evaluate their features, I simply lived with them for two weeks, attempting to uncover any idiosyncrasies. Features are great, but if you have to make frequent trips to the owner’s manual to figure out how to use them, you’ll probably just give up after awhile and ignore most of them, which means that whatever you spent for those features will have been wasted.

Given the closeness of their prices, we weren’t surprised to find that these five changers had much in common. For example, all five feature direct disc and track access, wireless remote control, and the ability to continue playing a disc while the other four are being changed, all but one have headphone jacks and level controls, and all but one have digital outputs. A digital output is necessary if you want to connect a changer to a digital preamplifier or an external D/A converter, or if you want to make direct digital copies of CD’s to DAT, DCC, or MD (just be sure the changer has the right kind of digital output—coaxial or optical—for the equipment that you’ll be connecting it to).

The Denon DCM-440 can be programmed in the usual way to play as many as twenty individual tracks from five CD’s, but it also has a track-memory feature that can store as many as six tracks per disc (for up to a hundred discs) that you don’t want to hear, on the plausible theory that there will normally be more tracks on a disc that you do want to hear than ones that you don’t. For most people, this approach should be easier and more efficient than selecting all the tracks to be played each time, and the information is saved even if A/C power is disrupted. The player also has three random-playback modes (from all discs, from sequential discs, and of programmed tracks) and five repeat modes (single track, single disc, all discs, stored program, or random playback).

On the DCM-440’s backside you’ll find a coaxial digital output, fixed and variable analog outputs, and a syncromodifier jack for synchronizing its operation with that of other components in a Denon system. The DCM-440 employs an eight-times-oversampling 20-bit digital filter with noise shaping and two of Denon’s 18-bit Super Linear Converters, making it the only changer in the group to use multi-bit D/A conversion. Although four disc positions are available when the drawer is opened, two are partially covered, requiring a little care when slipping discs in and out, and if you play just a single disc, it may or may not be accessible when you reopen the drawer. Any disc position can quickly be rotated into the open with the Disc Skip button, however.

I thought the DCM-440 was one of the best-looking changers in the group. Its shiny black aluminum front panel is striking, and overall fit and finish were excellent. Its drawer was less substantial than some of the others, however, and had a number of sharp edges on its top surface that could conceivably scratch discs as you load them. The mechanism was moderately noisy when swapping discs. On a more positive note, the DCM-440 sported the brightest, most legible display in the group.

The Denon performed adequately on the test bench, but not spectacularly. It did not place above the other changers in any of our twelve measurements and placed last in three: frequency response, channel separation at 1,000 Hz, and disc-change time.
**HARMAN KARDON TL8500**

The costliest changer in the group by a slight margin, the Harman Kardon TL8500 is also by far the most interesting to look at. Instead of a front-opening drawer, it sports a top-loading platter under a transparent plastic cover. In addition, the buttons on the plastic front panel are all large and curvaceously contoured. All in all, not only is this changer charmingly reminiscent of LP turntables of yore, it's also just plain better looking than the others.

Although its front panel is refreshingly clean, the TL8500 does not lack features. A repeat button lets you replay discs, tracks, or segments, and a random button sets the player to select discs, tracks, or segments, and a repeat button lets you repeatedly clean the TL8500 does not lack the others.

The TL8500 exposes four disc wells at a time, and the fifth disc can be rotated into loading position with the Disc Skip button. One peculiarity is that when you've finished playing a single disc, the changer doesn't automatically rotate it out. You have to hit the Disc Skip button to retrieve it. In addition, there are several sharp edges inside the tray area that might scratch discs. The TL8500's disc-transport and changer mechanism are protected during shipping with a transport screw and clamping button, and it was fairly quiet when changing discs.

The TL8500 was the only changer in this group without a digital output, headphone jack, or level control. The back panel provides fixed-level analog outputs and remote-control in/out minijacks for connection to other Harman Kardon components. Like all but one of the other changers, the TL8500 uses low-bit D/A conversion. The Harman Kardon beat out the other changers in channel separation at both 1,000 and 20,000 Hz.

**PHILIPS CDC-935**

Although it is the least expensive changer in the group, the Philips CDC-935 includes some features the others lack. For example, its Personal Presets system enables you to customize the player with your preferred modes of operation. Settings for such things as playback mode (continuous, random, programmed), pause time between tracks, and track-audition scan time can be stored. Personal presets remain active even when the player is turned off. An edit function enables the changer to automatically play a series of tracks that will fit onto a tape of a length you specify, either sequentially or in a programmed order; taping becomes a one-button operation when you connect the CDC-935 to a Philips recorder (such as a DCC deck) that supports the Philips ESI bus. And Philips' Favorite Track Selection (FTS) system can memorize a track sequence for a disc and automatically recall it whenever you play that disc.

Other perks include thirty-track program memory, audition scanning of the first 10 seconds (programmable up to 30 seconds) of each track, single-disc and all-disc random playback, single-disc and all-disc repeat, and autospace to insert a 4-second pause between tracks. Conveniently, one disc-platter position is labeled the Preferred Position. When you load that position and press the Quick Play button, the changer simply plays that disc, without searching the other disc locations. In other words, the CDC-935 operates as though it were a single-disc player. This is a great feature, though the "preferred" disc is not always accessible when the drawer is opened after playing—you may have

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**LABORATORY MEASUREMENTS**

<table>
<thead>
<tr>
<th>Dimension</th>
<th>DENON DCM-640 ($400)</th>
<th>HARMAN KARDON TL8500 ($479)</th>
<th>PHILIPS CDC-935 ($300)</th>
<th>SONY CDP-C601ES ($420)</th>
<th>YAMAHA CDC-73S ($429)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(inches, W x H x D)</td>
<td>17 x 4 1/2 x 15 1/4</td>
<td>17 1/2 x 4 x 16</td>
<td>17 4 1/2 x 14 1/4</td>
<td>17 x 4 1/4 x 15</td>
<td>17 x 4 1/4 x 15</td>
</tr>
<tr>
<td>Line output</td>
<td>1.93 volts</td>
<td>1.98 volts</td>
<td>2.16 volts</td>
<td>2.05 volts</td>
<td>2.14 volts</td>
</tr>
<tr>
<td>Frequency response</td>
<td>+0.0, -0.88 dB</td>
<td>+0.01, -0.19 dB</td>
<td>+0.5, -0.1 dB</td>
<td>+0.01 dB</td>
<td>+0.08, -0.27 dB</td>
</tr>
<tr>
<td>De-emphasis error</td>
<td>-0.68 dB</td>
<td>+0.6 dB</td>
<td>+1.3 dB</td>
<td>-0.08 dB</td>
<td>-0.21 dB</td>
</tr>
<tr>
<td>Channel separation</td>
<td>98.9 dB</td>
<td>118.2 dB</td>
<td>104.9 dB</td>
<td>117.7 dB</td>
<td>102.1 dB</td>
</tr>
<tr>
<td>at 1,000 Hz</td>
<td>90 dB</td>
<td>98.1 dB</td>
<td>79.2 dB</td>
<td>94.2 dB</td>
<td>61.5 dB</td>
</tr>
<tr>
<td>Signal-to-noise ratio</td>
<td>104.9 dB</td>
<td>106.7 dB</td>
<td>93.9 dB</td>
<td>124.9 dB</td>
<td>110.7 dB</td>
</tr>
<tr>
<td>(A-weighted)</td>
<td>98.6 dB</td>
<td>98.8 dB</td>
<td>103.6 dB</td>
<td>99.6 dB</td>
<td>96.7 dB</td>
</tr>
<tr>
<td>Dynamic range</td>
<td>98.6 dB</td>
<td>98.8 dB</td>
<td>103.6 dB</td>
<td>99.6 dB</td>
<td>96.7 dB</td>
</tr>
<tr>
<td>Distortion</td>
<td>0.0051%</td>
<td>0.0036%</td>
<td>0.019%</td>
<td>0.0016%</td>
<td>0.0017%</td>
</tr>
<tr>
<td>(THD+N, 1.000 Hz)</td>
<td>0.04%</td>
<td>0.026%</td>
<td>0.043%</td>
<td>0.0013%</td>
<td>0.014%</td>
</tr>
<tr>
<td>Linearity error</td>
<td>-0.8 dB</td>
<td>+0.29 dB</td>
<td>+2.0 dB</td>
<td>-0.1 dB</td>
<td>+0.2 dB</td>
</tr>
<tr>
<td>(at -90 dB)</td>
<td>1.3&quot;</td>
<td>1.3&quot;</td>
<td>1.7&quot;</td>
<td>1.4&quot;</td>
<td>1.1&quot;</td>
</tr>
<tr>
<td>Interchannel phase shift</td>
<td>2.400 µm</td>
<td>1.500 µm</td>
<td>1.250 µm</td>
<td>2.500 µm</td>
<td>1.250 µm</td>
</tr>
<tr>
<td>Defect tracking</td>
<td>(Pierre Verany #2 text disc)</td>
<td>2.400 µm</td>
<td>1.500 µm</td>
<td>1.250 µm</td>
<td>2.500 µm</td>
</tr>
<tr>
<td>Disc-change time</td>
<td>10 seconds</td>
<td>8 seconds</td>
<td>8 seconds</td>
<td>9 seconds</td>
<td>6 seconds</td>
</tr>
</tbody>
</table>

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to hit the load button to retrieve it. Three disc positions are accessible when the drawer is opened; the other two can be spun into position with the load button.

The CDC-935's back panel holds a coaxial digital output, fixed analog outputs, ESI bus connectors for the Philips multicomponent remote-control system, and an on/off switch for the infrared sensor. The styling of its plastic front panel matches other Philips components and is an interesting departure from the norm for audio equipment, though one that may not please everyone.

The CDC-935's disc tray was relatively solid compared with those of the others in the group, but it was moderately noisy when changing discs. I thought its owner's manual was unnecessarily confusing. It had the best dynamic-range measurement in the group but placed last in noise, distortion, low-level D/A linearity, inter-channel phase error, and de-emphasis error, and it tied for last place in defect tracking.

SONY CDP-C601ES

The Sony CDP-C601ES is probably the best-built of the five changers I tested. Like other Sony ES components, it has a copper-clad frame and very sturdy internal construction, and its front panel is made from aluminum plate. It also has plenty of features, including thirty-two-track multidisc programming, disc and carousel repeat, disc and carousel random playback, and direct-access track selection. Home recordists will appreciate the peak-search function, for level-setting assistance when recording CD's from the analog outputs, and the tape-length sequencing function with programmable-speed fader.

On the back panel you'll find an optical digital output (a coaxial output is used on the other three changers with digital outputs) and fixed and variable analog outputs. Under the hood are a number of high-tech touches, such as newly designed anti-jitter circuitry and a digital filter that dithers its 45-bit internal data down to 20-bit data for digestion by the changer's HDLC low-bit D/A converters with third-order noise shaping.

The disc drawer barely emerges from the cabinet, so you have to load and unload discs one at a time. It is an easy matter to rotate the platter to the next disc position with the Disc Skip button, however. Even better, the drawer always opens to the last-played disc. That's especially handy when playing a single disc: The changer essentially ignores the other four platter positions and becomes a single-disc machine. The CDP-C601ES's transport mechanism is protected against shipping damage with a transport screw. Its disc drawer seemed the most solid in the group—its stability enhanced by its limited opening distance—and the mechanism was fairly quiet when changing discs.

The Sony changer was the test-bench king. It placed first in frequency response, de-emphasis accuracy, signal-to-noise ratio (S/N), distortion, low-level D/A linearity, and defect tracking, which are among the most important of measured benchmarks.

YAMAHA CDC-735

Yamaha's entry won the quick-draw competition, thanks in part to its on-board table-of-contents (TOC) memory. Normally, each time a disc is loaded into playing position, a player must read the table of contents at its beginning to get track numbers, locations, times, and so forth. The CDC-735, however, reads this information once and saves it until the disc drawer is opened again or power is shut off, enabling it to maintain a brisker pace when reloading discs. Because of this TOC memory and its fast-moving mechanics, the CDC-735 was the fastest in the group at changing discs, doing the job within 6 seconds. Unfortunately, it was also among the noisiest.

For home recordists, the CDC-735 provides a nice edit feature: You can
program a tape length and select tracks from as many as five discs, and the system will automatically arrange your selections to fit onto the two sides of the tape. The CDC-735 can also store track-sequence programs for as many as a hundred discs, which it will use automatically whenever any of those discs is played. Other features include forty-track programmability; single-track, single-disc, and all-discs repeat; single-disc and all-discs random playback; and index search from the remote control.

Four disc positions are fully accessible when the drawer is open, and the fifth position can be rotated into the open with the Disc Skip button. If you are playing a single disc, it will always be accessible when the drawer is open. The front panel is made of aluminum, and because Yamaha feels that front-panel displays can generate a small amount of audio interference, the CDC-735's can be turned off (or dimmed) during playback. The CDC-735 has a variable-level headphone output, variable-level line outputs, and a coaxial digital output with an on/off switch. Curiously, the headphone output is muted if the digital output is switched on. D/A conversion is handled by Yamaha's S-Bit Plus low-bit system with second-order noise shaping and a time-base corrector to reduce jitter.

The CDC-735's disc drawer seemed somewhat less substantial than some of the others, and the frequently used Play/Pause, Stop, and Disc Skip buttons are the same size as other, less important buttons. I also thought its amber display was the least attractive in several respects. First, its tape-edit feature will make life easy. On the other hand, if your eyesight is failing, its dim amber display may make you squint, and so may its one-size-fits-all approach to control buttons.

