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Camber Loudspeaker,
Yamaha CD Changer,
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We get back to what it's all about. Music.
Cover
Photograph by Jeffrey Kunin

EQUIPMENT

Buying Time
VCR's and camcorders—ninth in a series • by Ian G. Masters

Car Stereo
In the lab and on the road with the Blaupunkt Cheyenne cassette receiver • by Ken C. Pohlmann

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Heavyweights from Adcom, Carver, Denon, MTX Soundcraftsmen, Parasound, and Rotel go the whole twelve rounds • by Julian Hirsch

Inside DCC
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Special Test Report: Philips DCC900
Just how good is the world's first Digital Compact Cassette Recorder? • by Ken C. Pohlmann

MUSIC

Record Makers
Aerosmith, Georg Solti, Shawn Lane, Kiri Te Kanawa, the Skeletons, and more

Discovering American Music
Early in this century we sowed the seeds for a kinder, gentler American music • by William Livingstone

Best Recordings of the Month
Joe Ely, Russian Works for Cello and Orchestra, Luna², Brahms String Sextets
Sony's Mini Disc

In September in Tokyo, Sony introduced three models in its line-up of portable Mini Disc (MD) players, hoped to be the digital successor to the company's Walkman cassette tape players. Three models were scheduled to go on sale in Japan November 1, with a fourth player to be added before the end of the year.

Sony's plans for Mini Disc in the United States include the introduction of two portable units in December. One, which will play and record, is to sell for $750; the other, which will play only prerecorded discs, will sell for $550. A Mini Disc player for the car is scheduled to go on sale here early in 1993. The MDX-U1 is an in -dash DIN-size receiver and MD player with many features and playback options. The suggested retail price for 60-minute recordable Mini Discs is $13.99. Prerecorded MD's, about half the size of a CD, are expected to sell for about the same as CD's. Sony's U.S. plans are contingent on the passage of the Audio Home Recording Act by Congress and may be revised if the bill is not enacted by December.

Getting the Gold

This year the composers John Harbison and Ellen Taaffe Zwilich were inducted into the American Academy and Institute of Arts and Letters. . . . Musical celebrities who received the National Medal of Arts in Washington were the opera singer Marilyn Horne, the country music star Minnie Pearl, the banjo player Earl Scruggs, the choral director and conductor Robert Shaw, and the jazz pianist Billy Taylor. . . . Such well-established stars as Van Halen, Eric Clapton, Annie Lennox, and Metallica were among the big winners at the 1992 MTV Video Music Awards in Los Angeles. Red Hot Chili Peppers stood out among the newcomers, and Nirvana was named the best new artists. . . . The musicians who will receive the Kennedy Center Honors next month are the jazz artist Lionel Hampton and the cellist/conductor Mtislav Rostropovich. The gala performance at the fifteenth annual celebration of the performing arts at the Kennedy Center in Washington on December 6 will be taped by CBS for future broadcast as a 2-hour TV special.

Interactive Video

Radio Shack has introduced the Memorex MD-2500 Video Information System (VIS), which connects to any TV set to give access (via VIS discs) to reference books, teaching materials, games, and entertainment. Designed and manufactured in the United States, it comes with a remote control and the twenty-six-volume Compton's Multimedia Encyclopedia and Webster's Intermediate Dictionary. The VIS can be connected to a home audio system, through which it will provide digital stereo sound from VIS discs or ordinary audio CD's. VIS discs from a variety of publishing companies are expected to cost from $29.95 to $79.95. Expected to reach Radio Shack's nearly seven thousand stores in November, the MD-2500 Video Information System will cost $699.

O, Say Can You . . .

Anthem! America, a nonpolitical organization, is conducting a ten-month, grass-roots contest to select a new and original U.S. national anthem. The winning songwriter will receive a prize of $1 million, and Anthem! America will call upon Congress to adopt the winning song to replace The Star-Spangled Banner. Finalists are being selected at monthly prefinal Judgings. They will be recorded and offered to the public so that citizens can vote for their favorites of the new songs. The winner is to be announced on March 14, 1993. The deadline for submitting songs is November 20. To get the rules and an entry blank songwriters should send a stamped, self-addressed envelope to Anthem! America, 2216 Countrywood Rd., Raleigh, NC 27615. Anthem! America's 24-hour information line can be reached at (919) 676-7780 or toll-free at (800) 949-2684.

Holiday Countdown

For early Christmas shoppers we recommend "Joe Scruggs in Concert," a 52-minute video (VHS only) by the popular children's recording artist, singer-songwriter Joe Scruggs from Austin, Texas. Available for $14.95 from Shadow Play Records, (800) 277-8804 . . . For older gift recipients Legacy (the label that brought you the phenomenal two-CD set by bluesman Robert Johnson in a Christmas past) now offers "Roots n' Blues: The Retrospective, 1925-1950," a boxed set of four Columbia Legacy CD's, 5 hours of music featuring such performers as Ernest V. Stoneman's Trio, Pecie Wheatstraw, Gene Autry, Joe Williams, and Rosetta Howard. No list price. For very good children and adults Warner New Media has released "Murmurs of Earth: The Voyager Interstellar Record." It's a two-CD set and book recreating the golden record sent into space in 1977 on the Voyager spacecraft to give inhabitants of other galaxies a glimpse of us and our world. Owners of CD-ROM equipment will see the photographs on their computer screens, but anyone can listen to the sound on a CD player and see the photos in the accompanying book. Price: $59.99.

AIDS Awareness

The phenomenal basketball star Magic Johnson officially retired from his sport last year when he tested positive for HIV, the virus most scientists agree is the cause of AIDS. He has established the Magic Johnson Foundation for AIDS education, care, and research and has published a book, What You Can Do to Avoid AIDS (Times Books). With the talk-show host Arsenio Hall he has also made a 42-minute video, "Time Out: The Truth About HIV, AIDS and You" (Paramount), intended to inform teenagers and young adults. Celebrities making guest appearances on "Time Out" include Paula Abdul, Kirstie Alley, Tom Cruise, Jasmine Guy, Luke Perry, Malcolm-Jamal Warner, and others. Hami Dair composed and played all the original music on the tape, including a hip-hop single performed by Hall and Warner and a rap by Jaleel White. All profits from Paramount's sales of the videocassette will be donated to the Magic Johnson Foundation.
TO CELEBRATE THE

ARRIVAL OF PHILIPS

DCC, THERE'S A FREE

DIGITAL RECORDING

ON THE NEXT PAGE
Introducing DCC, from Philips.

What you see here represents only the first 4.7 seconds of the piece. But, it stands for years of enjoyment to come. It's all digital. Zero noise, zero hiss. It's called DCC (for Digital Compact Cassette). And by no coincidence, it comes from Philips. The same company that invented the compact disc. DCC not only plays music with crystal clear CD quality, it lets you record with the same digital sound quality. And it has features CD players can't offer. Beyond direct track access and a display for track number and elapsed time, Philips DCC players show you the current song title, album title and artist.
Right from the start, there are literally hundreds of DCC titles available, from all the major artists — in every style of music, in new releases and classic titles.

So what happens to all those cassettes you've amassed over the years? Play on. They'll sound as good as ever on your DCC player.

The Philips DCC home player is available as we speak. And before long DCC will be available as a personal portable player as well. For the location of the Philips dealer near you call 1-800-982-3737. Your music will never be the same.

Another First from Philips
“High-End” Holostore

Ken Pohlmann’s September “Signals” column failed to mention an obvious “high-end” application for the future holostore system of storing audio data. He correctly dismisses 760 hours of playback from one “music crystal” as excessive, but he only hints at added channels. Why not record 150 channels for 3 hours? Each instrument in an orchestra could be individually mixed, plus channels for hall ambience and (optional) audience noises. The serious listener could vary the relative contribution of each instrument, rearrange the orchestra by moving signals between speakers, or even get rid of a poor performance on a single instrument. It might become a bit expensive, with 150 channels to deal with, but what the heck—this is the high end!

Ken MacDonald
London, Ontario

Surround Speakers

My September article, “Choosing Speakers for Surround Sound,” included the standard recommendation that home surround speakers need not possess extended bass response, because the surround signal is rolled off below 100 Hz by the Dolby Surround encoding matrix when movie soundtracks are recorded.

But according to measurements reported in Film Journal by engineers at Kintek (a leading manufacturer of theater sound equipment), some soundtracks do contain important surround-channel bass. Early Dolby Surround films such as Star Wars (1977) conformed to the Dolby Labs recipe, with a 12-dB-per-octave rolloff below 100 Hz in the surround channel. But newer films exhibit surround bass down to 30 Hz. Evidently sound-track producers have been applying equalization and phase shift to overcome the encoding filter’s rolloff, providing strong low-frequency ambience for a more involving “you are there” impression.

Examples include the ocean thunderstorm in Raiders of the Lost Ark, dance music in Flashdance, the rumble of jet engines in Top Gun, the interior rumble aboard submarines in The Hunt for Red October, and the warehouse fire in Backdraft. I recorded Backdraft from cable TV on an S-VHS VCR and measured a nearly flat spectral energy distribution in the surround channel from 500 Hz all the way down to 30 Hz.

So while small surround speakers can reproduce most of the realism and spaciousness of movie soundtracks, you may need full-range surround speakers (or a rear-channel subwoofer) to reproduce the entire theatrical experience. Theater owners, too, are finding that they need to install more capable surrounds. Theater owners, too, are finding that they need to install more capable surrounds to reproduce the entire theatrical experience. Theater owners, too, are finding that they need to install more capable surrounds to reproduce the entire theatrical experience.

The demand for full-range surround speakers will be increased by the advent of Dolby SR-D digital film sound, in which separate left and right surround channels are specified to handle the entire range from 20 Hz to 20 kHz. Strong lows are allocated to the SR-D format’s separate “sub-bass” channel, but “ambient” bass can be recorded in all channels. This was evident in Batman Returns, which was shown with SR-D sound at the famous Chinese Theatre in Hollywood. The roar of the Batmobile’s jet engine, deep and intense, was reproduced by subwoofers behind the screen. Other low-frequency sounds were located in the surround channels at a lower volume level.

Peter W. Mitchell
Oceanside, CA

Youthful Perspective

As a manufacturer’s representative in the consumer electronics industry, I have had the opportunity to manifest my hobby throughout my home. My five-year-old daughter, Cameron, made the enclosed drawing while waiting for me in my office one day. The sights and sounds of our industry have become a component in the imagination of our children.

Steven B. Zabooi
Washington, DC

Indies

How can I get the CD of Lisa Germano’s first solo album, “On the Way Down from the Moon Palace” (mentioned in August “Record Makers’”)? It’s not every day that an Indiana native gets an opportunity to shine musically. Thanks to Stereo Review for highlighting such talent.

Todd Nishikawa
San Jose, CA

If your reviewers are going to recommend independent-label releases, especially EP’s like the Blood Oranges’ “Lone Green Valley” in July’s popular-music “Quick Fixes,” then information should be provided on how to order them.

Jim Luehman
Mt. Airy, MD

Lisa Germano’s first album, catalog number CAROL-191-2 on the Major Bill label, is distributed by Caroline Records, which has a toll-free number, (800) 767-4639. The Blood Oranges EP on the ESD label, number 80582, is distributed by East Side Digital, which also has a toll-free number, (800) 468-4177. Both labels are listed in
Panasonic introduces car speakers so advanced, special materials had to be used to build them.

After it blows the doors off your car, you'll wish it could do the same for your room. It's the new E-Series from Panasonic. They're not just new car speakers, they're a totally new speaker technology.

For instance, its woofer system represents a radical departure in speaker design. Usually the outermost portion of a woofer's diameter is unable to create sound. Our new discrete-edge design uses the full diameter of the E-Series woofer to create music. And its acoustically dampened resins reduce harmonic vibrations for stunning sound clarity. And if those specs don't tickle your tweeters, wait 'til you hear its dash-mounted tweeters. They can reproduce up to 25 KHz.

The new Panasonic E-Series. Available in 5 1/4" (EAB-E55) and 6 1/2" (EAB-E66) component systems, as well as a 6" x 9" 3-way rear deck system (EAB-E99). They're the speakers you would do anything to have in your home. Unfortunately, they're only for your car.

PANASONIC INTRODUCES A WHOLE NEW SPEAKER TECHNOLOGY. UNFORTUNATELY, IT'S ONLY FOR CARS.
the Schwann Spectrum catalog, available for reference or purchase in record stores.

Center Channeling

Thanks to Michael Riggs ("Shopping Surround," August 1992) for mentioning the importance of the power of the center channel in a Dolby Pro Logic receiver. Unfortunately, the center channel in most audio/video receivers has only a third to a half as much power as the main left and right channels. One way to compensate for this is to eliminate the center speaker entirely and use the "phantom" center-channel mode, which splits the dialogue signal equally between the front left and right. Supposedly the disadvantage is that dialogue isn't well localized unless you sit directly between the two front speakers, but I haven't noticed this problem.

JEFFREY S. MENKES
Farmington, CT

Unless the center channel is grossly underpowered, you're usually better off using it rather than a phantom center. A discrete center channel will not only localize the dialogue better but also make it more intelligible. Because of the spacing of the ears on the head, there tends to be some cancellation of in-phase signals around 2,000 Hz, when they're reproduced through a stereo pair of loudspeakers. Dolby Pro Logic extracts signals having the same phase and amplitude from the left and right channels and routes them to the center, which eliminates this notch in the vocal range.

Material Issue

I completely agree with Steve Simels's statement that Material Issue is "very, very impressive" (August "Quick Fixes"). I wish you had featured them in "Best Recordings of the Month." Their album "Destination Universe" is ten times better than Lindsey Buckingham's or Midnight Oil's recent recordings.

DOUGLAS SMITH
San Benito, TX

Gold CD's

Can somebody explain, once and for all, the alleged benefits of making compact discs with 24-karat gold instead of the usual aluminum? This makes about as much sense as putting gold tips on shoelaces to improve a pair of sneakers. While I'll be the first to admit that Mobile Fidelity's Original Master vinyl pressings are a real treat, are these gold-plated CD's just something to thrill people who watch the signals on an oscilloscope?

TOM O'HANLON
Yonkers, NY

Gold will not oxidize if exposed to the air, whereas aluminum will, so damage to the protective sealant on the label side of a CD is less likely to cause serious problems on a disc with a gold reflective layer than on one with the standard aluminum.

Corrections

The October test report on the Harman Kardon Model 30 loudspeaker misstated the price as $449 a pair; the price is $449 each. Also, the Model 30 is third from the top in a line of six speakers, not second in a line of four.

An incorrect price was given in September's "CES Showstoppers" for the JBL Synthesis One system. The price without the video projector is $40,000; the price with projector is $53,000.

Because of an editorial error, a September review by David Hall misidentified Ives's Variations on America as being based on America the Beautiful. The song is, of course, titled simply America (also known as My Country 'Tis of Thee). Elsewhere in the same section, the conductor James DePreist's name was misspelled. Our apologies.
FORGET ABOUT US FOR 12 HOURS.

Fisher's new shelf system was conceived to give you a lot more music with a lot less bulk. The 10 CD changer offers you up to 750 minutes of uninterrupted pleasure, while the four speaker Dolby® Surround Sound wraps you in your own musical world. Of course it's got the usual complement of other components: digital AM-FM tuning with presets, a double cassette deck with Dolby® B and C, even a multi-function remote control. In case you change your mind. Or forgot something.

CIRCLE NO. 30 ON READER SERVICE CARD
NEW PRODUCTS

\section*{ADVENT}
The indoor/outdoor Mini Advent (front, $170 a pair) was the company's first black-finished speaker. Now three other models are available in black oak: the Baby Advent II (left, $200 a pair), the Advent Graduate (right, $250), and the Prodigy Tower (rear, $300). Advent, Dept. SR, 25 Tri-State Intl. Office Ctr., Lincolnshire, IL 60069.

\section*{MARANTZ}
The CC-52 is Marantz's first CD changer. The five-disc carousel loads from the front and lets the user replace two discs while another is playing. The changer features programming for up to thirty-two tracks, and it uses Bitstream 1-bit D/A conversion and an 18-bit filter. It has an optical digital output and comes with a remote control. Price: $349 in black, $399 in champagne gold. Marantz, Dept. SR, 1150 Feehanville Dr., Mount Prospect, IL 60056.

\section*{JBL}
The GT6203 midrange/bass car speaker, part of JBL’s GT (Grand Touring) series, features a 6\frac{7}{8}-inch polypropylene cone. Sensitivity is rated as 91 dB. Price: $249. JBL Consumer Products, Inc., Dept. SR, 240 Crossways Pk. W., Woodbury, NY 11797.

\section*{ROTEL}
The Rotel RA-930AX is a 30-watt-per-channel integrated stereo amplifier featuring inputs for a CD player, a moving-magnet phono cartridge, a tuner, one tape deck, and an auxiliary source. The specially selected internal components are said to provide improved imaging, enhanced sound-stage depth, and low noise. Price: $260. Rotel of America, Dept. SR, P.O. Box 653, Buffalo, NY 14240.
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16 mg "tar," 1.1 mg nicotine aver per cigarette by FTC method.
NEW PRODUCTS

**AUDIOSOURCE**
The VS Two shielded video loudspeaker from AudioSource, 13¼ inches long, features a built-in 30-watt amplifier. Price: $160 each. AudioSource, Dept. SR, 1327 N. Carolan Ave., Burlingame, CA 94010.

**BOSTON ACOUSTICS**
The Boston Acoustics Lynnfield 300L, a compact two-way speaker, and the 500L (not shown), a floor-standing three-way system, feature Amplitude Modification Devices to filter out the natural resonances of their aluminum cones and domes. Prices (per pair in black ash): 300L, $1,800; stands, $500; 500L, $4,500. Boston Acoustics, 70 Broadway, Lynnfield, MA 01940.

**EARTHQUAKE**
The PA-4050C car stereo power amplifier from Earthquake can be configured for two 180-watt channels, three 90-watt channels, or four 60-watt channels (all into 4 ohms). It has a switchable infrasonic filter. Price: $509. Earthquake, Dept. SR, 350 Lang Rd., Burlingame, CA 94010.

**SENNET CONCEPTS**
The SH44 from Sennet Concepts is a magnetically shielded center-channel speaker for home theater systems. It has two 4-inch woofers and a ½-inch dome tweeter. Dimensions are 11 x 5 x 7½ inches. Price: $90. Sennet Concepts, Dept. SR, P.O. Box 1630, Milford, PA 18337-2630.

**B&G MOBILE CONCEPTS**
The CT-38 carrier from B&G Mobile Concepts holds thirty-eight tape cassettes. Made of aluminum and high-impact plastic, with a rotating acrylic window, it has a built-in handle. Price: $130. Wall-mounting brackets and a shoulder strap are optional. Carriers for CD's and 8mm videotapes are also available. B&G Mobile Concepts, Dept. SR, P.O. Box 202902, Austin, TX 78720-2902.
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Take 6—*So Much 2 Say* (Reprise) 439+036

Joey Cadarette—To Know One (GRP) 441+758

The Modern Jazz Quartet—Pyramid (Atlantic) 441+717

GRP All-Star Big Band—*Peace* (GRP) 440+503

Bobby Watson—Present Tense (Columbia) 439+695

George Howard—Do I Ever Cross Your Mind (GRP) 438+564

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Bonus Offer: Join right now and get an additional CD at the super-low price of only $6.95. That allows you to take another CD for FREE. That's 10 CDs in all. And if you're not satisfied, just return everything within 10 days—with no further obligation.

Half-Price Plan: Remain a member after fulfilling your obligation and take advantage of our offering saving Bonus Plan. It lets you buy any CD at half price for each one you purchase at the regular Club price. For selection, convenience and price, Columbia House is the best place for jazz. So get in the groove. Sign up now.

Where the jazz is.

*Note:* We reserve the right to reject any application or cancel any membership. These offers not available in APO, FPO, Canada, Hawaii, Puerto Rico, write for details of alternative offer. Canadian residents serviced from Toronto. Applicable taxes added to all orders.
NEW PRODUCTS

**ADI**
The PD-15947 from ADI is a 15-inch high-output car audio woofer. It features a cast frame, a 95-ounce magnet, and a 3-inch voice coil. Sensitivity is rated as 95.6 dB, and specified power-handling capability is 200 watts. Price: $159. Audio Design Innovations, Inc., Dept. SR, P.O. Box 402, Osseo, MN 55369.

**ALTEC LANSING**
The AHT-2100, Altec Lansing's first THX-licensed surround speaker, has two front-firing woofers and two angled arrays each with two midrange drivers and a tweeter. It can be mounted either on or in a wall. Price: $900 a pair. Altec Lansing, Dept. SR, Rts. 6 & 209, Milford, PA 18337.

**BILLY BAGS**
The I-Beam home entertainment center from Billy Bags has 3-inch steel I-beam legs, and its shelves are made of ¾-inch round steel bars. It can accommodate more than six components including a 27-inch television set. Price: $619. Billy Bags, Dept. SR, 4147 Transport St., Ventura, CA 93003.

**KOSSE**
The Koss SA/40 powered speakers for portable CD and tape players operate on four C-cell batteries or a DC power supply. They have 3½-inch drivers and a rated bandwidth of 50 to 20,000 Hz. Volume and tone controls are built into one of the speakers in the pair. Price: $60 a pair. Koss Corporation, Dept. SR, 4129 N. Port Washington Ave., Milwaukee, WI 53212.

**SCOTCH**
The Scotch XSII-S, 3M's latest high-bias (Type II) cassette, features a new tape formulation said to yield higher output with less noise. Price: $2.19. 3M, Dept. SR, P.O. Box 33600, St. Paul, MN, 55133-3600.

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16 STEREO REVIEW NOVEMBER 1992
Great Home Theater Shouldn’t Leave You With Standing Room Only

SYSTEM 150
Home Theater Speakers and Systems
Introducing System 150

System 150 components are designed and manufactured by Atlantic Technology. Well known for its award winning Pattern Home Theater products, Atlantic Technology is a company of designers, engineers and marketing professionals with field experience dating back to the inception of audio as a home entertainment category.

On the cutting-edge of the home theater revolution, Atlantic Technology has dedicated its activities to providing the highest performing, most cost-effective home theater components on the market. Atlantic Technology has already established a strong presence in the home entertainment arena, and the company will continue to expand and set the pace for technological advancements in home theater performance.

System 150 from Atlantic Technology is a new series of four innovative loudspeaker components. While each speaker is designed to operate on its own, System 150 models can be configured for any need from a unique 3-piece "Power Directed" home speaker setup to a total home theater audio system.

The objective in creating System 150 was total flexibility. Rare indeed are the speakers that can fill a large room with the simple addition of a Discman, or rattle the windows while accurately delivering a fully digital Dolby Pro-Logic movie performance. Atlantic Technology’s speakers incorporate advanced audio engineering in a surprisingly small industrial design package, leaving home theater enthusiasts with the room to live. System 150 component speakers seamlessly blend into any existing audio configuration, yet they also make perfect sense for anyone assembling a new audio or A/V system.

The loudspeaker components that comprise System 150 include the Model 152 PBM Powered Bass Module, the Model 151 LR Main Satellite Speakers, the Model 153 C Center Channel Speaker, and the Model 154 SR Surround Speakers.

While each type of speaker is packaged and available separately, Atlantic Technology also markets four complete systems using these components: System 150 A is a basic, powered 3-piece system; System 150 CSR comprises a center channel speaker and a pair of surrounds; the System 150 S includes the subwoofer module, a center channel speaker and two surrounds; and the complete home theater System 150 HT which is the previous system plus a pair of front satellite speakers.
152 PBM “Power Directed” Bass Module — The World’s First “Power Directed” Subwoofer

The Atlantic Technology System 150’s pivotal component—and the key to its flexibility—is the Model 152 PBM Powered Bass Module. The 152 PBM is a subwoofer with built-in amplification. It differs from all other powered subwoofers on the market by being totally configurable. Users decide exactly where its three built-in amplifiers direct their power—hence the term “Power Directed.” The 152 PBM’s myriad uses range from being the foundation of a totally powered 3-piece speaker system to providing the missing channels of amplification for a budget Pro-Logic receiver.

With the Model 152 PBM’s onboard amplification operating in bridged mode, for example, all 70 watts could be used for the subwoofer alone, bringing tremendous power to a recorded performance. Or in a different, home theater setup, the amplifier can channel 30 watts to the subwoofer and 30 watts x 2 to a satellite array. In yet another system, power can be directed to the often-lacking, critical center channel for superior dialogue reproduction. With virtually any audio or home theater system, the Model 152 PBM can be used as a powerful enhancement component for truly astonishing home entertainment experiences.

The beautifully sculpted Model 152 PBM houses a sophisticated 70-watt/30-30-30-watt amplifier driving an 8” polypropylene long-throw woofer. The amplifier itself contains an extremely effective bass equalization system. By constantly monitoring the level and frequency content of the program’s lower octaves, the system adjusts itself to provide superb bass performance at any given output level. In addition, the Model 152 PBM has two switchable crossover points—80 Hz and 120 Hz (24 dB/octave low-pass, 12 dB/octave high-pass)—so the system’s bass frequency response can be optimized no matter where the subwoofer is located. When used at the 80 Hz setting, virtually no midrange vocal elements are allowed through the 152 PBM, ensuring clarity and proper localization.
It is nearly impossible to drive the 152 PBM into clipping or an overload situation. Through a unique circuit, the 152 PBM instantaneously examines the level and frequency content of the first 50 milliseconds (ms) of all strong low-frequency signal fluctuations. If necessary, the circuit then limits the signal to prevent it from overloading the amplifier, restoring the original equalization as the signal returns to normal levels. Accepted psychoacoustic theory tells us that it takes at least 500ms (1/2-second) for the human ear and brain to process and to recognize the low-frequency content of program material. Therefore, as all processing is done within the first 50ms of a transient, it is virtually undetectable by the ear.

A Word About Dolby Pro-Logic Amplification

Many home theater enthusiasts are unclear about the importance of proper amplification in a Dolby Pro-Logic system. Many Pro-Logic receivers and integrated amps—especially those in the low and mid price ranges—clearly lack the power to deliver a convincing low-end performance. And the more power low-frequency reproduction demands, the less there is for the rest of the frequency spectrum. Remember that an overdriven amplifier can thoroughly destroy the home theater experience. By using the Model 152 PBM’s 70 watts for the low frequencies, and a Pro-Logic receiver’s amplifiers for the middle and upper frequencies, a soundtrack’s power and emotion is greatly improved. And its active crossover doesn’t add any additional load to the receiver’s output.

Dolby Pro-Logic systems require a center channel for accurate dialogue reproduction. They also demand solid amplification. Many Pro-Logic receivers and integrated amps either lack a center channel amp entirely, or pass too little power to the center channel for effective performance. In truth, for accurate Pro-Logic reproduction the center channel should be powered comparably to the main left and right channels. With the Model 152 PBM and Model 153 C providing a powered center channel, the strain is taken away from the receiver or integrated amp while providing all the power and flexibility for a perfect Pro-Logic performance.
The Model 151 LR Main Satellite Speakers are the perfect choice for anything from Bach to rock to soundtracks. Each sculpted speaker contains a 4" polypropylene long-throw woofer and a 1/2" soft-dome tweeter module. The satellites are both acoustically and cosmetically matched to other System 150 speaker components. Acoustically, the matched components provide strikingly clean sonic transitions from channel to channel.

The Model 151 LR exhibits excellent power handling and dispersion characteristics, and its low-resonance cabinet helps keep the system free of colorations. Overall, the satellites are fine-tuned not to the usual standards of small speakers, but to the midrange and treble performance of much more expensive, full-size systems.

So that System 150 components can be applied as part of any level A/V system, Model 151 LR speakers are magnetically shielded. If a setup requires the main speakers to be located closely to any size television or monitor, they can be placed at any distance from the screen—including directly on top—without risk of interference or damage.
153 C Center Channel Speaker — Over 500 Movies Helped Design This Speaker

The uniquely designed Model 153 C Center Channel Speaker houses two 3" polypropylene woofers and a 1/2" soft-dome tweeter arranged in a symmetrical, horizontal array. Unlike the typical "big black brick" offered by many other speaker companies, the smoothly contoured 153 C was designed to be as small as possible while maintaining precise localization across the entire midrange spectrum—including the lowest octaves of the human voice.

The matte black cabinet's molded, low-profile design is physically unobtrusive to allow placement in the most acoustically correct center location. As it will be placed either above or below the television or monitor, the magnetically shielded Model 153 C comes mounted on a tooled platform that allows adjustment of the speaker's vertical angle. This design allows it to always be properly aimed whether it's above or below center-screen.

Acoustically, the 153 C has been voiced for accurate reproduction of center channel dialogue information. Over 1,000 hours of listening and bench tests using a wide variety of television and movie soundtracks were performed on the 153 C. These tests allowed Atlantic Technology to perfectly tune the 153 C for extended home use without the harshness often associated with this type of loudspeaker.
Considerable engineering went into the Model 154 SR Surround Speaker. It was developed as a down-sized replica of an actual theater surround array. Good surround arrays create an acoustical environment for the action on the screen—a powerful thunderstorm, a furious car chase, a heated gun battle. A great surround array does so without being audibly located.

In a movie theater, the acoustic environment is created by many speakers located behind and above the listener. To create this effect with a single pair of small home loudspeakers, Atlantic Technology took three significant steps. First, each speaker houses a pair of 3 1/2" long-throw polypropylene “mid-woofer” drivers mounted at a 105-degree offset angle for ultrawide dispersion. (A specially designed cabinet ensures a diffraction-free dispersion pat-
tern, despite the speaker’s unusual driver configuration. Second, the crossover is designed to slightly alter the frequency balance of the two drivers, resulting in a broad, randomized soundstage. And finally, absolute phase between the two drivers has been reversed, adding crucial depth to the overall effect. Together, all three measures make the system extremely difficult to localize. The result is a surround speaker that provides tremendous ambiance without localization.

The Model 154 SR Surround Speaker is cosmetically crafted to match other System 150 speaker components, and will comfortably disappear in any location. Specially designed speaker stands and wall brackets are also available from Atlantic Technology.
System 150 Matched Configurations

System 150 speaker components offer exciting new ways to improve the home theater experience. Their flexibility and ease of use are simply unmatched by any other system. With these components, anyone can quickly and painlessly enter the world of home theater.

System 150 A

System 150 A consists of a pair of 151 LRs and a 152 PBM. It is Atlantic Technology's sophisticated introductory 3-piece system, and the basic "building block" for all other System 150 home entertainment configurations. With the 152 PBM's switchable amplifiers and crossover, System 150 A provides many setup possibilities.

In its active configuration, System 150 A is a fully powered system that can be fed any volume-controlled line-level source signal—from a portable cassette or CD player to a professional DAT recorder to a computer or a keyboard. Its three independent amplifiers provide 30 watts to the subwoofer and 30 watts x 2 to the Model 151 LR Main Satellite Speakers. When used in this fashion System 150 A provides onboard bass and treble controls.

In its passive configuration, System 150 A becomes a powered 3-piece system for use with conventional receivers and integrated amplifiers. The satellites are powered by the receiver through hard-wire connectors on the subwoofer's back panel, while the internal amplifier, crossover and dynamic equalizer deliver powerful low-bass performance through the subwoofer.

In terms of equipment cost, the most expensive areas of the musical spectrum to reproduce are the low frequencies. With its dedicated 70-watt amplifier and sophisticated control circuitry, System 150 A can reproduce solid, convincing bass reach and impact with even a modest receiver.

System 150's uses are limited only by your imagination. It can be used to add basic surround sound performance to an existing stereo system, or as a video or secondary extension system. As the basic building blocks for a vast array of audio system configurations, the power-directed System 150 A is possibly the most versatile 3-piece component speaker system available.

System 150 CSR

System 150 CSR is a channel supplement package, consisting of the Model 153 C Center Channel Speaker and a pair of the Model 154 SR Surround Speakers. For example, upgrading an existing stereo system with a new surround receiver and System 150 CSR will provide surround sound audio or Dolby Surround movie performance. For those who already have System 150 A, System 150 CSR completes the loudspeaker requirements for a Dolby Pro-Logic system.
**System 150 S**

With its model 152 PBM, 153 C center channel speaker and a pair of 154 SR surround speakers, System 150 S is a quick and easy upgrade for anyone determined to improve an audio system's bass response, while adding capabilities ranging from simple surround sound to full Dolby Pro-Logic performance.

System 150 S, however, is most suited to allow enthusiasts to turn an existing audio system into a complete Dolby Pro-Logic setup. Whether simply adding an outboard Pro-Logic decoder or a completely new receiver or integrated amp with a built-in Pro-Logic decoder, System 150 S is the perfect component speaker adjunct to provide the thrilling experience of digital home theater.