The Denon DCM-440 is probably the best-looking of the conventionally styled changers, with great fit and finish. And its deletion-based hundred-disc track memory is both convenient and a pleasure to use. If you have some tracks that you hate to hear, this player will let you quickly banish them forever. You'll also like the various repeat and random playback modes and the sharply legible blue display. Finally, if you believe that good old multibit conversion is still superior to the new low-bit methods, this is the only changer among the five that fits the bill.

Despite its relatively low price ($100 below that of any of the other changers in the group), the Philips CDC-935 offers a really great feature lineup. I particularly liked the Personal Preset system—it's kind of like one of those automatic power seats that nestles up to you every time you sit down in the car. I also liked its tape-edit features, which make home recording a snap. And though its bench measurements weren't quite up to those of the other changers in most categories, the CDC-935 had the best score in dynamic range—one of the most important.

No matter how you look at it—features, sound quality, measured performance—these five CD players bury that old LP-era stigma against changers. When your snobby friends brag about their $12,000 single-disc players, have yourself a good chuckle, with my blessing.
Hi-Fi On The High Seas

Jazz is a way of life for Larry Rosen. When he’s not in New York running GRP Records, the jazz label he and the pianist Dave Grusin co-founded ten years ago, there’s a good chance he’s off sailing to some exotic land on his 100-foot Broward yacht, fittingly named Jazz. As you might expect from a musician/producer turned record-company exec, the sleek $3.5 million cabin-cruiser boasts an elaborate audio/video network, custom-installed by Sound Advice of Fort Lauderdale, Florida.

Working with Mark Evans, the project coordinator and a design engineer at Sound Advice, Rosen played a key role in selecting components, especially for the main system in the boat’s salon. “Larry had a very specific set of priorities,” Evans recalls. “He wanted to be able to listen to CD’s as well as DAT, DCC, and standard cassettes.”

For the reference system, Rosen settled on a Denon audio lineup consisting of the 130-watt DRA-1035R receiver, the five-disc DCM-520 CD changer, the DTR-2000 DAT recorder, and the DRR-780 cassette deck. To round things out, he added a Technics RS-DC10 DCC deck. The video equipment includes a Pioneer CLD-1090 CD/laserdisc combi-player, a Philips CDI-910 CD-Interactive player, and a Mitsubishi HS-U54 VHS Hi-Fi VCR and CS-2724 27-inch stereo TV.

Clearly, Rosen is a technology hound (an MD deck is in the cards, too). “It stems from my background as a recording engineer,” he explains. “It’s my profession, but I also like to fool with new technologies as they emerge. Also, part of the stance of GRP is to deliver recordings in [many] formats.”

All of the components are rack-mounted—just in case the sea turns nasty—in a pickled-oak cabinet designed by Plachter Interiors. The TV normally rests in the center of the cabinet; a hydraulic lift enables it to be quickly elevated for viewing. The table-height cabinet also sports two component bays and a number of storage drawers for recordings.

For critical listening, Rosen decided to go with a pair of KEF Model 102/2 Reference Series speakers, which are stowed away in a locker when not in use. “I listened to a number of different speakers before choosing these,” he recalls. “I was looking for a speaker that sounded as natural as possible.”

A Niles HDS-6LRM speaker selector is used to switch between the KEF monitors and an “everyday” five-speaker combo of four Niles Model 200 in-wall speakers mounted in the salon’s headliner (ceiling) and an Infinity Infinitesimal Four powered subwoofer. When the selector is in the everyday position, Rosen can also activate any or all of four pairs of remote speakers—in the aft deck, galley, pilothouse, and sun lounge—each of which has its own local volume control. All speakers and components are wired with Monster Cable.

“The system is not used only for movies and background music,” Rosen says. “When I’m on the boat, I use it for work. I bring along DAT masters and listen to them.”

Of course, because the yacht’s A/V network is so extensive, it’s possible to enjoy music or watch TV almost anywhere—even if you happen to wander beyond the salon system or the areas tied into it. Self-contained mini-systems with speakers and a TV (or a TV/VCR combo) are integrated neatly into the flybridge (the top deck), the crew lounge (which is also linked to a second set of speakers in the captain’s quarters), two guest rooms, the master stateroom, and the office. A 25-watt Sony XR-5500 cassette receiver (adapted from its normal car use) serves as the core audio component for each mini-system except in the stateroom and office, where JVC compact CD and cassette components are used. And to pump up the volume on the wind-batttered flybridge, Evans used a 180-watt Sony XM-3060 car amplifier to drive four Bose Model 101 outdoor speakers.

The A/V package isn’t the only high-tech wonder aboard Jazz, however. Rosen is particularly proud of its network of surveillance cameras—which can be viewed on any of the yacht’s nine TV’s—and its ultrasophisticated Laser Plot satellite-linked navigation system. “You enter your destination on a touch screen, put the boat on automatic pilot, and it will travel from Point A to Point B,” he explains enthusiastically.

With all those distractions, it sure must be tough to get any work done. —Bob Ankosko
Jazz, along with the movies one of the two great art forms America has given the world in the twentieth century, has always been a big part of STEREO REVIEW's musical coverage. Our first issue, for example, featured reviews of new albums by Charles Mingus, Count Basie, John Coltrane, Thelonious Monk, and Sonny Rollins, and in the thirty-five years since then, STEREO REVIEW has continued to document the jazz scene with articles about important musicians (and reviews of their recordings) by some of the best writers on the music around.

Here, as part of our continuing anniversary retrospective, is a chronological sampling.

—Steve Simels

DUKE ELLINGTON—A SERIOUS COMPOSER UNDERNEATH

"Ellington, especially between 1950-1956 when his band appeared to be below his standards, has been sharply criticized by some critics for not abandoning the grueling, time-devouring life of a traveling band leader and instead devoting all his time to composing.

"I'm much too impatient to do that," he explains. "I have a fear of writing something and not being able to hear it right away. That's the worst thing that can happen to any artist. In fact, if the band hadn't always been there for me to try my pieces on, I doubt if I'd have gotten nearly as much writing done as I have. This business of just being a composer, in any case, isn't easy. Look at the hundreds of good composers who come out of the conservatories each year. write hundreds of symphonies, and never hear them played. No, I prefer being sure my music will be played and will be heard, and the best insurance is having one's own band around all the time to play it." —Nat Hentoff (July 1958)
WHEN LOUIS ARMSTRONG TEAMS UP WITH THE DUKES OF DIXIELAND, A SWINGING SESSION ENSUES.

... [The producer] decided to ask for another take. The next Avalon was superb, with a thrilling high-note ending by Louis. The musicians relaxed and listened to the playback.

"Louis sure makes the Dukes sound good," said a visitor. "Almost like jazzmen."

"There's more to them than you think," said their manager, Joe Delaney, defensively. "Don't forget, they've made eleven Audio Fidelity albums that together have sold almost a million-and-a-half records."

Louis Armstrong walked into the control room. "You really like playing with them?" the visitor asked.

"Sure," said Louis. "They're home boys."...

—Nat Hentoff (November 1960)

IS ELLA FITZGERALD A GREAT JAZZ SINGER?

NO. A major jazz singer must swing, improvise imaginatively, and phrase instrumentally. But a major jazz singer must also make each song reflect what he has lived and experienced. Musicianship, however skillful, is not enough. And Ella, technically brilliant as she is, is not emotionally open enough in her singing to merit a place in the first rank of jazz singers. After all these years, do we know yet just who Ella Fitzgerald is?

—Nat Hentoff (April 1962)

BILL EVANS AND THE NEW JAZZ PIANO

"Obviously, you can't find in jazz the perfection of craft that is possible in contemplative music," Evans says. "Yet, oddly enough, this very lack of perfection can result in good jazz. For example, in classical music, a mistake is a mistake. But in jazz a mistake can be— in fact, must be—

YES. There is no direct relationship between jazz singing and personal maturity or depth of emotional experience... That Ella does not spill her guts before her audience and that she lacks a guttural tone no more militates against her competence as a jazz singer than her failure to acquire a police record... Ella Fitzgerald is peerless in jazz on another level; she has virtues that are not to be sought, and certainly not to be found, in Billie [Holiday] or anyone else. Hers is a different vitality, a different not a lesser range of emotions—emotions that reach most listeners as completely as Billie's emotions reached hers.

—Leonard Feather (April 1962)
justified. A note you play unintentionally must be justified by what follows it. If you were improvising a speech and started a sentence in a way you hadn’t intended, you would have to carry it out so that it would make sense. It’s the same in spontaneous music."

―Gene Lees (July 1963)

Columbia’s engineer Frank Laico, with two assistants, was threading tapes, adjusting dials, and visually checking the placement of the battery of microphones on view through a glass panel in the large rectangular studio directly ahead. Davis, meanwhile, was commenting to guitarist George Benson: “When whites play with Negroes and can’t play the music, it’s a form of Jim Crow to me. Studio musicians—they’re supposed to be able to play all kinds of music. So they should know what’s going on in our music too. One, two, three, four—anybody can do that. And if you don’t do it, they don’t believe the beat is still there.” Davis was still smarting from the experiences of a previous session when an otherwise capable studio guitarist had failed him miserably. “I was so mad, they gave me a royalty check and I didn’t even look at it.”

―Martin Williams (February 1969)

In all the years I knew Duke Ellington I never heard him criticize anybody or put them down. But once, at the Hickory House, he made a remark to me in a joking sort of way—“Goodness, you play so many notes!” It wasn’t until some time later that it occurred to me that he might have been telling me in an oblique way that I was overplaying, and he was right! I’ve always tried to heed his advice.

―Marian McPartland (July 1974)

I have been distressed not only by the Duke’s death, but also by the fact that here in London, while tributes have been fervent and well-informed, not a word of acknowledge- ment or appreciation has appeared under the byline of any “music critic” of any London newspaper. I suspect that situation has not been greatly different in Ellington’s native land, and for the same reason. The orchestra he fashioned, and the music he composed for it, constitute one of the musical glories of the century, and yet, throughout his long and productive life, “music critics,” with very few exceptions, have behaved as though all of this were neither modern nor music. They weren’t listening. One is tempted to say that this was the Duke’s tragedy. It wasn’t. It was theirs. —Henry Pleasants (July 1974)

“My sons and the musicians they’ve brought to the house in Connecticut—and into the band—have had a terrific effect on me.” Dave Brubeck says. “They’ve encouraged me to dig into myself, to become more basic, while opening up my more experimental side. I really feel young again. The boys have prodded me to move back in time to 1944, when [Paul] Desmond first heard me. I was free and a bit wild then. Looking back, I realize that I grew less and less liberated over the years. Now, at last, I’m regaining my freedom.”

Chris [Brubeck] explains why this is so: “What we’re trying to do is open people up to the improvised aspect of the music. Dad always tried to do that. We continue in that tradition—over ninety percent of our stuff is improvised. But our music is more diversified than past Brubeck product. Even the Dave Brubeck we offer is different!”

―Burt Korall (July 1975)

Hancock: I have the impression you don’t like electronic instruments.

Albertson: I’m not against them per se, but that highly individual tone that marked the playing of Coleman Hawkins, Ben Webster, or John Coltrane—don’t you think that playing a saxophone through a synthesizer robs the performance of an important human quality?
OPPOSITE PAGE:
MILES DAVIS (IN THE STUDIO) AND BENNY GOODMAN.

THIS PAGE: HERBIE HANCOCK (IN SEVENTIES FUSION MODE), PIANO MEN DAVE BRUBECK AND EARL "FATHA" HINES.
That’s your feeling? Yes. I don’t feel that way, and I have been listening to music for a long time. I started playing piano when I was seven, so I’ve got thirty-one years of experience as a player. So that is your opinion and that doesn’t make it the truth.

Certainly not, even with thirty-one years’ experience as a listener. But let’s get back to your album and those vocals. Why vocals? I never before had vocals on any of my records, and within the past couple of years I started thinking...why not?

Earl Hines, Piano Man

“You’ve got the melody at the beginning and the end, so I guess that was the Devil in between.”

Earl Hines had just finished recording Between the Devil and the Deep Blue Sea for a collection of Harold Arlen themes. His smoothly self-effacing reply to a compliment was nevertheless a revealing description of the performance. Not, surely, that the Devil should really be credited with the improvisation between the melodic statements, but that its spontaneity and invention did indeed suggest some kind of possession.

For more than fifty years Hines has been famous for the independence of his two hands, and they still continue to take him into tortuous mazes from which only he can find the exit.

“Sometimes I don’t know how I’m going to get out,” he says. “I frighten myself...”

—Stanley Dance (February 1980)

Benny Goodman, Seventy-Plus King of Swing

“I asked the real Benny Goodman how he felt about the Hollywood version of his life (a 1956 horror called The Benny Goodman Story, starring Steve Allen in the title role).

“Well, forget it!” he said laughing, as if I had just told a joke. “I didn’t like a good deal of it. I don’t think I’ve seen it more than once or twice; it’s a picture I’m not very intimate with. You know, it’s terribly difficult to make a dramatic story out of a musician’s life when nothing really terribly dramatic has happened. It was different in the case of Glenn Miller—he got lost, you know...”

—Chris Albertson (February 1982)

Neoboppers—the New Jazz

“I like to challenge myself,” said Harry Connick, who started playing on Bourbon Street when he was six. “When I think about what Trane did, what Bud Powell and Art Tatum did, I realize that they worked too hard on this music for me to waste my chance to do anything by playing something that doesn’t challenge me. I have to respect those men for doing what they did and to try to understand them—so I’m dedicating my life to that.”

“All music is a challenge for a little while,” said Branford Marsalis, “but jazz is the only music that is always a challenge. Every time I listen to a Sonny Rollins record I am humbled—it’s such beautiful music. The first record that made me turn on to jazz was Charlie Parker’s April in Paris. What is more beautiful than Charlie Parker playing Summertime? Not a lot, man, not a lot...”

—Chris Albertson (March 1989)
Ah, summer! Steaks on the barbecue. Something long and cool and wet by your side. A dip in the backyard pool.

As the season progresses and we spend more and more time outdoors, most of us reluctantly leave high fidelity behind, waiting for fall breezes to blow us back to our stereo systems. The less discriminating might park a portable radio or boombox by the corner of the patio, but until recently anyone interested in good sound had to go back inside to get it.

Fact is, setting up an outdoor audio system is just about as challenging as its under-the-roof counterpart, but all the rules have changed. The acoustics of open-air hi-fi are radically different from what we are used to, and the speakers themselves vary widely in how they sound outside and how they stand up to the elements.

But there are certainly many to choose from. What speakers you need, where you can put them, how many you want, and what kind of impression you wish to make will all influence what you buy. But, as elsewhere in audio, what you establish will be a system, one that will balance practicality, sound quality, cost... and weatherproofing!

Outdoor audio is mostly about speakers, because the rest of the system can live happily indoors. So how they sound is important, but not necessarily all that important. For one thing, you're probably not going to do a lot of critical listening as you fry those burgers, so not-too-awful is usually okay on the patio. For another, the acoustics of the great outdoors are such that speakers behave very differently there from the way they do inside.

To some extent, all indoor speakers take into account the effects a listening room has on the sound. Reflections of various kinds can radically alter the spectral balance of a speaker, especially at low frequencies, and designers try to anticipate such influences when determining the inherent balance of their products. Generally, however, such boundary effects are minimal outdoors, so many speakers tend to sound thin when played in the open air. In some cases, the low end can be restored by equalization, but that tends to demand lots of power, and not all speakers can handle it. Better to choose something that already has full enough bass not to need support from wall reflections or EQ. Many in-wall speakers fall into this category, and they have the advantage of being quite well protected from the elements—if you can find an appropriate place to install them.

Many, but not all, dedicated outdoor speakers have intentionally boosted bass, and these also should be considered. Ideally, you should audition whatever you are considering outdoors; if that's not possible, listen for lots of bass in the store, or at least check that the speakers have lots of power-handling capacity.

Even if a speaker has the proper sort of balance for outdoor use without equalization, it is likely to be somewhat power-hungry because it will usually need to play louder than it would inside. That's partly because of, again, the lack of reflections, and partly because we tend to sit farther away from outdoor speakers than we do from their indoor counterparts. One solution is...
The 9½-inch-tall MB Quart Model 250 speaker ($399 a pair) combines a ½-inch polycarbonate tweeter and a 5½-inch aluminum woofer in a plastic cabinet. Sensitivity is given as 88 dB and nominal impedance as 4 ohms.

Bose's 9-inch-wide Model 101 ($219 a pair) features a 4½-inch full-range driver in a ported, polystyrene cabinet. Power handling is 60 watts and nominal impedance 4 ohms.

Boston Acoustics' 10½-inch-tall Voyager ($400 a pair) boasts a Lexan cabinet with a stainless-steel mounting bracket. Its low-frequency limit is given as 70 Hz and its power handling as 60 watts.

Simply to use a big amplifier. The other is to choose speakers with high sensitivity—look for figures in the high 80's or even 90's. Not all manufacturers specify sensitivity, though, so you may have to ask a few questions.

**More Is Better**

An alternative to a pair of loud speakers is multiple speakers. In many situations, several speakers playing at low levels can produce a more pleasing sound than a single pair playing at high levels—and your neighbors will much prefer this sort of setup.

One drawback of this approach, of course, is cost. Additional speakers will obviously require more money than a pair, other things being equal, although with outdoor speakers—as with all sorts of speakers—cost and quality are not always closely related.

Technically, the chief risk in using more than a pair of speakers is presenting your amplifier with a low enough load impedance to damage it. Even if you are careful to select speakers with a relatively high nominal impedance—8 ohms, say—you can't be sure that it won't dip to a dangerously low impedance at some frequencies. And even if everything's okay on that score, it's usually unwise to connect more than a second pair of speakers in parallel (especially if the outdoor speakers are already running in parallel with the indoor system, a practice that should be avoided anyway).

The safest way to run multiple speakers outdoors is to amplify them individually. While this does increase cost, the amplifiers can be low power and thus fairly cheap.

**Singin' in the Rain**

Wherever you live, one major enemy of an outdoor speaker is likely to be moisture, in the form of rain and humid air. To some extent, the effects of rain can be minimized by mounting the speakers in sheltered locations where it can't fall directly on them. That's not always possible, however, and even when it is, rain can still blow about and splash onto a speaker, so take some care to check the water-resistance of a particular model.

Look first at the enclosure. Most dedicated outdoor speakers are made of some sort of plastic, but you may prefer a model that would normally be used inside. That might be fine, but many indoor speakers are constructed of particleboard and, as one manufacturer put it, "particleboard turns to oatmeal in the rain."

Be careful with speakers that aren't
completely sealed. If there’s a port, make sure it’s well protected from rain and blowing winds so moisture is unlikely to get inside, where it could cause nasty problems: rusting components, mold, even tiny critters. Mere humidity can cause some of these, too, and it’s even worse if there’s a lot of salt in your air. Consequently, ported enclosures should probably be avoided in seaside installations, where even the small holes in banana-plug terminals might lead to trouble.

The drivers themselves should be plastic—polypropylene is ideal, according to industry sources. Cones made of fiber or, worse, paper can get soggy and disintegrate (although one manufacturer of outdoor speakers for professional use says you can prevent that by spraying the cones with Scotchgard). Metal cones and domes are also virtually weatherproof. Foam surrounds, on the other hand, can eventually admit moisture, but they are often used anyway to save money. Unless your speakers will be well out of the rain, ante up a few extra bucks for speakers with impervious (usually rubber) surrounds.

**Cool or Hot**

The other major aspect of weather is temperature. Fortunately, even general-purpose speakers can normally work without problems over a wide range of temperatures. And while extremely cold weather could conceivably cause enough contraction to affect the free movement of a speaker’s voice coil, or cause a plastic cone to become brittle, it’s unlikely that anyone would want to listen outdoors under such conditions.

Heat is another matter, and hot weather is the main justification for outdoor listening. Very high temperatures can, indeed, affect some of the materials used in speakers (as well as the glue that bonds them together), and it might even cause minor electrical changes in a crossover network, although these are not likely to be very severe. Making sure that the speakers are located in the shade is usually an adequate precaution. If that’s impossible, use light-colored speakers that reflect the heat rather than absorbing it. If the ones you choose come only in black, consider painting them.

**The Light Fantastic**

One potentially damaging element of sunlight is ultraviolet (UV) radiation, which can affect your speakers as well as your skin. Those rays can quickly turn some speaker materials—
Itec Lansing's 15\(\frac{3}{4}\)-inch-tall Model 66 ($200) houses two 6-inch polypropylene woofers and a polyimide dome tweeter in an ABS plastic enclosure. It can also serve indoors as a center-channel speaker.

Jamo's 8-inch-tall Indoor/Outdoor 1 ($238 a pair) has a 4-inch woofer and \(\frac{3}{4}\)-inch dome tweeter. Sensitivity is rated as 90 dB, the low-frequency limit as 80 Hz. A three-angle mounting bracket is included.

EAR says that you can submerge its AES 1.4 ($399 a pair) in water, and it will still work. It has a 5\(\frac{1}{4}\)-inch metal woofer, a 1-inch titanium tweeter, a polyethylene cabinet, and a plastic grille.

The 7-inch-tall KLH Model 610 ($150 a pair) features a die-cast metal enclosure that houses a 4-inch woofer and a 1-inch tweeter. Power handling is rated as 60 watts, sensitivity as 85 dB, and bandwidth as 80 to 20,000 Hz. Mounting hardware is included.

Foam surrounds, for instance—to dust, and cause glues to disintegrate. Keeping your speakers out of direct sunlight is a sensible precaution, but if that doesn’t fit your situation, you can minimize UV effects by picking a speaker with a grille that blocks most of the rays. If the grille snaps off, look through it in sunlight; if you can see much (or if you can see the drivers clearly when the grille is in place), UV can get through and do its damage.

### Ties That Bind

However well sealed a speaker might be, there are a couple of things that have to be on the outside of the enclosure, exposed to the elements: the connectors. There are basically three types, but only one is ideal for outdoor use. Jacks for banana plugs, as noted, run the risk of letting moisture into the box unless steps are taken to keep rain from falling directly on the speaker. Spring-loaded clips are sealed, but many of them are too flimsy to stand very much disconnection and reconnection. While it’s not much of a concern indoors, metal parts are likely to oxidize quickly outdoors, making for a faulty contact. You can remove the oxidation by making and breaking the connection a few times to rub it off, but that’s difficult when the terminal has fallen apart. Heavy-duty binding posts are the best, but they do cost a little more. If they are gold-plated, even oxidation is not a threat.

### Brace Yourself

It's inadvisable to place most outdoor speakers on the ground, a deck, or any other level surface, because they will probably end up sitting in a puddle sooner or later. Wall mounting is safer, and almost all outdoor-speaker makers supply brackets to make it easier. Even some indoor speakers have appropriate hardware, and there are a number of third-party brackets that can be used with a wide variety of speakers. Whichever you choose, make sure the brackets are rustproof and designed for solid connection to whatever surface you have available. If they accommodate only tiny screws and you want to mount them on a cinderblock wall, for instance, you're in trouble. And unless your speakers have perfect dispersion (and none do), make sure that the brackets will let you swivel them to face your main listening area.

Take a good look at how the braces attach to the speakers themselves. Flimsy tabs that fit into recesses on the enclosures might be less obtrusive.
than heavy bolts, but they might also result in one of your speakers coming loose and bopping your Cousin Frieda on the head. Worse, the speaker itself might be damaged.

... and Away We Go!
The out-of-doors is basically hostile to audio equipment, and even the most impervious speakers won't last forever when exposed to nature. It is, however, possible to prolong a speaker's life by the simple expedient of taking it inside when it's not being used. To that end, many mounting brackets are designed to make dismounting relatively quick and easy, and the few moments it takes to disconnect or reconnect the cables is time well spent. In most parts of the country, taking the speakers inside in the fall and putting them back out in the spring might double their life, and wherever you live it makes sense to get them in—or at least cover them—when storms are on the way.

Outdoor audio is a relatively new phenomenon but one that's gaining in popularity. The choice of speakers is thus much wider now than it was only a few years back, and the right one for you is out there somewhere. If you start now, you should be able to find it before the barbecue season comes to an end.

### OUTDOOR SPEAKER CHECKLIST

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<td>□ Adequate sensitivity (high 80's, in dB SPL)</td>
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<td>□ Adjustable angle or swivel</td>
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Advent's 11-inch-tall Indoor/Outdoor Mini-Advent ($200 a pair) has a 5¼-inch polypropylene woofer and a ½-inch polycarbonate tweeter. Frequency response is rated as 110 to 21,000 Hz ±3 dB, sensitivity as 88 dB.

Sonance's 13-inch-tall MB30 ($499 a pair) teams a 6½-inch woofer and 1-inch tweeter in a plastic cabinet with a stainless-steel grille. Frequency response is given as 60 to 20,000 Hz ±3 dB, power handling as 110 watts, and sensitivity as 91 dB.

Polk Audio's two-way AW/M3 ($140) has a polymer-coated woofer with a rubber surround, an integral mounting bracket, and an epoxy-coated metal grille. The low-frequency limit of the 11¼-inch-tall speaker is given as 80 Hz and its sensitivity as 89 dB.
DON'T fret—the analog cassette deck isn’t going the way of the turntable—at least not yet. Sure, the audio industry hopes to replace the format with either its digital doppelgänger, the Digital Compact Cassette (DCC), or the noncompatible but ultrahandy MiniDisc (MD). In the meantime, though, you’ve still got your trusty deck, and you might as well get the most out of it.

Unlike just about all the other components in your system, most of which require only some dusting now and then, a cassette deck needs to be looked after if it’s to perform well. Most important is regular cleaning of all the parts that actually touch the surface of the tape. The magnetic coatings that enable tape to retain a signal tend to shed slightly, and the debris accumulates on heads, capstans, and pinch-rollers, which can lead to uneven tape motion, poor tape-to-head contact, and gradual loss of high frequencies.

You could just haul your deck in to your local repair shop when routine maintenance is required. But there's really no trick to cleaning the transport and demagnetizing the tape heads and other exposed metal parts. The deck will need cleaning, at least, after every 10 hours or so of use. Before you begin, consult your owner's manual for any special instructions. Some heads shouldn't be cleaned with alcohol, for example, and the manual will say so.

Cleaning and demagnetizing by hand, as described here, usually gives the best results, provided you are thorough and careful. On the other hand, a good cleaning cassette used regularly is better than a packet of swabs and a bottle of alcohol left untouched on a shelf. And a cassette-shell demagnetizer may actually be a better choice for most people than a more powerful handheld unit, simply because it's more foolproof. Demagnetization is one of those things that is better not done than done badly.