**System 150 HT**

System 150 HT is a complete home theater system—one we actually designed for our personal use. It comprises the entire line of Atlantic Technology System 150 speaker components—a 152 PBM Powered Bass Module, a 153 C Center Channel Speaker, a pair of 151 LR Main Satellite Speakers and a pair of 154 SR Surround Speakers. The system is specifically designed for use with newer generation Dolby Pro-Logic receivers or integrated amplifiers, and represents our acoustically and cosmetically seamless way of bringing the movie theater into the living room.

Most new Pro-Logic receivers and integrated amplifiers provide multiple channels of amplification. System 150 HT, with its own powered subwoofer and five satellite components provides the multiple channels required by Dolby Pro-Logic, and the pure low-frequency power needed to reproduce the full dynamic range and frequency balance across the entire audio spectrum for a proper home theater experience.
Specifications

**151 LR**
- **Type:** Two-way full-range speaker
- **Drivers:** 4" polypropylene woofer; 1/2" dome tweeter
- **Frequency response:** 80 Hz - 20kHz ± 3 dB
- **Nominal Impedance:** 8 ohms
- **Sensitivity:** 89 dB
- **Power rating:** 110 watts
- **Size:** 5" x 7½" x 4¾"
- **Weight:** 3½ lbs.

**153 C**
- **Type:** Two-way dialogue speaker
- **Drivers:** Dual 3½" polypropylene woofers; 1/2" dome tweeter
- **Frequency response:** 80 Hz - 20 kHz ± 3 dB
- **Nominal Impedance:** 8 ohms
- **Sensitivity:** 89 dB
- **Power rating:** 110 watts
- **Size:** 10½" x 5" x 5¾"
- **Weight:** 4 lbs.

**154 SR**
- **Type:** Spatially-enhanced surround speaker
- **Drivers:** Dual 3½" polypropylene full-range drivers
- **Frequency response:** 120 Hz - 12 kHz ± 3 dB
- **Nominal Impedance:** 8 ohms
- **Sensitivity:** 89 dB
- **Power rating:** 110 watts
- **Size:** 5" x 7¼" x 4¾"
- **Weight:** 3½ lbs.

**152 PBM**
- **Type:** Power-directed amplified subwoofer
- **Driver:** 8" polypropylene long-throw woofer
- **Output:**
  - **Powered mode:** 3 x 30 watts
  - **Passive mode:** 70 watts (subwoofer only)
- **Frequency response:**
  - **Active output:** 80 Hz - 21 kHz ± 3 dB
  - **Subwoofer:** 30 Hz - 80 Hz ± 3 dB or 30 Hz - 120 Hz ± 3 dB
- **Dynamic bass equalization:** 9 dB @ 35 Hz
- **Input impedance:**
  - Input 1, 2: Line level - 10 k-OHMS (either mode)
  - Input 3: High level - 1.5 k-OHMS (powered mode)
- **Input sensitivity:**
  - Input 1, 2: 50 mV (1 watt/4 ohms); 250 mV (30 watts/4 ohms)
  - Input 3: 250 mV (1 watt/4 ohms); 4.3V (30 watts/4 ohms)
- **Power requirements:** 120V, 60 Hz
- **Power consumption:** 12 watts idle, 200 watts max.
- **Size:** 14½" x 11" x 12¼"
- **Weight:** 25 lbs.

Atlantic Technology reserves the right to change specifications and design at any time without notice.

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Special thanks to Custom Woodwork & Design for interior photography.

Atlantic Technology

343 Vanderbilt Ave.
Norwood, MA 02062
Phone 617-762-6300, Fax 617-762-6868
30 years ago

In the November 1962 issue, electronics writer Herman Burstein's article "Hum: Its Causes and Cures" concluded, somewhat depressingly, that "Hum will always be with us."

Back to Mono? After considering the seven recordings then available of Beethoven's 'Archduke' Trio in his series "The Basic Repertoire," Martin Bookspan recommended the 1928 version by the Casals-Cortot-Thibaud trio on Angel and the 1940 RCA performance by Heifetz, Feuermann, and Rubinstein.

Technical Talk: Julian Hirsch examined the Roanwell stereo headphones, and though he found "no audible distortion," he complained that its adjustable headband fit too tightly. He also called the Thorens TD-135 four-speed manual turntable "a sturdy, excellently made unit," although he had qualms about its speed-selector switch.

Best of the Month: Critic David Hall called the Fritz Reiner/Chicago Symphony version of Also Sprach Zarathustra on RCA "a document of singular and persuasive eloquence," and George Jellinek praised an all-Wagner disc by Eileen Farrell and Leonard Bernstein on Columbia. In pop, Nat Hentoff was enthusiastic about Mildred Bailey's "Greatest Performances" and "The Ray Charles Story." Elsewhere in the review section, Joe Goldberg, reviewing a Dave Grusin jazz disc, noted that Grusin "does not yet emerge as an individual." La plus ça change . . . .

Letters: Reader Camille LaCombe, responding to an article in September by André Hodeir, opined that "As for his odd notion that I can't grasp Debussy without his help, for this I have only two words, and they aren't La Mer."

20 years ago

In his first editorial, new Editor in Chief William Livingstone discussed the movement to tax home taping and, in an uncharacteristically radical mode, concluded, "This editorial is protected by copyright, but if you Xerox it for your Congressman, I won't ask for a tax on copy paper."

Among the new products noted were AKG's lightweight double-transducer headphone, "claimed to be the only headphone set with a gold-plated electrostatic element in each earpiece," Sansui's top-of-the-line D-970 three-head cassette deck, and the Grace F-9E Ruby moving-magnet phono cartridge, said to have "an almost perfect one-to-one energy-transfer characteristic from stylus to generating element."

In test reports, Julian Hirsch called the Sony TC-K555 cassette deck "a real bargain" and said that the performance of JVC's R-X40 receiver "would do credit to a much more expensive product."

Great Thoughts of Western Man: In the pop "News Briefs" section, the Sex Pistols' manager/Svengali Malcolm McLaren was quoted as saying, "Giant ghetto blasters embody real rock-and-roll communication, while Walkmans are for white sissies." In a helpful aside to the magazine's classical-music readers, "ghetto blasters" were defined as "large personal stereos."

In an alarming "Bulletin" item, readers were alerted to the fact that Morning Has Broken by Cat Stevens (then six years away from calling for the death of Salman Rushdie) had been chosen for inclusion in the new hymnal of the Episcopal Church.
by Robert Ripps, Maryann Saltser, and Steve Simels

THE conductor Georg Solti celebrated his eightieth birthday and his thirtieth Grammy Award this year, and London Records, which has been recording Solti for forty-five years, has a heavy schedule of fall releases planned to honor the occasions. Recordings with the Chicago Symphony include Bruckner's Symphony No. 8 and a Debussy disc. There are Haydn symphonies with the London Philharmonic and Shostakovich's Symphony No. 1 and Stravinsky's Rite of Spring with the Concertgebouw Orchestra. And there's "The Solti Edition," a twenty-five-CD midprice set, and "Sir Georg Solti—Grammy Champion," a budget CD sampler highlighting his award-winning recordings. Solti conducts the Chicago Symphony live this month and will return to North America next February on tour with the Vienna Philharmonic, with concerts at Carnegie Hall in New York and in Washington, Boston, and Toronto.

FIRST there was ABBA. Then there were Roxette and the Sugarcubes. Now look out for another Scandinavian pop import, Bel Canto. The Norwegian duo—Anneli Drecker on vocals and keyboards and Nils Johansen on violin, guitars, and computers—has just released a third album, "Shimmering, Warm and Bright" (on Dali/Chameleon). It incorporates English, Spanish, French, and German lyrics into music some critics have described as "Nordic blues." Olympic fans take note: Bel Canto has been selected as the official music ensemble for the 1996 Winter Games, which will be held in—you guessed it—Norway.

THE Miami-based New World Symphony was founded in 1988 to provide intensive learning and performing opportunities for gifted young graduates of American music schools. The orchestra is touring the Northeastern U.S. this fall with its artistic director, Michael Tilson Thomas, including a first appearance at Lincoln Center's Avery Fisher Hall on November 1. Its first recording, due next spring on the Argo label, features a twentieth-century Latin American program. The gift replaces money no longer coming from the National Endowment for the Arts, which withdrew support for an upcoming exhibit called "Corporal Politics" because it includes work showing various body parts. Asked by Time magazine why the band—widely regarded in Cambridge as local boys who made good—made the donation, lead singer Steven Tyler said, "If somebody had closed the doors to the barns, the bars, and the frat houses that we played in during the Seven-ties, we would never have had a chance to get our music to people's ears. That's what's happening to the arts community."

TWO legendary pianists, Glenn Gould and Vladimir Horowitz, are being celebrated this fall by Sony Classical. "The Glenn Gould Edition," commemorating the tenth anniversary of Gould's death and to be released over the next two years, comprises not only the complete CBS Gould catalog but also previously unreleased studio and live recordings as well as radio and television material that Gould recorded for the Canadian Broadcasting System. The CBC television and film productions will also appear on VHS videotape and laserdisc as part of Sony's "Glenn Gould Video Collection." Previously unreleased studio recordings by Horowitz were issued in October on a CD called "Horowitz—Discovered Treasures." Nearly an hour long, it consists of recordings made between...
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- A red square stands for the second and most popular category of our tapes: “High” bias. It includes XLII and XLII-S, which has Black Magnetite, and is the perfect choice for capturing the high energy music of CDs.

- The purple triangle symbolizes the third and final category of bias level: “Metal.” It's excellent for recording powerful, full-spectrum digital source music, live or studio. Before buying one make sure your tape deck has a “Metal/Type IV” setting.

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RECORD MAKERS

1962 and 1972. The eighteen works range from sonatas by Domenico Scarlatti to pieces by Chopin, Scriabin, and Liszt.

The soprano Kiri Te Kanawa rose to the top of the opera world with her performances and recordings of the music of Mozart and Strauss. In a new album for Philips titled "Kiri Sidetracks," she crosses over into the world of jazz. With André Previn on piano, Ray Brown on bass, and Mundell Lowe on guitar, Te Kanawa performs such material as "Autumn Leaves," "Honeysuckle Rose," and "The Second Time Around." She obviously enjoyed herself, saying, "Maybe when I finish opera I can go and do all the clubs." Before that she'll record La Traviata for Philips.

OHE next guitar hero? That's what some people are saying about Shawn Lane, whose debut album, "The Powers of Ten," has just been released on Warner Bros. All-instrumental in the Joe Satriani mode, it's a one-man show since Lane—who's already played with everybody from Chick Corea to Waylon Jennings—plays his guitar and every other instrument, too. (He also engineered the album). Stylistically, "Powers of Ten" veers from classical to jazz to pop and rock. One track, "Epilogue for Lisa," reflects Lane's love for the film music of Ennio Morricone.

Leon Fleisher, who celebrates the fiftieth anniversary of his debut as a concert pianist next April, is currently recording the entire canon of piano concertos for the left hand with Seiji Ozawa and the Boston Symphony, as well as solo and chamber works, all for Sony Classical. The first disc in the series, released in September, includes the Ravel Concerto in D, the Prokofiev Concerto No. 4, and Britten's Divertions, Op. 21. Fleisher was a "superstar" pianist in the early Sixties, but in 1965 he began experiencing numbness and pain in his right hand, finally diagnosed as "carpal tunnel syndrome," a condition that has plagued many noted musicians. He subsequently devoted himself to the sizable repertoire scored for the left hand alone, most of it written for the Austrian pianist Paul Wittgenstein, who lost his right arm in World War I.

THE best unsigned rock-and-roll band in America has been signed at last. Yes, the Skeletons—legends since an earlier incarnation as the Morrells and more recently heard as the back-up band in former Del-Lord Scott Kempner's new album—have signed with Alias Records, and their self-produced album "Waiting" has just been released. Apart from new original songs by the Skeletons' bassist, Lou Whitney, and guitarist, D. Clinton Thompson, it also contains the requisite unusual cover tunes, among them the obscure 1968 Beach Boys' gem, "How She Boogalooed It.

GARCONOTES. The adventurous Sundazed label has released "The Great Lost Knickerbockers Album," a collection of singles and previously unreleased tracks by the Sixties garage band whose hit "Lies" was the most eerily Beat-lesque song of the period. . . . Sony Classical will be issuing 119 CD's of recordings by Leonard Bernstein spanning three decades, remastered from original session tapes, in an ongoing project called "The Royal Edition" (each cover will feature a watercolor by the Prince of Wales). Most of the recordings were made with the New York Philharmonic, and the series is also a tribute to the orchestra's 150th-anniversary season. . . . The 1971 classic "The Allman Brothers Live at the Fillmore East," generally considered to be among the top live rock albums of all time, has just been reissued by Polydor. Bonus: Some songs that were previously edited to fit vinyl time constraints have been restored to their original concert lengths.
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The Sound of Speed

WHEN most people think of a hi-fi system, they envision a living room with a CD player, a receiver, and two loudspeaker cabinets. But that image is rapidly becoming as obsolete as the LP record. Increasingly, stereo systems are heading down two separate paths that will carry them far from the original living-room model. Home high-fidelity systems are being combined with video to create home theaters, and they are heading out of the living room entirely, and into cars.

It is possible to surmise that cars will become the high-fidelity listening places of the future. Most people's homes are too busy with distractions, television in particular, to promote extended listening. The car environment, on the other hand, is almost ideal. We are spending more and more time in our cars, and cars are becoming high-technology wombs, complete with high-fidelity autosound. Think of the last time you enjoyed an hour of music uninterrupted—were you at home or in your car? In the future, the best audio reproduction systems, employing the sharpest cutting-edge technology, may be found in cars.

The numbers certainly support the idea. In 1991 sales of home audio components totalled $1.8 billion, the lowest figure in four years. The sale of aftermarket autosound equipment brought in $1.2 billion, the highest figure ever, and the sale of domestic factory-installed autosound systems accounted for $2.9 billion. When the value of imported factory-installed autosound systems is included, the total autosound market probably exceeded $6 billion. Clearly, Americans like their music on wheels, and we are willing to spend a lot to get the best 12-volt sound money can buy.

Of course, manufacturers are willing to meet this demand. The past decade has seen unprecedented growth in the sophistication of autosound technology. Mobile sound systems of the 1970's and 1980's were tame compared with today's high-tech wonders. Overcoming initial reluctance to take CD's on the road, Americans now love to listen to digital sound while driving. In-dash single-disc players and trunk-mounted CD changers are the fastest-moving autosound products around, and new in-dash CD changers will only add fuel to sales. Once drivers heard CD playback through their existing systems, they realized that by upgrading their components they could achieve truly excellent results. The race was on for better and better downstream electronics and transducers.

Digital signal processing (DSP) has revolutionized mobile audio. The claustrophobic sonic characteristics of car playback can be overcome through ambience enhancement by simulating the acoustics of large spaces. Ambience enhancement is almost easy in the car; the audio system already contains multiple audio channels and loudspeakers distributed throughout the passenger compartment, and the seating positions are fixed and known. Thus, a sound field with a superb balance of direct and ambient sound can be created.

The degrading effects of analog equalizers and crossovers can be overcome through the use of their DSP counterparts. Some autosound systems even permit automatic system tuning and balancing, complete with an on-board calibrated microphone and a pink-noise generator. The problem of stereo panorama, a chronic weakness of car audio systems, can be solved by time-aligning individual loudspeakers with digital delay lines. With such sophisticated electronics, and high-quality power amplifiers and speakers, the few cubic feet of air inside a car can be tweaked to yield audiophile fidelity.

With an eye on the bottom line, audio manufacturers are increasingly focused on products that emphasize mobility. The Philips Digital Compact Cassette is designed to replace the analog cassette, long the staple of car audio, and extend the cassette format into the next century. Car makers are clamoring to install DCC players so their customers can listen to both analog and digital cassettes. The Sony Mini Disc promises all the benefits of CD in a smaller, recordable format that is even better suited for cars. And towering above all tape and disc formats is Digital Audio Broadcasting. When DAB comes to America, it will overcome all the evils of mobile analog radio reception and let drivers tune into both terrestrial and satellite digital audio transmitters to listen to unwaivering CD-quality radio.

Car manufacturers are big-time players in autosound audio (Ford alone sells about a billion dollars a year in audio equipment), but their technological horizons exceed those of pure audio manufacturers. They are intent on redefining the acoustic quality of the car itself through active noise-cancellation technology. By sensing ambient noise from the engine, exhaust, and wind, then generating an inverse acoustic signal, ambient noise can be diminished. Combined with vibration-deadening car construction, noise cancellation will make even high-speed driving a very quiet experience—until, that is, you delve into your remote-controlled library of music and enjoy the high-fidelity sonics of your mobile concert hall.

When you think of car audio, do you think only of a bunch of punks bending their roof's sheet metal with bass? Better think again. With what's already available in the new 12-volt audio technology and what's coming up, the best listening spot in the home might not be in the living room. It might be in the garage.
Tape Identification

Q The formulation for a blank cassette is easy to identify because it is always clearly written on the package, but with prerecorded tapes it's not easy to tell what's inside the shell. Is there a standard method of determining tape formulation in order to set the equalization correctly?

A Unless the cassette is labeled, there's no sure way for you to tell short of experimentally recording on a bit of the tape. Checking the length of the mike side may give some clue—if it's chocolate-brown, it's probably Type I (ferric, or "normal"); if it's black, it's Type II (chromium dioxide) or Type IV (metal)—but even that's not always a reliable indicator these days. Most prerecorded cassettes use inexpensive TAPE, almost always Type I, so if any other formulation is used, the record company is almost certain to say so on the package.

On the other hand, when prerecorded cassettes are made with Type II tape, it is usually with the standard 120-microsecond (µs) Type I equalization rather than the 70-µs EQ normally used with Types II and IV tapes to improve noise performance. (This is done to maintain compatibility with cheap players that lack a 70-µs EQ option and to improve high-frequency headroom, which is at a real premium in high-speed duplication.) So your best bet is to scour the package for an indication of whether you should use 120- or 70-µs playback equalization. If you can't find any, 120-µs is probably the correct choice.

Powered Surround

Q At college, my stereo system consisted of a CD player and a pair of small powered speakers. Now I am setting up a more elaborate system, and I would like to use the amplified speakers for the surround channels. As my receiver puts out only 20 watts a channel, for the main channels. I would have to use a second receiver. Is this a good idea?

A Since the speakers have their own power, your receiver provides in that respect is more or less irrelevant. You should feed the powered speakers from line-level rear outputs if your receiver has them. If not, the amplifier outputs can be used—the speakers will draw only a fraction of their power—although you may have to pad the outputs down if the speakers have only line-level inputs.

CD Scratches

Q The new single-play CD receiver I bought for my car puts small scratches on my discs' playing surfaces. Even brand-new CD's came out scratched, although nothing happens to them when I play them in my home machine. When I first noticed the problem, I replaced the car unit, and later I had the second receiver serviced as well. The problem remained, so I am inclined to believe it's a design fault. Is there anything I can do about it?

A Probably not, except to relax a little. Any damage to a CD's surface is, of course, to be avoided if possible, but the format has considerable toleration for physical flaws. Players include error-correction circuits to detect and replace missing data, whether caused by scratches or smudges on the surface or by momentary mistracking of the laser beam. Most new machines can deal with fairly major dropouts, and car and portable players typically shine in their error-correction abilities, as they are especially vulnerable to disruptions of various sorts.

In your case, I suspect that the small scratches are caused by the player's disc-
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loading mechanism, which must touch the disc's surface to draw it inside—any such contact runs the risk of slight damage. The CD you included with your letter did exhibit scratches that might have been caused this way, but they were practically invisible even with a powerful magnifying glass. When you consider that virtually any CD player can play through a 1.5-millimeter dropout (that's about the diameter of a 1-inch finishing nail), the microscopic abrasions on your discs should not cause concern.

**Extra Channels**

*Q Would it be possible or practical to set up a Dolby Pro Logic surround system with seven speakers, two for the main channels, two for surround, two in the rear, and one for center images? If so, would it be superior to the conventional five-speaker arrangement?*

Fred Yankellow  
Goldboro, NC

*A The configuration you suggest is possible and comes closer to the way it is done in Dolby-equipped theaters, where a diffuse sound field is created by feeding the surround signal (which is mono, remember) to a large number of speakers with different local acoustic environments and at different distances from a given listener. Whether more than two surround speakers are a good idea in a home setup is open to debate. In a large room, the extra speakers might well improve the effect, but Tom Holman (of Lucasfilm THX fame) says that his experiments suggest two surround speakers is the optimum number for most home setups. More than that, he says, tends to introduce objectionable coloration from "combing" of the multiple identical outputs. But the only way to tell for sure in any given system is to try it out. Just be sure the rear channels in your amplifier have enough power and can handle the lower impedances presented by multiple speakers—you may have to add extra amps.*

**Phono Preamps**

*Q Although I normally buy compact discs, I still have a large collection of vinyl records that I have no intention of replacing. To make sure I'll be able to play my LP's well into the future, I have bought two turntables that I plan to use alternately to prolong their lives, plus several replacement styli for my cartridge. But I worry that eventual upgrades of my electronics will mean that I'll have nothing to connect my record-playing equipment to—already there are receivers and amplifiers on the market without phono jacks. Is there an outboard component I could buy that will still let me play my records when phono inputs disappear for good?*

Curtis Perry  
Harriman, TN

*A Yes. It's called a phono preamp, and a number of companies make them. Mostly these are high-end components—carrying price tags in the hundreds, or even thousands, of dollars—designed to overcome the supposed limitations of the phono sections built into existing preamps. One of these would no doubt give you superb performance virtually forever if your budget can stand it. If not, companies such as Shure and Radio Shack have more modest phono preamps that are adequate for most purposes. An even simpler solution, when upgrade time arrives, is to hang onto your present receiver or preamp and use it just as a phono preamp, feeding a tape-out signal to a high-level input on your new equipment. That would also have the advantage of giving you several extra line inputs as well, which may be welcome if your system becomes very complex.*
The new Cheyenne CM42 FM/AM cassette receiver with CD control stands out as a triumph of European design, the extraordinary integration of ergonomics and economics. The Cheyenne CM42 boasts a High Definition FM Tuner, a high frequency response autoreverse cassette deck and full featured CD Changer control circuitry. It's just one of all the new very sophisticated and very affordable Blaupunks available at a dealer near you. Admittedly, the technology and design may be copied in a few years. But there will be pleasure in knowing you own an original. So look to Blaupunkt, and start driving with the sound that's worlds apart. Worlds apart in car audio • cellular • navigation

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ONE doesn't have to go out on too long a limb to assume that most of us have had videocassette equipment for years. What is becoming increasingly common, however, is the integration of video into a complete home entertainment system that includes both audio and television gear. The demands that sort of application places on a VCR are far greater than was expected when home video first appeared, and today's top machines offer much more in the way of both performance and features than VCR's of even a couple of years ago.

The production bug is spreading as well, with camcorders sprouting on the nation's shoulders at an ever-increasing rate. In the end, the portable equipment has to be harmonized with what you have at home if you want to have any hope of enjoying the fruits of your creative labors.

Purists might argue that the VCR is a dead issue anyway, at least for playback, and that the only way for a serious videophile to go is to buy a laser videodisc player. Certainly laser-discs do offer the highest level of video performance available today, plus the benefits of digital audio, but most of us still live in a world of tape, particularly if we rent movies frequently. In any event, the range of options available in disc players is narrower than with VCR's and camcorders, so the latter tend to offer a greater challenge to the conscientious shopper.

WHAT MATTERS
Video equipment is inherently complicated, which means that a lot of factors should be considered when making a buying decision. It may not be possible to juggle every conceivable variable, but a few should be in the forefront when you go shopping.

- TO V OR NOT TO V. Whether you are looking for a tabletop VCR or a camcorder, you will probably gravitate to some sort of VHS machine, because that offers the best chance for compatibility with the rest of the world. Within that family of systems, however, there are numerous options, and these do matter. If you just rent movies, stick with standard VHS. If you tape off the air, you might want to consider stepping up to the higher resolution of Super VHS, and if you are into editing tapes you have made yourself, you definitely should consider S-VHS, which holds up much better than standard VHS through multiple generations of dubbing.

A VHS or S-VHS camcorder may be designed for full-size or compact (VHS-C) tapes, the main tradeoff being size versus recording time. Recording time may not matter much if you expect eventually to edit your productions onto another tape, but size may become a serious issue when you find yourself lugging equipment around for hours. You can avoid this tradeoff with an 8mm or Hi8 (higher-resolution 8mm) camcorder, which can combine small size and long recording time, if you don't need to play back your camcorder tapes in your home VHS deck. Since most camcorders can serve as playback units, direct compatibility is not essential.

- PROGRAMMING EASE. All home VCR's have at least some provision for unattended recording, but many seem to go to considerable lengths to...
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You can use one or more sets of outputs: 1) BYPASS - direct-coupled before tone controls, filters, etc. for the most direct path to your power amplifier while retaining control of volume and balance. 2) LAB - direct-coupled with no output-coupling capacitors yet with tone, filter and loudness controls. 3) NORMAL - same as LAB but with highest quality output capacitors for use with amplifiers needing the extra protection of ultra-low-frequency roll-off.

Bi-amped and tri-amped systems are easily accommodated by this flexible arrangement.

Pure Convenience

The minimalist aesthetics of the GFP-565 are deceptive in their simplicity. Without being overly complicated to use, this preamplifier is able to integrate and control all of the components in the most sophisticated of music systems. There are five high-level inputs as well as a phono input. A separate front-panel switch allows the use of an external processor, only when needed, leaving both tape circuits free. And, of course, you may listen to one input while recording from another.

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Pure and simple.
Video equipment does have an audio element, which is described in the same way as hi-fi gear. But video is also a whole different branch of consumer electronics, with a vocabulary all its own.

FORMATS. Even though the original home video format-Beta, with its upgrades Super Beta and ED Beta—has almost completely disappeared from the shelves, there are lots of variations in recording systems. The majority of home VCR's and some camcorders use full-size VHS cassettes; top-of-the-line versions incorporate Super VHS, or S-VHS, recording and playback, which offers a dramatic improvement in horizontal resolution over the conventional system. Both are available in compact form, as VHS-C or S-VHS-C, for use in camcorders. All the members of the VHS family are compatible at least to some degree.

Incompatible (in the sense that the tape cassettes used are not interchangeable with VHS cassettes) is the 8mm system, which is almost totally restricted to camcorders. It comes in conventional form, with performance that approximates standard VHS, and in an upgrade called Hi8, approximately equivalent to S-VHS.

AUDIO SYSTEMS. The original tape systems used a linear audio track, in which the sound was recorded in a strip along the edge of the tape. The VHS formats still employ this, whatever other audio systems they may have. In a few cases the linear track is split into a stereo pair, sometimes with Dolby B noise reduction, but it offers poor audio performance. Many home VCR's and a few VHS camcorders incorporate the greatly superior VHS Hi-Fi, or AFM, sound, in which the audio is frequency-modulated and recorded by a spinning head along with the video. In addition, the tuner sections of many VCR's include MTS (multichannel television sound) decoders for recording stereo broadcasts. All 8mm machines offer at least mono AFM, and a few are stereo.

SPEEDS. There are three standard speeds for VHS recorders. SP (standard play) enables you to record 2 hours of material on a T-120 cassette; LP (long play) doubles that to 4 hours; EP (extended play), also known as SLP (super long play), triples the time, to 6 hours. All VHS recorders record and play in at least the fastest and slowest speeds and are able to play back the middle one; a few can record in LP as well. Although the 8mm standard provides for SP and LP, relatively few camcorders include the slower speed.

EFFECTS. Many VCR's and camcorders will do some tricks—more, in fact, than you will probably need. One common feature is picture-in-picture, orPIP, which lets you see two programs at once, the main one and a second image in a small rectangle inset into a corner of the screen. This can usually be moved around and its size altered. Mosaic effects change the contrast and color level of images, and strobing creates a series of still images rather than a smoothly moving picture. In some cases, these effects are accomplished by digital processing.

LINES. One of the main performance criteria for any piece of video equipment is the sharpness of the picture it produces, usually called its resolution. Vertical resolution is fixed by the number of scanning lines used in the television system, but horizontal resolution is a function of the device's high-frequency bandwidth. It's also expressed in lines: the maximum number of black and white lines that can be distinguished across a portion of the screen as wide as the screen is high. Conventional VCR's and camcorders clock in at about 200 lines or so, and the enhanced-format units (S-VHS or Hi8) can exceed 300 lines. Laserdisc players can usually deliver up to 400 lines.

CARRYING IT AROUND. Camcorders—portable VCR-and-camera combinations—have a terminology of their own. The auto iris adjusts the camcorder's sensitivity to light for the best picture. High shutter speeds let you make clear stop-action shots, as long as there's enough light. The number of pixels (picture elements) in the image sensor (the heart of the camera) affects the resolution of the image, though it is a mistake to assume that a pickup with more pixels will necessarily deliver a higher-resolution image, especially when you factor in the limitations of the recording format. Low-level sensitivity is expressed as the minimum number of lux required to produce an image (but manufacturers differ as to how they measure this, often quoting numbers that will produce unwatchable pictures). A camcorder's ability to produce smooth transitions from one scene to the next usually depends on the presence of a flying erase head mounted on the rotating head drum.
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will be how you’ll drive your system most of the time. Look for a logical layout and not too many features you will never use. If, on the other hand, you intend to use a single, universal remote for all your equipment, you can pick the VCR with the simplest remote possible—as long as everything else does what you want.

- HEAD COUNT. Although the number of video heads a VCR has is usually not as big a deal as it is sometimes made out to be, it’s not completely unimportant. All VCR’s have at least two video heads on opposite sides of the rotating head drum (plus a stationary audio head and an erase head). Above the budget level, however, they usually have four video heads on the drum. In most machines the primary purpose of the two extra heads is just to produce cleaner special effects (still-frame and so forth), but in some one pair is optimized for high-speed recording and playback, the other pair for low-speed operation (which trades off picture quality for longer recording time). In a two-head VCR, the heads are optimized for the slowest speed, which somewhat compromises performance at the inherently superior high speed. All hi-fi VCR’s have four video heads. Some high-end VCR’s and many camcorders now have what is known as a flying erase head on the drum to enable cleaner edits and transitions between programs or scenes.

WHAT DOESN’T
Beyond the basic format differences, VCR’s and camcorders differ mainly in construction quality and features, many of which have limited value for most people. They don’t necessarily add a lot to the price, however.

- S JACKS. The idea of giving the color (chrominance) and the brightness (luminance) portions of the image their own signal paths is attractive, but in practice it seldom yields much, if any, visible improvement in picture quality. Note, by the way, that the correct name for this type of connection is S-video (for separated video), not S-VHS (which means Super VHS): The two are not directly relat-
ed, even though S-VHS decks normally have S-video inputs and outputs and regular VHS decks normally don’t.

- PICTURE BENDING. Okay, you may want to freeze your picture, or strobe it, or watch two at a time, but probably not very often. These are far from essential features, and many people never use any of them.

- CAMCORDER STUFF Ignore minuscule lux readings for the camera portion. For one thing, they are not really comparable from one brand to the next; for another, by the time you get anywhere close to the minimum level, the picture is usually so grainy that you wouldn’t want to watch it anyway. And though advanced users may find production aids like fades and elaborate titling attractive, they are usually too awkward to operate for the rest of us. If you do figure them out, the effects often turn out pretty hokey.

GET WITH IT
The greatest favor you can do your video equipment, whether it’s a tabletop VCR or a camcorder, is to buy the best tape you can afford: All else being equal, the better the tape, the better the image. The extra cost will be well worth it, particularly if you intend to edit the tapes you make in the field to more manageable length, a process that inevitably results in a second-generation tape. If the original is good, the copy will have a better chance of being clear. In addition, a good head-cleaning system will pay dividends in the long run: Dirty heads not only create noisy pictures but can also disrupt the smooth movement of the tape and, in the worst case, damage it permanently. There aren’t many other useful accessories for VCR’s.

Camcorders are another matter: There are thousands of things you can buy to help you make better videos. At minimum, start with at least one extra battery pack, a tripod (both for long shots, which are notoriously difficult to keep steady, and for occasions when you want to be in the action yourself), a light if you intend to do much indoor taping, and an external microphone with a longish cord (or, if you really want to go the whole nine yards, an FM wireless mike).
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Blaupunkt Cheyenne Cassette Receiver

KEN C. POHL MANN
H A M M E R L A B O R A T O R I E S

The Blaupunkt Cheyenne neatly reconciles the old analog tape technology with the newer digital disc. It is an in-dash cassette player with AM/FM tuner and on-board power amplifiers. In addition, it acts as a controller for a CD changer. Another sign of changing times: It acts as a controller for a CD changer. It's somehow Blaupunkt, with a distinctly European flair, but it's somehow mistakenably Blaupunkt, with a distinctly programmed with a security code.

The Cheyenne's front panel is unmistakably Blaupunkt, with a distinctly European flair, but it's somehow fresher than previous Blaupunkt models, somewhat less sternly Teutonic. It has a rotary volume control, almost a rarity today. The knob is used for both power on/off and volume adjustment, as well as tuner scanning when it's pushed in—an unusual arrangement but one that makes perfect sense to anyone who's constantly searching the radio dial for something good to listen to. If a CD changer is hooked up, the knob scans disc tracks.

A double row of ten buttons gives access to most of the unit's features. The bass, treble, balance, and fader controls are set by pressing the appropriate button, then using a four-button cursor to make the adjustments. A large numerical display tells you what's going on. A DSC (direct software control) button is used to turn a blinking security LED on or off, to select one of three loudness settings, and to select one of three different tuner sensitivity settings; the cursor buttons are used to change settings. The SENS (sensitivity) button switches between local and sensitivity tuning and affects the signal-strength threshold.

When the RM (radio monitor) button is engaged it lets you listen to the radio while you're fast-winding a tape. The MTL (metal-tape) button sets the proper equalization for playing back a metal or high-bias tape. The CPS (cassette program search) button stops the tape player at the beginning of each track during fast winding. Cassettes are ejected with a mechanical eject button, and other buttons are used to mechanically select fast-forward and rewind, to reverse playback direction, to select loudness compensation, and to select the tuner, tape player, or CD changer.

The button labeled FM T selects one of three banks of FM presets. One can be used as a Travel Store bank, with the six strongest FM stations in the vicinity automatically loaded into it. When you're operating the CD changer, the same button selects play or pause. The RPT/AM button selects the AM band or repeats the current CD track. The MIX/PS button either scans the tuner presets or randomly plays all tracks on the current CD. Six numbered buttons select the preset stations. Manual tuning is provided by the left and right cursor buttons, automatic seek tuning by the up and down cursor buttons. The cursor buttons are also used to select a CD disc or track and to provide audible music search.

The Cheyenne has a green and white LCD screen that provides comprehensive operating-status information. The principal readouts are very large, and the display is very readable at night but prone to glare in bright sunlight. Nighttime button illumination is very good, with white back-lighting for all but the three mechanical buttons.

Whenever power is interrupted, you must enter a factory-set four-digit anti-theft code or the Cheyenne will not operate. If you religiously remove the unit whenever you park your car, or if you simply like to live dangerously, you can disable the code feature to avoid having to enter the code every time you reinstall the chassis. Removing the Cheyenne is easy: Simply push a button to reveal a metal handle, and pull.

The Cheyenne's wiring complement is pretty standard, with four speaker outputs, four channels of line-level outputs, a telephone-activated audio-muting input lead, an illumination dimmer lead, power leads with in-line fuses, and a DIN plug for connection to a Blaupunkt CD changer.

Lab Tests

The Cheyenne was strong on the test bench, with consistent and balanced performance in its tuner, tape, and amplifier sections. The tuner's sensitivity measurements were the best I've seen in quite a while. Image rejection and AM rejection were about...
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car receiver.

The tape section seemed very solid and delivered quite respectable results in flutter and speed-accuracy measurements. Crosstalk between adjacent tracks and channel separation were somewhat better than average. The SN with metal tape exceeded 50 dB both with and without Dolby B noise reduction—very good performance. The tape section's frequency response was also quite good, with a slight bump around 6,300 Hz and a slight rolloff at 30 Hz. The four power amplifiers each pumped 3.9 watts into 4-ohm loads, with good overall performance. The tape transport was also quite solid and smooth. Features such as cassette program search worked without fault. Tape-head alignment was very good in both forward and reverse, with no indication of treble rolloff. Overall, tape sound quality was very good.

The internal power amplifiers performed without complaint, driving my front speakers to modest levels. The sound stayed clean, but the amplifiers clipped audibly at high volume settings. Because the Cheyenne has four-channel line-level outputs, it would make sense to use external amplifiers for all four channels in order to take full advantage of its capabilities.

At the end of my test run, my fingers still had not completely learned to distinguish among the Cheyenne's many buttons, but I was definitely making progress up the learning curve. In time, I'm sure anyone's fingertips could learn this front panel. Once you do, you'll have no problem enjoying the strong performance of its tape and tuner sections. With affordable, high-performance cassette receivers like the Cheyenne available, the analog cassette format might survive longer than a lot of people expect.

**Road Tests**

Keeping a careful eye on the road, I first tried to familiarize myself with the Cheyenne's front panel. The controls of a well-designed head unit should fall naturally under your fingertips with a logical, intuitive feel. In this case, however, I found myself glancing all too often at the faceplate. There were just too many buttons of identical size and shape, clustered too closely.
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Do All Speakers Sound Alike?

Of course not! But in spite of the great differences between the sounds of loudspeakers, it is very difficult (perhaps impossible) to define their sound qualities unambiguously to a person who has not heard them demonstrated. This problem plagues reviewers like myself, who would like to be able to describe the specific qualities of a speaker in a meaningful manner.

In some reviews those qualities are described, sometimes in great detail. Unfortunately, their readers receive at best a hazy idea of the sound the writer was trying to evoke. Even though I comment on certain sound qualities of the speakers I test, those comments are general and deliberately unspecific. I have been criticized for not telling my readers exactly what a given speaker sounded like, but I just don't know of any way to do it.

The problem has two basic roots. Basically, there is no standard set of verbal images to describe sound in precise detail, and it is unlikely that such imagery could be developed. The differences in hearing between individuals are not merely a matter of audiological definition but are also the result of how their brains process the data that arrive from the analog-to-digital converters that are part of the inner ear. In other words, I can never really know what you are hearing (and vice versa), any more than either of us can know what the other is thinking.

Of course, there are general qualities of sound that do have a fairly universal meaning. The effect of an emphasis or reduction in the levels of different parts of the audio frequency spectrum can be heard and interpreted by most people, and can be described in terms that are meaningful to most of them. terms such as heavy, shrill, tubby, smooth, etc.

But there is more to the problem of defining a speaker's overall sound character. Apart from what the speaker itself is doing to the sound quality, we have to consider the listening environment and the program material, each of which can have as much to do with what we hear as the speakers.

Unfortunately, a speaker cannot function in isolation from its surroundings. Good or bad, large or small, every speaker performs in a way that is profoundly affected by its surroundings. Because of the uncertainty introduced by this variable, speaker designers and manufacturers try to define a speaker's performance in an anechoic (echo-free) environment. The nearest we can come to realizing such an environment is to put a speaker on a tower and locating the microphone nearby for measurements of its frequency response and directional characteristics. Obviously, such a measurement setup is impractical in most cases because of weather, wind, and external noises.

An anechoic chamber is usually the closest realizable approximation to an ideal measuring environment. A chamber the size of a large room (and costing as much as a modest house) is essentially anechoic down to perhaps 40 to 50 Hz. Larger chambers, which are rare, may go down to 20 Hz. Measurements of a speaker in an anechoic chamber can give a useful picture of its performance, but not of its sound quality, which is hopelessly dull and lifeless in such an environment.

Various electronic techniques have been developed to try to circumvent the environmental limitation. Known by abbreviations like FFT, MLS, TEF, etc., they make possible reasonably good frequency-response measurements (though still not in the low bass, except in huge rooms). Unfortunately, they tell us little about the sound of a speaker, which exists only in the mind of each listener. Furthermore, that sound cannot be quantified or otherwise unambiguously conveyed to another listener. Each of us hears a unique sound.

That brings us to the program material played through a speaker. It is usually music, an art form commonly appreciated in a highly individual manner. What may send you into a rapture may drive me out of the room, and vice versa. Aside from the music itself, there is the matter of its interpretation and performance. And then there is the recording quality. We all know of lifeless recordings, even of our favorite music, that are simply unlistenable. How can one possibly judge a speaker with such material? Yet, in an imperfect world it is usually necessary to live with less than ideal conditions.

Anyone who has attended events such as the Consumer Electronics Show or a high-end audio show has had the experience of entering a room and hearing magnificent sound, usually through some newly developed speakers, in a room treated with resonance-damping devices. More than once I have tested the same speakers in my own listening room and found them unexciting (or worse).

Possibly my room is not as carefully treated as the one at the show. Probably yours isn’t either. In any case, no two rooms are alike acoustically. If something sounds exactly the same in your room as it did in the dealer’s demo room, it is only a coincidence.

Try to remember that comparing the sound of different speakers in different rooms (especially with different program material) is a classic example of comparing apples and oranges. Comparing them in the same room modifies that only partially. If the two pairs of speakers are not in exactly the same location (physically impossible), they will sound different, at least slightly.

When comparing speakers, I find that some will sound very much alike, while others have distinctly different characteristics. With different program material, the situation can change dramatically. The "dull" speaker with Program A can sound crisp and even bright with Program B. Other characteristics (such as imaging) are also affected by program material.

That is why I limit my comments on a speaker's quality to its very broad and general sound characteristics, those least likely to be affected by program material or room acoustics. I recognize that this is not what many people are looking for, but I believe it is all I can do in good conscience. The only way you will ever find out how a speaker sounds in your home is to put it there and listen to it yourself.
If the air inside is moving at 60 mph, why doesn’t the 901® speaker sound like a wind tunnel?

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Which is what led to the Bose Acoustic Matrix™ enclosure. It’s a highly engineered structure made up of separate acoustic elements. The nine air chambers support and isolate each driver - so each doesn’t interfere with the others. The two larger ports have Bose proprietary turbulence suppressors, so the air flows smoother. To a Bose engineer, that’s science. To you, it’s less noise. Less cone motion. You hear no distortion. And, most of all, more bass.

Which is the reason why there is an Acoustic Matrix enclosure in every 901 speaker in the first place.
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With the new Optimus® DCT-2000 you can record and play true digital audio on convenient Digital Compact Cassettes . . . and play your existing library of analog cassettes, too. Make perfect copies of your CDs—indistinguishable from originals—plus superb recordings from sources such as LPs and analog tapes.

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Join the Revolution.
Onkyo Integra TX-SV909PRO
Audio/Video Receiver

JULIAN HIRSCH
HIRSCH-HOUCK LABORATORIES

The Onkyo TX-SV909PRO, an exceptionally versatile A/V receiver (Onkyo calls it a "tuner amplifier"), is part of the company's Integra line of deluxe audio components. It has seven channels of amplification: front left and right, front enhance left and right (which can be used for ambience enhancement or to operate stereo speakers in another room), rear left and right, and front center.

The TX-SV909PRO incorporates a fully digital Dolby Pro Logic decoder, an Ambisonics decoder for Ambisonic-encoded recordings, and a digital signal processing (DSP) surround sound system with eight modes simulating various acoustic environments: small and large theaters, small and large concert halls, a recital studio, and more.

The AM/FM tuner section can store up to forty preset station frequencies in six memory banks. There are six sets of video inputs, each with both S-video and composite-video jacks, and audio inputs for phono, CD, and two tape decks. All the signal jacks (except S-video) are gold-plated.

The front panel contains only a row of input-selector buttons, a pushbutton power switch, a large volume knob, and a multicolor display window. The window shows the complete operating status of the receiver, much of it in small letters or, in the case of the tone and balance controls, bar graphs. Larger numerals show the tuner frequency and preset channel number. The TX-SV909PRO can also display status information and control menus on a television monitor attached to its video output, greatly simplifying some of the setup and adjustment procedures.

Obviously, a receiver with the versatility of the TX-SV909PRO requires more controls than those visible on the panel. Pressing a small button near the volume knob causes the entire lower portion of the panel to swing down, revealing a number of additional buttons, a stereo headphone jack, and connections for one of the video sources.

Buttons numbered 0 through 9 provide direct access to any tuner frequency, either AM or FM, and also enter and recall any of the preset frequencies. The scan button steps the tuner through the preset channels, playing a few seconds of each. Other buttons activate the main and remote speakers, dim the display in three
Life's little ups and downs, as we all know, can be quite trying. But when songwriter/guitarist Sara K. sings about them in her sparse folk/rock style, they can be trying for a speaker system as well.

Tough on you, tougher on a speaker.

Why? Well, Sara records for Chesky Records, one of the new breed of 'digital audiophile' labels. And as you might expect, this small New York City label puts a painstaking amount of effort into how their music is recorded.

In fact, some reviewers have said that if you close your eyes as you listen to a Chesky recording, you can almost feel the musicians in your room.

To capture Sara K's coffee-house intimacy, engineer Bob Katz recorded Sara and her back-up band live, with minimalist miking techniques and no processing in the signal path. If you listen carefully, you can actually 'hear' the recording studio they're performing in.

And to combat the gritty edge of some digital recordings, Chesky uses a proprietary Mark III A to D converter with vacuum tubes in the analog stage, and 128x oversampling. Built by George Kaye, it maintains the sweetness of analog with the clarity of a digital recording.

The result is that Sara’s voice blends with her unusual 4-string guitar for a haunting and personal delivery of her ballads and love songs. To hear it for yourself, visit a Boston Acoustics dealer and ask to hear Sara K. on a pair of Boston Acoustics T830 speakers. After all, music this good should be heard on speakers this good.
The supplied infrared remote control is a learning-type system master control, with groups of buttons assigned to a record player, TV tuner, CD, or videodisc player, and two VCR's. About half of the buttons on the remote are specifically dedicated to the TX-SV909PRO receiver. In addition to power switching and volume adjustment (the volume knob is driven by a motor when operated remotely), it controls such surround-sound functions as mode selection, delay time, and front/center/rear levels and balance. The sixty-odd buttons on the remote control are grouped functionally and clearly marked.

The many input and output jacks on the rear of the receiver are also logically placed and clearly marked. In addition to the usual electrical inputs, the laserdisc-player inputs include an optical digital audio connector. The insulated binding posts used for the speaker outputs are compatible with single or dual banana plugs as well as wire ends. A group of line-level phono-jack outputs are identified as preamplifier outputs for the main front channels, front enhance channels, rearm, center channel, and a mono subwoofer (powered through an external amplifier). These preamplifier outputs are active only when the main speaker switch (on the subpanel) is on.

The tuner section has inputs for the supplied AM loop antenna (or a long wire) and a 75-ohm coaxial FM antenna cable. The rear apron also contains terminals for Onkyo's Multiple Room Remote System, which makes it possible to control speakers and various source components in other rooms through the receiver.

The power ratings for the three main front-channel amplifiers proved conservative. They clipped at 136 watts into 8 ohms and delivered 116 watts per channel at 1,000 Hz with 0.035 percent distortion. Output increased almost 50 percent into 4 ohms, indicating substantial current capability. The front enhance channels delivered their rated 30 watts at 0.06 percent distortion, and the rear channels produced only 0.009 percent distortion up to 38 watts output.

The front-channel preamplifier response was flat within +0.2 dB and than 0.08 percent distortion. At the same frequency and distortion level, the rear and front enhance channels are rated at 30 watts each.

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At 202mph, the Lamborghini Diablo rides about as smoothly as a jackhammer. No small test for an ordinary CD player. But the 7803S is anything but ordinary. It's built with silicon-filled damping cushions, a fast tracking, lightweight laser and a die-cast chassis solid enough to handle severe jolts. With 8 times oversampling and dual hybrid digital-to-analog converters, it also delivers legendary Alpine sound. Most impressively, from now until December 31, you can save a bundle on a 7803S and other models at participating Alpine dealers. It's our 25th Anniversary Factory Authorized Sale, and just like our CD players, you'll find it difficult to skip.

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from 20 to 20,000 Hz, rolling off to −3 dB at 80,000 Hz. Tone-control characteristics were good, with a sliding bass-turnover frequency and treble curves hinged at about 2,000 Hz. The Selective Tone feature, which is usable only in stereo mode, boosted the bass output 9.5 dB between 40 and 50 Hz (it fell back to +4.5 dB at 20 Hz) and the treble output 3.3 dB between 10,000 and 20,000 Hz.

The FM tuner section exhibited relatively low sensitivity for a receiver in this class, but its signal-to-noise ratios at full quieting were outstanding. Other aspects of the FM section's performance were uniformly good to excellent in our lab tests.

The Onkyo TX-SV909PRO is unquestionably the most complete and sophisticated—as well as the largest, heaviest (50 pounds), and most expensive—A/V receiver we have yet reviewed. And though it is improbable that any one person would exploit all of its capabilities, merely having them available is likely to be an inducement to experimentation.

Despite its exceptional versatility, the TX-SV909PRO is the simplest A/V receiver we have seen, with the irreducible minimum of three front-panel controls: power, volume, and input selection. Furthermore, although the display window can show the complete status of this complex instrument, the key information (input source or tuner frequency) dominates the display with large, easily visible characters.

We installed the TX-SV909PRO in a basic surround system, with two main speakers in front and a pair of small surround speakers high on the side walls of the room. Its digital surround processor handled the various hall and theater simulations realistically, with the results depending largely on how much patience we exercised in setting the various channel gains. Some of the adjustments, such as the one for hall shape, have rather subtle effects and probably call for more extended experimentation, but even with the default settings the sound was highly satisfactory.

We were especially interested in the receiver's Ambisonic feature. Ambisonics is a recording and matrixing technique that originated in England about twelve years ago. It was claimed to provide a more accurate reproduction of the original sound field than any
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CIRCLE NO. 8 ON READER SERVICE CARD
Camber Laser 7 Loudspeaker System

JULIAN HIRSCH
HIRSCH-HOUCK LABORATORIES

The Laser 7, made in Canada by Plateau Camber, is one of a series of loudspeakers designed to provide high performance at very affordable prices. Also known as the LS-7, the speaker is a ported two-way system with an 8-inch woofer and a ¼-inch titanium-dome tweeter. The cabinet is braced to minimize box resonances.

The LS-7's woofer, completely hand-built by Camber, has a virgin polypropylene cone with a proprietary rubber surround. The tweeter is also a proprietary design, with its dome and suspension pressed out of a single sheet of titanium. The suspension portion is pleated to provide the necessary compliance. According to Camber, eliminating a separate plastic or rubber surround glued to the dome greatly enhances the uniformity of the tweeter's performance, since its diaphragm resonates no lower than 30,000 Hz. The tweeter's voice coil is ferrofluid-cooled and damped.

Camber says that the excellent compatibility of the drivers permits simple crossovers to be used (presumably with 6-dB-per-octave slopes), which results in smooth phase response. The crossover frequency is not specified.

The black grille unsnaps easily, revealing an attractive front panel whose light-gray finish contrasts with the black cabinet exterior. The drivers are mounted flush on the upper half of the panel. The port is on the lower portion of the back panel, together with the recessed connectors, which are gold-plated multiway binding posts on ¼-inch centers.

The LS-7's specifications include a frequency response of 40 to 22,000 Hz and a power-handling capacity of 150 watts. The nominal impedance is 8 ohms, and the sensitivity is rated as 90 dB sound-pressure level (SPL) at 1 meter with an input of 1 watt (2.83 volts).

The Camber Laser Series speakers are all designed to be placed with their tweeters close to the listener's ear level, and Plateau Camber makes stands that will support them at the appropriate height. We used the most suitable stands we had on hand, 7 inches high, during our tests and listening sessions.

The averaged frequency response of the left and right speakers in our room was exceptionally uniform and wide, within ±3 dB from 50 to 20,000 Hz. There was no indication of the crossover frequency in the frequency-response measurements.

Combining the close-miked response measurements at the woofer cone and port, corrected for their respective diameters, produced a bass-response curve flat within ±2.5 dB from 25 to 150 Hz, with the maximum at 45 Hz. As often happens, splicing this curve to the averaged room response resulted in a not-quite-believable composite response curve (given the LS-7's size and price). The response rose smoothly below about 300 Hz, to a maximum of about +10 dB at 45 Hz, before falling off at 6 dB per octave.

Surprisingly, however, the sound of the speakers was actually consistent with the composite curve down to about 30 Hz. Most recorded music has little content below about 45 or 50 Hz, but playing portions of some test CD's confirmed that the LS-7 had a clean and usable 30-Hz output (the output dropped rapidly below 30 Hz).

A response measurement 1 meter from the speaker with a one-third-octave-bandwidth pink-noise signal showed a ±2-dB variation from 120 to 20,000 Hz, with a rise of 6 dB to a maximum from 60 to 100 Hz, followed by a rapid drop below 50 Hz. We made quasi-anechoic response measurements using a variety of techniques. All of them confirmed the LS-7's flat response, with typical variations of less than 6 dB overall from 300 to 20,000 Hz.

The group-delay variation of only about 150 microseconds over the
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For more information, call 1-800-PIONEER. Because it would take a lot more than three ads to explain everything Pioneer changers can do for you.
range from 650 to 20,000 Hz confirmed the system’s excellent phase response. Its tweeter dispersion was also notable, with the treble output 45 degrees off-axis dropping only 2 dB at 13,000 Hz and 9 dB at 20,000 Hz.

The system’s minimum impedance was 7.4 ohms at 38 and 150 Hz, with maximum readings of 42 ohms at 60 Hz and 49 ohms at 1,500 Hz. Impedance was well above the 8-ohm nominal rating over most of the audio range.

Sensitivity measured 89 dB, slightly below the 90-DB rating. With an input of 3.2 volts, corresponding to a 90-DB SPL, the woofer distortion was about 1 percent or less from 80 to 1,200 Hz, increasing to 3 percent at 2,000 Hz. Distortion rose at lower frequencies, to a maximum of 6 to 9 percent from 40 to 20 Hz. The system handled single-cycle tone bursts nicely. At 100 Hz, the sound took on a slight hardness with a burst equivalent to 125 watts into the speaker’s 8.5-ohm impedance. However, the 100-Hz input could be increased to about 700 watts (the point where the amplifier clipped) without driving the 8-inch woofer to its limits. At 1,000 and 10,000 Hz the system absorbed the full power of the amplifier (260 and 720 watts, respectively) without evidence of serious overload (or damage).

The Camber Laser 7 had a clean and usable output down to 30 Hz.

The Camber LS-7 sounded as good as its impressive measurements would imply. Its output was smooth, well dispersed, and generally free of the unnatural colorations that mar the sound of many other speakers of all sizes and prices. The overall sound character was slightly warm, which is not surprising in view of the speaker’s deep and slightly emphasized bass, but the emphasis was much less than we have heard from many speakers whose true bass limits fell an octave or two short of the LS-7’s. In respect to sound staging and imaging, the LS-7 was first-rate, in spite of our having it a bit lower than recommended for optimum results (the tweeters were about 27 inches from the floor).

The LS-7 is a remarkable value. This caliber of performance is rarely found in speakers selling for less than $500 a pair. The Laser 7 was our first exposure to the Camber line, and it was a real ear opener. Listen to it if you have champagne taste but a beer budget—it could help you get a lot more listening pleasure for your money than you may have expected.
Stereo Review
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The Yamaha CDC-835 is a high-performance CD changer whose front-loading carousel holds up to five discs. Its PlayXChange feature isolates the disc being played in order to eliminate vibration and to enable the carousel to be opened without interrupting play; as many as four discs can be replaced while a fifth is playing. When the carousel is opened, it extends 10 1/4 inches from the front panel, providing easy access for loading and unloading discs.

The player's digital-to-analog (D/A) conversion is performed by Yamaha's version of a single-bit pulse-density-modulation system, which the company calls S-Bit Plus. Yamaha says that it provides more accurate and stable signal conversion and low-level linearity than other single-bit systems.

The CDC-835 normally presents an uncluttered panel. Visible controls include pushbuttons for power, play/pause, stop, open/close, and PlayXChange. The Disc Skip button advances the carousel by one disc position, and five small numbered buttons are used to select a disc directly. A center-pivoted button varies the output level at both the front-panel headphone jack and the rear line-output connectors.

An unusual feature of the CDC-835 is its digital equalization (DEQ) system, providing four frequency-response curves in addition to the normal flat response. The curves are labeled (with identifying lights) Classic, Vocal, Jazz, and Rock, and they are selected by a button labeled DEQ.

The disc tray extends across most of the top of the panel. The display window below it normally shows the numbers of the loaded discs and the one being played as well as the current track number and its elapsed time. Other status displays, such as programming modes, total time on disc, and so forth, appear as required.

The CDC-835 comes with an infrared remote control that includes all its front-panel functions (except power switching) and also has a display dimmer, duplicate Disc Select buttons for the second player in Relay Play mode, and an index-selector button.

In our tests, the Yamaha CDC-835 delivered normal output levels, and the volume with medium-impedance headphones was good. Its frequency response was extremely flat from 20 to 4,000 Hz, rising to a small peak of +0.2 dB at 14,000 Hz and returning to +0.05 dB at 20,000 Hz. Response error of the de-emphasis network (which engages automatically whenever a disc recorded with treble pre-emphasis is played) was less than 0.28 dB up to 16,000 Hz.
Turn Your Stereo Into An All-Out Dolby Surround Pro-Logic System.

NEW FROM CAMBRIDGE SOUNDWORKS

Our new PL100 Dolby Pro Logic decoder with 3-channel amplification; magnetically shielded Center Channel speaker; The Surround II dipole radiating surround speakers. Factory-direct price, $799.

Until now, adding Dolby Surround to a stereo system has been complex and expensive. Add-on decoders were inadequate, costly, and often required separate amplifiers. We've changed all that with our affordable, high performance Pro Logic Add-On Systems.

Both systems are centered around our new PL100—a Dolby Pro Logic decoder with three channels of amplification (40 watts to the center channel, 15 watts to the surround channels) and a wireless remote. Its built-in signal generator enables precise balancing of the left, center, right and surround speakers. The signal delay applied to the surround channel is selectable for room size. Other controls include master volume, rear and center level, and a Phantom mode enabling the use of the PL100 without a center speaker. Purchased separately, the factory-direct price of the PL100 is $399.

$799 Dolby Pro Logic Add-On System.

The center channel speaker in our $799 Dolby Pro Logic Add-On System is our new magnetically shielded Center Channel (see ad on following page). The rear/side speakers are a pair of The Surround™ II. Unlike any other surround speaker in its price range, The Surround II uses advanced dipole radiator technology. Properly mounted on the side walls of a listening room, their high frequency drivers direct out-of-phase sound signals towards the front and rear of the room. The sound then reflects off the surfaces in the room, finally reaching listeners from all directions, "surrounding" them with sound.

Because the drivers are out of phase with each other, they create a null area directly in front of the speakers, so listeners can't pinpoint the source of the sound. The result is surround sound the way it was meant to be heard.

$999 Dolby Pro Logic Add-On System.

Our $999 Dolby Pro Logic Add-On System combines the PL100 with our new low-profile Center Channel Plus speaker and our highly acclaimed surround speaker, The Surround. Center Channel Plus is a magnetically shielded speaker with four 3" long-throw woofers and a ring radiator tweeter. Because of its wide, low profile (25° wide, 4" high, 6½" deep), it is ideal for placement directly on top of, or, with optional support unit, beneath a TV. The frequency range of the outer pair of 3" woofers is intentionally limited to maintain proper dispersion. We don't know of any speaker, at any price, that outperforms Center Channel Plus.

The surround speakers in this system are The Surround, a dipole radiating speaker with higher volume level capability than The Surround II. We feel The Surround is one of the very best surround speakers made, despite the fact that it costs hundreds less than competing models.

So if you already own a fine stereo system, TV and VCR, why not create an all-out home theater with one of our Dolby Pro Logic Add-On Systems?

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CIRCLE NO. 6 ON READER SERVICE CARD
We also measured the response for each of the digital EQ settings. The Classic response was emphasized about 5 dB at 70 and 7,000 Hz, leaving the range from 150 to 3,000 Hz essentially unaffected. With the Vocal setting, there was a 5-dB emphasis from 400 to 500 Hz and a 4-dB peak at 5,000 Hz. The Jazz response boosted the output by 4 dB from 50 to 200 Hz and at 9,000 Hz. Finally, the Rock setting had a similar effect (+ 5 dB) in the low range and at 6,000 Hz.

With respect to channel separation, distortion, and D/A conversion linearity, the CDC-835 ranks among the best CD players we have tested, whether single-play or changer. The measurements we obtained for noise and dynamic range were especially noteworthy. The wide-band A-weighted noise reading was only -114.7 dB. A spectrum analysis of the noise showed readings typically between -120 and -130 dB from 20,000 Hz down to 50 Hz and -140 dB at 20 Hz. Power-line hum was only about -120 dB at both 60 and 120 Hz. Dynamic range was 112 dB, and the quantization-noise level was -97 dB.

Slewing time between tracks and disc-change times were good, and the mechanical action of the changer was very quiet—audible in a quiet room but not at all distracting. The player’s impact resistance was also good—it required a moderate slap on the top or a firm fist blow on the side to induce mistracking. It was able to track 750-micrometer disc errors on the Pierre Verany #2 test disc without audible problems, but it shut down abruptly on 1,000-micrometer errors.

The Yamaha CDC-835 is not only one of the most versatile CD changers we have seen, but it also delivered excellent performance in almost every respect. Yet despite its many capabilities, it presents an undaunting appearance, especially with its lower control panel closed. It would be hard to find an easier-to-use CD player for simply listening to one or more discs from beginning to end. Some study of the manual and hands-on experience are necessary to fully appreciate its capabilities, but the effort will be amply rewarded.

The only feature of the CDC-835 that we did not find useful was its digital equalization. The response modifications were mild enough that they would not seriously degrade most program material, but we prefer to listen to our CD's "straight," with a minimum of response modification. Of course, one can simply leave the DEQ feature off (as we did after some experimenting) and be none the worse for its inclusion.

The CDC-835 is not cheap—its price is a little more than twice that of the Technics SL-PD827 we reviewed last month, for example. But in comparison with this Yamaha changer, the Technics has a somewhat insubstantial feel to it, fewer features, and, in general, lower performance. You're just not likely to find the CDC-835's overall quality in less expensive changers.
NEW FROM CAMBRIDGE SOUNDWORKS

Our new Center Channel and Center Channel Plus speakers are magnetically shielded, so they won't cause video interference, even when placed very near a TV screen.

Our New Center Channel Speakers Deliver Optimum Pro Logic Performance At Factory-Direct Prices.

We’re pleased to announce two new speakers designed by Henry Kloss specifically for use as center channel speakers in Dolby Surround Pro Logic systems—the Center Channel and Center Channel Plus. Our experience with Dolby Surround Pro Logic systems has shown that the center channel is very important. A significant portion of movie soundtracks is directed to the center channel. It’s very important to use a speaker that reproduces that material accurately, with the proper volume level and dispersion pattern.

Center Channel by Henry Kloss.

Center Channel is a compact, two-way acoustic suspension speaker with a 4” woofer and a ring radiator tweeter. Because of its compact size (8¾” x 5¼” x 4”), it’s simple to place Center Channel directly on top of or below your TV screen, so that dialog and sound effects will seem to emanate from their on-screen source.

Center Channel is well shielded magnetically so that it can be placed very close to your TV without causing video interference. Acoustically identical to our Ensemble satellite speakers, it’s ideal for center channel use in a Pro Logic system. The factory-direct price of Center Channel is $149.

Center Channel Plus by Henry Kloss.

The Center Channel Plus is a larger speaker recommended for achieving theater-like playback levels in the most sophisticated and powerful home theater systems. It uses four 3” long-throw woofers and a tweeter that perfectly matches the acoustics of our Ensemble® and Ensemble II systems. The frequency range of the outer pair of 3” woofers is intentionally limited to maintain proper dispersion characteristics.

Because of its wide, low profile (25” wide, 4” high, 6¾” deep), Center Channel Plus is ideal for placement directly on top of or, uniquely for a product of its type, beneath a TV—with optional support unit, it can act as a base for your TV. We don’t know of any speaker, at any price, that outperforms Center Channel Plus. The factory-direct price of Center Channel Plus is $219.

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CIRCLE NO. 6 ON READER SERVICE CARD
Clearfield Continental
Loudspeaker System
JULIAN HIRSCH
HIRSCH-HOUCK LABORATORIES

COUNTERPOINT Electronic Systems, Inc., best known for its high-quality electronic audio components, recently introduced the Clearfield loudspeaker line. The first Clearfield speaker system, the Metropolitan, is large, heavy, and expensive ($6,000 a pair), though with quality to match its other characteristics. The new Clearfield Continental is somewhat smaller and considerably less expensive, using the same basic drivers as the Metropolitan but without its two 8-inch subwoofers.

The Continental is an attractive, fairly large floor-standing system with the cross section of a truncated triangle. The cabinet is attractively finished on all visible surfaces, and each speaker weighs about 86 pounds (100 pounds in its shipping carton). The speaker drivers are mounted on a 1-inch-thick board, which is bonded rigidly to the upper part of the cabinet front to give them a full 2-inch-thick mounting surface. The driver complement consists of two 6½-inch woofers with damped polypropylene cones and butyl-rubber surrounds, crossing over at 2,600 Hz to a 1-inch aluminum-dome tweeter with a vented cavity.

Counterpoint says that the enclosure’s bass-loading system uses a one-eighth-wavelength air column (at an unspecified frequency) ported at the bottom of the rear panel. As shipped, each speaker has a foam-rubber plug in its port, with a 1-inch-diameter hole through its central axis. The plug can be removed to increase the port diameter to a full 3 inches, thereby changing the enclosure’s “Q” from approximately 0.5 to 1.0. This enables a user to adjust the low-bass response to suit the characteristics of the room and the speaker placement.