BY GLENN KENNY
1. Don’t go at your deck with harsh scrubbing tools like a toothbrush—these things must be done delicately. You won’t need to take anything apart, so put those screwdrivers away. Forget that additive-laden rubbing alcohol, and for heaven’s sake save that glass of bourbon for after you’ve finished.

2. Use the proper tools—pure isopropyl alcohol, plenty of cotton swabs, and a handheld demagnetizer or a cassette-shell head demagnetizer.

3. Parts needing attention: the capstans (the two thin steel poles), record and play heads (in the middle), erase head (the small head at left), pinch-rollers (the two rubber wheels at the bottom), and tape guide (just above the left pinch-roller).

4. When using a handheld demagnetizer, first turn the deck off and remove any recorded tapes from the area. Stand at least a foot away when you turn the demagnetizer on, and approach slowly. Merely pass the tip over the tape heads and other parts—don’t touch them. Pull away slowly before turning it off.

5. Don’t soak the cleaning swab with alcohol. That will just drip liquid everywhere, and loosened fibers from the swab may detach themselves and stick to the tape heads and other parts.

6. Lightly moisten the swab, and don’t hesitate to use a new one for every different part you clean. Swabs are cheap, tape heads aren’t.

7. Don’t poke or rub too hard, especially when swabbing the heads. Be thorough, though. To clean dirty pinch-rollers, turn the deck on and press play, which makes them rotate. Hold the swab against each one firmly enough to pick up all the shed oxide particles.

8. A discolored swab is the sign of a job well done. The gunk on the used swabs will bring home the difference that a careful but thorough cleaning can make. Now you can power the deck back up, pop in a cassette, sit back, relax, and enjoy that drink. You’ve earned it.
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 NATURE'S ENCORE
American Music Club: 
In the Gutter, but Looking at the Stars?

Popular culture has always had a soft spot for the "beautiful loser"—the artist, driven to excess by an intellectual malaise that can make no sense of the world and its affairs, whose life is going down the drain with a kind of woozy stylishness. From Thomas De Quincey's nineteenth-century Confessions of an English Opium Eater to a contemporary film like Barfly (based on the career of the gonzo alcoholic writer Charles Bukowski), the idea of a life steeped in art, substance abuse, and profound melancholy has provided the grist for classic literature, movies, and music.

American Music Club has bought into that aesthetic from album one, and "Mercury," the group's latest—their fifth, and their major-label debut—refines it like a fog composed of the finest droplets. Fortunately, the group's leader and songwriter, Mark Eitzel, is aware that romanticizing dissipation can be wrongheaded and even dangerous. At the same time, he can't completely shake its claim on him. You might think he'd have begun to crawl out from under the volcano by now, but for this album, at least, he's still making a home there.

The groggy, anesthetizing tone of such songs as Gratitude Walks, Apology for an Accident, and The Hopes and Dreams of Heaven's 10,000 Whores has a fatalistic beauty that's undeniable, like a thick comforter pulled over your head on a morning when you just can't face the world. Eitzel's voice conveys a weary torpor, battling anomic, he's barely attached to the music and slowly being sucked into a quicksand of solipsistic despair. In the face of all that, the detail and care he puts into his singing qualifies as heroic. "Mercury" recalls Love's classic "Forever Changes," an album of beauty and sadness sung brilliantly despite singer/songwriter Arthur Lee's perception of the dying of the light. The lengthy, surreal song titles in "Mercury"—such as What Godzilla Said to God When His Name Wasn't Found in the Book of Life and Dallas, Airports, Bodybags—also link it to the ambitious, enigmatic "Forever Changes."

No other album in recent memory has managed to create and sustain a mood so singular, full of quiet portent and remorseless self-scrutiny. In Apology for an Accident, Eitzel sings, "I tried to figure out what the world needs me for," which sounds like the prelude to a suicide note. In Will You Find Me? he cries like a man in search of a life raft, singing plaintively from within a pea-soup fog of Spanish guitar and spectral keyboard sounds: "If I have to wait anymore, then I won't believe in the love that I've known or the life that I've known."

Although Eitzel appears to live out those words, he's ultimately too smart to believe them, and therein lies the tension that animates this record. Near the end, a dose of black humor titled Johnny Mathis' Feet helps lighten the mood ever so slightly. Eitzel offers his songs for critique to the crooner, only to have him retort, "Never have I seen such a mess." Such moments of self-effacement, dark as they may be, are nonetheless welcome. This is a powerful album, with the courage of its contradictions. It should be interesting to see how—or if—Eitzel ever resolves them.

Parke Puterbaugh

AMERICAN MUSIC CLUB
Mercury
Gratitude Walks; If I Had a Hammer; Challenger; I've Been a Mess; Hollywood 4-5-92; What Godzilla Said to God When His Name Wasn't Found in the Book of Life; Keep Me Around; Dallas, Airports, Bodybags; Apology for an Accident; Over and Done; Johnny Mathis' Feet; The Hopes and Dreams of Heaven's 10,000 Whores; More Hopes and Dreams; Will You Find Me?
REPRISE 45226 (50 min)
James Earl Jones Draws A Fine “Lincoln Portrait”

There have been any number of American-music collections celebrating democracy and the American ideal, but the new “Portraits of Freedom” from Delos—part of its award-winning Great American Composers series—is of more interest than most. The musical quality is variable in this collection of works by Aaron Copland and Roy Harris, but the performances by Gerard Schwarz and the Seattle Symphony have a less triumphal tone than usual, and the sound throughout is of the very best.

The CD opens with Copland’s ubiquitous Fanfare for the Common Man, done for once in a fascinatingly reflective manner, without the usual bluster. Canticle of Freedom (1955) voices noble sentiments via Copland’s rather foursquare setting of John Barbour’s fourteenth-century text, and the Seattle Symphony Chorale puts the words across more clearly than the Mormon Tabernacle Choir did in Michael Tilson Thomas’s CBS recording. The 1938 An Outdoor Overture, which Copland composed for CBS recording, The 1938 An Outdoor Overture, which Copland composed for CBS recording, the 1938 An Outdoor Overture, which Copland composed for CBS recording, and the 1938 An Outdoor Overture, which Copland composed for CBS recording.

COPLAND: Fanfare for the Common Man; Lincoln Portrait; Canticle of Freedom; An Outdoor Overture
HARRIS: American Creed; When Johnny Comes Marching Home
James Earl Jones; Seattle Symphony and Chorale, Schwarz
DELOS 3140 (62 min)

Leon Fleisher’s Triumphant Return

By the time Leon Fleisher reached his mid-thirties he had documented his status as one of the outstanding pianists of his generation in recordings of the great concertos by Beethoven, Brahms, and others with the Cleveland Orchestra under George Szell, but he has made few recordings since 1965. It was then, at the age of thirty-seven, that Fleisher found himself no longer able to perform with his right hand, and he addressed himself to the repertory for the left hand alone, much of which was created in the decades following World War I for the Austrian pianist Paul Wittgenstein, who lost his right arm in combat. The best known of all such works is Ravel’s Concerto in D Major, which Wittgenstein introduced in Vienna in 1932 but didn’t much care for; another is the fourth of Prokofiev’s five piano concertos, which Wittgenstein actually refused to perform (it wasn’t heard till after Prokofiev’s death); yet another is Diversion, a concerto in the form of an extended set of variations that the young Benjamin Britten composed in our country in 1940 and which actually delighted Wittgenstein, who was himself resident here by then. Now Fleisher has recorded these three works with Seiji Ozawa and the Boston Symphony Orchestra for Sony, an auspicious start for a new se-
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ries on that label, which has already reissued the pianist's celebrated two-hand recordings on CD.

The Ravel concerto in particular is a work Fleisher has made very much his own, as certified in his earlier recording of it with Sergiu Comissiona and the Baltimore Symphony Orchestra, now on a Vanguard CD. The remake with Ozawa is more than a recertification or a sonic updating: It is nothing less than a triumph—for Fleisher, for Ozawa and the Bostonians, and for the work itself, which has never been more appealing. Fleisher's Baltimore recording of the Britten, issued about fifteen years ago on a Desto LP, hasn't made it to CD, but it is even more emphatically superseded by the Boston remake. Fleisher has clearly digested this work more thoroughly, and apparently come to love it more, over the years, and Ozawa seems to share his enthusiasm for it; their recording could be just the thing to catapult it at last into as solid a position in the standard repertory as Ravel's concerto holds. And the Prokofiev so crackles with wit and glows with episodes of lyricism and simply dazzles with all-round brilliance that one can only wonder how Wittgenstein could have said he hadn't understood it, how he could have failed to recognize it as a vehicle hardly less effective than the Ravel.

One might wonder, too, whether Fleisher himself would have been so productively drawn to these works if he had not lost the use of his right hand. In any event, while I deeply wish he were still playing Beethoven and Brahms and Schumann, it is not likely that any of the three works on this sumptuously recorded disc will be more persuasively set forth.

Richard Freed

RAVEL: Concerto for the Left Hand
PROKOFIEV: Piano Concerto No. 4
BRITTEN: Diversions
Fleisher; Boston Symphony Orchestra, Ozawa
SONY 47188 (68 min)

The Rebirth of Rosanne Cash

Before you buy Rosanne Cash's "The Wheel," there are three things you should know. One, it's not anywhere near as dark and tortured as her last album, "Interiors." Two, it's not a country album by any stretch of the imagination. And three, Cash, as avant-garde and imaginative as any artist working in any genre today, is not above the occasional cliché lyric, cloying image, or not very engaging melody. But even in her transitional phases, Cash is always more involving and interesting than most artists meandering down the pike.

Since "Interiors" chronicled Cash's deeply troubled marriage and subsequent divorce from singer-songwriter Rodney Crowell, it's not surprising that "The Wheel" deals with her personal and spiritual healing, her sexual rebirth, and her profound change of lifestyle. Her songs are no down-home homilies. Where she once kept one eye on trendy Los Angeles and the other on traditional Nashville, she now speaks of the isolation and solitude of living in New York and of the romantic and spiritual font of Paris. Never one to soft-soap anything, however, Cash couples her songs about hope and renewal with songs about doubt and frustration. Even as she's exuberant about the opportunity to change partners, she later laments (in You Won't Let Me In) that she can't make a deep and lasting connection with the man whose bed she now shares.

And for all her talk about rising From the Ashes, she can't resist a bitter parting shot to Crowell in the angry Roses in the Fire, a kind of melodic and attitudinal takeoff on the Rolling Stones' Paint It Black in which she tosses romantic peace offerings aside when a phone call makes her mate's infidelity clear. In a voice that sounds more like a clenched fist than her usual treacle-and-lemon tones, she sputters the album's strongest lyrics: "Oh, I'll kill you if we can't be friends / I'll bleed like diamonds running through your hands / I'll be a bitter taste you can't forget / And I won't leave this world until you relent."

Long-time fans will be elated that this brilliant artist and compassionate woman is now experiencing a Phoenix-like regeneration, evident even in her newly sleek and sculpted body. (She is almost unrecognizable in two of the album photos, one of which makes her seem like a medieval priestess and the other like a romantic party doll.) But her music is simply more resonant and vibrant when she's pitching those flowers in the flames than when she's summoning angels for the new object of her desire. Some of these songs float along in a dreamy yet controlled mood, as if Cash were repeating a mantra. Even when she tells her new friend that she knows The Truth About You, an intense song of sharing, there's nothing about the melody—folky, plain and sketched out only with acoustic guitar and harmonica—that makes us care.

Still, "The Wheel" is so rich with psychological probing, both personal and universal, and so effectively blends cosmic and ancient imagery with modern feminist ideas (God is a woman, for starters), that it becomes an uplifting work with a promise of transcendence. One wonders where the wheel will spin Rosanne Cash next.

Alanna Nash

ROSANNE CASH
The Wheel
The Wheel; Seventh Avenue; Change Partners; Sleeping in Paris; You Won't Let Me In; From the Ashes; The Truth About You; Tears Falling Down; Roses in the Fire; Fire of the Newly Alive; If There's a God on My Side
COLUMBIA 52729 (45 min)
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Who'd a-thunk it? For ten years, people doted on the Replacements and gave much of the credit to singer-songwriter extraordinaire Paul Westerberg. Now that the group has splintered, two other members have beaten Westerberg into the store with albums, and both show that the Mats weren't a one-man band. The bassist, Tommy Stinson, has switched to guitar and lead vocals while fronting a Stonesian band called Bash & Pop. In "Friday Night Is Killing Me," the group's first album, he shows that, like Westerberg, he writes songs that revel in the hard life while wallowing in its pitiful shortcomings. As he yelps in the first lines of the opener, Never Aim to Please. "Tried to keep the party rolling / It rolled over me." Elsewhere, it sounds like Stinson has some pretty profound things on his mind, though he works hard to deflate his own image. Unfortunately, he tends to chew and swallow his own words while singing. Too often the subtlety—and even the basic meaning of his lyrics—is lost. Listening to "Friday Night" is like playing with an eight-ball toy of his lyrics—is lost. Listening to "Friday Night" is like playing with an eight-ball toy.

JAMES BROWN
Universal James
SCOTTI BROS. 75274 (49 min)
Performance: Papa bounces back
Recording: Good

In spite of bruising personal problems, James Brown has gone far more than just rolling along. In this new recording, the first since his release from prison, the Godfather of Soul has bounced back with all the spirit, energy, and funky appeal that have made him a living symbol of black popular music. Not surprisingly, he shouts, grunts, and sings his way through such infectious tunes as Just Do It and Watch Me, with their steady rump-rolling rhythms and catchy horn licks. But there are some unexpected delights here too, such as the disc's opening, where the dramatic introduction of "Mr. JA-a-A-A-Ames Brown" leads into an ingenious tribute to the master by several guest rappers, with him joining in. It's only fair, since Brown's records have been sampled for rap hits more than those of any other artist.