According to the manufacturer, the crossover network uses a third-order (18-dB-per-octave) design that has been computer-optimized to include the driver reactances as part of the network. High-quality components are used throughout.

The cabinet, made of 1-inch-thick fiberboard, is inherently rigid by virtue of its shape, and it is further stiffened by internal braces under compression from the cabinet sides. Counterpoint says the angled shape minimizes internal standing waves and provides, together with the narrow front panel and rounded rear corners, an optimum dispersion pattern for realistic imaging.

Imaging is further enhanced by the symmetrical placement of the drivers, with the tweeter between and equidistant from the woofers. The speaker board is covered with felt to reduce diffraction from its edges, and the removable black grille cloth has a sturdy wooden frame that fits snugly against the edges of the speaker board and effectively places the speaker’s radiating surfaces, grille cloth, and cabinet front in the same plane. The Continental system is constructed in matched pairs, with each tweeter located about 1½ inches inboard of the center line of its two woofers.

The input connectors, recessed into the rear panel, are five-way gold-plated binding posts. Separate inputs (with removable bonding straps) are provided for the tweeter and woofer,
The Powered Subwoofer
That Has The Audio And Video Press
Jumping Out Of Their Seats.

A jet roaring in *Top Gun*. The heavy-footed killer robot in *RoboCop*. A semi hitting concrete after a 20 foot fall in *Terminator 2*. These are examples of the substantial, very low-frequency effects on the soundtracks of today's movies. Such frequencies are rare in music, and are beyond the capabilities of most speakers designed for music.

The new Cambridge SoundWorks Powered Subwoofer by Henry Kloss was created to reproduce those ultra-low, ultra-strong bass signals with the power and impact you would experience in movie theaters with the very best sound systems. It's designed to supplement (not replace) the subwoofer(s) of Ensemble or Ensemble II. It will also work with speakers from other companies.

**Remarkable bass performance.**

The Powered Subwoofer consists of a heavy-duty, 12 inch long-throw acoustic suspension woofer integrated with a 140 watt amplifier—all in a high-pressure black laminate cabinet. Its control panel includes a bass level control and an 18 dB per octave, four-position electronic crossover frequency selector (to match the subwoofer to your other speakers).

Additionally, an optional electronic crossover* will provide 18 dB per octave, high-pass, line-level filters for the main and center amplifiers. These filters allow you to keep strong, low frequencies of sound effects out of the front speakers. These signals can cause distortion, even in speakers designed for full-range music.

The Powered Subwoofer's bass performance is simply **awesome**. It reproduces accurate bass to below 30 Hz. You'll hear soundtracks the way they were meant to be heard. In fact the bass is **better** than most theaters! At the press event when we introduced our Powered Subwoofer, we startled members of the audio and video press literally "jumping out of their seats" during demonstrations of movie soundtracks. The factory-direct price of the Powered Subwoofer is $599.

**Optional "slave" subwoofer.**

For all-out home theater performance, you can add our optional Slave Subwoofer, which is identical to our Powered Subwoofer except that it lacks the amplifier and controls. It uses the amplifier and controls built into the Powered Subwoofer. Amplifier output jumps from 140 to 200 watts when the Slave Subwoofer is connected.

The combination of the two speakers can reproduce a 30 Hz signal cleanly to a sound pressure level of over 100 db in a 3,000 cubic foot room! 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.

**No compromises. No apologies.**

The combination of our Ensemble speaker system, Center Channel Plus speaker, The Surround rear/side speakers, Powered Subwoofer and Slave Subwoofer (see photo at left) creates a home theater speaker system that we believe is the best of its kind.

Although you can spend thousands more on competing systems, we don't know of any that outperform this $1,999 package. If you'd like more information, a free catalog or our new booklet, “Getting The Most From Your Dolby Surround System,” call our toll-free number any time.

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CIRCLE NO. 6 ON READER SERVICE CARD
The Critics Love Ensemble And Ensemble II. What's The Difference, Anyway?

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

And Then There Were Two.

Now Cambridge SoundWorks has introduced Ensemble II, a more affordable version of Ensemble using only one cabinet to hold both subwoofer drivers. Ensemble II has joined Ensemble in the ranks of the country's best-selling speakers. We believe Ensemble II is a better system than the new Bose® AM-5 Series II. And because we sell it factory-direct, it's half the price. Stereo Review said "Ensemble II performs so far beyond its price and size that it can be compared only with much larger speakers at substantially higher prices." We agree with the writer who said, "It's hard to imagine going wrong with Ensemble." The question is, which Ensemble system is right for you?

The real difference is in the subwoofer.

The Same Satellite Speakers.

When you listen to either Ensemble system, almost 90% of the music you hear is being reproduced by the satellite speakers. Both Ensemble and Ensemble II use satellite speakers that are virtually identical.* Unlike many competing systems, Ensemble's satellites are true two-way speaker systems, each containing a high performance tweeter and a 4-inch woofer. Stereo Review said, "The Ensemble satellites delivered a smoother output than True acoustic suspension, sealed subwoofer cavity. Cavity acts as acoustic band-pass filter.

*"Ensemble may be the best value in the world." Audio
many larger and more expensive speakers." Small (8½" x 5¼" x 4") and unobtrusive, they'll fit into the decor of any room. They're available in scratch-resistant gunmetal grey Nextel, or primed so you can paint them any color you wish.

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

**The Same Overall Sound.**

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

**The Same Attention To Detail.**

Ensemble and Ensemble II are constructed with the very best materials and no-compromise workmanship. Their subwoofers use heavy-duty woofers in true acoustic suspension enclosures. The satellites are genuine two-way systems with very high quality speaker components. Individual crossover networks are built into every cabinet for maximum wiring flexibility. Robust construction is used throughout, featuring solid MDF cabinets and solid metal grilles.

**The Same Factory-Direct Savings.**

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

**The Same 30-Day Total Satisfaction Guarantee.**

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

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

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

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

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

**How To Order.**

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

**CALL 1-800-FOR-HIFI**

24 hours a day, 365 days a year. We'll send you our 48-page color catalog with stereo and surround sound components and systems from Cambridge SoundWorks, Pioneer, Philips, Denon and others. Because we sell factory-direct, eliminating expensive middle-men, you can save hundreds of dollars.

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CIRCLE NO 6 ON READER SERVICE CARD
No Other Loudspeaker Company Can Run This Ad.

Cambridge SoundWorks is a new kind of audio company, with factory-direct savings, and much, much more...

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

We eliminated the expensive middle-men. By selling factory-direct to the public, we eliminate huge distribution expenses. Don't be fooled by our reasonable prices. Our products are very well designed and made.

Five year limited parts and labor speaker warranty. All of our speakers are backed by a five year parts and labor warranty. In some cases, we'll even send you a replacement speaker before we've received your defective unit.

NEW: The Cambridge SoundWorks Charge Card. Qualified customers can now charge items from our catalog - without tying up the credit lines of their other charge cards. Call for your application today!

High performance dipole radiating surround speakers. The Surround ($399 pr) & The Surround II ($249 pr) use dipole radiator technology for surround sound the way it was meant to be heard. Hundreds less than competing speakers.

NEW: Model Eleven A transportable component system. The same high performance of the original, in a smaller package. Carrying case doubles as system subwoofer. Narrows on 110, 220 & 12 volts. Introductory price $599.

Ambiance ultra-compact speaker system. We think Ambiance is the best "mini" speaker available, regardless of price. Base and high frequency dispersion are unmatched in its category. $75-$200 each.

Ambiance In-Wall high performance speaker system. We don't know of any other in-wall speakers that match its performance, value and ease of installation. Includes acoustic suspension cabinet, gold plated speaker terminals. $329 pr.

Call 1-800-FOR-HIFI for a free 64-page catalog with components and systems from Cambridge SoundWorks, Pioneer, Philips, Sony, Denon and others.

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TEST REPORTS

for convenience in biwiring or biamplifying, although it is not possible to bypass the crossover network.

The system's ratings include a nominal impedance of 4 ohms and a sensitivity of 87 dB sound-pressure level (SPL) at 1 meter with a 2.83-volt input. Its frequency response is rated as 31 to 25,000 Hz ±3 dB, and the system is recommended for use with amplifiers rated between 50 and 200 watts per channel. The peak sound-pressure level from the Continental is given as 110 dB with normal room gain.

We placed the two Clearfield speakers about 8 feet apart and 3 feet in front of a wall. We left the foam plugs in place in the port openings for most measurements and listening tests, although we measured the close-miked port response with and without them. The averaged room response from the two speakers showed the usual amount of irregularity from room-boundary reflections. The close-miked port response clearly showed the effect of the plug. With it in place, the output was at its maximum between 40 and 80 Hz, falling by 7 dB at 20 Hz; removing the plug produced a rising response down to 20 Hz, exceeding the output with the plug by several decibels below 100 Hz and a maximum of 12 dB at 20 Hz.

As a rule, combining a speaker's port and cone outputs produces a somewhat optimistic view of its actual audible bass response in a room. In this case, the combined bass response of the cones and port appeared to be flat within ±2.5 dB from 20 to 300 Hz and within 2.5 dB overall from 300 to 1,600 Hz (above which a close-miked measurement is no longer meaningful). As our ears confirmed, the Continental's bass response is excellent, very solid to just above 30 Hz, but not quite that good.

Combining the bass-response and room-response curves yielded a composite response that conformed quite well to what we heard from the speakers. The frequency response measured with a stepped one-third-octave band of pink noise conformed well to the shape of the composite curve except for a fall-off at very low frequencies, to -10 dB at 30 Hz. Present in all our response measurements was a dip of about 5 dB at 2,300 Hz and a rising output above 6,000 Hz, to a maximum of +6 dB at 13,000 Hz.

The tweeter's horizontal dispersion...
45 degrees off the forward axis was good, although it was quite different in the two directions. Facing away from the other speaker, toward the side wall of the room, there was little difference below 7,000 Hz, about 5 dB at 10,000 Hz, and 13 dB at 20,000 Hz.

Sensitivity was 89 dB, slightly higher than rated. With a 3.19-volt input (equivalent to a 90-dB SPL), the woofer distortion was between 0.3 and 0.5 percent over most of the audio range from 80 to 1,500 Hz, increasing to 4.5 percent at 40 Hz and 9 percent between 20 and 30 Hz.

Impedance was a minimum of 5 ohms at 20 and 120 Hz, rising to 9 ohms at 60 Hz and 20 ohms at 3,000 Hz. The impedance characteristic below 100 Hz did not change significantly when the port plug was removed. The group delay was constant within 200 to 300 microseconds in the tweeter range, from 2,500 to 20,000 Hz, and increased by about 1 millisecond at 2,500 Hz, the upper end of the woofer's range.

The Continental handled high-power single-cycle tone bursts easily. At 1,000 and 10,000 Hz, the amplifier clipped (at 415 and 800 watts, respectively) before the output of the speaker was seriously distorted. At 100 Hz, the woofers began to sound hard at two or three hundred watts, but the speaker cones did not actually reach their physical limits until the power exceeded 450 watts.

Overall, the Clearfield Continentals had an effortless, seamless sound quality, with a slight tendency toward warmth in the lower midrange and upper bass. The sound stage was somewhat distant, and comparisons with several more conventional speakers suggested that the Continental's highs might be a bit soft. On the other hand, the measurements showed that the highs were very much present, perhaps even a bit accentuated above 10,000 Hz.

Our best guess is that the upper-midrange dip in the vicinity of the crossover, combined with the slightly emphasized upper bass, contributed to the subjective character of the speaker's performance. Whatever the cause, we found that after a brief exposure to its sound, other speakers seemed too bright and forward (a very normal effect). Furthermore, the Continental's ease and naturalness gave it an especially listenable quality.

We were impressed by how deep into the low bass those two 6½-inch drivers could go. A room-filling 31.5 Hz from a test CD confirmed Counterpoint's claims. This is one speaker that hardly needs a subwoofer to do justice to the lower octaves. If you must have even more extended bass response, you might consider its larger relative, the Clearfield Metropolitan. It has the same woofers and tweeter as the Continental, plus a pair of 8-inch subwoofers.
Ultra Fast, 100 CD Changer from NSM of Germany

5 seconds.
That's all it takes, on the average, for our new CD Changer to find any song you like on any of the 100 CD's in its library. Which means almost instant access to some 1000 to 2000 songs.
No more searching through jewel boxes. No more unloading this CD from the player, loading that one. And no more scratched CD's because of it all.

Better yet, our 100 CD Changer can read your mind.
Well, not exactly. You do have to tell it the music you like ... once. But from then on, it will play just the music you want to hear, in just the order you want to hear it. Up to 100 groups of songs — any songs, with the push of a few buttons.
You can also play music randomly. Automatically replay selections ... or just select passages. Scan to hear “sample bites”. Even feed a recording component, like a tape recorder, with the timing and editing precision of a broadcast studio.
All, and much more, simply by coupling our 3101 CD Changer to our 3101 Controller.

Even better, it does it from a distance.
Our full-function wireless Remote Control, along with our CD Register, lets you satisfy your every musical whim without ever leaving your easy chair.

Better still, you can change the entire 100 disc library in little more time than it takes to change a single disc in an ordinary CD player.
That's because our Changer's two 50-CD magazines simply snap in and out.

An extra set of magazines, and you can protectively store another 100 CD's ... yet all but instantly access any of them, whenever the musical whim strikes you.

Where did this CD Changer come from?
A Jukebox. The kind you put quarters in. The most technologically advanced, number one selling jukebox in the world ... from NSM.

Yes, it does.
That's the best answer we can give you to most any other question about our system you might have.

It plays 3" singles, 5 1/4" albums ... or any mixture. It sends signals to other components in analog or optically. Even provides you with a second CD player in the 3101 Controller for checking out CD's before “librarying” them.

Test drive one yourself at your nearest NSM dealer.
To find out more, call, write or FAX us for our free booklet “HI-FI Visions” and the name of the dealer nearest you.

NSM Consumer Electronics
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At one time, amplifiers capable of delivering 200 watts or more per channel were likely to be used only by dyed-in-the-wool audiophiles who were willing and able to make the sizable investment these heavyweights required. Not everyone appreciated or wanted the power that is sometimes needed to reproduce the brief but large musical peaks that can occur even at moderate average listening levels. As compact discs began to supersede LP's and tapes as music sources, their greater dynamic range increased the need for higher-power amplifiers in home music systems, and the trend to home theater and the increasing use of subwoofers have started people thinking about high power who would not have thought about it previously. Simultaneous advances in
Increasingly common are amplifiers that can deliver 80 to 100 watts typical to home amplifiers and receivers, from a 30 or 40 watts per channel to an increase in power capability of semiconductor technology, together with lowered prices, have contributed with the increase in power capability of all fall within this price range, fordable to any serious enthusiast. Although there are a number of "high - ly less so now than they used to be. Although most of the amplifiers were provided with performance specifications, the specs were not all arrived at by the same procedures, and meaningful comparisons between them would be difficult. Nor did we attempt to confirm all of the specifications supplied for each amplifier; we measured only the key performance characteristics we normally test, under identical conditions for all six amps. We measured the frequency response of each amplifier at a low power level (about 1 or 2 watts) and the input sensitivity (in millivolts) for a standard 1-watt output into 8 ohms. The A-weighted noise in each amplifier was measured (again, relative to 1 watt) with a 1,000-ohm resistance terminating the input. We measured the clipping-level power output into loads of 8 and 4 ohms at 1,000 Hz, and from this measurement we derived the clipping headroom (the difference, in decibels, between the rated output and the output at clipping). Similarly, we made a dynamic-power measurement according to EIA standards (a 20-millisecond tone burst at 1,000 Hz, followed by a 480-millisecond "off" time). We then measured the maximum dynamic power at the clipping point with loads of 8, 4, and 2 ohms and derived from that the dynamic headroom (the difference, in decibels, between the rated continuous power and the measured dynamic power). We also measured each amplifier's total harmonic distortion (THD) at 1,000 Hz into 8 ohms at its rated output.

Finally, we measured the damping factor of each amplifier. Damping factor is inversely proportional to an amplifier's internal output impedance and is one of the few characteristics of an amplifier that can actually affect its sound. A higher or lower damping factor won't necessarily make the sound better or worse, but it may make it different, depending on the impedance characteristics of the loudspeaker being driven. When an amplifier's damping factor is unusually low, its frequency response may vary somewhat according to the loudspeaker's internal output impedance, possibly to a great enough degree to make the sound different from that of the same speaker driven by an amplifier with a higher damping factor. Although such effects, when they occur, are the result of an interaction between the amplifier and the speaker, they are often mistakenly attributed to the amplifier alone.

The Tests

Adcom rates the GFA-585 at 250 watts per channel continuously into 8 ohms and 400 watts per channel into 4 ohms, both ratings based on operation from 20 to 20,000 Hz with no more than 0.02 percent total harmonic distortion (THD). But for continuous operation into 4 ohms at high power, Adcom recommends installation of an optional cooling fan (the unit we tested did not have the fan).

The GFA-585—the largest, heaviest, most powerful, and most expensive amplifier in this group—is a "limited-edition" model developed to commemorate Adcom's tenth anniversary. It is essentially a pair of the company's GFA-565 mono amplifiers in a single package. Its front panel contains a large rocker-type power switch, three small LED indicators for the protection systems, and a serial-number plate. The GFA-585's instruction manual is very complete, including a circuit description. Adcom says that the amplifier is designed to deliver very high currents to complex speaker loads, and each output stage has ten bipolar transistors. No electronic limiting circuits are used; the only protection against excessive signal levels is fuses in the DC power supply to the transistors. The fuse holders (plus a line-fuse holder) are accessible on the rear of the amplifier, together with the gold-plated input jacks and four heavy-duty binding-post output terminals. The speaker outputs are spaced for dual banana-plug connectors and are also suitable for heavy speaker wires, with lugs or bare.

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The Carver TFM-35, by a small margin the lightest amplifier of the group as well as one of the smallest and least expensive, is also one of the most powerful. It is rated to deliver 250 watts per channel into 8-ohm loads and 350 watts into 4 ohms, both with less than 0.5 percent total harmonic distortion between 20 and 20,000 Hz. It uses Carver’s proprietary Magnetic Field power supply to deliver simultaneous high voltage and high current to the output transistors without the penalty in weight and heat dissipation imposed by a conventional power supply. The TFM-35 is also designed for bridged operation, in which it is rated at 700 watts (mono) into 8 ohms.

On the front panel are concentric level-control knobs that adjust the amplifier’s input sensitivity, a pushbutton power switch, two illuminated level meters, and two small buttons used to change the meters’ display range or dim their illumination. The meter scales are calibrated so that 0 dB corresponds to the amplifier’s rated output of 250 watts into 8 ohms. The scale goes to +3 dB to allow for pointer overshoot. Pushing in the range-switch button changes the 0-dB calibration to 25 watts.

On the rear of the TFM-35 are the input jacks and insulated binding-post speaker outputs; the standard ¼-inch spacing is compatible with dual banana plugs. A stereo/mono slide switch converts the amplifier to bridged mode. The TFM portion of the amplifier’s model number stands for Transfer Function Modified. Like other Carver TFM amplifiers, the TFM-35’s frequency response and internal source impedance, or damping factor, have been designed to approximate those of the high-quality vacuum-tube amplifiers favored by some high-end audiophiles.

Denon POA-2800 is one of the largest and heaviest amplifiers of the group. It is also one of the least expensive—a somewhat unusual combination.

The most prominent feature of the POA-2800’s front panel is the Denon name in its center, with its model designation and a large pushbutton power switch below. Two barely visible LED indicators show when the amplifier is powered and when it is in standby mode. The panel’s rounded corners and a sculptured horizontal indentation add visual interest. Two small round selector buttons at the lower right corner connect the two pairs of speaker terminals to the amplifier outputs.

The input jacks are at the two ends of the back panel. The left and right speaker outputs (two pairs for each side) are large (¼-inch-diameter) insulated binding posts; they do not accept banana plugs, but heavy stranded-wire cables can be firmly clamped. Also on the rear are input connectors for remote control of the POA-2800 from compatible Denon preamplifiers or amplifiers.

The Denon POA-2800 is rated at 200 watts per channel into 8 ohms from 20 to 20,000 Hz with no more than 0.01 percent THD. It also carries a 4-ohm DIN power rating of 350 watts at 1,000 Hz.
The MTX Soundcraftsmen A400 is a medium-size, relatively low-price entry. It has an attractive sculptured front panel with only a single control—a pushbutton power switch. Two barely visible LED indicators flash on momentary peak overloads.

Unlike the other amplifiers tested, the A400 has a built-in cooling fan that draws in cool air from one side of the back panel while exhausting warm air at the other side. The fan operates at all times, normally at a low speed. If the output transistors become too warm, as in sustained high-power operation, the fan switches to a higher speed until a safe temperature is reached.

The A400 is based on proprietary technology Soundcraftsmen calls PCR (Phase Control Regulation). PCR has several functions: (1) power regulation that is said to enable rated power to be developed even if the AC line voltage falls as low as 100 volts; (2) protection against overloads or short circuits; (3) thermal protection, which varies the cooling-fan speed or shuts down the amplifier; and (4) efficiency improvement, by automatically varying the output of the power supply to meet program demands, reducing its output during quiet passages to minimize heating. There are no conventional current-limiting circuits, since the amplifier uses MOSFET power components, which don’t need such protection.

The A400’s back panel contains, in addition to the air opening to the heat sinks and the corresponding fan opening, the input connectors and speaker terminals. The latter are insulated binding posts on ¼-inch centers, compatible with dual banana plugs, lugs, or wires. The A400 is rated at 205 watts per channel into 8 ohms and 300 watts per channel into 4 ohms.

"Little" brother to the better-known and even hefty Parasound HCA-2200, the HCA-1200 is appreciably larger than most of the other amplifiers tested. It also has sturdy handles on its front panel and gives an impression of solidity. Like the Carver amplifier, the HCA-1200 has input-level controls on its front panel. The pushbutton power switch has a red standby light that comes on while internal voltages are stabilizing, replaced by a green light when the amplifier is ready for operation. Small LED's indicate overload or high temperature in the two channels.

The amplifier circuit boasts a Class A J-FET input stage and MOSFET drivers feeding high-speed bipolar output transistors. The rear panel has two pairs of signal inputs, gold-plated phono jacks and ¼-inch phone plugs. The four insulated binding-post speaker connectors are compatible with dual banana plugs. A stereo/mono slide switch converts the amplifier for bridged operation, increasing its normal stereo rating of 200 watts per channel into 8 ohms or 300 watts into 4 ohms to 600 watts mono into either 8 or 4 ohms.
The Winners

It came as no surprise to find that all the amplifiers in this group were capable of delivering excellent performance in almost any home music system. And provided we kept all of them running within their power limits, we heard nothing that would incline us to prefer one over another. Although some people strongly feel otherwise, good amplifiers of comparable quality and power that are not being overdriven will sound very much alike under most conditions to most people.

If amplifiers do sound so much alike (and these did), then why bother comparing them? Because there is more to an audio component than its perceived sound character. There are differences in operational limits (maximum power output into various loads, for example), construction quality and finish, size, weight, price, and features that can affect an amplifier's suitability for any particular installation.

For example, the Adcom GFA-585 was clearly the most powerful and sophisticated of this group in its overall design. The largest, heaviest, and most expensive of the six amplifiers, the GFA-585 has an enormous current capacity, which enables it to drive even a 2-ohm load to more than 1,000 watts on demanding musical transients. It was in a class by itself with respect to its damping factor, which is rated at greater than 600 and measured about 1,500 (corresponding to an internal impedance of only 0.0053 ohm). Its noise level was also lower than that of any of the others.

Although the GFA-585 became very hot to the touch in our bench tests, it ran only moderately warm in normal operation. There should be no heat problem in a home installation, but adequate ventilation is clearly an important factor with an amplifier as powerful as this one.

The Carver TFM-35, in common with most of that company's amplifiers, packs a lot of power and performance into a compact package. It was the lightest and smallest of the group by a small margin, and easily the least expensive. Although it weighs less than 30 pounds, its dimensions make it seem heavier than it is. It was no lightweight in performance, however. The TFM-35's Magnetic Field power supply gives it a hefty power output, both continuous and dynamic, ranking just barely behind that of the Parasound amp and in third place relative to the Adcom. Its damping factor was next to the lowest of the group, at 87, but even that seems high for an amplifier designed to emulate vacuum-tube performance.

The Denon POA-2800 is a relatively large and heavy amplifier (at 40 pounds, second only to the Adcom). It nonetheless proved very similar to the others near its price in most measurable respects. The most notable departure from the others was its relatively low noise level.

<table>
<thead>
<tr>
<th>Laboratory Measurements</th>
<th>Adcom GFA-585 ($1,200)</th>
<th>Carver TFM-35 ($700)</th>
<th>Denon POA-2800 ($800)</th>
<th>MTX SoundCraftsmen A400 ($800)</th>
<th>Parasound HCA-1200 ($845)</th>
<th>Rotel RR9900EX ($1,100)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clipping level output</td>
<td></td>
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<td>(1,000 Hz, watts)</td>
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<tr>
<td>8 ohms</td>
<td>295</td>
<td>280</td>
<td>220</td>
<td>215</td>
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<tr>
<td>4 ohms</td>
<td>485</td>
<td>380</td>
<td>360</td>
<td>306</td>
<td>400</td>
<td>340</td>
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<td>Clipping headroom (dB)</td>
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</tr>
<tr>
<td>8 ohms</td>
<td>0.72</td>
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<td>0.41</td>
<td>0.21</td>
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<tr>
<td>8 ohms</td>
<td>350</td>
<td>375</td>
<td>264</td>
<td>203</td>
<td>310</td>
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<tr>
<td>4 ohms</td>
<td>612</td>
<td>545</td>
<td>454</td>
<td>377</td>
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<td>2 ohms</td>
<td>1,022</td>
<td>810</td>
<td>783</td>
<td>483</td>
<td>930</td>
<td>720</td>
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<tr>
<td>Dynamic headroom (dB)</td>
<td></td>
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<tr>
<td>8 ohms</td>
<td>1.46</td>
<td>1.76</td>
<td>1.2</td>
<td>-0.04</td>
<td>1.9</td>
<td>0.58</td>
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<td>4 ohms</td>
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<td>1.13</td>
<td>0.51</td>
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<td>Frequency response</td>
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<td>+0, -0.65</td>
<td>+0, -0.18</td>
<td>+0, -0.15</td>
<td>+0, -0.28</td>
<td>+0, -0.20</td>
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<tr>
<td>(20-20,000 Hz, dB)</td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>Sensitivity (for 1 watt output, millivolts)</td>
<td>125</td>
<td>93</td>
<td>75</td>
<td>90</td>
<td>62</td>
<td>75</td>
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<tr>
<td>Noise (referred to 1 watt, A-weighted, dB)</td>
<td>-97.3</td>
<td>-94</td>
<td>-76.2</td>
<td>-91.5</td>
<td>-88.5</td>
<td>-94.5</td>
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<tr>
<td>Distortion (THD + N at rated power into 8 ohms)</td>
<td>0.0057%</td>
<td>0.0025%</td>
<td>0.0025%</td>
<td>0.024%</td>
<td>0.0018%</td>
<td>0.088%</td>
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<tr>
<td>Damping factor (8 ohms)</td>
<td>1,500</td>
<td>87</td>
<td>84</td>
<td>216</td>
<td>457</td>
<td>146</td>
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<tr>
<td>Dimensions (inches)</td>
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<td>width</td>
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<td>19</td>
<td>17½</td>
<td>17</td>
<td>17½</td>
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<td>4½</td>
<td>7¼</td>
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<td>Weight (pounds)</td>
<td>45</td>
<td>26</td>
<td>40</td>
<td>27½</td>
<td>38</td>
<td>35½</td>
</tr>
</tbody>
</table>
joys the distinction of being designed sound levels from the speakers high operation would probably also involve conditions likely to elicit full-speed fan While the only real-world listening returned to its normal speed seconds that driving the A400 slightly into clipping caused the fan to come on at full speed in a few seconds, although it returned to its normal speed seconds after the overload was removed. While the only real-world listening conditions likely to elicit full-speed fan operation would probably also involve sound levels from the speakers high enough to drown out its noise, even on low the fan seemed too noisy to me.

The A400's flimsy top cover seems out of character with what is otherwise a very good amplifier. Every time we turned it on there was a loud noise, apparently caused by the top's being magnetically attracted to the power transformer, and usually there was an audible, though less objectionable, noise when it was turned off. On the plus side, the A400 has one of the most sophisticated protection systems we have seen in an amplifier.

For sheer low distortion, which may or may not be significant for listening purposes but is nonetheless impressive, the Parasound HCA-1200 took the honors with a reading of 0.0018 percent at its rated output of 200 watts. It also had the second-highest damping factor, and its power output, both continuous and dynamic, was in a dead heat with the Carver and ranked behind only the Adcom. The HCA-1200 is also second only to the Adcom in size and is the only one of the amplifiers other than the Carver to have front-panel level adjustments or bridging capability.

Although the HCA-1200 ran only slightly warm in normal use, it became very hot during our preconditioning at one-third rated power and in the tests that followed. In fact, its top could not be touched during that period.

Finally, the Rotel RB990BX, alphabetically last, fell in the middle of the group in most respects. The only measurement that departed from the center was its 0.08 percent distortion at rated power, which was several times higher than that of any of the other amps though still quite negligible.

The relatively compact RB990BX is heavy for its size and well built. The light-gauge sheet-metal covers merely protect the amplifier from prying fingers (and protect those fingers from electric shock or burns). The heavy power transformer is supported by a fifth mounting foot under the center of the chassis, which makes the amplifier solid and rigid despite the light covers.

Full-power operation made the top of the case (over the heat sinks) too hot to touch, but in normal operation it became only moderately warm.

The bottom line, as we see it, is that the amplifiers in the $800 to $1,100 range are all good, solid components, with minor differences in features and performance that may lead to a preference for one over another. The lightest and the heaviest—Carver and Adcom—provide some additional power and other features. These two amplifiers are also by small margins the least and the most expensive of the group. The Adcom, at $1,200, was the top performer overall, with especially impressive power output into low impedances, and on that basis we would say it earns its premium. But at just slightly more than half its price, the Carver is a clear best buy.
Putting a Whole New Spin on Personal Music Enjoyment.
MiniDisc: Digital Audio Gets Personal.

It all started with the Compact Disc. When Sony launched the CD just 10 years ago, we introduced the concept of an optical-based digital audio disc. And we gave music lovers their first taste of digital high fidelity with quick random access. Music was finally free of analog noise, wow & flutter and distortion. The CD brought the home listener a giant step closer to the original musical source.

Over the past decade, Sony has taken these high standards, and raised them even higher, with wave after wave of CD player innovations. We've also improved CD software by developing a new generation of professional 20-bit studio recorders. And now Sony's critically-acclaimed Super Bit Mapping™ technology achieves near-20-bit performance on standard 16-bit Compact Discs.

These refinements have helped keep Compact Disc at the cutting edge. But as advanced as Compact Disc undoubtedly is, it has never provided many benefits that until now have been the exclusive domain of cassette tape, like recordability, shock resistance and ease of portability. That's why Sony is about to introduce the next step in the digital audio revolution: MiniDisc.


Sony's MiniDisc is an all-new format with an unmatched range of possibilities. Like the Compact Disc, MiniDisc boasts up to 74 minutes of spectacular digital sound—nearly the same sound quality as CD itself. Like CD, you can access any song in less than one second. And the MD is just as durable as a CD, so you can play an MD millions of times without any degradation or wear.

MiniDisc also offers the key advantages of cassettes. MiniDiscs are small for easy portability; the discs are only 2.5 inches in diameter. Like cassette players, the MiniDisc hardware resists shock, so you can take your music wherever your fancy takes you. And like cassette tape, MiniDisc lets you record and re-record again and again.

Personal. Portable. Recordable. This is the power of MiniDisc.
MiniDisc:
Great Sound
Wherever You Go.

Imagine a disc player you can take anywhere you go, any way you travel. Imagine discs so small that several can fit in a shirt pocket. Yet imagine each of these discs containing up to 74 minutes of stereo sound reproduced with the superb clarity of digital technology. How could Sony put so much music on a disc so small? The answer is a technological tour de force called ATRAC.

ATRAC: Minimum Size, Maximum Music.

ATRAC stands for Adaptive TRansform Acoustic Coding, the proprietary bit reduction technology that makes MiniDisc possible. The system uses psychoacoustic threshold of hearing and masking principles to analyze the music and record only those tones to which the human ear is most sensitive. ATRAC captures music that approaches CD performance in areas like frequency response, dynamic range and distortion on a disc only one third the size of a Compact Disc.