 Nevertheless, Bruce Hornsby is Bruce Hornsby. He still sings, for the most part, like a guy about to burst with feeling. The ringing chords of songs like the title tune still outnumber their more somber neighbors. And he can still spin quite a syncopated yarn. Despite his deepening musical vision, he'll probably still make most rock critics pretty cranky. That doesn't bother me much, and I hope he doesn't lose any sleep over it, either.

CHRIS ISAAK
San Francisco Days
REPRISE 45116 (42 min)
Performance: Brooding
Recording: Good

It's no accident that Chris Isaak appeared in Twin Peaks: Fire Walk With Me, his music is as evocative and enticing as that movie's alien, secretive milieu. He sings like a man lost in a forest. Even his more up tempo material—a song like 2 Hearts, say—sounds like a whispered secret. Everything in "San Francisco Days," his new album, is shrouded in a proverbial mist.
ial fog of minor-key apprehension, with Isaak insinuating that human motives are complicated beyond our power to comprehend and that romantic involvement is an invitation to danger. It is a subtle creeper of a record, representing perhaps his finest hour as a songwriter and performer.

In its livelier moments, keyboards that sound like big, soulful Hammonds (in Move Along) or cheesy, garage-combo Voxes (I Want Your Love) goose the songs along, creating an atmosphere that alludes to rock's earlier decades. But it's the guitar work, with individual notes and lightly strummed clusters resembling the distant sound of a foghorn warning of impending shoals (just check out 5:15 or Waiting), that really sets the edgy, portentous mood. Isaak's voice coolly glides over everything, subtly tremulous even as it tracks a smooth, mannered trajectory. "San Francisco Days" sustains its entrancing atmosphere almost to the very end, faltering only with the longish Round & Round, which is better relegated to Isaak's concert repertory, and a by-the-books cover of Neil Diamond's Solitary Man. But in numbers like Lonely with a Broken Heart and Beautiful Homes, he weaves a web that's as irresistible as it is fatalistic. As with the mythical sirens' song, it's hard not to follow where Chris Isaak beckons.

**JOHN & MARY**

The Weedkilla's Daughter

RYKODISC 10259 (42 mm)

**Performance:** Enchanting

**Recording:** Very good

If you can't get enough of 10,000 Maniacs, then check out John & Mary, who are on the same family tree. Guitarist John Lombardo was an original member of the Maniacs. Mary Ramsey's voice bears an astonishing similarity to Natalie Merchant's, and their small ensemble often includes Maniacs Robert Buck and Jerome Augustyniak. The overall sound—pastoral, lithe, richly evocative—is highly reminiscent of the elder act. The more the merrier, as far as I'm concerned, because "The Weedkilla's Daughter" is a pure delight, giving off a glow as golden as late-afternoon sunlight.

As in John & Mary's first album, the lyrics here frequently awaken slumbering memories of childhood's playful idioms. In numbers like Clare's Staff, where guest Alex Chilton adds just the right hint of near-dissonant guitar, and I Wanted You, a Beathop-pop song written two decades earlier by the British duo Hudson and Ford, John & Mary stake out an identity that isn't so closely bound to the Maniacs. I Wanted You, in fact, proves that Ramsey didn't acquire her way of singing entirely from studying X-rays of Merchant's larynx. When her delivery is as unaffected as it is in this song, her voice turns out to be more frail and flutelike than Merchant's. Instrumentally, John & Mary's personal territory is defined by his acoustic twelve-string and her supple viola.

Intriguingly, after most of a CD's worth of impressionistic, memory-filmed songs, "The Weedkilla's Daughter" closes with three songs about death: Clouds of Reason, a sad but bouncy chantey about a young sailor's misfortune at sea, Maid of the Mist, an instrumental inspired by a ghost story based on Indian lore, would have an instant contender for record of the year. Unfortunately, that track sets a standard that precious few other tunes here even approach. In fact, the album's lows sink as deeply as its highs soar skyward.

Pop doesn't get much lazier than the sappy ballad Just Be a Woman or Black Girl, which could pass for filler from a 1970's Curtis Mayfield soundtrack, or the agonizingly drawn-out Sister, or the generic, dilettantish reggae of Eleutheria ("The sunshine is a-shining / Because it is what it is.") Kravitz sings, a line that wouldn't pass for enlightened even with your most spliffed-out islander. Then there are the de rigueur come-on songs, with falsetto vocals drizzled over choppy, angular funk—they won't exactly threaten Prince's purple reign. Even when Kravitz hits the mark, his versatile craftsmanship is more derivative than groundbreaking, raising a broader question—to wit, how long can the endless recycling of familiar forms continue before rock finally burns itself out? The embers still glow fitfully here, but they're covered in telltale-gray ash.

**KENTUCKY HEADHUNTERS**

Rave On!

MERCURY 512 568 (40 min)

**Performance:** Tries too hard

**Recording:** In your face

The Kentucky Headhunters jump in feet-first here with a blazing version of Carl Perkins's Dixie Fried, and they wind down the album with a ho-hum take on Blue Moon of Kentucky, Elvis Presley's first single. In between those twin tributes to the Sun Sound lie a bunch of songs that come up way short in comparison. The Headhunters attack songwriting with a pidedriver's subtlety, apparently envisioning themselves as the missing link between Lynyrd Skynyrd and Hank Williams, Jr. They've got plenty of volume but not enough vision, unless a brace of clumsily worded songs concerning the ideal "redneck girl" (S.W.I., works behind the bar, does the dirty boogie, sleeps with a gun under her pillow) tickles your fancy.

Late in the proceedings, the band cuts loose from their dull mornings with Freedom Stomp, a genuine Dixie-fried boogie monster that'll make you want to quit your job and dance barefoot in the front yard, Muddy Water, and My Gal. It's still not enough, though. There have been some personnel changes since their last album, and the new singer simply overdoes it, growing like a grizzly bear. Combined with too much pro forma, cliché-ridden Southern rock, it all adds up to an album that squeals its wheels loudly without really going anywhere.

**LENNY KRAVITZ**

Are You Gonna Go My Way

VIRGIN 86/964 (46 min)

**Performance:** Mixed

**Recording:** Likewise

If every song in "Are You Gonna Go My Way" were as good as its title track—a syncopated, guitar-powered rock-funk powerhouse that opens the album—Lenny Kravitz...
Though you can’t envy Johnny Van Zant, having to fill his late brother Ronnie’s shoes, you might have hoped he’d have more to sing than the compendium of clichés that pass for lyrics in “The Last Rebel,” the reconstituted Lynyrd Skynyrd’s second studio outing. The spurious premises begin with the first song, Good Lovin’s Hard to Find: “Every woman’s out there lookin’ for a rich man / Every man’s out there lookin’ for a perfect 10.”

There’s no philosophical consistency, just the invertebrate jaw-flapping of “rebels” who seem proud to be uninformative: “I don’t read the paper / I don’t watch the news.” Van Zant brags in Kiss Your Freedom Goodbye, whereupon he complains about how society’s ills are overwhelming his small town (pop. 62). In Can’t Take This Away he laments the removal of Christian symbols and the Pledge of Allegiance from classrooms; one song later this paradox of virtue is taunting: “If you’re looking for trouble, step outside of this bar.” With Johnny leading the charge, Skynyrd sounds like reactionary right-wingers instead of the common-sense individualists they were during Ronnie’s reign.

Musically, they simmer rather than cook much of the time, although Gary Rossington’s slide guitar still provides reliable sizzle. The group flexes its muscle in South of Heaven, an archetype Southern rocker that’s all sinew, and then pulls off a slow, pretty number entitled Love Don’t Always Come Easy. But this band of survivors really opens up and displays its range in two longer tunes: The Last Rebel, a dramatic lament for a soldier returning broken from the Civil War, and Born to Run, an extended son of Free Bird that moves from a slow, opening exposition to a kicker jam. Although there’s plenty here to please Skynyrd diehards, there’s not quite enough to match former glories, and the words are all too often an out-and-out drag.

Richard Thompson
Watching the Dark—A History of Richard Thompson
HANNIBAL/RYKO 5303
(3 CD’s, 217 min)

If you’re looking for “Richard Thompson’s Greatest Hits,” this new boxed set is not, strictly speaking, it; lots of A-list Thompson tracks aren’t included. If, however, you’re looking for proof that Thompson is one of the two or three greatest songwriters and guitarists to have emerged from post-Beatles English rock, look no further—this career retrospective (every important album is represented), fleshed out with riveting live cuts and unreleased tracks, documents one of the richest bodies of work in contemporary music. Act now.

Masters of Reality
Sunrise on the Sufferbus
CHRYSALIS 21976 (42 min)
Performance: Cream Livest; Recording: Excellent

Eric Clapton may be hauling in the loot and the Grammys, but his old Cream mate Ginger Baker is involved in a much more interesting musical project at the moment: Masters of Reality. Comprising recent U.S. arrival Baker and two upstate New Yorkers who formerly made an uninviting metallic din, this trio carries on where Cream left off, mixing blues-based progressions with songs of a more delicate, arty cast.

Guitarist/singer Chris Goss is a ringer for Cream’s Jack Bruce, and he’s equally capable of tremulous belting and restrained pop crooning. Baker’s still got the quickest wrists in the West; listen to the crackling parade beat he lays down in She Got Me (When She Got Her Dress On)—but his influence is actually more subtle than that, keeping Masters of Reality to the high standards of his old band. The studio-crafted quality of such songs as Jody Sings and 100 Years (of Tears on the Wind) recalls the more experimental side of those Sixties artisans, making for engaging daydreaming. Then there’s the priceless funny T.U.S.A., in which Baker declaims on Americans’ inability to make a decent cup of tea. Wonderful! P.P.

Dolly Parton
Slow Dancing with the Moon
COLUMBIA 53199 (41 min)
Performance: Solid; Recording: Good

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business or her attempts to reach the wider pop market, her work was often bland and generic. She began to recapture some of her Nashville flair a couple of years ago in "Eagle When She Flies," and now she grabs two fistsful of Music City in "Slow Dancing with the Moon." A whole bunch of big names accompany her, from Chet Atkins to Mary-Chapin Carpenter to Billy Ray Cyrus, which gives the album a little show-biz tingle, but, honestly, most of them are window dressing. Parton has no one to thank for the album's strength more than herself. That's because Dolly Parton, songwriter, has delivered some choice tunes for Dolly Parton, singer. Parton wrote or co-wrote seven of the ten songs here, including a heavy-breathing rouser about hunks, Romeo, and a whisper-soft plea for family values, "What Will Baby Be." They may not have quite the hickory-smoke tang of her best songs in the Seventies, but she isn't the same woman today as she was back then. She does, however, deliver these sentiments about love, heartache, and God with the same incomparable soprano. In the title tune, her vibrato flutters out in ribbons of tenderness, and her gospelized version of Jackie DeShannon's "Put a Little Love in Your Heart" raises the steeple right off the church. From start to finish, "Slow Dancing with the Moon" is a solid winner. Dolly, it's nice to have you back.

R.G.

STING
Ten Summoner's Tales
A&M 31454 0070 (48 min)
Performance: Serious fun
Recording: Very good

That Sting, he's a real card. He's planted any number of jokes and puns in this album, starting with the title, which plays on his last name: Sumner. The chorus of "Love Is Stronger Than Justice (The Manicatted 7)," with its oozyly sincere support for family values, breaks up the sordid tale of a guy who kills six of his brothers to get a woman. And in Seven Days, the rushed backbeat plays off the anxiety of the guy in the song (who actually says, "Woe is me"). Before you think that Der Stingle has really lightened up and delivered a comedy album, you should know that King Brood sings most of this stuff with a straight face. He may be cracking on the inside, but he doesn't want that to show. Might spoil the irony. Tongue-in-cheek intentions aside, "Ten Summoner's Tales" may be the most purely enjoyable work Sting has done since leaving the Police force. He seems to take a simple pleasure in pop music at this point, whether that means an unabashed proclamation of love ("If I Ever Lose My Faith in You") or a softly realized agriculture-and-sex metaphor ("Fields of Gold") or a rollingick claim of you-don't-know-me in "Epilogue (Nothing But Me)."

Musically, Sting seems to have mellowed a little. Instead of going for Grand Statements, he grabs onto a hook and rides it for all it's worth. There are some jazzy undercurrents here, thanks to keyboardist David Sancious and the rhythm section, Sting and drummer Vinnie Colaiuta. Colaiuta doesn't get a chance to goose the man as much as Stewart Copeland once did, but the music does approach snap-and-crackle pop a couple of times. That's not bad for a forty-one-year-old father who recently married the mother of his children. Maybe Sting's midlife crisis is over. "Ten Summoner's Tales" is certainly the work of a guy who's decided to enjoy life.

R.G.
JAZZ

DAVE BRUBECK

Time Signatures—A Career Retrospective
COLUMBIA/LEGACY 52945
(four CDs, 275 min)
Performance: Broad and bountiful
Recording: Very good

I
n the late Fifties and early Sixties, the Dave Brubeck Quartet was the premiere campus attraction, and even jazz fans who didn’t read “Tell Me Why,” but the album’s unevenness indicates that Wynonna doesn’t quite know what her range truly is. Until she learns, her albums are likely to be just as good, but just as frustrating, as this one.