ATRAC is unique among bit reduction systems because it performs a comprehensive, non-uniform frequency and time analysis of the music. It divides the audio signal into three separate bands and 512 frequency spectra, with unequal widths that mirror the ear's sensitivity to different frequencies. Finally, ATRAC constantly varies the allocation of bits according to this analysis.

While ATRAC technology is complex, the benefits are simple. Extended record/playback time. Miniature disc size. And outstanding digital sound. It's no wonder that award winning producers and engineers like George Massenburg have acclaimed ATRAC technology as "A significant technological breakthrough—not a rework of arcane hardware. It just sounds great!"

Rugged Cartridge.

MiniDisc may be small, but to make it truly portable, Sony placed it in a protective cartridge. So MiniDiscs are ready to travel. You can toss them in a glove compartment, briefcase or even your pocket.

Phenomenal Shock Resistance.

Most CD players try to resist skipping by means of an oil-damped or mechanical suspension. MiniDisc hardware takes an altogether different approach: a revolutionary method called Electronic Shock Protection (ESP).

The heart of ESP is a buffer memory chip that stores digital data from the disc. Thanks to ATRAC bit reduction, a four Megabit chip corresponds to ten seconds of real-time music. So if shock and vibration should make the laser mistrack, music will continue to flow for up to ten seconds. This gives the laser ample time to resume proper tracking, so your music never misses a beat. In this way, MiniDisc matches today's active lifestyles, letting you bring high-quality digital sound where it's never been before.
At Long Last, You Can Record on a Disc.

For over forty years, audio recording has meant tape recording. And while tape recording is better than no recording at all, it's always been plagued by tape shedding, tape stretching, and occasionally even tape jamming.

All of this is about to change, thanks to MiniDisc. In addition to playback-only prerecorded MiniDiscs, there's also another type of MiniDisc you can record yourself. In fact, with MiniDisc you can record and re-record again and again, up to a million times on the same disc! And MiniDisc recordings provide far faster random access than any tape can, as well as new features that tape formats simply can't touch.

Magneto-Optical Recording.

While prerecorded MiniDiscs use the same laser-read "pits" as Compact Discs, recordable MiniDiscs are different. They represent the first consumer product with magneto-optical technology. Unlike the "write-once" recordable CD's that professionals use, magneto-optical discs are erasable. So you can erase and re-record your MiniDiscs just as you can with cassettes.

Magneto-optical recording has long been used for computer storage. However, MiniDisc incorporates a "direct overwrite" capability that's entirely new. First, a high-power laser beam heats the disc's magnetic layer past the Curie point, the temperature above which the magnetic orientation is easy to change. Then, a semiconductor magnetic head applies the signal from the opposite side of the disc. As the heated spot of the disc rotates away from the laser, it cools and the imprint from the magnetic signal remains embedded or the disc. Because erasing the disc requires at least 400 degrees, the discs are unaffected by stray magnetic fields that might ruin a tape recording.

As a result of this approach, you get a simpler mechanism. A more accurate spot pattern. Lower error rates. Reduced jitter. And lower power consumption, making battery-powered portable recording a reality.

Take Control of Your Recordings.

With MiniDisc, you can alter or adjust your recordings as never before. For example, you can easily re-sequence songs after you've recorded them by writing your new sequence into a section of the disc called the User Table of Contents. You can also edit out a track and all subsequent tracks will be automatically renumbered.

Finally, the MiniDisc format lets you re-record individual tracks, even substituting longer songs for shorter ones. When the recorder comes to the end of the original space, the buffer memory gives the machine up to three seconds to find available disc space and resume recording. So even if your music is recorded on two different sections of the disc, during playback it's never interrupted. To a generation raised on analog recording, these capabilities are nothing short of amazing.

Playback without Pits.

Once recorded, a magneto-optical MiniDisc contains a spiral of magnetic patterns. During playback, these patterns reflect laser light at two different angles of polarization. (This is called the Kerr effect.) Remarkably, this same laser pickup is used for playing back prerecorded MiniDiscs. Both types of playback are performed without contact, so you get an unlimited number of plays without disc deterioration or wear.
Once a Dream.
Now a Reality.

MiniDisc technology sounds futuristic. But the future is now. And soon you'll be able to experience it for yourself.

Which means soon you'll be able to buy a Sony portable MiniDisc recorder; a portable MiniDisc player and a car MiniDisc player complete with AM, FM and CD changer control. And this is only the beginning because MiniDisc is supported by more than 30 consumer electronics companies.

For making your own disc recordings, you'll also be able to buy recordable MiniDiscs from Sony and others. And you'll be able to choose from hundreds of prerecorded MiniDisc music titles from such labels as Atlantic, Capitol, Columbia, DMP, Elektra, EMI, Epic, Ryko, Sony Classical, Virgin, Warner and others.

Once you experience MiniDisc for yourself, we're confident you'll share our enthusiasm for two digital audio disc formats. Compact Disc, which represents the ultimate in high fidelity performance. And MiniDisc, which represents something equally exciting—the new state of the art in personal music entertainment.
Under that headline the New York Chamber Ensemble announced its 1991-1992 season, a celebration of American music. While some performing-arts institutions chose to observe the five-hundredth anniversary of Columbus’s first voyage to the Western Hemisphere with a salute to Latin America, others, like the New York Chamber Ensemble, found much to celebrate in the classical music of the United States, and I’m with them.

For a while it seemed insensitive to “celebrate” the quincentennial of Columbus’s discovery since its eventual consequences were disastrous for so many original inhabitants of the Americas and so many Africans brought here as slaves. But protests faded this year when replicas of Columbus’s ships crossed the Atlantic and when Operation Sail 1992 brought tall ships from around the world into the harbors of New York and Boston. Op Sail ’92 seemed to be a tribute to the human spirit. The ships were beautiful, and, like many quincentennial activities from Cádiz, Spain, to Columbus, Ohio, the whole thing was a lot of fun.

In that spirit, I invite you to make a little voyage of discovery of American classical music. Let’s skip the tiresome historical approach—that Yankee Doodle Revolutionary music can be as deadly as Gregorian chant—and go directly to the more exciting stuff. By recommending a couple of dozen recent recordings that I have enjoyed I hope to lead you to music by our own composers that will give you the same things you get from standard European compositions: contact with beauty, truth, fun, and emotional fulfillment.

You probably already know a few of the big names in American music, like George Gershwin (Rhapsody in Blue), Ferde Grofé (Grand Canyon Suite), and Aaron Copland (Appalachian Spring and Rodeo). They are the tall ships among American composers, and they invented the idiom that describes the American life and landscape in sound.

Although the late Leonard Bernstein, our first widely recognized world-class conductor, played the standard European repertoire, he was also a champion of American music. And following in his footsteps are a group of younger American conductors who bring glamour to performances of our music and make it attractive and accessible. They include Dennis Russell Davies, Gerard Schwarz, Leonard Slatkin, Michael Tilson Thomas, and David Zinman, all represented below.

Among institutions designed to promote American music are the American Composers Orchestra, founded in 1975 by Davies and the composer Francis Thorne, and New World Records, also founded in 1975 and intended to document American music that is not being
recorded by commercial companies. Videumus, a Boston-based performing group, is devoted to music by women, African-Americans, and composers from other minority groups.

Commercial companies large and small are now recording more American music. Delos Records, a smallish company in Los Angeles, has had some of its biggest successes with recordings in its Great American Composers series, conducted mostly by Schwarz. Slatkin's contract with RCA Victor emphasizes American music, and Thomas, who made distinguished recordings of American music for Columbia Masterworks, continues that work with Sony Classical. Zinman has recorded notable American works for Nonesuch.

What do Americans look for in music? I think we are somewhat romantic, somewhat sentimental people who like pretty melodies and music that moves us. According to Paul Marotta, director of marketing for New World Records, this view is borne out by his sales figures. "Americans go for accessibility," he says, "so in this country we sell more John Knowles Paine and Ned Rorem. European buyers prefer our more intellectual composers, such as Sessions, Babbitt, and Elliott Carter."

Everybody I know in the music world has great respect for Carter, and nobody I know listens to his music for pleasure. I'm much more excited by the revival of interest in American symphonists of the Neo-Romantic school—Samuel Barber, Paul Creston, Howard Hanson, William Schuman, and Randall Thompson. I think we are indebted to the film composer John Williams for bringing their music back into vogue. With his soundtracks for *Jaws*, *Star Wars*, and other movies, Williams revived the symphonic style in film scores and reacquainted our ears to the pleasant sound of Neo-Romantic music for large orchestra.

Stephen Rodgers Radcliffe, the music director of the New York Chamber Ensemble, says that the shift of the power center in American music away from the academic, dogmatic style of the Princeton School (typified by Milton Babbitt) is like the falling of the Berlin Wall and the collapse of the Soviet Union. He says, "The seeds for a 'kinder, gentler' American music style were sown early in the century with composers like Griffes and Swanson and grew, through Copland and Barber, to a mature American tonal style with works by Lou Harrison and Ned Rorem." Makes sense. Although our composers have produced a large body of wonderful songs, they have not written great operas in the Romantic mold of Verdi or Puccini. Nevertheless, contemporary Americans, such as John Adams, are making news with operas based on headline stories like President Nixon's trip to Red China. A recording of Anthony Davis's first opera, *X: The Life and Times of Malcolm X*, has just been released by Gramavision, and John Moran has written an opera about the murderer Charles Manson and his "family," available on Philips.

How much of it appeals to you will depend on your taste. Like jazz, American classical music is having a worldwide renaissance, and there is much here that we can be proud of. Pride seems to be an important factor in winning self-esteem and equality for the various strains that make up the mosaic of American life today, whether it's Chicano pride, gay pride, or black pride.

On the morning of July 4, 1992, with the replicas of Columbus's ships in New York Harbor and sailing vessels moving sedately up the Hudson River, the mayor of New York, David Dinkins, repeated something other black leaders have said before: "Our ancestors may have come here in different ships, but we're all in the same boat now."

Earlier this year the Los Angeles riots that followed the acquittal of policemen on trial for brutality in beating Rodney King demonstrated that five hundred years after Columbus we still have a long way to go in achieving racial harmony. But, like sports, music is an area in which we work together well. Perhaps if we take pride in American music, we can eventually find a way to answer with a resounding "Yes" Mr. King's question after the riots: "We can get along together, can't we?"

* * *

**ADAMS:** *Nixon in China.* Soloists; Orchestra of St. Luke's, Edo de Waart cond. Nonesuch 79177 (three discs, 145 min). The director Peter Sellars, the Bad Boy of Opera, has done a lot of silly things, but this collaboration with John Adams and their stock company of singing actors works well. I recommend it to more adventurous readers.

**BARBER:** *Piano Concerto; Symphony No. 1; Souvenirs.* John Browning, Leonard Slatkin (piano); St. Louis Symphony, Slatkin cond. RCA Victor 60732 (70 min). Depth, substance, and power, which were Barber's long suits, are in abundant supply in his Piano Concerto and First Symphony. The concerto was written for John Browning, who has both the dazzling virtuosity and the tenderness it requires. A humorous bonus in this recording is the four-hand piano arrangement of Barber's *Souvenirs* played by Browning and Leonard Slatkin.

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early in this century we sowed

the seeds for

a kinder, gentler

american music.

* * *

431 672 (74 min). Since you've probably already got some Copland, I chose this recording for the lovely Concerto for Clarinet and String Orchestra, with harp and piano, just to show you this composer in another vein. El Salón México is always fun.

COPLAND: Old American Songs. Ives: Songs. Samuel Ramey (bass); Warren Jones (piano). Argo 433 027 (52 min). I had never cared for Copland's 'Old American Songs' until I heard Samuel Ramey perform them in this recording, nominated for a Grammy Award this year. His manly simplicity gives them needed depth and dignity. He sings a few of the same Ives songs that Roberta Alexander does (see Ives), and it is interesting to contrast their interpretations.

CORIGLIANO: Symphony No. 1. Chicago Symphony, Daniel Barenboim cond. Erato 45601 (41 min). This live recording is a harrowing performance of a work filled with the rage and grief the composer felt as he saw friends die in the AIDS epidemic. In scope and power it recalls Mahler and Shostakovich. I cannot recall a more stirring contemporary work.

GERSHWIN: Porgy and Bess. Soloists; London Philharmonic, Simon Rattle cond. Angel 49568 (three discs, 190 min). You may argue about which is the best recording of Porgy and Bess (the London set under Lorin Maazel and the RCA set under John De Main are both quite good), but there's no arguing this work's position as the greatest American opera. The Angel set, which I recommend, derives from performances at the Glyndebourne Festival and gives the opera almost Mussorgskian power.

GLASS: Mishima. Kronos Quartet; orchestra. Michael Riesman cond. Nonesuch 79113 (46 min). With the Minimalists Philip Glass, John Adams, and Steve Reich, avant-garde classical music comes very close to cutting-edge pop in a form that is accessible to all. Called to my attention by our musically conservative cartoonist Charles Rodrigues in 1986, Glass's score for the film Mishima—alternately sensual and ascetic, martial and poetic—holds up very well.


GOULD: American Salute. London Philharmonic, Kenneth Klein cond. EMI/Angel 49462 (69 min). Unusually gifted in instrumentation, Morton Gould is a brilliant tone painter who often works with American themes as in this album. His American Symphonette No. 2, which weaves together influences from Bach to jazz, was written in 1938, and his lush arrangements of Spirituals for Strings date from 1959. His American Ballads were a Bicentennial commission in 1976. Amber Waves in this set makes me very glad I am an American.

HANSON: Symphony No. 1 ("Nor- dic"); Symphony No. 2 ("Romantic"); Elegy in Memory of Serge Koussevitsky. Seattle Symphony, Gerard Schwarz cond. Delos 3073 (71 min). Gerard Schwarz told me he recorded Hanson's symphonies as a labor of love and never dreamed the result would hit the best-seller charts.

BERNSTEIN: Songfest; Chichester Psalms. Soloists; National Symphony, Israel Philharmonic, Leonard Bernstein cond. Deutsche Grammophon 415 965 (62 min). I like Bernstein best for the things he's least famous for. Chichester Psalms is one of his prettiest pieces, and the poems he chose for Songfest show great taste—works by Poe, Whitman, Millay, and Aiken, but also Gertrude Stein, Gregory Corso, and Lawrence Ferlinghetti. Songfest, not so immediately accessible as the Psalms, yields itself on repeated hearings.

BOLCOM: Violin Concerto; Fantasia Concertante; Fifth Symphony. Sergiu Luca (violin); American Composers Orchestra, Dennis Russell Da-
The World's First Full Digital Dolby Pro Logic Receiver

Onkyo's new Integra TX-SV909PRO offers home theater performance so advanced, other receivers are destined for some unhappy endings.

The TX-SV909PRO is the world's first receiver to feature a full digital Dolby Pro Logic surround decoder. The technical benefits are significant: improved signal-to-noise ratio, lower distortion and greater separation. To your ear this means Dolby surround sound that is identical to a first class theater, with pinpoint imaging of all dialog, music and sound effects.

The TX-SV909PRO is also the world's first receiver to incorporate the acclaimed Ambisonic Surround Sound System, which is to music what Dolby Pro Logic is to movies. The Ambisonic process recreates a 360° soundstage, with a seamless, natural transition from the front to rear speakers. Ambisonic recordings (such as those on the Nimbus label) played back through the decoder on the TX-SV909PRO deliver a sense of musical time and space that is more lifelike than anything you've ever heard.

The high technology found in the TX-SV909PRO can only be achieved by Onkyo's dedication to uncompromised engineering. That's why the TX-SV909PRO features 7 Discrete Power Amplifier Sections and 3 Independent Heavy-Duty Power Transformers. True Multiple Room/Multiple Source capability is assured via this 7 channel design as well - you can have full 5 channel Pro Logic in your home theater/media room while someone in the bedroom listens to a CD in stereo.

In addition to the TX-SV909PRO, Onkyo offers an entire family of advanced Pro Logic Receivers. Which means if you're looking for unequalled home theater performance, Onkyo is really the only choice you have.

Unless you're into antiques.
The love comes through in the performances, and so does Hanson’s Scandinavian heritage, which explains the resemblance to Sibelius. This CD was the beginning of Delos’s now-complete cycle of recordings of all seven Hanson symphonies.

**HARBISON**: String Quartets Nos. 1 and 2; “November 19, 1828” for Piano and String Trio. Lydian String Quartet; Yehudi Wyner (piano). Harmonia Mundi 907057 (54 min). To get over the idea that chamber music is something written by and for dead male Austrians, try to think of it as the classical equivalent of music for jazz combos. John Harbison (b. 1938) is one of our guys who writes it very well. These three engaging pieces were written on commission, and the composer’s program notes are quite enlightening about them. Ironically, the date November 19, 1828 is the day Franz Schubert died, and this piano quartet is an intriguing tribute to that dead Austrian male.

**HARRIS**: Symphony No. 3. SCHUMAN: Symphony No. 3. New York Philharmonic, Leonard Bernstein cond. Deutsche Grammophon 419 780 (51 min). The third symphonies of Roy Harris, William Schuman, and Charles Ives are ranked with Hanson’s “Romantic” Symphony as foundation blocks of the American orchestral repertoire. If these works now had great influence on film composers, it is because they recall movie scores, it is because they sound a bit like Chopin and a bit like Liszt. This recording is the first in Feinberg’s “Discover America!” series.

**IVES**: Symphonies Nos. 1 and 4. Chicago Symphony Chorus and Orchestra, Michael Tilson Thomas cond. Sony SK 44939 (77 min). For years I was put off from Ives by articles about his methods and techniques and suggestions that it was one’s patriotic duty to like him. Nobody bothered to tell me his music was gorgeous and fun to listen to. I especially like the First Symphony. This CD includes a separate performance of the hymns that Ives quoted in the gigantic Fourth Symphony.

**PAINE**: Symphony No. 1; Overture to “As You Like It.” New York Philharmonic, Zubin Mehta cond. New World 374 (48 min). If you like the symphonies of Mendelssohn and Schumann, this CD might be a good place to start with American orchestral music. A contemporary of Brahms, Paine studied in Germany. These are fine performances, well recorded.

**ROREM**: Winter Pages; Bright Music. Eubie Blake and studied with Chadwick and Varèse. The Neo-Romantic and Neo-Expressionist works included here are from the 1930’s to the 1950’s. Songs of Separation are five settings of texts by famous black poets, and the suite Ennanga (1956) is a tribute to Still’s African heritage that is accessible to all.

**ZWILICH**: Symbolon; Concerto Grosso; Double Quartet; Trumpet Concerto. New York Philharmonic Ensembles; Philip Smith (trumpet); Zubin Mehta cond. New World 372 (64 min). Ellen Taaffe Zwilich (winner of the 1983 Pulitzer Prize in Music) says that as a composer she is working in a business dominated by dead male Austrians. She demonstrates in her music how well she is qualified to compete in this crowded field. She explores instrumental texture in a way that suggests New Age music but here has very clear structure. She resists being labeled Neo-Romantic or anything else. Just listen to the music. It’s substantial, contemporary, and accessible.

**THE AMERICAN ROMANTIC**: Music of Beach, Gottschalk, and Helpes. Alan Feinberg (piano). Argo 430 330 (61 min). The Romantic spirit of the nineteenth century, captured by Amy Beach (1867-1944) and Louis Moreau Gottschalk (1829-1869), is echoed appealingly today by Robert Helpes (b. 1928). Alan Feinberg, a student of Helpes’s, gives idiomatic performances of works by all three composers, who sound a bit like Chopin and a bit like Liszt. This recording is the first in Feinberg's “Discover America!” series.

**THOMAS HAMPSON**: An Old Song Re-Sung. Thomas Hampson (baritone); Armen Guzelimian (piano). EMI 54051 (66 min). These American concert songs are by such fine composers as Griffes, Romberg, Foster, Speaks, and Cadman, and I feel indebted to Hampson for reviving them. He does not exaggerate the folksiness of Shenandoah, the melodrama of Danny Deever, or the sentiment of In the Gloaming. I have seen him bring an audience to its feet with Roses of Picardy, my favorite of this excellent collection, and if I could be a singer today, I’d want to be Thomas Hampson.
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CIRCLE NO. 23 ON READER SERVICE CARD
ALTHOUGH you may not have noticed, trendmongers at audio equipment and record companies have concluded that the venerable analog cassette is nearing the end of its life. The analog cassette won't collapse into obsolescence as precipitously as the LP did, but there has already been a noticeable downturn in analog cassette sales. It's time, they say, for something new.

That something, according to Philips and Matsushita (parent of Technics and Panasonic)—the largest consumer-electronics companies in Europe and Japan, respectively—is the Digital Compact Cassette, or DCC. Co-developed by those two companies in relative secrecy and announced to the world on January 9, 1991, the DCC system is designed to address the principal weaknesses of the analog cassette as determined by consumer surveys and tests. Those shortcomings include:

☐ Poor sound quality compared with the LP and, especially, the compact disc.
☐ Cumbersome cueing, even with blank-hunting players. It's easier to find tracks on an LP than it is on an analog cassette.
☐ Vulnerability to damage, with both the reel hubs and the tape exposed and unlocked.
☐ A perception of old-fashioned appearance and "feel."

All of these faults stem ultimately from the analog cassette's having been developed
The Technics and Optimus DCC decks are expected to appear in stores between now and the end of the year, and a number of record companies will be releasing prerecorded DCC's at the same time.
by Philips as a low-fidelity mono dictation system. It took some prodding—
and the development of Dolby noise reduction—for it to achieve accep-
tance as a high-fidelity medium. DCC, on the other hand, has been developed
from the ground up as a high-fidelity recording system, the first digital sys-
tem having some degree of compatibil-
ity with the analog system it is meant
eventually to replace. All DCC ma-
chines will be able to play back analog
cassettes as well as DCC tapes, a
capability important for car and porta-
ble applications and to users who have
large libraries of analog cassettes.

This backward compatibility is pos-
sible because the DCC system has
been designed to use tape transports
that are identical, or nearly identical,
to those now used in analog cassette
recorders. The only important diff-
erence is that the DCC transport uses
two heads instead of one. This is
necessary to record and play the 1,411,200
bits of audio data per second from the
recorded data stream. In a DAT (digital
audio tape) deck—remember that
you—must be able to read this data at a
twice the speed of analog cassettes.

The second main psychoacoustical
phenomenon behind the operation of PASC is
masking. A common example is the

stable reference signals, all DCC
transports will have some sort of
speed-stabilizing servo control, which
should provide benefits even in analog
cassette playback. This slight addi-
tional transport complexity may
prevent DCC from taking over the very
bottom of the cassette market, how-
ever—the realm of 330 portable players
and the like.

Not surprisingly, the Digital Com-
 pact Cassette itself is a close match in
overall size to an analog cassette. It
differs mainly in the physical charac-
teristics where the analog cassette
scores poorly. When not inserted into
a deck, a DCC’s reel hubs and tape are
covered by a sliding metal shield simi-
lar to that on computer-microcassette
diskettes. And the top of the cassette
shell has been flattened to provide a
relatively large and unbroken area for
artwork or labeling.

Sound Quality

So far we’ve been discussing rela-
tively low-tech solutions to the analog
cassette’s perceived weak points.
But when it comes to weakness No. 1—sound quali-
ty—all the technological stops have been pulled out
to get a high-quality digital
signal onto a tape moving at
analog speeds. The challenge
was the amount of data that
must be recorded.

A standard digital audio signal as
channel on a CD consists of an enor-
We have discussed
mous amount of data. In order to
provide its superb sound quality, a CD
player must read 1,411,200 bits of au-
dio data per second from the disc’s
mirrored surface. In order to cram
such a massive amount of information
into such a small area, a CD has to spin
rapidly (between 300 and 200 rpm) so
that the trail of data-bearing micro-
scopic “pits” passes by the pickup
laser at 1.2 to 1.4 meters (3.9 to 4.9
feet) per second. In a DAT (digital
audio tape) deck—you remember
them, don’t you?—a VCR-type rotat-
ning head drum slides the recording
head across the tape even faster, about
3 meters (10 feet) per second, while the
tape itself moves at only about 0.3
centimeter (approximately 1/8 inch) per
second. This rapid tape-to-head speed
is necessary to record and play the
1,536,000 bits of audio data that flows
through a DAT machine every second
while it operates at its standard 48-
kHz sampling rate.

Now, let’s go back to DCC, where
the tape-to-head speed is exactly the
same as that of analog cassette tape:

WHILE the actual operation of Precision
Adaptive Subband Coding (PASC), the system
that enables a high-quality digital audio
signal to fit onto a DCC, is quite complex, the
two main psychoacoustical principles
underlying it—thresholds and masking—are
fairly easy to grasp. The easiest concept is
that of absolute hearing thresholds, the level
of the softest sounds a person can hear under
ideal circumstances. This threshold is what
the relatively crude, doctor’s-office “hearing
test” attempts to determine for a single
frequency. Anyone who’s taken one of these
tests knows that while the human ear can be
extraordinarily sensitive, it can’t hear
everything. There are sounds that are simply
too soft to hear, sounds that fall below our
absolute hearing thresholds.

For normal ears, the threshold of audibility
in the low treble (2,000 to 5,000 Hz) is
around a 0-dB sound-pressure level (SPL).
But at other frequencies the threshold is
higher, several tens of decibels higher at the
low- and high-frequency ends of the audible
range. That means that sounds at frequencies
below 2,000 Hz or above 5,000 Hz have to be
louder than a 0-dB SPL ever to be heard at
all. It also means that good reproduction of
truly audible, above-threshold sounds does
not require recording or reproduction of any
sounds below the threshold, even if they are
picked up by the microphones and would
normally impinge on your eardrums in a live
listening situation. This situation is
graphically depicted in Figure A, where some
of the frequency components of a sound
spectrum fall below the absolute-threshold
curve.

The second main psychoacoustical

The Foundations
of PASC

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curve.
inaudibility of a nearby whisper on a busy street corner, when that same whisper could be heard clearly in a quiet room. On the street corner, the whisper is masked by the louder sounds of the crowds and traffic. The whisper does hit your eardrum, but you don’t perceive it. The masking phenomenon is one of the most thoroughly studied in all of psychoacoustics.

Masking can be thought of as a raising of the hearing threshold in the neighborhood of audible sound components, as illustrated in Figure B, which shows triangular regions where the threshold of audibility is raised because of louder tones in the spectrum. Any sound falling either below the absolute threshold level or within the triangular masked areas will be inaudible and need not be recorded. In practice, since most music contains audible sound most of the time, it is the masking effect rather than the absolute threshold that mainly determines which sounds are inaudible.

Note that audible parts of the music spectrum in Figure B “stick out” of the masking threshold curve by varying amounts. In PASC, the level of each audible spectral component, together with the distance from its peak to the masking level, determines how many bits are allotted to encode that spectral component. The object is to encode each component with the fewest bits possible in such a way that the distortion and noise added by that encoding is hidden on playback by the same overall masking curve (Figure C). If a PASC encoder has bits “left over” after this minimum criterion is met, more bits are assigned to drive the noise and distortion lower still, up to the limit imposed by the recording data rate of 384,000 bits per second.

In summary, the PASC system “loses” data in three places:

1. It ignores totally inaudible sounds.
2. It ignores sounds masked by louder sounds elsewhere in the spectrum.
3. It records the remaining, audible sounds with as few bits as possible, usually far fewer than 16, without creating audible noise or distortion.

To make a PASC coder, all you need is (1) a means of continuously and rapidly sorting and classifying every sound component to decide which ones are below the audible threshold or are masked by others and (2) a way to assign bits to the remaining audible sounds. Enter the power of special-purpose digital-computer chips, which can rapidly perform such complicated analysis.

What ultimately ends up on a DCC tape is not a single, complex audio waveform encoded into bits, as on a CD or DAT, but a collection of simpler waveforms that will reconstitute an audio waveform when run through the PASC decoder in a DCC player. A DCC output signal will not be identical to the one originally entering the DCC recorder: Subtracting the output from the input will yield a difference signal composed of the added distortion and noise caused by the bit-allocation process. But PASC has been so designed that the difference signal, though present in a DCC machine’s output, will at all times (if everything is working properly) be masked by the music in the signal. PASC takes advantage of ‘‘deficiencies’’ of our hearing system to produce considerable efficiencies in data storage without loss of sound quality.

—D.R.
4¼ centimeters per second (1¼ ips)—a snail’s pace compared to the speed of either CD or DAT. To increase the overall data-transfer rate, the DCC system puts data on eight parallel tracks in each direction of travel. Data are recorded on or played back from all eight tracks simultaneously by a stationary “thin-film” head.

A thin-film head is one whose magnetic elements are created by etching and deposition techniques related to second, however. The radical solution applied in DCC is to reduce the data rate by recording only a fraction of the original data. At 384,000 bits per second, DCC’s audio data rate is only about one-quarter that of CD or DAT. Put another way, it’s as if three-quarters of a CD’s audio data were thrown out when recorded onto DCC.

That’s a gross oversimplification of a very sophisticated system that DCC’s developers claim can deliver CD-quality sound despite its vastly reduced data rate. But how can this be when three-fourths of the data is “missing”? Answer: The sounds represented by the missing data would be inaudible even if they were stored and reproduced.

The system a DCC recorder uses to decide which sounds need to be recorded and which don’t is called PASC, for Precision Adaptive Sub-band Coding (meaning, for the technically inclined, subband coding whose precision changes in response to the signal). The details of PASC’s inner workings are far too complex to explain here, but the principles behind it are relatively simple and are covered in “The Foundations of PASC” on page 100.

While PASC brings the DCC audio data rate down to a more manageable 384,000 bits per second, the actual rate is double that because of the addition of a lot of digital error-correction data (another factor increasing DCC’s reliability over the analog cassette) and bits for modulation and synchronization. So each of the eight tracks carries data at 96,000 bits per second. That is more than three times the bandwidth of an analog audio signal and is therefore unrecordable on typical analog cassette-tape formulations. To overcome this limitation, DCC tape has a magnetic layer similar to that of videotape, which can record much shorter wavelengths.

Above All, Convenience

The analog cassette’s more mundane drawbacks, such as cumbersome cueing, are also overcome by technological means. Prerecorded DCC’s will carry table-of-contents information indicating where on the tape each selection is located. The program area itself contains timing and cueing signals in a separate data track that DCC decks can use for rapid bidirectional cueing from any point on the tape to any other.

In addition to cueing information, a DCC can provide 400 characters per second of text data for song lyrics, album notes, track titles, and even multiple simultaneous translations and possibly some sort of graphics. The compact disc has such extraordinary capabilities too, but unlike DCC’s, they weren’t standardized when the CD system was introduced, and they’ve gotten very little attention from player manufacturers or record companies since. All prerecorded DCC tapes will include, at the very least, one-line, twelve-character album- and song-title listings, and the first DCC machines all have some sort of display to show this information. Beyond these “one-liners,” any additional information offered on a prerecorded DCC is at the option of the record company.

In what appears to be a concession to those record companies, none of this prerecorded auxiliary information will be copyable on home DCC machines. Also, that information will not be made available in the standard consumer digital audio interface (SPDIF), nor will it be passed directly between decks in a double-transport DCC-dubbing machine. Furthermore, literature I’ve seen from Matsushita indicates that some of the advanced cueing data supplied on prerecorded cassettes will not be copyable either.

Further copying restrictions will be imposed by the Philips-invented Serial Copy Management System (SCMS), which is integral to the DCC standard and is expected to be legally mandatory in this country on all consumer digital-audio recording machines of any kind by the time you read this. Depending on the copyright status of the original material, SCMS restricts the number of generations of direct digital-to-digital copies that can be made. You could, for example, make any number of copies of a CD from that CD. But none of the copies you make will be copyable by digital-to-digital cloning (you could still use a DCC recorder’s analog inputs to copy copies, however).

The rationale behind SCMS is to prevent a geometric progression of digital tape clones from a single original while not restricting the most common non-copyright-infringing uses of a home tape recorder. SCMS and all, DCC’s developers are expecting that the new format’s sound quality, ease of use, and backward compatibility with the analog cassette will enable its market penetration “to surpass even that of the CD, both in terms of product quantity and rapidity of acceptance.” It’s up to you to decide that, now that DCC has arrived.

---

**Highlights of DCC Technology**

- Compatible with analog cassette playback
- Digital recording using the PASC data-encoding system
- Cassette shell designed to protect tape and hubs
- Video-grade tape formulation
- Multitrack thin-film analog/digital record/playback head
- Quick cueing features
- Provisions for auxiliary information and displays

---

Those used to produce integrated circuits. The main advantage that thin-film technology brings to DCC is that it enables the fabrication of multiple narrow-track heads simultaneously, without the tedious gap-building and core-winding used to make analog heads. Thin-film heads are regularly employed in computer disk drives, and in a DCC deck they are used not only for digital recording and playback but for analog playback as well.

Even the simultaneous use of eight digital tracks will not sustain a CD-like data rate of more than a megabit per second, however. The radical solution applied in DCC is to reduce the data rate by recording only a fraction of the original data. At 384,000 bits per second, DCC’s audio data rate is only about one-quarter that of CD or DAT. Put another way, it’s as if three-quarters of a CD’s audio data were thrown out when recorded onto DCC.

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SPECIAL TEST REPORT

PHILIPS DCC900 DCC DECK

Just how good is the world's first Digital Compact Cassette recorder?

BY KEN C. POHLMANN
From its home base in the Netherlands, Philips has grown into a huge multinational company that makes a wide range of high-tech products. Readers of Stereo Review are probably most familiar with Philips for its role as inventor and co-developer of the compact disc, its audio equipment (sold under the Philips, Marantz, and Magnavox brands), and its recordings (Deutsche Grammophon, London, Philips, Polydor), but its various branches make everything from light bulbs to television sets. The company's first major contribution to audio was not the compact disc, but the original analog compact cassette, which went on to become the most popular music carrier in history. And now, with the help of Matsushita, Philips has created a new system that permits high-quality digital audio to be recorded and played back on a new tape cassette developed for the purpose, while also enabling playback of ordinary analog cassettes. This system is called Digital Compact Cassette, or DCC.

The way DCC works is explained in "Inside DCC" on page 98, but key to the system are improvements in magnetic-head and data-coding technology that have occurred since the development of CD and DAT (digital audio tape). Philips has taken advantage of these improvements to create a format that can record digital signals using tape-transport mechanisms like those already in use for analog cassettes. This approach...
holds the promise of delivering a combination of very high sound quality, low price, and portability, all without surrendering compatibility with the vast existing library of music on analog cassette.

The culmination of three years of research and development is the world's first DCC deck: the Philips DCC900. Its outward appearance is conservative, even staid, and belies the high technology within, but closer examination reveals an unusual control panel combining elements from analog cassette, CD, and DAT decks.

A power-on/off button and infrared remote-control sensor is nestled in a bottom corner, and nearby is a switch for control by an external timer as well as a playback selector for Dolby B, Dolby C, or no noise reduction. On the opposite side of the panel is a selector for analog, coaxial digital, or optical digital input; there's also an automatic option, which selects the correct input automatically when the recorder is connected to a system using the Philips ESI BUS component-interconnection scheme. A large rotary knob sets recording levels for analog input signals, and a smaller knob underneath sets the analog-input channel balance. There is also an open/close button for the CD-like cassette drawer, as well as a headphone jack with level control.

Recording functions are handled by five buttons on a lower panel. Some of them similar to those you'd find on an ordinary cassette deck. One that is new is the Append button, which causes the deck to find the beginning of a blank cassette and create a buffer area there or to locate the end of the last selection on a partially recorded tape; in either case, the procedure ends with the deck in record-pause mode. It is important to use the Append button when making tapes because it records track and time information on a tape's subcode track.

Once the deck is in record-pause mode, the record button is used to start recording. The Mute button is used to record a 3-second silent interval in the usual way, but since this is a digital recorder, there are some additional twists. During playback, for example, you can use the Mute button to mark an area not to be played, which can be useful for editing things as editing out a false start in a recording. Similarly, you can use the Mute button to insert a skip marker or to skip the remaining portion of a track. The CD Sync button is used to synchronize a recording with the start of CD playback in an ESI BUS system.

Playback functions are handled by seven buttons on the lower panel. The Side A/B button reverses the direction of tape travel (all DCC decks will have autoreverse transports). The Previous Track and Next Track buttons control the display. The Time button selects different time displays—absolute time (from the beginning of the tape), track time, and remaining time—or a simple tape counter. The Text button lets you scroll through the textual information provided on prerecorded DCC tapes. Depending on the particular release, you may find the album title, track titles, artist names, total number of tracks, and total time. User-recorded tapes cannot include any text information, however, bringing up only a counter display until the start marker is encountered and a track number appears.

Besides basic information, the DCC900's blue, fluorescent, twelve-character display can provide troubleshooting suggestions, such as to check the type of input signal. Among the host of other indicators are those for Dolby B or C, repeat, sampling frequency (32, 44.1, or 48 kHz), marker status, cassette side, copy prohibition, and type of input. In addition, two horizontal bar graphs show the signal level during recording and playback over a range of -50 to 0 dB for digital tapes and -40 to +10 dB for analog tapes.
The DCC900’s back panel provides a full complement of analog and digital inputs and outputs. Specifically, there are six analog phono connectors for line input and fixed and variable output, two phono connectors for coaxial digital input and output, and two Toslink connectors for optical digital input and output. The digital connectors adhere to the SPDIF standard and permit direct digital recording from a CD player or other digital source. Certainly, you should use a digital input whenever possible, but all DCC decks contain SCMS (Serial Copy Management System) circuitry that prevents more than a single generation of direct digital copying (in other words, you can make a digital copy of a digital original but not of a previous digital copy). Finally, the back panel has two phono jacks for the Philips ESI BUS and an internal/external switch for the front-panel infrared sensor, which should be set to the external position when the deck is connected to an ESI BUS.

A peek inside the DCC900 reveals rather tidy construction. Many first-generation CD players contained jungles of circuit boards and wires, but Philips has integrated many of the elements of the DCC900 into a fairly concise chip set and kept wiring harnesses to a reasonable number. Not surprisingly, the deck incorporates a number of components originally developed for CD equipment, including the Philips Bitstream 1-bit digital-to-analog converters (it also uses Bitstream analog-to-digital converters for recording from analog inputs).

The two-motor tape transport is housed in a plastic chassis, but the interior portion that holds the cassette is made of metal and appears to be fairly solid. A single reversible head handles digital recording and playback as well as analog playback.

Interestingly, a small label in the cassette well warns against the use of head demagnetizers, which are designed for conventional magnetic heads rather than the advanced thin-film heads used in DCC decks. Future models will undoubtedly bring further integration of electronics and mechanics, but from all appearances I would expect this unit to be reliable and long-lived.

The supplied remote control duplicates most of the front panel’s functions and adds a few twists of its own. There are buttons for tape-transport, recording, display, and marker functions. There’s also a volume control that sets the level at the unit’s rear-panel variable analog output and a ten-

**LABORATORY MEASUREMENTS**

Record/playback measurements were made through the analog inputs, playback measurements at the analog outputs. Measurements listed are for the worse of the two channels.

**FAST-WIND TIME (C-90/DCC-90), 148 SECONDS**

**SPEED ERROR**

<table>
<thead>
<tr>
<th>Frequency</th>
<th>+0.02</th>
<th>-0.04 dB</th>
<th>16 to 20.000 Hz</th>
</tr>
</thead>
<tbody>
<tr>
<td>Channel separation</td>
<td>1.000 Hz</td>
<td>93.9 dB</td>
<td>10.000 Hz</td>
</tr>
<tr>
<td>Signal-to-noise ratio</td>
<td>A-weighted</td>
<td>99.3 dB</td>
<td>93.6 dB</td>
</tr>
<tr>
<td>Distortion (THD+N at 1.000 Hz)</td>
<td>0.003%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Linearity error (at -90 dB)</td>
<td>+3.7 dB</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**DIGITAL RECORD/PLAYBACK**

**FREQUENCY RESPONSE**

<table>
<thead>
<tr>
<th>Measurement</th>
<th>+0.02</th>
<th>-0.06 dB</th>
<th>16 to 20.000 Hz</th>
</tr>
</thead>
<tbody>
<tr>
<td>Channel separation</td>
<td>1.000 Hz</td>
<td>103.9 dB</td>
<td>10.000 Hz</td>
</tr>
<tr>
<td>Signal-to-noise ratio</td>
<td>A-weighted</td>
<td>91.5 dB</td>
<td>87.2 dB</td>
</tr>
<tr>
<td>Distortion (THD+N at 1.000 Hz)</td>
<td>0.006%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Linearity error (at -90 dB)</td>
<td>+10.3 dB</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**ANALOG PLAYBACK**

**FREQUENCY RESPONSE**

<table>
<thead>
<tr>
<th>Measurement</th>
<th>+1.6</th>
<th>-0.2 dB</th>
<th>32 to 18.000 Hz</th>
</tr>
</thead>
<tbody>
<tr>
<td>Channel separation</td>
<td>1.000 Hz</td>
<td>46.1 dB</td>
<td>10.000 Hz</td>
</tr>
<tr>
<td>Signal-to-noise ratio</td>
<td>no noise reduction (A-weighted)</td>
<td>57.1 dB</td>
<td>no noise reduction (unweighted)</td>
</tr>
<tr>
<td>Dolby B (unweighted)</td>
<td>56.7 dB</td>
<td>Dolby C (unweighted)</td>
<td>62.5 dB</td>
</tr>
<tr>
<td>Distortion (THD+N at 1.000 Hz)</td>
<td>0.64%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
As one would expect, the DCC transport's mechanical channel separation was not as good as those of high-end analog-only cassette decks, with the exception of a low-frequency bump in the right channel. Noise measurements were also about on a par with those of good analog decks, as were channel separation and distortion. Speed error and wow-and-flutter were somewhat lower than in many analog decks, possibly reflecting greater precision in the DCC transport's mechanical design. On the other hand, the fast-winding time was very poky 2 1/2 minutes. I hope that the DCC system's ability to read its markers does not demand this slow speed and that future models can improve on this time (Philips has suggested that they will). In short, even if it's not lightning fast, the DCC900 should do a good job of playing existing analog cassettes.

Critical Listening

We conducted several hours of critical listening just before Andrew hit. Casual A/B comparisons of high-quality audio electronics are usually meaningless. For example, unless output levels are carefully matched, you'll hear things that sound like differences in tonal balance or stereo imaging but are in fact caused solely by level differences, not actual sound quality. So for this test we took several precautions. First, we assembled a high-fidelity sound system, including a Marantz CD-11 mkII CD player, Conrad-Johnson Motif MC 10 preamplifier and MS 200 power amplifier, Mobile Fidelity Sound Lab Ultramp D/A converter, Sony PCM-7010 DAT recorder, and KEF Model 107 loudspeakers.

Most important, we took care to provide a fair comparison between DCC and CD by routing the digital outputs of the DCC900 deck and the reference CD player to the outboard Ultramp D/A converter, preventing any differences in their D/A converters and analog output stages from introducing audible differences in playback. In addition, to insure that any differences in the digital interconnections could not possibly be a factor, we routed the outputs from both the CD player and the DCC900 through the PCM-7010 DAT deck, which relocked both data streams before sending them to the outboard converter.

For the test, we recorded a number of CD's onto DCC's through the DCC900's digital input. Although the input signals bypassed the deck's A/D converter, they did go through the PASC perceptual coder, and the playback signals went through the PASC decoder. We then compared the PASC-processed recording with the original CD by switching between the digital outputs of the DCC900 deck and the CD player.

When I began the listening trials, it was immediately apparent that the DCC recordings were audibly identical or nearly identical to the original CD's. I listened for a number of factors, such as tight bass punch, fast transient response, and smooth high frequencies. As I started listening, I would think I had pinpointed a difference, only to find that I could not consistently identify it on repeated trials. As time wore on, and the wind outside grew stronger, I stopped trying to identify particular artifacts and instead settled back and compared the total musical quality of one source with that of the other. After some time, I thought I heard a subtle difference between them. The DCC recordings seemed to have a somewhat more restrained, subdued sound quality than the originals. The effect was not unpleasant, seeming just barely noticeable during certain passages; practically speaking, it was inconsequential. To determine whether I was in fact hearing a difference or just imagining one, I started a new listening trial, but then the storm hit.

Our answer to the question of whether a DCC recording of a CD is audibly distinguishable from the original will have to wait for the more complete listening tests. Before we have planned. Meanwhile, anyone who expects to find that perceptual coding is hokum, or that their ears transcend the physiological constraints upon which it is based, will be shocked by the very high-fidelity sound DCC actually delivers. There is absolutely no question that it rivals CD sound quality.

Conclusions

The DCC900 operates very much like a CD or DAT player; in other words, the DCC format is clearly a generation or two beyond analog cassettes. While owners of DCC decks will certainly appreciate the ability to play their analog cassette collection, over time they will undoubtedly find themselves listening less and less to analog and more and more to digital. DCC's compatibility with existing analog cassettes is just a bridge to the not-so-distant future when digital recording will entirely supplant analog.

There is no question that DCC easily beats the analog cassette in both performance and convenience. A more debatable question is whether DCC has enough perks to compete with CD and the forthcoming Mini Disc (MD). The DCC900's text displays and marker conveniences greatly add to the format's appeal. The title-search feature is especially cool—never again will you have to consult the tape box to correlate a song title with its track number. (I sure wish CD players had this feature.) On the other hand, DCC is still a tape format: track-access times are far slower than with CD or even DAT, which uses much shorter physical tape lengths. And the DCC900's tape transport, though certainly adequate, was frustratingly primitive relative to the machine's otherwise high-tech character. I suspect that many people are abandoning analog cassettes not just because of sound quality but also for conveniences like fast access, where CD and MD are strong. If DCC is to compete well against these rivals, much faster tape transports will be needed.

More troubling, the DCC900 we tested, which was a preproduction model, suffered from head clogging. After playing a number of analog tapes, the deck would only intermittently play DCC tapes. Head cleaning solved this particular failure, but even with clean heads, the deck emitted an occasional click as uncorrected errors surfaced in the bit stream—possibly also attributable to head clogging. Philips says that the heads used in DCC decks are more sensitive to oxide shedding from low-quality tapes than are conventional heads (tape shedding can also be exacerbated by high humidity, which we have a lot of in Miami even when there's no hurricane), and that it may be necessary to clean the heads more often than you would an analog cassette deck.

Overall, however, I suspect that such limitations as the DCC900's clunky transport will be overcome in future models and that obvious problems such as error clicks will be fixed before final production of the DCC900 actually begins. In that case, given its analog/digital compatibility, new features such as text display and title search, and gorgeous sound quality, it is easy to see DCC as the worthy successor to the analog cassette and a strong element in the mix of future audio products.
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25 THIRD PRIZES:  
Advent T-Shirt

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   a. Scott  b. Marantz  c. KLH  d. Pioneer

2. This turntable is a:

3. The speakers are:
   a. KLH  b. JBL  c. Advent  d. Pioneer

Mail this completed page to: Advent 25th Birthday Contest, P.O. Box 8555, Prospect Heights, IL 60070

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Address________________________________________________________
City________________________State________Zip________________________

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Lethal Weapon

It started out innocently enough. Rocco Salerno asked a DJ friend to recommend how he could get more bass from his stereo system, a receiver, a CD player, and Bose speakers. Then something happened. "Power and bass were what I was looking for," says the Westchester County, New York, attorney. "I got into the stereo magazines, and one thing led to another. It just sort of mushroomed." Now he has forty-odd components, a 35-inch TV, and main-channel speakers bigger than he is.

Salerno spent three years designing and installing the multiroom system, snaking more than half a mile of Monster Cable wiring through walls, attics, and underground conduits. The 78-inch-high VMPS Super Tower II speakers and the VMPS subwoofer were kit projects he built on weekends. Most of the source equipment is on the right of the cabinet or above the TV. The left side is reserved for rack-mountable accessories. In the top third are a switch panel for the five fans in the back of the cabinet, a Furman PL 8 power strip, light module, and surge suppressor, an Aphex Type C Aural Exciter, a BBE 422A Sonic Maximizer, and a dbx program-route selector, dynamic-range controller, "subharmonic synthesizer," and noise-reduction system.

The middle of the left panel starts with another Furman surge protector/outlet strip but with an LED readout ("I like the lights," Salerno admits). Below it are a Rane AC-22 active crossover for the subwoofer, a Rane RA-27 splitter/mixer for biamping the main speakers, a Rane RA-27 realtime analyzer, and a Rane GE-14 graphic equalizer. Finally, there are three triple-deck sandwiches, each comprising an Adcom GFA-555 power amplifier, a vent, and a Furman VU-40 stereo system monitor, plus two Adcom GFA-555II amps; all are plugged into a Tripp-Lite voltage regulator at the very bottom.

The audio/video source and remote equipment on the right includes a Carver CT-17 preamp/tuner, Sony CDP-C15ESD and CDP-C900 ten-disc CD changers, a JVC XL-V400 CD player, a Mitsubishi HS-430UR hi-fi VCR, a JVC HR-SC1000U Super VHS VCR, a BSR EQ-3000 equalizer/spectrum analyzer, an Adcom GFS-6 speaker selector, an Adcom GTP-500 II tuner/preamp for the living room and outside zone, and a Rane SM-26 splitter/mixer and MA-6 multichannel amplifier for the remote speakers. Components above the screen include three Adcom-535L power amplifiers just for video, a Vidicraft VDM-3005 VidiMate video processor for dubbing, a BBE 1002 Sonic Maximizer, a Technics SH-8017 equalizer to strengthen the highs and lows in video soundtrack reproduction, a dbx 1BXDS dynamic-range controller, a dbx 500XR audio/video remote selector to channel the VCR's and processors, and a Sony SDP-777ES digital surround processor. Underneath the JVC AV3590S monitor are three Phase Technology speakers (for video left-, center-, and right-channel sound) on a baffle behind a custom-made grille. Two matching rear speakers fire down from the ceiling above the couch.

Running in bridged mode, the big Adcom amps deliver 600 watts each, satisfying Salerno’s appetite for power. Feeding his obsession with bass, each 6½-foot speaker system includes a 15-inch floor-firing subwoofer, a 15-inch woofer, two 12-inch drivers, two 10-inchers, four 5-inchers, four tweeters, and a supertweeter. Might there be just a little overkill? Even Salerno admits that the separate subwoofer isn’t necessary for music listening. But it does supplement the smaller Phase Tech speakers in the video system. "I was green when I first got it," he says. "I had the settings up too high on the volume level and the crossover. There was this diving-board scene in Lethal Weapon with an explosion. The whole room shook, and then my amp blew up." His wife, Debbie, remembers it well. "It sounded like a plane hit the house."
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CIRCLE NO. 51 ON READER SERVICE CARD
Joe Ely's American Music,
Pure and Simple

Kay, America, you blew it. You didn't take notice when Joe Ely was originally on MCA in the Seventies, recording such Texas-bred, jukejoint classics as "Musta Notta Gotta Lotta" and "Honky Tonk Masquerade." You didn't pay much attention when he subsequently cut two fine albums for the high-profile indie label Hightone, either. Now he's back on MCA, recording in Nashville with that city's most farsighted producer, Tony Brown, and a tip of the ten-gallon is due all concerned: The new "Love and Danger" is vintage Joe Ely. Now, America, it's your turn to get hip to a home-grown talent so huge they ought to name a national park after him.

While everybody and his brother is crying in his beer about the shape America is in, Ely's characters are still running down the highway chasing their dreams. That Ely has the pluck to conjure dreams in these shabby times is a testament to the never-say-die vitality of the man and his music. Rocking and rolling with unflappable, contagious verve, "Love and Danger" is a fine antidote to disillusionment. Ely makes American music, pure and simple, and categories be damned. It's got the dynamic locomotion of rock, the righteous sassiness of the blues, the narrative twang of country, and the hook-filled, melodic sheen of pop.

Almost as if he knew that this album was his last, best chance to gain a broader audience, "Love and Danger" is easily Ely's best record in a decade. From his own pen have come seven new tunes, ranging from the smoldering, Jimmy Reed-style blues of Pins and Needles to the romantic glow of Slow You Down, a torrent of sweet, seductive images ("I wanna smear the moonlight in your skin / And put Orion in your crown") sung with aching sincerity to a truck-stop girl. Ely co-wrote Highways and Heartaches with the guitarist David Grissom, and it's a high-flying travelogue with a mesmerizing chorus that uses the open road as a metaphor for running away from love. Like most of Ely's songs, it's filled with believable characters and telling details: "I wonder if she's watchin' TV / Cryin' with soap-opera stars / I wonder if she sees them in me / And if we've gone too far." He describes a completely different type of character in She Collected, a song as thorny as a desert cactus in its disdain for a woman who uses and discards men to pump up her ego. The punch line is delivered with typical Elyian aplomb: "When her carpenter came / To measure me for a frame / I walked right out of her collection."

Ely proves he can pick a good tune as well as write one, unearthing a pair of dandies by fellow Texas singer-songwriter Robert Earl Keen. The Road Goes On Forever is especially remarkable, sounding not so much like a song as a Hollywood script treatment, incorporating pool halls, drug deals, and aimless lives into an escalating narrative. Keen's other contribution, Whenever Kindness Fails, also tells a story, shaping characters who, while not exactly sympathetic, have rationales for their violent, antisocial behavior. Though "Love and Danger" will seem poppier than usual to long-time Ely fans, the spines of the songs are still David Grissom's hard-biting electric guitar and Ely's forceful vocal phrasing. With a tone set by the opening track, Sleepless in Love (Ely's take on the Born to Run myth, set on the Dallas freeway), the album offers a panoramic look at love and danger by an artist who clearly knows what he's singing about.

Parke Puterbaugh

Russian Music for Cello and Orchestra

The cellist Julian Lloyd Webber and the conductor Maxim Shostakovich have joined forces with the London Symphony Orchestra to bring us the first generally available recording of Nikolai Miaskovsky's Cello Concerto since the Rostropovich-Sargent version of 1957, along with works by Shostakovich and Tchaikovsky. The Miaskovsky concerto, a first-class work in the post-Romantic Russian manner, is in two movements, one ruminatively lyrical, the other contrasting lyrical and dynamic elements. It should be better known than it is. The soloist and conductor here take a decidedly broader view of the music than the young Rostropovich did, but the music retains its warmth and viability either way.

As a kind of intermezzo, we get the original version of a slow movement from Shostakovich's 1935 ballet The Limpid Stream, which suffered the same treatment under Stalin as his opera Lady Macbeth of Mtsensk and Fourth Symphony (its premiere was canceled). It
Luna²: Velvet Underground Spoken Here

SOMETIMES it seems like the most overused words in rock criticism are "reminiscent of the Velvet Underground," but in the case of "Lunapark," the splendid new Elektra album from Luna², they're unavoidable. So I'm sorry, folks, but the band and the album are reminiscent of the Velvet Underground. Quite a lot, in fact. Where this gets interesting, however, is that Luna²'s point of departure isn't primarily the whips-and-chains/feedback explosions of the first two Velvets albums, the ones that most obviously anticipated punk. Instead, the band harks back to the Velvets' third album, (post-John Cale), with its angelic harmonies, chiming guitars, and delicate, almost folkish songs.

There's a lot of that sort of thing in "Lunapark," and the chief architect of it is the lead singer, songwriter, and guitarist, Dean Warsham, a Harvard grad who previously perfected his Lou Reed impressions as the frontman for the cult favorite Galaxie 500. Like most Reed wannabes, Warsham lacks the master's reach and depth, but he has his own lyrical voice—dry and deadpan funny—and a not inconsiderable way with words (from Slide: "SoHo's got the boots / NoHo's got the crack / New England's Julian Lloyd Webber got the foliage / but I'm not going back"). He's also got a Velvets-like fondness for inserting the most homicidally atonal guitar outbursts imaginable into otherwise conventional (and attractive) melodic structures. Warsham and his songs are complemented here by an all-but-perfect rhythm section: The bassist is Justin Harwood, whose relaxed, melodic lines sound uncannily like the Velvets' Doug Yule, and the drummer is Stanley Demski, a former Feelie whose obviously formidable technique cannot conceal a debt to the Velvets' untutored Maureen Tucker.

If there's a flaw in all this, it's Warsham's obligatory postpunk ironic distance—and, of course, more than a hint of formalism. Certainly the Velvets songs that inspired Warsham's musings dealt with bigger issues and were far more passionately felt than anything in "Lunapark." And despite the glorious noises made here (ably caught by Fred Maher's uncluttered production), occasionally the band is so—well, dagnabit—reminiscent of the Velvet Underground that, depending on your mood, you might find yourself making Beatlemania comparisons. Most of the time, however, I think you'll find the album so disarming that you'll ignore its antecedents and enjoy it on its own terms. And just think—post-Nirvana it might actually get played on the radio. Wondrous times we live in.

Luna²: Lunapark
Slide; Anesthesia; Slush Your Tires; Crazy People; Time; Smile; I Can't Wait; Hey Sister; I Want Everything; Time to Quit; Goodbye; We're Both Confused
ELEKTRA 61360 (42 min)
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All-Star Brahms Sextets

The gathering together of the violinists Isaac Stern and Cho-Liang Lin, the violists Jaime Laredo and Michael Tree, and the cellists Yo-Yo Ma and Sharon Robinson to record Brahms's two string sextets for Sony Classical is the latest, and one of the most striking, of Mr. Stern's numerous chamber-music projects. Like his others in the last fifty years or more, it reflects the impulse that motivates first-rate soloists to seek opportunities to take part in this intimate and uniquely nurturing category of musicmaking with colleagues on their own level, and it demonstrated again that on that level there is no real generation gap.

The six musicians performed these works together in concert several times before they recorded them in the Troy Savings Bank Music Hall in upstate New York three years ago. Apparent here are a sense of urgency and a cumulative give and take carried over from those live events. There is an abundance of good old-fashioned commitment and warmth of heart in the way these artists respond to one another and to the music, probing the darker facets of both works without striking a tragic pose, and lending a particular radiance to the frequent shafts of light.

While these two works usually fit comfortably on a single CD, this is a two-disc set. Tempos are by no means indulgent; both slow movements are pro-

Brahms: String Sextets Op. 18 and Op. 36; Theme and Variations for Piano
Stern, Lin, Laredo, Tree, Ma, Robinson; Ax
SONY 82K 45820 (two discs, 90 min)
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*Power output, watts/channel, continuous both channels driven into 8 ohms, 20 Hz - 20 kHz <0.09% THD.
**TONY BENNETT**

**Perfectly Frank**
SONY/COLUMBIA 52965 (74 min)

**Performance:** Sturdy and kinetic

**Recording:** Excellent

Like Rosemary Clooney, Barbara Lea, and very few others, Tony Bennett is a singer whose voice actually seems to get better with age—along with his unforced yet dynamic way of using it. He's also reached that enviable point where he can take songs long identified with other singers and make them seem his own. So it is here with twenty-four songs recorded over the years by Frank Sinatra. Most of the tracks are in a relaxed, lightly swinging, "soft lights" mood, with perfectly matched backing by the Ralph Sharon Trio.

I'm Glad There Is You, I Wished on the Moon, and A Nightingale Sang in Berkeley Square are particular standouts.

**BLUE ROEDEO**

**Lost Together**
ATLANTIC R2412 (66 min)

**Performance:** Honest

**Recording:** Very good

Lost Together" is a cornucopia of solid tunes and strong arrangements from a Canadian band that just keeps getting better and better. Though their forte is a kind of cosmic country rock, taking off from roughly the same place as the reverent-outlaw twists on the Nashville sound, they've plenty of variety in "Lost Together." The band's stylistic diversity in an age of demographic categorization may make it a hard sell in America, however.

Mixing red-hot pub/punk rockers such as Restless with jaunty, pedal-steel-filled odes to tall pines and whispering winds such as West of the Sun, Blue Rodeo displays versatility and a respect for mandolins and guitars. If there's a discernible influence on the rustic, quasi-acoustic arrangements, credit adjunct R.E.M.-er Peter Holsapple, who's a ubiquitous R.E.M.

R.R.

Blue Rodeo: hard-sell cosmic country rock

**DAVID CASSIDY**

**Didn't You Used to Be . . .**
SCOTTI KROS. 72/592 75264 (42 min)

**Performance:** Hermetically sealed

**Recording:** Okay

Give former bubblegum star David Cassidy some credit: The title of this comeback album demonstrates a sense of humor, though as a record it's not strong enough to rouse a reunion of the Partridge Family fan club. Also to his credit, if you didn't know this was his album, you'd probably be able to listen all the way through the program of ersatz r- & b, funk, and disco without once connecting the singer to the insidious crap Cassidy used to sing. These are slightly more cerebral and tasteful groin teasers, including a respectable revamping of Dee Clark's 1961 classic Raindrops and a bitter, soul-searching meditation on the relationship between parent and child (Like Father, Like Son). But Cassidy's voice, whether he's doing an almost passable imitation of Michael McDonald or George Michael, is simply too slight to send this track up an ocean.

Boatman compares the musician's profession to that of a taxi driver: a hired hand who'll "keep you entertained" for a little filthy lucre. Granted, it's all a little mopey and esoteric, but "Soft Bomb" is redeemed by its unifying pop sheen and the fetching incongruity between the music and lyrics. Only a first-class eccentric would hang a title like The Male Monster from the Id on a jaunty pure-pop jig for mandolins and guitars. If there's a discernible R.E.M. influence on the rustic, quasi-acoustic arrangements, credit adjunct R.E.M.-er Peter Holsapple, who's a ubiquitous presence in "Soft Bomb." But the overall tone is a lot closer to Robyn Hitchcock, as Phillips shares a similar gift for couching his cheerful madness in an aurally accessible package. "Soft Bomb" is a diatribe—gentle and generous even at its most disillusioned— that falls easily on the ears.

**EDDY CLEARWATER**

**Help Yourself**
BLIND PIG BP 74792 (43 min)

**Performance:** The real thing

**Recording:** Quite good

His real name is Eddy Harrington, but a booking agent with a sense of humor dubbed him Clearwater (Chicago's top blues name was, after all, Muddy Waters). He has also performed as Guitar Eddy, and some refer
and that ends up being the subject of his strongest musical dreams (I Guess That Says It All, One Day). In Running on down the Road, where he seems to be trying to escape not only his life but his skin, Croker is a disillusioned figure, panting for air and gasping for deliverance. Maybe he's picked up the real taste of America after all.

A.N.

JERRY DOUGLAS
Slide Rule
SUGAR HILL 3797 (41 min)
Performance: Maturity
Recording: Good

Jerry Douglas is finally showing up on Instrumentalist of the Year nomination lists, about ten years later than he should have. America's premier dobroist, Douglas has played in literally thousands of Nashville sessions. Here he gets to come up front for what is by turns an invigorating and soothing little album.

Backed by a sterling band, which includes the impeccable Stuart Duncan on fiddle, Douglas moves through an eclectic program of bluegrass, revamped rock (Hey Joe), and original meditations and reflections, all of which he plays with eloquence, texture, and taste. Essentially a bluegrass-oriented musician, Douglas calls on the like-minded Brother Boys, Alan O'Bryan, Alison Krauss, and Tim O'Brien for occasional vocals, while also luring Ireland's Maura O'Connell for the affecting It's a Beautiful Life. One short tune (Rain on Oliviatown) grates on the nerves, but only because Douglas's Weissenborn guitar is woefully out of tune. That only proves he should stick with the instrument he can get more poetry out of than anyone else on earth.

A.N.

FAITH NO MORE
Angel Dust
SLASH/REPRISE 26785 (59 min)
Performance: Relentless
Recording: Very good

Hyperactive, totally distracted, and half-mad, Faith No More uncorks a blistering spray of vitriol in "Angel Dust," aimed at those hidden forces that conspire to shape lives in the late twentieth century. If you were to cross the edgy, minor-key rock polemics of the Doors with the pulverizing attack of the Rolling Stones, you'd have a rough idea of what Faith No More, and particularly its lead singer, Mike Patton, are up to in this album. Patton's lyrics defy literal analysis, rather, he fires out his rage in sharp, terse bullets that blind-side you. The object isn't any one thing so much as the whole morass—the dehumanizing corporate/capitalist/mind-control complex that the MC5 dubbed "the human being lawn mower" back in 1970.

Patton peoples the songs here with a gallery of different characters: a self-help huckster in Land of Sunshine, a low-life rube in RV, a squashed, pathetic charity case in Smaller and Smaller. He screams venomously in Caffeine, which seems more about cocaine, and coats the nightmarishly epic Everything's Ruined in an acid bath of contempt. The band shows no quarter, either, playing with focused intensity and unabating fire. Stretches of dissonance and aural dyspepsia are relieved by relatively lighter, but no less black-humored, moments—like the infectious Be Aggressive, an energetic hip-hop chant that mocks our winner-take-all acquisitiveness.

On the back cover of "Angel Dust" is a photo taken in a slaughterhouse, with sides of beef, chicken carcasses, and a cow's head. To Faith No More, it's all too emblematic of our bloody appetite for consumption and destruction here in the land of the free. Though the message isn't pretty, "Angel Dust" hits home with the force of a sledgehammer.

PP.

FLAMIN' GROOVIES
Rock Juice
NATIONAL NAT-030 (42 min)
Performance: Great fun
Recording: Fine

The Flamin' Groovies have been making exhilarating rock-and-roll for over a quarter of a century without much to show for it except cult status, and one has to wonder why they keep plugging. Perversity? Sheer love of
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See that perfect football pass up-close and with more clarity than actually being at the game. Dim the lights and settle back on your cozy sofa and enjoy your favorite movie. In today's economy, more and more people are turning towards home entertainment as an alternative to going out.