R.G.

Dwight Yoakam

This Time
REPRISE 45241 (42 min)
Performance: Casual
Recording: Sharp

C
halk up another one for Dwight Yoakam. “This Time” is a casual gem of a record from a country-and-western (make that West-coast) artist who continues to refine his style with rewarding results. His tunes have the lilts of vintage Fifties jukebox music, back when country rocked and western swung. Back-up singers layer on the doo-wahs in Pocket of a Fool while Yoakam sings his sad tale with a twangy guitar riff for the ages. Given his evident talent, it’s too bad he doesn’t rock out more often. Still, songs as pretty as A Thousand Miles from Nowhere don’t grow on cacti, and that casual Fifties piano sound again, splitting the difference between pure honky-tonk fire and the casual roll of a more easy-listening style.

Throughout “This Time” Yoakam never breaks a sweat, though he does dig in his heels for the swaggering Fast as You, built around a twangy guitar riff for the ages. Given his evident talent, it’s too bad he doesn’t rock out more often. Still, songs as pretty as A Thousand Miles from Nowhere don’t grow on cacti, and you’d be hard pressed to find a country or rock melody contoured as naturally as that of Ain’t That Lonely Yet. “This Time” has a few underwhelming moments, namely the bathetic Home for Sale and a loser’s anthem entitled Two Doors Down, which comes stuffed with every predictable barroom cliché. Still, nine out of eleven winners isn’t bad. Dwight Yoakam is one country artist who hasn’t capitulated yet to the assembly-line doldrums that the genre seems almost to require.

P.P.
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just about covers them all, from a 1946 octet date to a 1991 duet with clarinetist Bill Smith. To broaden this retrospective, the producers managed to include performances recorded for the Fantasy, Atlantic, Concord, and MusicMasters labels, and there is also a 1987 Moscow appearance leased from the A&E cable network. In other words, a great deal of care and attention to detail have gone into this set. The music is almost as varied as jazz itself, and some impressive names add to the diversity: Carmen McRae, Cal Tjader, Jimmy Rushing, Gerry Mulligan, the trombone team of J.J. Johnson and Kai Winding, Louis Armstrong, Lambert, Hendricks & Ross, Charles Mingus, and Leonard Bernstein and the New York Philharmonic. It all adds up to more than 4 1/2 hours of what Ross Perot would undoubtedly term “world class” music. And I would be remiss if I didn’t also mention the accompanying seventy-six-page booklet, which contains an essay by Doug Ramsey, Brubeck’s own comments on each performance, and a profusion of illustrations. Altogether, an excellent package.

BILL FRISELL
Have a Little Faith
ELEKTRA NONEUCH 79001 (61 min)
Performance: Postmodern and patriotic
Recording: Excellent

Remember Bill Clinton’s campaign promise of a cabinet that “looked like America”? Well, this other Bill—a guitarist as influenced by Jimi Hendrix as by Jim Hall—has delivered an unselfconsciously pluralistic album that sounds like America: The composers represented include Muddy Waters as well as Stephen Foster, Sunny Rollins as well as Aaron Copland, Bob Dylan and John Hiatt as well as Charles Ives and Madonna as well as John Philip Sousa.

There’s a unifying theme here: the loneliness that’s the flip side of such American ideals as rugged individualism and wide open spaces. That yearning quality is as evident in Dylan’s “Like a Rolling Stone” as in Frisell’s “Like a Woman and Madonna’s ‘Live to Tell’ (whose melody Frisell, bassist Kermit Driscoll, and drummer Joey Barron lifted respectfully) as in the two excerpts from Ives’s ‘Three Places in New England: The Open Prairie’ movement of Copland’s Billy the Kid (which, as presented here in its entirety, with Guy Klucevsek’s accordion imitating a harmonica and Don Byron’s clarinet occasionally imitating a fife, could pass for a new piece). Despite the underlying moodiness, however, a good many of these pieces are deliciously jubilant in tone—not just Nino Rota-esque “Celebration After Billy’s Capture” from Billy the Kid. Great stuff, all of it, that makes you want to stand up and cheer. F.D.

JERRY GRANELLI
Song I Thought I Heard Buddy Sing
ITM PACIFIC 970066 (58 min)
Performance: Excellent
Recording: Very good

A Song I Thought I Heard Buddy Sing” is drummer Jerry Granelli’s tribute to the original jazz legend, cornetist Buddy Bolden.

inspired by Michael Ondaatje’s novel Coming Through Slaughter. Beyond fading recollections of his having played loud and rough blues, we know little about Bolden’s music. He was never recorded, and he stopped playing before the world turned an ear to jazz, but it’s safe to say that his music did not sound at all like the blues in Granelli’s album. I don’t mean that as a criticism, for I like this album—an expertly played, intriguing hour of impressionistic jazz that ranges from blues basics to bop. Trombonist Julian Priester (a highly underrated player) and altoist Kenny Garrett (not to be confused with the diluted-pop saxophonist Kenny G) are strong assets, and the rest of the rhythm section—guitarists Robben Ford and Bill Frisell, and drummer Anthony Cox—help give this set a modernized New Orleans feel. This music could not have been made with a thrown-together band, and these musicians seem to be on the same wavelength—Jerry Granelli’s. It works, and it has a face of its own.

WYNTON MARSALIS SEPTEMBER Citi Movement (Griot New York)
COLUMBIA 53324 (two CDs, 123 min)
Performance: Major, because he is Recording: Very good

No longer the hard-bop reactionary that detractors and champions alike persist in hearing him as, Wynton Marsalis has blossomed as a bandleader and composer in the last few years. “Citi Movement” is his most impressive release so far, at least in terms of his success in combining modalism with such seemingly incongruous elements as New Orleans polyphony and Ellington-like wah-wah and whimsy. It includes three lengthy scores written for Garth Fagan’s dance company, each subdivided into shorter tunes that stand quite nicely on their own (the comparison with Duke Ellington’s suites should be obvious). A few of these pieces veer too close to program music in their evocation of Manhattan rush hours, and a few others seem incomplete without the movements of Fagan’s dancers. For the most part, though, “Citi Movement” is captivating proof that there’s much more to Marsalis than was evident a decade ago (when he was, after all, still in his early twenties).

I have a hunch that many of Marsalis’s fans are going to feel betrayed by this set for pretty much the same reasons that I’m delighted with it. I can just hear them now: too much paper, not enough blowing (and wasn’t that more or less their complaint about the jazz avant-garde when they first pinned their hopes on him?). But just listen to the pianist Marcus Roberts
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After years of teetering on an artistic abyss, Willie Nelson is blazing proof that musically, at least, you’re not dead until the last nail is driven into the coffin and the first scoop of dirt is sprinkled on top. Nelson, the once-lauded visionary who would become something of a joke in the industry for resting on his laurels—singing duets with everyone except your veterinarian and turning out entire albums in a weekend—has had more than his share of troubles in the past few years, including the suicide of his son and a much-publicized run-in with the IRS.

Given that background, it’s not surprising that the overarching themes of “Across the Borderline,” his thirty-fifth Columbia album and his best since “The Red Headed Stranger” of 1975, are abandonment, betrayal, and loss. Nelson frames some of the songs in larger terms, against the national landscape, as in Heartland, which he and Bob Dylan wrote by fax about the plight of farmers, and a remake of Paul Simon’s American Tune. But most of them are intensely personal, from Nelson’s originals, like She’s Not for You, to Dylan’s dark brooding, and menacing What Was It You Wanted, and the sizzling anger of John Hiatt’s (The) Most Unoriginal Sin. “Across the Borderline” is a best-of-both-worlds album, one that should fully revitalize Nelson in both an artistic and a commercial way. It’s stoked with celebrity cameos, but contains not one superfluous note or performance. And it’s chock full of songs that throb with emotion and galloping rhythms instead of Nelson’s favored midtempo rut.

Producer Don Was, who also resuscitated Bonnie Raitt’s career, seems intent on honoring Nelson by giving him every opportunity to display his greatest strengths. Was coaxed Nelson to perform with celebrity cameos, pairing Nelson with Raitt for a duet of palpable, rock-bottom anguish, Getting Over You, and with (surprise) Sinéad O’Connor in Peter Gabriel’s Don’t Give Up. And that idea at first seems beamed from the outer banks of Mars, Nelson and O’Connor’s interaction ultimately proves as heartfelt and believable as the friendship between Jimmy and Dil in The Crying Game. Both these duets, as well as the appearance of an uncharacteristically enthusiastic Dylan in Heartland, might run the risk of adding to Nelson’s cartoonish profile as a duet-monger. But the songs and the performances are so real, unmanipulated, and moving that they transcend such categorization.

The album, an all-out effort that uses flashier instruments such as horns and keyboards in a way that never threatens Nelson’s delicate fingerpicking style, also showcases Nelson’s gift for recasting existing songs into almost entirely different offerings. He turns Paul Simon’s Graceland (which Simon produced here) into a more of a swingy American saga than a vaguely American theme laced with African rhythms. And he makes two Lyle Lovett songs, Farther Down the Line and If I Were the Man You Wanted, less quirky and stylized than the originals, more like pure Texas music.

There are so many charming and affecting touches to “Across the Borderline” that even in the bleakest numbers, such as the title song, which is about a boundary between counties, the project adds up to a record of enormous catharsis, and ultimately hope, pride, and renewal—not just for the listener, but for Nelson, too, perhaps now finally at the end of his circuitous journey. Musically, at least, this record definitively answers the unasked question: The Red-Headed Stranger is back with a vengeance.

WILLIE NELSON ON HIS NEW ALBUM

“For a long time now, I’ve been in a rut as far as being able to do what I wanted to do. And I think this album is finally it. I’m happier with it. It’s definitely new energy, and because I have a lot of good new songs, and a new producer, Don Was, and I’m working with a lot of new musicians, I think we’re coming out with some sort of original sound. It was time I stretched a little bit, and looked around to see where I was. Whether it’s better commercially or not, who knows?”

A.N.

WILLIE NELSON
Across the Borderline
American Tune: Getting Over You; (The) Most Unoriginal Sin, Don’t Give Up; Heartland; Across the Borderline; Graceland; Farther Down the Line: Valentine, What Was It You Wanted; I Love the Life I Live; If I Were the Man You Wanted: She’s Not for You; Still Is Still Moving to Me
COLUMBIA 52752 (60 min)
play blues with a hint of boogie-woogie in Mar-

besides the sometimes innovative arrange-

out forsaking the past. He does not follow a

Toshiko Akiyoshi, Mintzer approaches big -

album. "Departure," he takes an extra step

phonists Wes Anderson and Todd Williams in

skill and sensitivity displayed by the saxo-

trumpet spots. These are topnotch improvisa-

evoking-depending on what Marsalis has in

as to become inaccessible. And

factors, but it is virtually impossible to main-

addiction, MTV, or a combination of these

vigor: His musicians are not routinely reading

rendering them all but unreadable.)

B

Bob Mintzer's first big-band recording ap-

Bob Mintzer, Mintzer approaches big-

arranging from a fresh perspective with-

and most pianists at least attempt to do that,

unlike a woman: "It can function quite well

function as a pacifier, a backdrop." In this, his

it is often shoved into the background .

their charts-they are getting down to serious

all the more reason to admire people

funds, Mintzer brings to the music a rare

like Mintzer and Akiyoshi, who keep the spirit

climate. All the more reason to admire people

funds, but it is virtually impossible to main-

working big band in today's economic

future, and having fun in the process. Chalk

their close interplay, and their achievement of

harmonic markers or a stated pulse. This

close interplay, and their achievement of

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serves the figure of speech. Despite some lost allu-

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Dave's band and

a pretty fair approximation of the

Do singer-songwriters get paid by the meta-

Cincinnati group that in the

an appeal. That would help explain why Bill

William Livingstone

You Must love in Spring

Sunny Days: The Portrait of the Now-Disappeared Greenwich Village Club Where the Spoonful Was Once in Residence.

SYLVIA SYMS

Evening Light

SOLACE

It's Cold Outside

SUNDAZE J. 11014 (45 min)

VIVINO BROTHERS BAND

William Mallonee, the writing and singing half of

Vivino's Maple Leaf Rag as written,

not unlike a woman: "It can function quite well

as a solo instrument, complete unto itself, but

often shoved into the background . . . to

function as a pacifier, a backdrop." In this, his

sixth Novus album, Roberts once again dem-

onstrates in a superb, diversified manner just

how well the piano can function without other

instruments. This 76-minute keyboard stroll

through jazz history reflects the extent of the

young pianist's listening experience and the

scope of his understanding. We know that he

can play Chopin's Maple Leaf Rag as written,

and most pianists at least attempt to do that,

But Roberts imbues it with subtle variations.

He caresses Embraceable You with a haunting

tenderness, and his introspective treatment of

Moonlight in Vermont is stunning. When it

comes to livelier fare, he strides through James

P. Johnson's Carolina Shout and Keep Off the

Grass as if he had written them. Apropos

authorship, Roberts did not write Johnson's

Snowy Morning Blues, that's an error in the

accompanying booklet, but he did compose

seven of the twenty selections in this superb

collection. (Several demented, though, to

Stevie Wonder. I'm Suprised at the Good Portion of

Stanley Crouch's inner notes on a photograph,

rendering them all but unreadable.)