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Sharp Electronics Corporation offers the latest in home theater video projectors, an integral part to any home theater. By incorporating LCD (Liquid Crystal Display) technology, Sharp has created SharpVision video projectors that not only provide stunning, clear, larger-than-life images, but are also portable in design.

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Television Returns

Television vanished after two mesmerizing late-Seventies records, only to reappear now with an album so much of a piece with their earlier work that it’s like they never left. If anything, Television’s musical language is both more solid and more obtuse than before, embodying contradictions without qualms. The guitars of Tom Verlaine and Richard Lloyd tickle and sting, alternating terse, Morse Code-type reprises eschew linear narrative for cryptic, elliptical thrust-and-parry. It’s an exercise in World: Call Me Mr. Lee; Rhyme he ticks off disjointed phrases, leaving it to the listener to imagine the details. In a similarly fractured vein, he chants in The Rocket, surely the world’s strangest car song, “Gotta car / gonna go / gonna go-go / in my car / rocket! / blast off!” Then there’s the cryptic Call Me Mr. Lee, evoking some illicit transaction: “Call Mis-tah Lee, he’ll know the code is broken / Tell him the dog is turning red.”

Television has made no concessions to popular taste in their reunion album, once again leaving it to the intrepid listener to come to you. You’ll surely revel in the mystery of their impenetrable codes, delight as they plumb the collective musical subconscious in search of rapturous release, and marvel that it ever occurred to anyone to play music of such strange, surpassing beauty.

JOHN GORKA
Temporary Road

Gorka, who’s ever swooned over a rock record (from Elvis Costello’s throaty distemper, though Gaines is more generally restrained. But the spartan musical settings aim at hushed subtileties and sometimes seem to vaporize instead. Still, there are exceptions, notably Hero in Me and Scares Me More, where he comes up with arrangements that flow with the clarity and focus of his words. Despite some dirgelike numbers, which tend to make Gaines sound like a male Tracy Chapman, this debut holds a lot of promise.

JEFFREY GAINES
CHRYSLIS 21840 (49 min)
Performance: Promising
Recordings: Very good

Gaines has a rich, expressive voice, husky and forceful; there’s a hint of Elvis Costello’s throaty distemper, though Gaines is more generally restrained. But the spartan musical settings aim at hushed subtileties and sometimes seem to vaporize instead. Still, there are exceptions, notably Hero in Me and Scares Me More, where he comes up with arrangements that flow with the clarity and focus of his words. Despite some dirgelike numbers, which tend to make Gaines sound like a male Tracy Chapman, this debut holds a lot of promise.

P.P.

S. S.}

Driven by impulses both dangerous and romantic, he sings in 1880 or So, “in the fragment sweep of the evening air. I could leave this world quite without a care.” In Rhyme he ticks off disjointed phrases, leaving it to the listener to imagine the details. In a similarly fractured vein, he chants in The Rocket, surely the world’s strangest car song, “Gotta car / gonna go / gonna go-go / in my car / rocket! / blast off!” Then there’s the cryptic Call Me Mr. Lee, evoking some illicit transaction: “Call Mis-tah Lee, he’ll know the code is broken / Tell him the dog is turning red.”

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JOHN GORKA
Temporary Road

With Lloyd once again engaging him in elliptical thrust-and-parry, it’s an exercise in guitar genius squared—something along the lines of the Ventures in outer space—with a little beat-generation bop sensibility dropped in. Verlaine’s lyrics eschew linear narrative for cryptic, William Burroughs-style cut-and-paste or imagery derived from the symbolist poets.

the music? Probably both, actually, and this new album—the band’s first American release in over eight years, not counting a 1989 “Best of” compilation on Sire—is thus inspirational for both musical and extra-musical reasons, which is to say that even if it weren’t good you’d have to love it. Fortunately, it’s very good indeed (with one caveat I’ll get to later).

The mix here is the usual purist rock-and-roll based on Fifties and Sixties models, from rockabilly to power pop, and the songwriting, by long-time Groovies leader Cyril Jordan, is uniformly sharp, from the soaring twelve-string-driven beauties of Over My Head to the crunching riff rockers like Give It Away. As a bonus, there’s a clever Merseybeat-style cover of Brian Hyland’s 1962 kitsch classic Sealed with a Kiss, which works both as a wry joke and (surprisingly) as an honest-to-God song. Overall, the album is just great, unaffected fun, and I heartily recommend it to anybody who’s ever swooned over a rock record (from Presley to Nirvana).

Consumer note: The production, alas, is a little slapdash, a problem that has dogged the band through its career. Critical entreaty: Somebody get these guys on TV! They’re worth it. But it’s worth it. All in all, this is a great album. I heartily recommend it to anyone to play music of such strange, surpassing beauty.

P.P.

P.P.

JOHN GORKA
Temporary Road

High STREET 10115 (46 min)
Performance: Heavy load
Recordings: Very good

“I don’t feel like a train anymore,” the yuppy folk singer John Gorka confesses in his new album, “I feel like the track.” Gorka, who carries a varied inventory of emotion between the engine and caboose of this thirteen-track album, specializes in transporting heavy loads, most of them personal. Smart, literate, and earnest, he offers a confident brand of cracked-heart romanticism. But in this case, when he isn’t turning out wary declarations of new love and fresh starts, he’s walking the halls of the house of correction—assisted from Grand Larceny, a simple tale of innocence and corruption, and Vinnie Charles Is Free, a more complicated story of a man jailed for trafficking dope, he includes two more references to men in prison or leading lives of crime. I suspect Gorka would like to have a shot at a life of crime himself. His guitar-and-keyboard-laced songs of bittersweet adventures always hold back the heart of his anger and joy. Knocking off a bank or associating with the menacing Brown Shirts of his closing song might give him a liberating rush. Gorka knows how to pack a seductive blues and to unmask the face of manners (“People love you when they know you’re leaving”), but just once it would be great to hear him get so stoked about something he’d run that old locomotive of his clean through the depot walls. Until then, Gorka’s trip offers lots of placid landscape with temporary stops for worthwhile contemplation.

A.N.
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JEFF HARNAR
Sings the 1959 Broadway Songbook
ORIGINAL CAST OC 919 (66 min)
Performance: A winner
Recording: Front-row ambience

Jeff Harnar is the freshest, most vocally engaging young singer to hit the cabaret circuit since Michael Feinstein. This debut album—recorded live in the same bolte that turned Feinstein into a star, the up-market Oak Room of New York City's Algonquin Hotel—is an imaginative program of some forty-eight songs (including several medleys) from the bountiful treasure chest of shows that were on Broadway in just one year, 1959. Represented are not only such major hits as My Fair Lady, The Sound of Music, West Side Story, Gypsy, The Music Man, and Bells Are Ringing but also such musically fertile "forgotten" shows as The Nervous Set, Jamaica, Redhead, Saratoga, Fiorello, and Little Mary Sunshine. Harnar sings everything with debonair romantic style, verve, and humor (and with occasional vocal interplay by his splendid pianist, Alex Rybeck).

The Jesus And Mary Chain
Honey's Dead
DEF AMERICAN 26830 (45 min)
Performance: Heavenly racket
Recording: Distorted to listenmax

The Jesus and Mary Chain is living proof of the cleansing power of high decibels. Expose your urban angst to their cathartic noise machine, and you'll feel lots better afterward. "Honey's Dead" is the J&M Chain's most satisfying eardrum liquider since "Psychedelic Baby," their 1985 debut album that jolted youthful Britain out of its postpunk doldrums. The band's edgy chiaroscuro derives from setting Jim Reid's ghostly vocals against brother William's cacophonous guitar, which inhabits that noisome no man's land between early Stooges and Lou Reed's "Metal Machine Music." The songs here alternate between distorted two-chord grunge and what can only be described as industrial bubblegum. Here and there the black-clad duo even sounds—horrors!—happy, as in the chopper, discombobulated Far Gone and Out ("I can't explain exactly what I'm doing standing in the rain").

Tumbledown is the best of the Double-Bubble punk numbers, approaching a state of electric nirvana that the Ramones and precious few others have been able to achieve. Rollercoaster most successfully bridges the two sides of the J&M Chain, first sounding like a hyper-electric Byrds, with echoes of Mr. Tambourine Man in the vocal and twelvestring, then driving toward meltdown in the speeded-up finale. The duo gives voice to their darker side in Reverence, the banned-in-Britain opener containing the controversial lines, "I wanna die just like Jesus Christ/I wanna die just like JFK." The album closes with a reprise of Reverence, titled Frequency, that interpolates the Modern Lovers' great Roadrunner. All in all, "Honey's Dead" is a spellbinder, juggling dissonance and accessibility to hypnotic ends.

P.P.

DAVID LYNN JONES
Mixed Emotions
LIBERTY 97251 (42 min)
Performance: Preacher man
Recording: Good

David Lynn Jones, who wrote Willie Nelson's hit Living in the Promisedland, was once hailed by Waylon Jennings as the "leader of the new generation in Nashville." So far, Waylon's about the only one to get in line. As in Jones's other efforts, this new album features intelligent songwriting about social issues, such as fighting in the name of religion (The Land of Alo), and personal issues, such as appreciation of family (Her Love Don't Lie) and balancing Christian teachings and modern temptations (The Sailor). But even when he brings things down to gut level, as in the Delbert McClintonish Talk to Me, Jones, who's inappropriately marketed as a country performer, sings with a gruff touch of the Boss in his voice, and he writes with the esoteric charms of a poet in need of an editor.

Jones is a talented guy—a little obsessed with Satan, and maybe even the Church Lady—but his work, produced with lots of instruments to fill out his big, expansive melodies, desperately needs focus. Until then, he'll be a leader in search of a following.

A.N.

SCOTT KEMPNER
Tenement Angels
RAZOR & TIE RT 2809 (45 min)
Performance: Honkast
Recording: Good

With "Tenement Angels," the New York City rocker Scott Kempner becomes the second former Del-Lord to record as a solo artist backed by the champion roots-rockers the Skeletons. It's a fortunate combination; Kempner gets a crateful of rapport and expertise from the Skeletons' bassist/producer Lou Whitney, guitarist D. Clinton Thompson, and the rest, enabling him to come up with a modest rock-and-roll classic. The emphasis is on "modest," as Kempner achieves the companionable naturalism that eludes Springsteen, Seger, and all the other well-intended overreachers. At first his voice might seem a little ordinary, but soon enough that's what you come to like about it. Conversational and unaffected, except when he slips into a bassy, Iggy Poop-style snarl in I.C.U., Kempner sings about love and dreams in the great big city. He's a fine, flinty rhythm guitarist, providing the backbone while the Skeletons flesh out his musical visions of subways, city streets, cold-water flats, and love affairs chased down in this tattered but addictive urban bazaar. The album is a wealth of riches, but Kempner especially shines in such indomitable, hearts-on-sleeve rockers as Lonesome Train (subway train, that is) and Love Among the Ruins.

Ultimately, as with all great New York City albums (like those by Elliott Murphy, Lou Reed, and the New York Dolls), "Tenement Angels" is as much an ode to the damnable charms of the five boroughs as it is to any flesh-and-blood material. Makes me regret moving away—how's that for convincing?

P.P.

CHAKA KHAN
The Woman I Am
WARNER BROS. 26296 (65 min)
Performance: Loud and energetic
Recording: Satisfactory

One thing about Chaka Khan: You'll never have trouble hearing her. She seems even louder than usual as she shrinks her way through this album, her first try at self-production. Maybe that's why the energy and volume level both seem so high here. This is a good disc to play when you're trying desperately to stay awake to complete some onerous task, like doing laundry. With the thunderous bass and percussive thrust, I dare you to fall asleep to it. Yet there are some moments when the tumult subsides and Khan actually sings. The best moments occur in Love You All My Life-time and You Can Make the Story Right, but the catchiest song here is the infectious I Want, with its sizzling vocal interplay. While those accustomed to Khan's incendiary approach will take to this set, more timid souls are forewarned.

PG.

KILLBILLY
Stranger in This Place
FLYING FISH 70999 (31 min)
Performance: Loose and manic
Recording: Good

For the uninitiated, Killbilly is a six-man lunatic assemblage out of Dallas that practices a deranged form of country and bluegrass. They've got various names for it: killer
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In the spirit of the season, Mobile Fidelity Sound Lab wishes to extend a helping hand to the very important study of AIDS, a disease which affects us all. In commemoration of Freddie Mercury and all the many creative lives which have fallen to this affliction, Mobile Fidelity is pleased to announce that proceeds from the ULTRADISC II™ version of the Queen classic *A Night At The Opera*, as well as proceeds from the "990 ULTRADISC™ tribute to Cole Porter, entitled *Red, Hot & Blue*, will be donated to AIDS research.
hillbilly, country-and-Western world beat, banjo, metal/country, thrashgrass, peckerwood soul... you get the picture. Better instrumentalists than singers, the Kibbilly boys write their own stuff, like Hang My Head, an old-fashioned Western story with a bluegrass attitude, and Boot Scootin' Gal, with such lyrics as, "She's got six inches on me / But she's still my pal."

These guys have hair longer than ZZ Top’s and dress in leather—they look like redneck hippie bikers on speed. Come to think of it, they sound like it, too. Ever heard a banjo- and-mandolin-driven version of Maybelline? Start livin’.

SONNY LANDRETH
Outward Bound
ZO0-PRAXIS 11032 (45 min)
Performance: Sincere
Recording: Good

Aficionados of record credits may recognize Sonny Landreth as the extraordinary guitar sideman who’s been making John Hiatt sound good. Now on his own for the first time, Landreth shows great promise as a singer and songwriter, even if those skills don’t yet quite equal his instrumental prowess. Landreth’s light-yet-earnest tenor is most convincing when he tells a simple story, such as Common Law Love, in which an unmarried young couple puts a little strain on their respective families by living together, and Buck to Bayou Téche, about a woman who doesn’t want her musician lover to hit the road. Even when Landreth’s voice is defeated by the melodrama or piety of his songs, he can always let his fingers do the talking. Whether he’s adding a white-hot edge to his slide guitar, bursting with inventiveness in a blues number, or floating out tiny notes like soap bubbles, Landreth shows that he’s a young master of the frets.

R.G.

CHRIS LEDOUX
Whatcha Gonna Do with a Cowboy
LIBERTY 98818 (33 min)
Performance: Not ready for prime time
Recording: Adequate

Chris LeDoux’s music rocks and boogies a bit, but mostly it just hangs out around the rodeo chutes, and for good reason: LeDoux, a former world-champion bareback-bronc rider, started working as a cowboy and competing in rodeos at the age of fourteen. Out West some folks regard him as a legend, although exactly why isn’t apparent from his records, since his vocal range is slightly less than a cigar-store Indian’s, and his Western imagery never gets more imaginative than boots, saddles, and sunsets.

This album mixes LeDoux’s own simplistic wedding of rhythm and rhyme (Little Long-Haired Outlaw, Hooked on a 8 Second Ride) with songs by Ed Bruce (You Just Can’t See Him from the Road) and Chris Waters (Galliard Ranche), none of them improved by his well-intentioned but amateurish performance. Garth Brooks, who really digs this guy for some unfathomable reason (it was Brooks who brought him into the mainstream), duets in the title tune, a fanciful Western-swing number that cautions women to think twice before lassoing a cowpoke for the night. Think twice before toting home this record.

A.N.

ROD MACDONALD
Highway to Nowhere
SHANachie 11001 (45 min)
Performance: Ridiculous to the sublime
Recording: Better than needed

Rod MacDonald put in his time at Columbia Law School and Newsweek magazine, but somehow—perhaps unwisely—the pull of folk music won out. He has a sweet, high, kind of Paul Simon voice, if a routine way around a guitar. But it’s his songwriting that causes the most concern. Veering wildly, like a drunk driver on a tear, MacDonald either writes in the most amateurish mode possible, badly copping early Dylan in such tunes as The Coming of the Snow and After the Singing, or reporting with bone-chilling beauty the pain in his own darkened heart (Moonlight and Fire).

The oddest thing here is Norman, a funny yet pathetic one-sided conversation between Psycho’s Norman Bates and his mother (“Guess I’ll go light the sign / Wash the shower curtain clear.”). Treat this album as you would a rummage sale. There’s a treasure or two in here, but you’ll have to go through a lot of junk to find it.

A.N.
HEATHER MYLES
Just Like Old Times
HIGH TONE HCD 8035 (39 min)
Performance: May be a comer
Recording: Very good

Twenty-seven-year-old Heather Myles hails from Riverside, California, but her music hangs around the dusty fringes of Bakersfield, where they still like their country hard-edged. Steeped in the traditional honky-tonk style, Myles updates the Merle Haggard-Buck Owens-Wynn Stewart sound with a rocking attitude and a Western beat.

In "Just Like Old Times," her album debut, Myles veers from a ballsy, "don't mess with me" vocal in Love Lyin' Down to an early Tammy Wynette quality in a cover of Stonewall Jackson's Why I'm Walking. She hits her stride with One Good Reason Why, a heartbreak ballad of shame and confusion in the aftermath of an affair. Much of her original material needs fine tuning—her lyrics tend to splinter into nebulousness—but this newcomer has a gift for melody, and her sensibility is in the right place. She opts for the sparse, crisp accompaniment of such West Coast pickers as Skip Edwards and Brantley Kearns (from Dwight Yoakam's band) and Greg Leisz (from k.d. lang's). While Myles has a way to go to sort out her presentation—her lower register sounds too inexperienced—she's onto something good. Keep your eye on this gal. A.N.

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Jack English, Stereophile, Vol. 15, No. 7 (July, 1992)
because three excellent new songs are followed by eleven of his most memorable hits. That may disappoint those hungry for fresh Richie morsels, but this compilation should serve to remind everyone just how talented a songwriter he is, with a gift for highly appealing melodies. His lyrics are usually sentimenta, but when he ventures forth a bit he can come up with something as surprising as All Night Long (All Night), his one and only calypso hit.

While pop music has changed considerably during his absence, Richie picks up where he left off, ignoring the raucous secular sermons of rap to give us quality love songs. Two of the three new selections take us back to the Motown of two decades ago, when Richie began recording with the Commodores. He left that group in 1981 for a solo career, but he pays tribute here to his former colleagues with Do It to Me, a delightfully mellow ballad. The instantly likable My Destiny sounds even more like a Motown oldie in its rhythm, structure, and arrangement. The third original, Love, Oh Love, is patterned after We Are the World, which Richie wrote with Michael Jackson, and is no less lovely. Now let's have that all-new album Richie promises to deliver.

SANTANA
Milagro
POLYDOR 314 513 397 (71 min)
Performance: Still exhilarating
Recording: Very good

Although Carlos Santana, the seminal San Francisco-based composer-guitarist, has been through many changes since he made his recording debut twenty-three years ago, the music performed by the Latin/rock group bearing his name still resonates with the spirit of the Sixties. One of the most dazzling creations of that time was Santana's brilliant fusion of black and Latin sounds, marked by propulsive polyrhythms and the leader's bit ing, ever-imaginative guitar lines.

The group's marvelously musical and spirit ed new album takes us into a kind of time warp where the spirit of the Sixties lives again. A clue to its intent is the dedication to the late Miles Davis, the father of fusion, and to Bill Graham, the rock promoter who once served as Santana's producer and manager.

The set opens with the sound of Graham introducing Santana at a 1966 concert, but it is not a live recording. After the rousing Latin title track, Milagro, we hear an excerpt from Martin Luther King, Jr.'s historic "I have a dream" speech during the 1963 March on Washington, which introduces the ethereal Somewhere in Heaven, recalling the slain leader. After these themes are established, the album ranges through a variety of selections, from the lyrical Saja to the jazz fusion of Red Prophet, all resonating with the spirit and vigor of a time to be treasured.

MEL TORMÉ AND CLEO LAINE
Nothing Without You
CONCORD CCD-4515 (58 min)
Performance: Blend of genial
Recording: Okay

America's Mel Tormé and Britain's Cleo Laine may seem well matched in their jazz-influenced approach to pop songs, but their actual sounds, beyond their equally smoky timbres, are another matter. Tormé projects most of the lyrics in a laid-back and unpretentious way, but Laine sometimes has a sharper edge to her voice and can seem quite pretentious. The contrast makes for a few interesting takes in this first duet album—especially in a breezy version of I Thought About You and a swinging scatted After You've Gone—but not for an interesting hour-long program. John Dankworth leads the orchestra in all fourteen tracks, including a 5-minute medley with faceless snippets of some ninety (count 'em) different tunes.

UNCLE GREEN
Book of Bad Thoughts
ATLANTIC 82374 (47 min)
Performance: Infectious
Recording: Good

As catchy as they wanna be, Uncle Green is a band of precocious popsters whose cleverly crafted songs reverberate with influences like Squeeze, XTC, and the Beatles. Though they may be riding on the shoulders of giants, they add a youthful spark that elevates "Book of Bad Thoughts" beyond the realm of bratty but derivative tributes.

Check out I Know All About You, in which slashing, Hefter Skelter-type chords and caustic vocals segue into a dreamy hard-pop bridge built around the chant, "Don't forget about me." Wake Up Now opens cold with a sunburst of harmonized a cappella that would do the Hollies proud—although the Hollies seldom thought to insert a lead guitar as fat-toned and fuzzy as the one that winds python- like through this song and others here. The guitars crunch more crisply than cold cereal in Look into the Light, and the harmonies that back-drop the clipped, fast-tongued lead vocal are spot-on. Uncle Green betrays a romantic
fatalism worthy of Squeeze in *She's Storing It Up*, admitting that the inevitable comeuppance is deserved while guitars arpeggiate restlessly. With its boundless palette of quirky lyrics and trippy melodies, "Book of Bad Thoughts" bears rereading—et, replaying—over and over.

P.P.

ROGER WATERS

Amused to Death
COLUMBIA 47127 (73 min)
Performance: Strangled
Recording: Good

You've got to agree with Roger Waters that the world is a plenty messed-up place and that the militaristic mentality of the West is largely to blame. You can understand his dismissing the notion of war as spectacle in the wake of our televised adventure in the Middle East. He is further to be admired for his attempts to elongate the rock-album format into something almost cinematic and certainly not commercial. Nevertheless, in "Amused to Death" he never quite gets past his curdled misanthropy, and the music plods at a snail's pace, making the album agonizing to listen to no matter how correct the politics. A screed is a screed, and this one's a whopper.

P.P.

Collection

RIG ROCK JUKEBOX
A Collection of Diesel Only Records
FIRST WARNING/BMG 75710 (44 min)
Performance: Raw and rowdy
Recording: Good

A compilation album put out by the folks who service your friendly neighborhood record-playing machines, "Rig Rock Jukebox" is an unexpected delight—a funny, original, and utterly off-the-wall collection of country-rock tunes by regional bands and lesser-known cowpunk practitioners, such as the World Famous Blue Jays, the Blue Chiefains, Courtney & Western, Mark Brine, and Five Chinese Brothers. The operative word here is "original," because even when the Jays do a send-up of Johnny Cash (Good Morning Mr. Trucker, a full-throttle, power-rockabilly offering), they do it with terrific verve and wit. The same goes for everybody here, including Courtney & Western, who deliver such lines as, "If I'll never be this young again / At least I'll never be this drunk again."

Anybody whose taste runs along the lines of the Oak Ridge Boys probably won't dig this the most, but if Rosie Flores or the Cowboy Junkies race your motor, be sure to ferret this out. Tell 'em good buddy sent you.

A.N.

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JAZZ

AFTER FIVE
Jazz Expressions
CHEZ NOUS, Paris, France, MARO-2733 (58 min)
Performance: Good
Recording: Good

This album is an odd mixture of the good, the bland, and the beautiful. All I know about After Five is that I hear in "Jazz Expressions," an album packaged with minimal information. I gather that the three-piece group and its guest players hail from the Dallas area, that they have numerous people to thank for reaching this point in their career, and that they are currently in search of the expression that will best further their career. I base the last inference on the variety of sounds contained in this record, which includes bland lounge fare, New Age noodling, notch-above-Kenny G stuff, plodding elevator music, game-show walking music, and the obligatory rap. But there is also some spirited, well-conceived, unpretentious jazz that made me pay attention. After Five probably does well in local lounges and at weddings and parties. We have all heard such bands, and every good-sized town seems to have at least one, but I hear in this one a potential that their CD barely explores. I hope the same talent—that includes such guest players as Tre' Balfour—teams up for more, and that it isn't another sampler.

LOUIS ARMSTRONG
The California Concerts
DECCA GRD-4-613 (four discs, 234 min)
Performance: Superb
Recording: Fine mono remotes

No doubt about it. Louis Armstrong is the most famous jazz musician of all time, and few will deny that he was also the greatest. But to categorize him as only a jazz musician is to short-change him. His infectious smile, humor, gravel voice, and soaring trumpet style were known from Biloxi to Baghdad, and his artistry touched people of all musical tastes. "The California Concerts" is brimming with all of those attributes except that beaming smile.

The material stems from two concerts by the All-Stars, the group that marked Armstrong's return to small-band jazz, brought him renewed worldwide popularity, and—in a sense—served as the bridge by which he crossed over into the postwar pop field. Some of these performances were released on vinyl, but never as many as here, where the fifty-nine selections appear in chronological order and include twenty-four that were previously unissued. The first eighteen tracks were taped at the Pasadena Civic Auditorium in 1951. With Jack Teagarden, Barney Bigard, Earl Hines, Arvell Shaw, and Cozy Cole on hand, the sextet certainly lives up to its All-Star billing. The music is predictably smooth and substantive, and a good deal of showmanship, comic routines, and banter are woven in. This was a good period for Armstrong, who is captured here in splendid form.

The remaining forty-one tunes are equally prepossessing. Recorded four years later at Hollywood's Crescendo Club, they feature a slightly changed All-Stars group: Trummy Young has replaced Teagarden. Billy Kyle has taken over the piano, and Barrett Deems is on drums. Only twenty-three of these performances were previously issued, and the CD set's producer, Orrin Keepnews, admits to omitting a couple more because they were not up to snuff. There is an occasional sign of weariness, but not from Armstrong himself. I love this set, all 4½ hours of it.

ART BLAKEY
Buhaina's Delight
BLUE NOTE 84104 (65 min)
Performance: Good
Recording: Very good

Few jazz musicians have had as prolific a recording career as the late Art Blakey's, and even fewer have managed to maintain the high standard he did. "Buhaina's Delight" is a reissue of a 1961 album with one alternate take (Moon River) and alternate versions of three tunes (Backstage Sally, Reincarnation Blues, and Boo's Delight). Blakey's Jazz Messengers groups were a proving ground for some of today's most interesting young instrumentalists, but this one goes back thirty years, and its key players—Freddie Hubbard, Wayne Shorter, Curtis Fuller, Cedar Walton—have long since become famous jazz names. It's great to hear Hubbard again, captured when he still played with fire and emotion, and to be reminded that Wayne Shorter has been a fascinating, complex player for more than three decades, as he continues to be.

As Blakey albums go, this one is not exceptional, but time has given it added value—not just because the players have since attained star status, but also because we can now hear in the music qualities that easily escaped our ears in 1961.

TERENCE BLANCHARD
Simply Stated
COLUMBIA 48903 (63 min)
Performance: Sublime
Recording: Excellent

Terence Blanchard has never sounded better than he does in "Simply Stated," and that's saying something. This is a flawless album by a man who—when last I heard him on disc—was trapped in the soundtrack for a dumb Spike Lee film called Mo' Better Blues. I have always maintained that Columbia placed its booster machine behind the wrong trumpeter (Wynton Marsalis), but if Blanchard keeps playing this well and puts out more albums of this high caliber, he won't need anybody's hype—the fans will place him where he belongs. Just listen to him soar in Central Focus, shift into mellow for a smooth
ride with the tenor saxophonist Sam Newsome in the title tune, swing ever so gently with Roy Hargrove’s sidekick Antonio Hart in Dear Old Stockholm, and take When It's Sleepy Time down South to an artistic height that would have brought a smile and loving grunts from his fellow New Orleanian Louis Armstrong. There’s also Little Miss Olivia Ray, a lovely, loving piano solo by Blanchard, and . . . need I say more? This album is a good hour of pure joy—let’s leave it at that.

C.A.

CHARLIE HADEN
Haunted Heart
VERVE 314 513 078 (66 min)
Performance: Excellent
Recording: Excellent

Charlie Haden has always combined extraordinary skill and creativity with impeccable taste, but he's never before made an album as deeply satisfying and interesting as “Haunted Heart.” This is not just a set of twelve tracks: it's Haden's personal odyssey, a trek through time for which he has expertly woven nostalgic tidbits into a fresh pattern of sounds by his current group, Quartet West. You know he has something unusual in store when the album begins with the famous Warner Bros. fanfare and segues into Adolph Deutch’s intro to The Maltese Falcon. What follows is an audio movie, if you will, starring not only Quartet West but also Jo Stafford, Billie Holiday, and Jeri Southern, who are heard in transfers from records in the bassist’s private collection.

The quartet’s program includes fine originals by the pianist Alan Broadbent, Lennie Tristano's morphed Pennies from Heaven (Lennie's Pennies), Bud Powell's Dance of the Infidels, Charlie Parker's Segment, and a version of the old Glenn Miller theme, Moonlight Serenade. Everything is played to perfection, and the seams are invisible.

C.A.

COURTNEY PINE
Closer to Home
ANTILLES 314-510 769 (52 min)
Performance: Compelling
Recording: Very good

The Jamaica-born tenor saxophonist Courtney Pine has gone reggae with a new album appropriately titled “Closer to Home.” What could easily have been a bland offering a la Nadjee or Kenny G is instead a compelling blend of sounds reflecting both Pine’s ancestral roots and his love for the music of John Coltrane. Occasional back-up vocals make the sound rather more poppish than anything Pine has treated us to before, but even at its most commercial the music has an engaging quality.

COURTNEY PINE
CLOSER TO HOME

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STAX PCD-60-025 (73 min).
Two cult albums that, for a change, deserve their cult status — melodic, guitar-driven pop/rock still doesn’t come any better. S.S.

DAVID BOWIE
Ziggy Stardust: The Motion Picture.
RYKODISC RCD 40148 (70 min).
Early-Seventies Bowie in concert and (for me, anyway) at best a period piece. Consumer warning for fans: The sub-bootleg sonics here make "The Beatles Live at the Star Club" sound like "Dark Side of the Moon." S.S.

CHRIS CACAVAS & JUNKYARD LOVE
Good Times.
HEYDAY HEY925 (50 min).
An intriguing sophomore effort by the former Green on Red keyboard maestro, notably mixing Neil Young-style guitar and vocal tricks, depressing (occasionally political) songs, and angelic harmonies. Think "Everybody Knows This Is Nowhere" with a hangover and you’ve got the idea. S.S.

CHRIS CACAVAS

FLIPPER
Internal Exile.
POLYDOR 314 513 765 (50 min).
In which Marillion’s lead singer goes solo with predictable results — portentous synths, the rich-voiced baritone in peak form — proving that before booze and women did him in (by his own admission) he was one of the true greats of pre-rock pop. R.H.

LEMONHEADS
It’s a Shame About Ray.
ATLANTIC 82397 (25 min).
Jangly alternative rock and not without its pleasures, even though lead singer/songwriter Evan Dando’s undergrad Elvis Costello act tends to highlight the difference between talent and genius. S.S.

SUN’S GREATEST HITS
RCA 65059 (41 min).
Early rock goodies including Charlie Rich’s epochal Lonely Weekends and Roy Orbison’s metaphysically puzzling Ooby Dooby. Over-familiar, perhaps, but nice. S.S.

TWIN PEAKS
Fire Walk with Me.
WARNER BROS. 45019 (56 min).
In the soundtrack for the big-screen version of Twin Peaks, composer Angelo Badalamenti is up to his usual tricks — surf guitars, minimalist melodies, Fifties jazz, and electronics. Unsurprisingly, the results aren’t as minty fresh as the original TV score, but adequate nonetheless. Why complain? S.S.

WALT MINK
Miss Happiness.
CAROLINE 1721 (37 min).
Named, like Lynrd Skynyrd, after a real-life teacher, Walt Mink offers a mixture of guitar-driven sass and twee-voiced smarm, sufficiently virtuosic to recall the likes of Nick Drake and Captain Beefheart. At the same time, they nod to the kind of power trio racket-making that was one of the guiltiest pleasures of the Seventies. P.P.

YOUNG TURK
N.E. 2nd Avenue.
VIRGIN 86350 (48 min).
Sex, drugs, and rock-and-roll, Hollywood heavy-metal style. by a young band that might be Guns ’n’ Roses with a richer inner life. Interesting. S.S.

If you’re a jazz purist, you’ll pine for the Courtney of old, but no matter which direction your taste runs in, you won’t find it easy to sit still while Pine and his band of music makers take the Trane to Jamaica. C.A.