MARCUS ROBERTS

If I Could Be with You

PHILIPS

NOVSUS 631149 (76 min)

Performance: Outstanding

Recording: Excellent

The piano, says Marcus Roberts, is not

unlike a woman: "It can function quite well

as a solo instrument, complete unto itself, but

often shoved into the background . . . to

function as a pacifier, a backdrop." In this, his

sixth Novus album, Roberts once again dem-

onstrates in a superb, diversified manner just

how well the piano can function without other

instruments. This 76-minute keyboard stroll

through jazz history reflects the extent of the

young pianist's listening experience and the

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PSYCHEDELIC MICRODOTS

Vol. 3: My Rainbow Life

SUNDAZED 11014 (45 min)

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regional garage bands circa 1968 (culled from

the Roulette Records catalog) and, as

such, a pretty fair approximation of the

kind of music you might have heard at high-

dchool dances in the days of the day—

down to the obligatory Hey Joe (courtesy

of Minneapolis faves the Stillroven). De-

spite a certain period charm, most of this

stuff is pretty dire, but the album's worth

getting anyway for the first CD appearance

of the Choo's It's Cold Outside, a de-

servedly legendary piece of vintage power

covered by the Cleveland group that in the

Seventies mutated into the far better

known Raspberries. Greatest album cover of

all time, incidentally.

JOHN SEBASTIAN

Tar Beach

SHANACHIE 8006 (43 min)

Former Lovin' Spoonful honcho Sebastian,

currently raking in big bucks thanks to

a cold-cuts-commercial revival of his

theme from Welcome Back, Kotter, essays

his first solo album in ages in generally fine

form. Nothing here is as memorable as his

Sixties classics, but the better tracks are

warmhearted and melodically charming.

Pick hit: Night Owl Cafe, a nicely nostalgic

portrait of the now-vanished Greenwich

Village club where the Spoonful was once

in residence.

SYLVIA SYMS

You Must Believe in Spring

ELBA 5004 (53 min)

Sylvia Syms's last album is a must not only

for her many admirers but for anyone to

whom good popular songs are more than just

hummable tunes or catchy rhythms.

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it finds her digging incisively into the

lyrics of twelve songs by Alan and Marilyn

Bergman about lost or remembered love—and

doing so like few other singers ever could.

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**BACH: Mass in B Minor**
American Bach Soloists, Jeffrey Thomas
Koch 3-7194 (two CD's, 107 min)
Performance: Literate
Recording: Very good

After causing more performance-practice headaches than almost any other major work by Bach, the B Minor Mass seems to be settling into a stable tradition. In recent recordings with pretensions to authenticity, the chorus has between twenty-four and thirty singers. Conductor Jeffrey Thomas's chorus is at the low end of this range, and he makes good use of it to set forth his concept of the piece. While some conductors treat Bach's vocal lines so abstractly they might as well be another instrument in the polyphony, Thomas seems to consider Bach a word painter almost as much as a composer. He goes about proving that here by using all sorts of nuances and accents to bring out the meaning of the text, occasionally sounding eccentric but often delivering modest revelations. Most striking is his treatment of the Crucifixus, which powerfully suggests Christ's long, painful trudge to Mt. Calvary with its stabbing accents and effectively plodding tempo. Much of Thomas's success is due to his intelligent lineup of soloists, including such early-music stars as Julianne Baird and Judith Nelson.

**BARBER: Andromache's Farewell; Scenes from "Antony and Cleopatra" and "Vanessa"; Orchestral Songs; Knoxville: Summer of 1915**
Alexander: Netherlands Radio Philharmonic, De Waart
EtCetera KTC 1145 (60 min)
Performance: Excellent
Recording: Very good

Robert Alexander's outstanding CD of vocal music by Samuel Barber demonstrates the soprano's understanding of the composer's musical language and emotional intent. For the most part, her diction is exemplary; only when the text itself is not immediately intelligible, as in the scenes from Antony and Cleopatra, or when the orchestration is particularly dominant, do the words sometimes blur. The orchestrated songs, all first-time recordings, are I Hear an Army (James Joyce), Nocturne (Frederic Prokoch), and Sure on This Shining Night (James Agee)—the last surely one of the most beautiful songs by any composer. They are performed with unusually fine musicianship by Alexander, and the Dutch orchestra plays very well under the tasteful leadership of Edouard de Waart. The more familiar arias from Vanessa ("Must the winter come so soon" and "Do not utter a word") and the great Knoxville are on a similar level. R.A.

**BARTÓK: Works for Piano Solo, Vol. 1**
Zoltán Kocsis
Philips 434 104 (54 min)
Performance: Ideal
Recording: Excellent

With its array of generic titles—fourteen bagatelles, two elegies, six Romanian folk dances, a sonatina, and three Hungarian folk tunes—this collection of Bartók's early piano works certainly isn't the sexiest program imaginable. But even though these pieces date back as early as 1908, they have much of the rugged individualism of his later works, making this a highly stimulating first volume in a series that will offer all of his solo piano music played by Zoltán Kocsis. The bagatelles are almost like updated Chopin preludes: little shards of ideas, all the more intriguing for being short, sparse, and lacking any decorative qualities. What they imply is as interesting as what they say. The folk-based works display an almost shocking rhythmic vigor, the Romanian dances having an extra charm because the different layers of the music don't quite mesh. Kocsis knows enough not to try to make the pieces fit. He plays everything here with clean, technically assured sonorities, but the music never seems scrubbed up. Indeed, he plays many of these works as though he'd just written them. They can be sprawling and enigmatic, but Kocsis works the contour of every phrase with a subtle rubato or cunning accent. This series could become a landmark.

**BERG: Violin Concerto**
JANÁČEK: Violin Concerto
HARTMANN: Concerto Funèbre
Zehetmair, Philharmonia Orchestra, Holliger; Deutsche Kammerphilharmonie, Zehetmair
Teldec 46449 (60 min)
Performance: Excellent
Recording: Very good

The Austrian violinist Thomas Zehetmair has put together here an imaginative program of powerful twentieth-century violin concertos in which he must believe deeply. He carries them off brilliantly, with splendid partnership from the Philharmonia under Heinz Holliger in two of them and conducting for himself in the third. And Teldec's well-judged sonic focus is appealing in both its detail and its warmth. Personally, I find Frank Peter Zimmermann a tad more compelling in the Berg Concerto, on an EMI disc, and Christian Tetzlaff a tad more attuned to the Janáček idiom in his otherwise very similar violin recording of that composer's recently reconstructed miniature concerto titled "The Pilgrimage of a Little Soul." Josef Suk, somewhat less richly recorded on Supraphon, takes us perhaps still deeper inside this piece.

Karl Amadeus Hartmann's Concerto Funèbre, in which Zehetmair is both soloist and conductor, is a heroic gesture from a German living in Munich in 1939; it laments the demise of the Czechoslovak Republic and the onset of World War II, citing both the Hussite hymn and Mr. Vlast and a Russian song that Shostakovich would use nearly two decades later in his Eleventh Symphony. Christiane Edinger, in her recording on Thorofon, takes a more expansive approach that perhaps allows the music to register still more deeply, and her performance is paired with a stunning one of Szymanowski's Violin Concerto No. 1. But the slight preferences I've expressed here are purely subjective. The bottom line is that Zehetmair's new disc is a distinguished one, and anyone attracted by its line-up of works can invest in it with confidence.

**BRAHMS: String Quartets Nos. 1 and 2**
New World String Quartet
I.M.P. Masters/Allegro Imports
MCD 53 (70 min)
Performance: Warmhearted
Recording: Likewise

The New World Quartet, founded only sixteen years ago, has had several changes in its personnel (Ross Harbaugh, the cellist, is the only remaining member of the original four), but it sounds here like an ensemble molded by many years of steady collaboration—and, more to the point, like a group particularly at home in this repertory. Both the
Jean-Pierre Rampal is generally credited with having made the flute a popular solo instrument with twentieth-century music lovers. It's hard to argue with that when you consider the incredible number of recordings he has made over the years. Elektra International Classics recently made a good many of them available again in a midprice Rampal Edition series on the Erato label. Bach, Handel, Vivaldi, and Mozart all receive at least one CD, and other discs group lesser French, Italian, and German Baroque composers, Romantic composers, and twentieth-century concertos. Recorded during the Sixties and Seventies, these CDs' not only remind us of Rampal's artistry but provide an introduction to four centuries of classical flute music.

Robert Rips
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Kurt Masur took over as the orchestra’s music director in the fall of 1991; it is hardly a matter of “transformation” but simply a nod to the fine band Zubin Mehta turned over to his successor—as well as to the players’ apparently exceptional rapport with a guest conductor recording with them for the first time.

One of Mehta’s benefactions was his bringing in the Philharmonic’s current concertmaster, Glenn Dicterow, whose luminous violin solos stand out among the numerous felicities of Yuri Temirkanov’s Scheherazade. The Russian conductor takes an expansive view of both works here. He is not about to let any of Rimsky’s imaginative touches pass less than fully explored, and with breathing suspended, as it were, to let a lovely phrase sink in here and there, momentum is sometimes stretched rather thin—perhaps even more in the overtone than in the larger work—but it is never really in question, and neither is Temirkanov’s wholehearted commitment. There are other accounts of both works I personally find more full-scale realization of Rimsky’s wonderful colors on the part of both the musicians and their similarly committed recording team. R.F.

SAINT-SAËNS: Samson et Dalila
Domingo, Meier, Fondary, Courtis, Ramey, others; Chorus and Orchestra of the Bastille Opera, Chung
EMI 54770 (two CDs; 123 min)

Performance: Sensuous
Recording: Very good

There have been several worthwhile recordings of Saint-Saëns’s Samson et Dalila before this one, notably the 1962 EMI/Angel set, in my view the best of the lot. Its conductor, Georges Prêtre, may have been charged with certain wayward tendencies, but he did present over a performance boasting a truly seductive Dalila and a truly heroic Samson. Now, thirty years later, EMI has given us a set to challenge, and in some ways surpass, its predecessor.

As Samson, Placido Domingo may not match Jon Vickers’s intensity and magnetism, nor his unmistakable individuality. What Domingo projects is the warrior’s dignity and melancholy, in tones of sustained eloquence and steadfastness—qualities that silence criticism. The Dalila, Waltraud Meier, is a high mezzo-soprano who lacks the dusky contralto sonorities one might like to associate with the Biblical seductress. But her finely nuanced, deeply involved delivery offers rich compensations, and she conveys the requisite torrid passion in the second act.

Where the new set clearly scores over all previous efforts is the faultless casting of the three low male voices: Alain Fondary as a powerful and furious High Priest; Jean-Philippe Courtis as an impressive, taunting Abimelech; and Samuel Ramey as the Old Hebrew, turning his brief comments into a starry occasion. Conductor Myung-Whun Chung leads his excellent chorus and orchestra at an unhurried pace, sustaining amplitude, dignity, and the proper feel for the opera’s sensuous orchestral colors. I missed the storm effects, however, that would have heightened the tension in the second half of Act II. G.J.

SCRIBANI: Piano Quintet; Piano Concerto
De Larrocha; Tokyo String Quartet
London Symphony, Davis
KCA VICTOR 61279 (64 min)
Performance: Splendid quintet
Recording: Excellent

Given that Clara Schumann was the first pianist to perform her husband’s Piano Quintet and Piano Concerto, having Alicia de Larrocha play that part in both of these masterpieces on a single CD seems wholly appropriate. The quintet performance appears to mark her disc debut as a chamber musician, and I’d call it a total success. She and the Tokyo String Quartet make music together like a seasoned ensemble. Because of the wide and open Manhattan Center recording locale, the opening may seem a bit bass-ty on first hearing, but the spacious ambience is not oppressive. There is plenty of energy and flow in the first movement, but the high point is the slow movement with its contrasting somber and consolatory elements. Violist Kazuhide Tsunoda does himself and the music proud with his darkly burnished tonal quality. The scherzo has tremendous exuberance, though its second trio provides an especially lovely point of repose. The impetus carries over into the jubilant finale, and the tricky polyphonic development is beautifully balanced.

Despite the loving collaboration of Colin Davis and the London Symphony, the concerto doesn’t achieve quite the same high level. De Larrocha’s approach is highly poetic, beginning shyly at her initial entry and gaining in nuance and passion as she continues. At times I felt that her poetizing verged on the wayward in the first movement, and her swooning phrases in the middle of the otherwise charming slow movement are a bit much. No problems, however, in the finale. The recorded sound is A-1.

SCRIBANI: Symphonies No. 1 and No. 4 (“Poem of Ecstasy”) U.S.S.R. Radio Chorus and Symphony Orchestra, Svetlanov RUSSIAN DISC/KOCH 11056 (71 min)

SCRIBANI: Symphony No. 2; Rêverie U.S.S.R. Symphony Orchestra, Svetlanov RUSSIAN DISC/KOCH 11057 (51 min)

SCRIBANI: Symphonies No. 3 (“The Divine Poem”) and No. 5 (“Prometheus, The Poem of Fire”) Richter; Chorus. U.S.S.R. Symphony Orchestra, Svetlanov RUSSIAN DISC/KOCH 11058 (74 min)

Performances: Raw but vital
Recordings: Decent air checks

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- HAYDN: Symphonies Nos. 60, 70, and 81. Blum. VANGUARD OVC 5000. Pumping, vigorous performances by the chamber-size Esterhazy Orchestra, recorded in the mid-Sixties. The inexplicably neglected No. 60 (“Il Disturbo”) is reason enough to buy the disc.

- MOZART: Operatic and Concert Arias. Price; Adler. RCA VICTOR 61357. This recital by the great soprano Leontyne Price, on the midprice Gold Seal label, offers “superb music gloriously performed” (January 1970).

- ROSSINI: La Pietra del Paragone. Carreras, Wolf, Bonazzì, Díaz, Jenkins. VANGUARD OVC 8043 (three discs). The first complete opera recording from the tenor José Carreras showed him to have “the right purity, lightness, phrasing, and style” (June 1973).

- CANADIAN BRASS: Toccatas, Fugues, and Other Diversions. VANGUARD OCD 3014. Originally released as a direct-to-disc recording, this collection of brass pieces by Bach, Purcell, and others was mastered for CD from a 30 ips back-up tape.

- THE COMPLETE JOSEF HOFMANN, VOL. 2. VAI AUDIO 1020 (two discs). Selections from this amply filled set were originally released on a Columbia LP in 1958. Most of the recordings date from 1937, but four newly released Chopin selections are from a 1945 Carnegie Hall recital.


- MENDELS SOHN: Twenty Piano Pieces, Op. 102. ONYX 61255 (four discs). Lucid, expressive interpretations by Paul Badura-Skoda on these midprice sessions.

- RAVEL: Piano Works. Weiss; Kastorf; Williams. DGG 263322. A well-rounded midprice collection by three fine pianists.


- SCHUMANN: Piano Quintet; Piano Concerto. Weill; Ewing. PETER LEHMAN 1001. A charmingly idiomatic piano quintet and a luminous piano concerto.


- TCHAIKOVSKY: Piano Concerto No. 2. Melnikov; VPO. KOCH INTERNATIONAL 52108. One of the finest midprice recordings of this concerto.


tor. Evgeny Svetlanov. What the recordings, air checks of live broadcasts from Moscow dating from 1988 to 1992, may lack in terms of state-of-the-art sound, they make up in what they tell us about Russian performance style in this repertory. Svetlanov's readings completely eschew the volupptuous approach to this music represented by, say, Riccardo Muti's Philadelphia Orchestra cycle on EMI. They amount to Scriabin in the raw—full-throated, totally uninhibited, and possessed of an animal vitality not often encountered in non-Russian recordings.

The First Symphony is a six-movement affair with a final choral hymn to art. In that last movement we heard two sharply contrasted solo voices: the tenor Andrei Salynskov and a stentorian mezzo-soprano, Nina Gaponova. Svetlanov brings far more urgency to the last pages than Muti does. In the five movements of No. 2, the high point is the slow movement with its Wagnierian blend of the boculic and the passionate. The end is pure fustian, or as Scriabin himself put it, "a military parade." The Tristan-esque Révéré on the same CD belies its name with the music's restless character. The three-movement Divine Poem, the most often heard of the early symphonies, is a serious work of art. The outer movements are based on the carouses all over the place, a serious work of art. The outer movements are based on the 'jazz music') is, in spite of a manic finale that may lack in terms of 1988 performance, his only recording of the score that I know of. If I had to pick one of these three Russian Disc issues for the best musical value compared with more polished Western recordings, it would have to be this one. D.H.

SHOSTAKOVICH: Jazz Suites Nos 1 and 2; Piano Concerto No. 1; Tahiti Trot

Brautigam, Royal Concertgebouw, Chaill.. LONDON 433 702 (59 min)

Performance: Suave Recording: Charming

Sostakovich wrote his "jazz" music in the mid-1930's. When it was still possible in the Soviet Union to flirt with decadent American music and when nobody in that part of the world, least of all Shostakovich himself, had the slightest idea of what jazz actually was. The two Jazz Suites were written for "serious" jazz ensembles that were nothing more than light-music orchestras (compared with these Soviet bands, the Paul Whiteman Orchestra was playing advanced bebop). The closest any of this comes to anything American is an imitation Kurt Weill footrot in the Suite No. 1. The Suite No. 2, traditional dances surrounded by a march and a finale, is on a level somewhere between Glazunov and English prom music à la Albert Coutes.

The once well-known Concerto for Piano, Trumpet, and Strings (rather awkwardly included in this collection of Shostakovich's "jazz music") is, in spite of a manic finale that carouses all over the place, a serious work of art. The outer movements are based on the nose-thumbing and in-joke wit that were the composer's trademarks, but the inner movements are quite strong and evocative. The roots of this music are not in jazz but in Mahler and Russian popular music.

Played with panache by the pianist Ronald Brautigam, the concerto gets a strong, even
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handed performance that brings out the high spirits while allowing the work its musical due. But by far the most fun here is Tahiti Trot, which is, believe it or not, a 1928 arrangement of Tea for Two, verse and all, composed on a bet and wildly popular in its day in Russia and, on occasion, elsewhere.

In short, while this music has a certain staying power, it is not jazz, nor is it the rough, satirical young Shostakovich we have come to expect. It is, however, a veritable cornucopia of sophisticated wit, especially in these suave performances and recordings.

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QUICK FIXES

DEBUSSY: Suite Bergamasque; Pour le Piano; Sarabande; La Plus Que Lente (Valse); Valse Romantique
Claudio Arrau (piano)
PHILIPS 434 626 (41 min)
While Beethoven, Schumann, and Liszt may come first to mind when we think of the late Claudio Arrau, the great pianist identified no less fully with the music of Debussy. Arrau died shortly after the recording sessions for this CD, Volume 2 of the series Philips has labeled "The Final Sessions." Everything here is compelling in its affectionate and clarifying detail and the always elegant sense of line. Beautifully recorded, too.

FRANCK: Violin Sonata
STRAUSS: Violin Sonata
Meyers, Silva
RCA VICTOR 6123 (56 min)
Anne Akiko Meyers, an intelligent musician, shows a fine grasp of form and structural balance in both of these sonatas, but she does not fully realize their essential character. She seems uninterested in varying her color in the Franck, a work that depends on that element for its effectiveness, or in conveying the basic warmth that is at the very heart of both sonatas. Rohan de Silva, her sympathetic keyboard collaborator, and the recording itself also rely on power more than warmth.

HAYDN: Piano Sonatas Nos. 19 and 46
Ivo Pogorelich
DEUTSCHE GRAMMOPHON 435 618 (52 min)
Haydn admirers won't want to miss Ivo Pogorelich's highly colored interpretations of these sonatas. Much more concerned with bringing out the music's old chromatic undertones and rhythmic vigor than its formal symmetry, Pogorelich makes the ambitious slow movements seem like hangovers of late Beethoven. The music accommodates this approach with little audible strain.

STRAVINSKY: The Rite of Spring
HAYDN: Representation of Chaos
GINASTERA: Popul Vuh
VAI AUDIO 2001 (55 min)
A fitting tribute to the late composer Astor Piazzolla, who died last year, "The New Tango" continues his kind of updating of the tango by mixing the old dance melodies with jazz and classical elements. This five-man group (piano, violin, guitar, bass, and the accordion-like bandoneon) plays well, and their new compositions are interesting. Though the thematic connection is by way of Walt Disney, who turned these "Pictures of Pagan Russia" into another Creation of the World in Fantasia. While the juxtapositions do not quite work, these are exciting performances, brilliantly recorded, and the Ginastera is a notable addition to the repertory.

TCHAIKOVSKY: Violin Concerto
PROKOFIEV: Violin Concerto No. 1
Spivakov, Royal Philharmonic, Temirkanov
RCA VICTOR 60990 (56 min)
At first sight, pairing Tchaikovsky and Prokofiev seems incongruous, but Vladimir Spivakov's lean violin tone and superbly centered intonation make the combination work. A truly demonic scherzo in the Prokofiev, with splendidly alert collaboration from Yuri Temirkanov and the Royal Philharmonic along with topnotch sonics from Watford Town Hall.

TURINA: Rapsodia Sinfonica; La Oracion del Torero
RODRIGO: Four Madrigales Amatorios; other works
San Diego Chamber Orchestra, Barra
KOCHE 3-7160 (44 min)
Joaquin Turina's mildly ambitious 8-minute Rapsodia Sinfonica, well played by the pianist Gustavo Romero, is ultimately small-scale, rather uninteresting, not very Hispanic, and a weak album opener. Things improve with his Bull-Fighter's Prayer and the series of little-known sweet treats by the other Joaquin, Rodrigo: some terse, beautiful songs sung, a little too operatically, by the soprano Ruth Golden, three neat old dance tunes, and the charming final Sarabande and Villanico. Dulces. Spanish bonbons. Unprepossessing trifles. But their very brevity and simplicity are also a recommendation.

NEW YORK-BUENOS AIRES CONNECTION: The New Tango
VAI AUDIO 2001 (55 min)
A fitting tribute to the late composer Astor Piazzola, who died last year, "The New Tango" continues his kind of updating of the tango by mixing the old dance melodies with jazz and classical elements. This five-man group (piano, violin, guitar, bass, and the accordion-like bandoneon) plays well, and their new compositions are interesting. Though the most appealing pieces here are virtuosic reinterpretations of two old classics, El Choclo and La Cumparsita. Good sound.

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A Phono Refresher

WITH the market for phonograph records having almost completely dried up, not much is written anymore about the fine points of playing them. Yet many people have substantial record collections that they would like to continue to enjoy. A single magazine page cannot cover the topic of LP playback with any pretense to completeness, but it may serve to jog some memories as to phono realities that remain as vital as ever, even if they no longer consume our attention as much.

To start off, a description of an informal experiment performed back in the Seventies may prove provocative. It involved playing an LP into a specially designed computer over and over and comparing the data streams that resulted from the various plays. The computer was primitive by today's standards, so only a brief snatch of music could be stored, and that quite imperfectly. Furthermore, synchronizing the record's content and the computer's sampling rate must have been a matter of catch-as-catch-can. Still, the investigators came away moderately confident that a record player cannot, in general, play a record the same way twice—something that's not a problem with digital media.

The reasons why the LP medium might lack absolute consistency would make a long list, which would include such considerations as seismic disturbances and the chance of the record's having been altered by the very act of being played. But there are some things that are more under the user's control.

You might recall a science-class experiment in which a heavyish weight is suspended from a hand-held helical spring and cocked to bob around at different rates. With rapid, vibratory hand movements the weight scarcely moves at all, but if the hand moves slowly and smoothly, the weight follows obliquely along. And then there is an intermediate condition, at the mass-compliance resonance, where the weight's motion becomes almost violent and precisely contrary to (out of phase with) the input, so that the weight rises to meet the descending hand and falls away when the hand goes back up. If you were forced to attempt this experiment yourself, you certainly recognized that none of these states of motion felt particularly stable, and the situation at mass-compliance resonance was all but out of control. Probably this revelation did not excite you at the time, but it takes on new meaning when you realize that the activity of a tonearm and phono cartridge playing a record is precisely the same as in the experiment, but turned upside down, with the weight (the tonearm) above the spring (the elastomeric bearing that carries the phono stylus). The inversion does not improve the stability of the arrangement at all.

When observed on a meter, the electrical response of a record-playing system, determined by its mechanical response, is that of a simple high-pass filter. In a properly matched system, response above about 20 Hz is essentially that of the phono cartridge alone. Very low frequencies, such as those generated by record warps, are steeply rolled off, and properly so. At the dividing line between the two regions (the system's resonance frequency), the system's response peaks severely and its mechanical behavior becomes chaotic. As a result, the tracking force can oscillate rapidly between colossal and zero—or even less, producing a groove skip.

Some two decades ago, Shure Brothers began examining real-world LP records to determine what sort of signals, intended or otherwise, were actually on them. A few examples had "music"—presumably the fundamental tones of large organ pipes—extending significantly below 20 Hz. All exhibited appreciable energy from ½ Hz (the rotational rate of the record) to about 10 Hz. The sources of this energy were record warps and irregularities in the discs' cross-sectional profiles—variations in disc thickness, in other words. Between these two zones of turbulence, however, was an "eye of the storm": a region of relative quietude. That region, somewhere between 10 and 16 Hz, was the place to locate the tonearm/cartridge resonance, the Shure engineers concluded. And it still is, if you hope to achieve some consistency in tracking force (meaning tracking ability) and stylus-groove geometry (meaning tracking accuracy), and thus to keep the record wear that results from mistracking and excessive stylus force under control.

Tuning this resonance to the target frequency range requires matching the effective mass of the tonearm and the compliance of the cartridge's stylus suspension. Raising either value lowers the resonance frequency; decreasing either increases it. Note that these two quantities are built into their respective devices, and short of applying a hacksaw (to the arm) or rubber cement (to the cartridge), you cannot change them. If the correct match does not exist, the arm or cartridge must be replaced or damping must be applied somehow to reduce the amplitude of the resonance. Alas, well-founded compliance specifications for phono cartridges are hard to find, and the effective mass of a tonearm is likely to be dominated by the weight of the cartridge installed, making the idea of a "universal" tonearm pretty much of a fantasy. So unless your powers of divination are exceptionally strong, you are thrown upon the tender mercies of knowledgeable dealers and friends.

The final days of the LP's eminence were marked by recordings of extraordinary quality and by an avid scrambling in all directions to develop playback equipment worthy of them. There was a proliferation of moving-coil cartridges, of styli cantilevers and even cartridge bodies fashioned of precious and semiprecious materials, fascinating new stylus shapes, and super-rigid tonearms. These developments were, and are, very interesting. But if the final record-playing system did not meet the conditions discussed above, its chances of extracting the maximum of what was really on the record were negligible. So were its chances of leaving the recorded signal intact as it attempted its extraction.
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