CHARLIE WATTS QUINTET
A Tribute to Charlie Parker.
CONTINUUM 19201 (76 min).
Performance: Worthy tribute
Recording: Excellent remote
You might call Charlie Watts a crossover artist. Firmly embedded in rock history as the Rolling Stones’ drummer, he makes no secret about his long-standing passion for jazz, a love that first manifested itself some thirty years ago in the form of a children’s book he wrote called Ode to a High Flying Bird. Watts’s new album, “A Tribute to Charlie Parker,” is the latest manifestation. Recorded at the opening of Ronnie Scott’s new club in Birmingham, England, it features a sprightly quintet spearheaded by the alto saxophonist Peter King, along with a string section from a second club session. Tying it all together is Watts’s poem to Bird, narrated by Bernard Fowler, who also turns vocalist in Lover Man. King and the group perform the whole program, which includes four Parker compositions, with great tenderness, capturing the spirit that has kept Bird flying high all these years since his death.

At the time of these recordings, the Watts Quintet was already a seasoned ensemble, having played in various parts of the Continent, at New York City’s Blue Note club, and on tour in Japan. It’s a superb, cohesive unit that does far more than mirror Parker’s performances. Watts’s 1986 big-band album, “Live at Fullham Town Hall,” was a loving but somewhat chaotic tribute to jazz that featured too many musicians because Watts found it impossible to turn anyone down. This release is quite another matter, and I recommend it highly.

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Noise in the Attic

"EVERYBODY's in a band / They can't get enough of it," Pere Ubu once sang, and our more politically astute readers are no doubt aware that recent proof of this proposition has emerged during the current election campaign. I refer, of course, to the startling news that Tipper Gore, wife of the Democratic Vice Presidential nominee but better known for getting record companies to slap Parental Advisory labels on naughty rock and rap albums, played the drums in an all-girl garage band in the mid-Sixties. Talk about cognitive dissonance.

Or maybe not. Actually, it's occurred to me that wanting to be a rock star is pretty much the universal fantasy of our age. In fact, when I researched the subject back in 1989, I was able to locate lots of nonmusical celebrities with rock bands in their closets. Some were willing to speak to me about it, among them Chevy Chase (a godawful group called Chameleon Church, with a 1968 album on MGM) and Saturday Night Live's Kevin Nealon (several mid-Sixties garage bands with names like the Hallucinations and the Atomic Bombs). Others were less forthcoming, like Diane Keaton (who sang with a New York City band called the Roadrunners circa 1966) and the former Bush Administration drug czar William J. Bennett (who played guitar and sang with an Animal House-style frat-rock outfit at Williams College back in 1961).

My favorite celeb with a past rock life, however, is unquestionably Frederic Barthelme. These days Barthelme is a highly regarded member of the so-called minimalist school of fiction, and his work appears in tony outlets like The New Yorker. But few readers of his story collections Moon Deluxe and Chroma know that back in the acid-drenched Sixties he pounded the drums as a member of a band called the Red Crayola, or that he co-wrote such unforgettable songs as Pink Stainless Tail and War Sucks.

"What happened," Barthelme told me in a not-at-all minimalist manner, "was [that] I had already been booted from architecture school [University of Houston, 1966] for a kind of too-wicked treatment of an architectural problem. So I was making pictures, and Mayo Thompson was a friend who had been in Europe for a year. And when he came back he decided we ought to have a rock-and-roll band.

"He and I and a guy named Steve Cunningham, who was a year or two younger, got together and started playing Hey Joe and all that. And we sort of developed at the same time the psychedelic stuff was going on, and we used to play for hours and hours."

Once christened the Red Crayola, Barthelme and his fellow arty hippies began to garner a local reputation. Eventually, they got to do an album "because we won some kind of idiotic mall Battle of the Bands. It doesn't occur to me now that we won, actually, but we played in it and were heard by Lelan Rogers, who was a small-time producer and Kenny Rogers's brother-in-law."

The album, "The Parable of Arable Land" on the Texas-based International Artists label, sold fitfully at best, perhaps because "the guy who did the recording recorded it in mono," Barthelme recalled. "We thought it was a good idea at the time."

Undaunted, the Crayolas went west to California in the summer of 1967, where one performance, at the Berkeley Folk Festival, has become almost legendary. "That's when Cunningham played the famous block of ice," Barthelme explained. "He brought a block of ice on stage, put it on a stand with some aluminum foil under it, and miked the foil. It was an outdoor concert, and it melted attractively."

After their California trip, the Crayolas went back to Texas and "just broke up after that season." Mayo continued with another album called "God Bless the Red Crayola" and later reappeared in Europe along with, of all people, members of Pere Ubu.

Today, from his teaching post at the University of Southern Mississippi, Barthelme looks back on his brush with rock stardom. "It was pretty interesting," he recalled. "Of course, the idea that I was a rock star—or even a qualified performer—is, I think, a stretch. You do understand I was the world's worst drummer... very far ahead of my time, but the world's worst drummer."

Still, history plays odd tricks, and after the first Red Crayola album was reissued in the late Seventies, some rock theoreticians actually hailed the band as unsung Godfathers of Punk.

"Mayo said something about that when he was in Europe," Barthelme told me, "that in England we were a proto-punk band, and people had heard of us and had the record." He reflected for a moment. "I don't really know if that's true," he said finally. "But wouldn't it be lovely to think so?"

Well, yeah, it would, actually. Meanwhile, "Parable" is now available on a Charly CD (a Brit import available at hipper record stores), so you can check it out for yourself.
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BACH: Orchestral Suites Nos. 1-5
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PHILIPS 432 966 (two discs, 112 min)
Performance: Suave clarity
Recording: Crystalline

Five Bach orchestral suites? No one any-
more attributes the quirky, Rococo/Ro-
manic, and theatrical G Minor Suite (BWV
1070) to Johann Sebastian; it is perhaps by one
of his sons. Whoever wrote it, it is a fascinat-
ing rediscovery and provides an intriguingly
dramatic contrast here to the more familiar
Baroque approach. It is almost aggressively
anti-Romantic and quite effective—curiously
enough, most of all in that mysterious and
anti-romantic “Hunt” is still incompa-
rable—it ought to be restored to the catalog
once. R.F.

BRAHMS: Variations on a Theme by
Mozart. Ives: (arr. Schuman):
Variations on “America.” Reger:
Variations on a Theme by Mozart.
New York Philharmonic, Masur
TELED 74007 (56 min)
Performance: Promising
Recording: Excellent

In many ways, this live recording illustrates
the kind of pleasant surprises that the New
York Philharmonic’s new music director, Kurt
Masur, has been giving its audiences. The
program is more than just a clever juxtaposi-
tion of variations by three composers. The
Peter Schreier: lively Bach

Ives and Reger pieces both seem to have been
written in reaction to the Brahms—in fact.
Ives occasionally sends up Brahms by taking
his variation techniques one step further into
the preposterous. The Reger seems less inter-
esting, because the invention is uneven, but
it’s worth hearing in this context. It encapsu-
lates variation techniques from Brahms’s era
and later, and the orchestration has a sheen
that may seem kitschy at first but can become
charming on repeated hearings.

Masur’s interpretations find all kinds of
hitherto undiscovered treasures in the harmo-
nies while always taking a strong overview of
the music, never pulling it apart needlessly.
In a number of places I sensed that he might have
preferred more precise rhythms, but the or-
chestral playing in general has a graininess
that gives character to his interpretations.
Although I probably wouldn’t recommend this
compact disc for any of the individual perfo-
rmances, together they make quite an attrac-
tive package.

D.P.S.

CARTER: Cello Sonata
MIASKOVSKY: Cello Sonata No. 2
POULENC: Cello Sonata

Cello Sonatas of 1948” is the collective title
of this absorbing recital by the German-
born Tilmann Wick and his Korean keyboard
collaborator, Heasook Rhee, but the chrono-
logical designation belies the stylistic diversity
of the three works. The composers’ birthdates
tell the real story: Nikolai Miaskovsky (1881-
1950), Francis Poulenc (1899-1963), and El-
lott Carter (b. 1908 and still active).

Except for a Scriabinesque “modern” phase
in his earlier works such as the Sixth Symph-
ony, Miaskovsky’s musical language continued
on the same Russian lyrical symphonic line as
Glazunov, Rachmaninoff, and Medtner. The
Cello Sonata No. 2 falls neatly into place, with
two predominantly songful movements giving
way to a more dynamic finale with moto
perpetuo elements.

Poulenc started off as a kind of musical
playboy à la Satie and “Les Six” but developed
a more serious side in his song cycles and
religious works. The four-movement Cello So-
mana displays both aspects: the playboy in the
third movement, the lyrical singer in the first
and second, and a sharp contrast between
them in the finale. The piece is beautifully
written, but it does not sell convincingly.

The Carter Cello Sonata is a real master-
piece that demands the utmost virtuosity and
musical insight. It represents a transition be-	ween Carter’s early Neoclassical manner and
his later works that make use of metrical
modulation and strongly characterized instru-
mental interaction. The elemental phenom-
emon of time sets the tone at the start and finish
of the score, and in between there is lyrical
flow leading to a jazzy or Stravinskian scherzo
and a slow movement with powerful aristocratic
repetitive episodes. The work culminates in a
dazzlingly mercurial finale. The lean-toned
cellist and his nimble-fingered partner give a
splendid account of themselves in all three
works, and they are accorded virtually ideal
sonics.

D.H.

Classical Music

Discs and tapes
reviewed by Robert Ackart,
Richard Freed, David Hall,
George Jellinek,
Eric Salzman, and
David Patrick Stearns

Stereo Review November 1992
The pianist Tzimon Barto has had the good fortune to avoid—so far, at least—electronic overexposure. Each of his recordings can be savored on its own terms, not as part of the Complete Works of Everybody, and surely Chopin playing as beautiful as his calls for that kind of attention. Barto very strongly emphasizes the poetic nature of the music here, in the slightest pieces as well as the more ambitious ones. He distills the utmost beauty and meaning not only from every phrase but from every individual note, and he manages to do it without distorting the line or impeding momentum—though his tempos are slowish and sometimes stretched to the very limit.

The risks taken in spinning out some of the familiar pieces at something like half their normal speed can pay off in a tenderness almost beyond description, but one might well feel that a greater sense of contrast would be welcome, particularly if you listen to all twenty-eight preludes in one sitting. Still, taken individually, not one piece misses fire. On balance I find myself a bit happier with Jean-Yves Thibaudet's Denon disc of the preludes, with two of the same nocturnes Barto offers as fillers, but Barto does weave an unusual enchantment, EMI has given him glorious sound, and the seldom heard Cantabile and Contredanse are welcome makeweights. R.F.

**DANIELPOUR: First Light; The Enchanted Garden; Symphony No. 3**

(“Journey Without Distance”)

Soprano: Faith Esham; Seattle Symphony and Chorale, Schwarz

DELOS DE 3118 (66 min)

Performance: Underripe

Recording: Okay

Richard Danielpour, a graduate of Juilliard and a student of Vincent Persichetti and Peter Mennin, has an aesthetic anchored in an inspirational ideology. He sees his music as a reflection of his spiritual evolution, though with none of the traditional devoutness of a Bach or Bruckner. Unfortunately, he pursues his programmatic concepts so doggedly that his music is often a self-conscious succession of sounds without much sense of freedom or fantasy. A distinctive voice has still not emerged, and he does not use his repertoire of familiar twentieth-century orchestral techniques with any great originality. Although there are fine things on these two CD's, they are highly inconsistent, not only from piece to piece but from movement to movement in the same piece.

The first part of the two-part Symphony No. 3, for example, is full of annoyingly repetitious rhythms and unconvincingly alternates between intense passages and more meditative ones. The ethereal, expansive second part, however, borders on the sublime, with a setting of passages from the popular New Age book *A Course in Miracles* for chorus and soprano (a somewhat unsteady Faith Esham in this performance) decorated by polystylistic comments from winds and piano.

Of the other works on the Delos disc, I greatly enjoyed two-thirds of the triptych *The Awakened Heart*, whose second movement is reminiscent of Bartók in his best “night music” vein. The lone poem *First Light* is also inconsistent, though a performance less underripe than this one by Gerard Schwarz and his Seattle Symphony could prompt a change in heart.

On the Koch disc of chamber music, I can't work up any enthusiasm for *Urban Dances*, for brass quintet, or *Psalms*, for solo piano. *The Enchanted Garden*, however, played with unusual relish by the pianist Christopher O'Reilly and recorded with lots of air and resonance, shows the composer at his most personal and imaginative. And the middle movement of the Piano Quintet, with its gently dovetailed polystylistic counterpoint, suggests a cross between Hindemith and Messiaen. D.P.S.
Composer John Moran: serious fun?

IVES: The Unanswered Question; Central Park in the Dark; Robert Browning Overture; Three Places in New England

Gulbenkian Orchestra, Swierczewski
NIMBUS N 1516 (99 min)

Performance: Good
Recording: Lot of ambiance

This Charles Ives collection from Paris-born Michel Swierczewski and the Lisbon-based Gulbenkian Orchestra includes the first digital recordings of that 1911 blockbuster, the Robert Browning Overture, and Three Places in New England in its full-orchestra version. The Unanswered Question represents the Transcendentalist Ives in his most rarefied mystical mode, but in the overture's allegro episodes the Transcendentalism is overpoweringly activist. Neither of these scores makes use of quotations from vernacular hymn or popular tunes (save for glancing references in the coda of the overture to Adesle Fideles and Awake My Soul, Stretch Every Nerve). Three Places in New England and Central Park in the Dark are among the most familiar Ives works that do use his collage technique.

The performances and recordings here are highly creditable, especially The Unanswered Question, Central Park in the Dark, and the first and last movements of Three Places, "The St. Gaudens" in Boston Common and "The Houseman at Stockbridge." Even in conventional stereo playback, the acoustic surround of the high-ceilinged stone church in Lisbon is wonderfully captured by Nimbus's Ambisonic microphone setup, with precise localization of separated instrumental groups in the small-ensemble scores and a most effective sonic "wash" as "The Houseman at Stockbridge" builds to its climax. But the rich ambience serves to muddle the complex textures of Robert Browning and of the "Putnam's Camp" movement in Three Places. Perhaps the textures would be clearer with Ambisonic decoding equipment and the requisite speaker setup (four speakers at the same height facing the center in an "X" pattern). The decoding apparatus seems to be available only on a limited basis in this country, but the system is better established in Britain, and a substantial number of British labels other than Nimbus ambisonically encode their releases.

JANÁČEK: Glagolitic Mass; Sinfonietta

Soloists; London Symphony Chorus and Orchestra, Thomas
SONY SK 47182 (64 min)

Performance: Mostly very good
Recording: Handsome

Neither the Glagolitic Mass nor the Sinfonietta lack for distinguished recordings. What Michael Tilson Thomas has going for him here are splendid soloists: the soprano Gabriela Behajckova, mezzo-soprano Felicity Palmer, tenor Gary Lakes, and bass Anatoly Kutcherga. In some performances one feels at times that Janáček is subjecting the sopranos and tenor to cruel and unusual punishment. Not so here: The singers meet the challenges with the greatest of ease, particularly in the Versus (Credo). Thomas gets a splendid response from both the chorus and orchestra, and the acoustics of All Saints Church, Tooing, are well suited to the music and well managed by the production crew. The important solo-organ episode in the Mass is brilliantly played, albeit at a terrific clip, by John Scott (recorded separately at the Raitzeburg Cathedral in Germany). Nonetheless, I still prefer overall the version of the Mass by Charles Mackerras on Supraphon. Recorded in Prague with Czech forces (save for soprano Elisabeth Soderstrom), it has more of the cutting edge and raw thrust essential to the Janáček idiom.

The Sinfonietta here was recorded at Watford Town Hall and comes off creditably enough, though the second movement is somewhat fast for my taste and the third a bit too sentimental. The engineering crew has done an exceptional job, however, both in capturing the kaleidoscopic variety and coloration of the music's inner voices and in lateral imaging. But once again I prefer the guttiness of Mackerras's recording, this time with the Vienna Philharmonic on London (paired with Taras Bulba).

LAPO: Symphonie Espagnole
VIEUXTEMPS: Violin Concerto No. 5
SAINT-SAENS: Introduction and Rondo Capriccioso

Mintz; Israel Philharmonic, Mehta
DEUTSCHE GRAMMOPHON 429 977 (50 min)

Performance: Mintz con amore
Recording: Uneven

The opening of the Lalo is not very promising. The orchestra seems less than fully engaged, and its sound is somewhat amorphous, as if absorbed by a huge acoustic blotter. Shlomo Mintz's first solo shoots out like a rocket. The dulish ambience seems improved in the work's concluding movements (or possibly the ear makes its own compensations by then), and so does Zubin Mehta's contribution to the performance. The one consistent element is the one that matters most: Mintz plays with all the brilliance one could want, and with exceptional subtlety and all-round conviction as well.

As effective as Mintz is in the Lalo, he surpasses himself in the Vieuxtemps concerto, in which he enjoys a higher level of partnership from Mehta. It is a charming piece, and a most effective contrast to the Lalo, with an expansive opening movement followed without pause by a very brief adagio (based on a Grétry tune) and a finale that recapitulates the earlier portions in barely more than a minute. It has become a stranger to our concert halls and can only benefit from the sort of advocacy Mintz and Mehta bring to it. The Saint-Saens piece, of course, has never been a stranger, but it, too, receives a performance that is striking for its freshness. Mintz plays it con amore and with delightful regard for the capriccioso in the title.

J. MORAN: The Manson Family

John Moran, Iggy Pop, Terre Roche, Paige Snell, others
POINT/PHILIPS 432 967 (53 min)

Performance: Chilling
Recording: Avant-pop

This opera—well, sort of—about the Manson Family is John Moran's fourth in a series of odd and original music-theater works. The first to be recorded, it was originally performed at Lincoln Center's Serious Fun Festival. The serious part is obvious, the fun a little less so. The composer himself plays Manson, Iggy Pop plays his prosecutor, and Terre Roche plays Squeaky Fromme. We may have a trend here, since Squeaky also appears
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in Steven Sondheim's recent unsuccessful musical, *Assassins*.

The Sondheim, although considered far out by Broadway standards, is really quite straightforward and tuneful compared with The Manson Family, which is, to put it mildly, funky and scary. Moran, a protégé of Philip Glass, is a proponent of the dark side of minimalism. His mixture of repeated musical fragments, off-key pop singing, recorded and distorted sounds, imitation Beatles, and bits of incoherent speech (some of it quoted right from Manson himself) suits the surrealistic subject matter very well. The production, from the avant-garde side of pop (with Glass listed as an executive producer), uses contemporary audio technology in a highly creative way.

In short, chilling and provoking. If watching a slow-motion horror film on late-night TV orchestrated to the sound of freeway smash-ups and out-of-sync car stereos playing distorted Sixties music is your idea of serious fun, you may find this compelling. Moran is some kind of extraordinary, cock-eyed talent, and The Manson Family is a highly original, disturbing work.

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**MOZART: Concert Arias**

Gruberova; Chamber Orchestra of Europe, Harnoncourt
TELDEC 72302 (66 min)

Performance: Dazzling
Recording: Excellent

The eight arias on this CD, written between 1775 and 1788, are phenomenal showpieces that test the soprano's range and accuracy as well as dramatic expressiveness. Edita Gruberova recorded them all about a decade ago (on Deutsche Grammophon and London), and this new recording made at an unidentified concert finds her in undiminished form. Some of Gruberova's past recordings have emphasized the metallic edge of her timbre. Here the tone has warmed, her extraordinary range (up to F over high C) is intact, and the runs, wide leaps, and trills are fearlessly and accurately negotiated.

Most of the selections were inserted to tragic operas on texts by Metastasio or his imitators. *Voi ave vir cor fedele* (K. 217) provides a welcome lighter touch. *Or che il cielo a me ti rende* (K. 374), something of a mixture, is the best of the lot musically along with *Vorrei spiegarvi, oh Dio!* (K. 418). But all of the arias here are close to topflight Mozart, rendered with astonishing expertise. Under Nikolaus Harnoncourt's fastidious direction, the recitatives receive as much care as the arias themselves. Applause follows each selection, but otherwise there are no aural distractions. G.J.

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**MUSSORGSKY: Khovanshchina**

Kirov Opera and Orchestra, Gergiev
PHILIPS 432 147 (three discs, 196 min)

Performance: Dedicated, stirring
Recording: Rich, sonorous

Mussorgsky's historical epic, unfinished at the time of his death, is offered here in the rich orchestration by Shostakovich. It
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**RACHMANINOFF: Symphony No. 2**

**GRAMMOPHON 431 778 (69 min).**

Christophe Rousset plays Bach on a restored 1:01SEAU-LYRE 433 054 (68 min).

**Chromatic Fantasy and Fugue. Roussel Overture in B Minor; Four Duets; BACH: Italian Concerto; French and beautifully sung by the soprano Sylvia McNair.**

**D. P. S.**

**SIBELIUS: Symphony No. 1. Vienna Philharmonic, Bernstein. DEUTSCHE GRAMMOPHON 435 351 (41 min).**

Despite the short measure—this is the only CD of the Sibelius First Symphony without a filler—the 1990 concert performance is electrifying, even with some exaggerated emphases in the lusher lyrical episodes. A "maybe" for Sibelius purists, but a "must" for Bernstein admirers. Good sound all through.

**D. H.**

**TCHAIKOVSKY: Symphony No. 6**

(*"Pathétique"); Romeo and Juliet. Montreal Symphony, Dutoit. LONDON 430 507 (67 min).

Charles Dutoit's "Pathétique" is on the cool side. The first movement is strong, straight, sinewy; the second movement's 5/4 "limping waltz" needs more lift and grace; the frenetic third-movement march gets virtuoso treatment. But it is the steadily paced Adagio lamentoso finale that works best. Romeo and Juliet is also cool, but it finally catches fire in the reprise of the love theme. As always from Montreal, excellent sonics.

**D.H.**

**WAGNER: Tannhäuser, Overture and Venusberg Music; Parsifal, Prelude to Act I and Good Friday Music; Rienski, Overture. New York Philharmonic, Mehta. SONY SK 45749 (65 min).**

These are highly satisfying treatments of familiar orchestral excerpts (with the brief choral episode in the Venusberg Music sung by the Westminster Choir). Both Parsifal excerpts are expansively performed, perhaps too much so for the Good Friday Music. The orchestra plays well, and Zubin Mehta sensitively understates the bombast in the Rienski overture. The oft-maligned Avery Fisher Hall provides a warm and resonant ambience.

**G.J.**

**NATHALIE STUTZMANN: Ravel and Debussy Melodies. RCA VICTOR 60899 (67 min).**

The lush timbre of the young French mezzo Nathalie Stutzmann casts a warm spell over this recital. Debussy's C'est l'Extase and Green seem overdrawn, but the brooding passion of Spleen is vividly caught (all from Ariettes Oubliees). Stutzmann is in her element with his declamatory Le Balcon (one of five Baudelaire settings), but the three Chansons de Bilitis, though securely and attractively vocalized, are short on intimacy. Ravel's sons de Bilitis, though securely and attractively vocalized, are short on intimacy. Ravel's sons de Bilitis, though securely and attractively vocalized, are short on intimacy. Stutzmann is in her element with his declamatory Le Balcon (one of five Baudelaire settings), but the three Chansons de Bilitis, though securely and attractively vocalized, are short on intimacy.

**E.S.**

**PHILIPS**

**PROKOFIEV: Symphony No. 5**

**LIEUTENANT KIJE Suite Berlin Philharmonic, Ozawa. DEUTSCHE GRAMMOPHON 435 029 (62 min).**

Performance: Beautifully played Recording: Striking

Prokofiev, who went back to Russia and made his peace with Stalin, has not fared well in these post-Communist days—at least embraces some of the composer's most affecting music, but it is not an easy opera. Depicting the religious and social strife in Russia just before the ascension of Peter the Great, Mussorgsky's libretto, written by himself, presents a sprawling series of events and emotions. There is no truly unified plot, no truly central character, unless—as in Boris Godunov—it is the people of Russia. But in Boris there is the towering figure of the Tsar to hold things together, and the people have a single voice in the Simpleton. Such focal points are absent in Khovanschchina.

There are a few set pieces—Marfa's song and Shakhlovits' aria in Act III, the Persian dances in Act IV, and the colloquy between Golitsyn and Ivan Khovansky in Act II—but for the most part, the music reflects the rhythm and cadence of speech rather than offering soaring melodies or dramatic effects that are primarily musical. And yet there are passages I can only describe as glorious; happily, their number seems to increase as the opera progresses, and the concluding scenes offer greater music-dramatic cogency than earlier sections.

Among the huge cast, special mention should be made of Alexei Steblionko's Golitsyn, Olga Borodina's Marfa (her divination scene in Act I is especially memorable), and Bulat Minjelkiev's Prince Ivan Khovansky. The Kirov Opera Chorus sings with uncommon fervor, and the orchestra plays expressively. Molding his immense forces into an effective ensemble, Valery Gergiev proves an exacting and sensitive conductor.

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with certain commentators, who seem to regard the composer as having been fatally tainted by collaborationism. Does the charge stick? There is, first of all, still a public for his music, especially for the hardy perennials like these. And in both of the cases at hand, Prokofieff seems to have succeeded in writing a work of popular appeal, without losing his musical integrity or, for that matter, his critical faculties. Kijé is music for a satire on bureaucracy. Even that old wartime rouser, the Fifth Symphony, is full of ironic twists and turns.

Having been brought up on Leonard Bernstein's teeth-rattling Mahleresque version of the symphony, I find Seiji Ozawa's a little tame. But by any normal standard the music is a work of popular appeal without losing his Strauss tradition, shaped by Artur Rodziński and George Szell. Dohnányi's cool, somewhat "distanced" readings are not without their strong points (clarity, precision), but they so lack the direct, communicative emotion in these scores that one imagines he must have put some effort into expunging those qualities—and, with them, a good deal of the Philharmoniker's rich, embracing string sound. Herbert Blomstedt takes a similar approach to two of the works here in his Denon recording without dulling the music's emotional impact. But most listeners will prefer straightforward, unsuppressed (not exaggerated) passion in these works—for example, the way the Vienna Philharmonic plays them (some on Telarc, some on Philips) under Andre Previn, who has become one of today's most persuasive Strauss conductors.

R. STRAUSS: Don Juan; Metamorphosen; Death and Transfiguration
Vienna Philharmonic, Dohnányi
LONDON 430 508 (68 min)
Performance: Reserved
Recording: Muscular

The Vienna Philharmonic's special identity with the music of Richard Strauss is as much a matter of its own character as its close association with Strauss himself. Christoph von Dohnányi has forged close links with the orchestra, but I can't help feeling that his approach to Strauss would have been more happily realized with his own orchestra in Cleveland—which, of course, also has a proud Strauss tradition, shaped by Artur Rodziński and George Szell. Dohnányi's cool, somewhat "distanced" readings are not without their strong points (clarity, precision), but they so lack the direct, communicative emotion in these scores that one imagines he must have put some effort into expunging those qualities—and, with them, a good deal of the Philharmoniker's rich, embracing string sound. Herbert Blomstedt takes a similar approach to two of the works here in his Denon recording without dulling the music's emotional impact. But most listeners will prefer straightforward, unsuppressed (not exaggerated) passion in these works—for example, the way the Vienna Philharmonic plays them (some on Telarc, some on Philips) under Andre Previn, who has become one of today's most persuasive Strauss conductors.

Christoph von Dohnányi: cool Strauss

Although it's hard to imagine fresh, unjudged performances of these warhorse concer

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 trance that's both stylish and commanding, and his interpretations have a largeness and spontaneity to them. Few other pianists use rubato so unselfconsciously and with such heartwarming musical results.

But the most gratifying aspect of this disc is the close collaboration between pianist and conductor. You don't realize how much that is missing both on records and in the concert hall until you hear a meeting of musical minds like this one. It makes the Liszt seem less sprawling and the Grieg, which can seem a succession of miniature pieces, a more integrated whole. Though Rodriguez's previous recordings in Sofia haven't always been well recorded, this one could teach a lesson to engineers from much larger labels.
Simon Rattle

Simon Rattle is reliving the twentieth century, ten years at a time. The gifted thirty-seven-year-old British conductor, who has built the City of Birmingham Symphony Orchestra into a world-class ensemble, is burnishing his reputation for inventive programming with a series of concerts entitled “Towards the Millennium.”

Each year he sets aside six weeks of his Birmingham season for concerts devoted to one decade of the past century. In April he brought a sampling of his series to the U.S. when the Birmingham orchestra—consisting of players whose average age is even younger than his own—gave three concerts each in Boston’s Symphony Hall and New York’s Carnegie Hall of music written in the years 1911 to 1913. Composers represented included Nielsen, Ravel, Schoenberg, Prokofiev, Debussy, Elgar, and Stravinsky—a surprising variety of nationalities and styles.

“This has been an eventful, bizarre, and chaotic century for music,” Rattle said in an interview during his visit to New York, “and what we are doing reflects this. Our decade-by-decade approach throws up some odd combinations, but the works we are playing really are the foundation pieces of the century. The nineteenth century began to hold retrospectives of itself as far back as the London Exhibition of 1851, and it kept right on doing so. It was at the Paris Exposition of 1889 that Debussy and Ravel first heard gamelan music.

“So it occurred to me that we might begin celebrating our own century with the same kind of love and care, and we decided to do it bit by bit. We started last year with 1900-1910, and now we’re doing 1910-1920. By the year 2000 everybody will be looking back with a rosy glow. Perhaps in 2001 our project can be new commissions!”

Rattle, who launched his brilliant career by winning the John Player International Conducting Competition in 1974 when he was nineteen, is by no means limiting his innovations to his Millennium series. Indeed, he remains fixated on the relatively narrow but productive path he has followed so successfully, centering his activities in Birmingham, where, as a kind of local idol, he can play what he wants. He limits his guest conducting mainly to the Glyndebourne Opera, the Berlin Philharmonic, and the Los Angeles Philharmonic. A devoted family man—he and his wife, the American soprano Elise Ross, are the parents of two boys aged eight and two—he avoids leaving home for more than two months at a stretch and as a result has managed to keep his small family intact. He has no plan or desire to move. But whatever happens, I really want any of them.” I have no plan or desire to move. But whatever happens, I certainly intend to continue my relationship with Birmingham.

“In Birmingham,” he said, “I have a group of very enthusiastic young musicians who want to explore and play music in a different way. Bernard Haitink once told me: ‘Only four or five orchestras in the world are better than yours, and you don’t really want any of them.’ I have no plan or desire to move. But whatever happens, I certainly intend to continue my relationship with Birmingham.”

Rattle maintains an active recording schedule for EMI. Slated for release soon is Mahler’s Symphony No. 7 and Walton’s Symphony No. 1, and for next year Henze’s Seventh and Elgar’s Falstaff. Already out is Janáček’s opera The Cunning Little Vixen (sung in English), Ravel’s Daphnis et Chloé coupléd with the inescapable Boléro, and Mahler’s Tenth.

He would like to see his Millennium series better represented on records, with perhaps one CD devoted to each decade. “But record companies move slowly,” he said. “EMI has helped us enormously by producing a tape cassette for study in schools, with excerpts on one side from Charles Ives to Jelly Roll Morton and the complete Rite of Spring on the other. But it’s not for sale.”

Rattle says he tries not to build his concert programs around his recording schedule, lest “the tail wag the dog.” In operatic recording he decries what he calls the “rent-a-cast!” procedure of some record producers: “You know, they engage the obvious people, fly them in and out, often without having worked together before. When we recorded Porgy and Bess, the singers and I had worked together for two and a half years, and 1 believe you can hear that. In general, I like to work with older singers—they bring so much more to their parts. I’ve had violent differences with producers about casting; I’m interested more in character and understanding than in pure beauty of sound. So I don’t know where I’ll go with operatic recordings.

One operatic enterprise, as yet unscheduled for recording, is Debussy’s Pelléas et Mélisande staged by Peter Sellars, which Rattle will be conducting next year both with the Rotterdam Philharmonic and the Los Angeles Philharmonic. His own favorite Pelléas recording, Rattle says, is the half-century-old version conducted by the late Roger Désormière.

Rattle is becoming interested in the period-instrument movement. “I’m dipping my toe into the waters,” he said. “I’ve been doing some work with the Age of Enlightenment Orchestra, which was formed by some of the leading players of other period-instrument ensembles. Many conductors are also working in the area. If you want to hear really good Haydn, listen to Frans Brüggen. If you want to hear great Beethoven, listen to Nikolaus Harnoncourt. I see a synthesis developing between period instruments and modern instruments, with many conductors doing both.”

Certainly there is every reason to expect Simon Rattle to be increasingly involved in this aspect of orchestral music, as he is in so many others. “Conductors are supposed to get better when they grow older,” he said with a smile. “I’ve got time.”
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The irony of Joe Grado's existence is that his technical accomplishments are overshadowed by the man himself. As many audiophiles know, he is an operatic tenor. The presumption instantly arises that he is a pretentious amateur, but the fact is that he is a major talent. Should you ever have occasion to talk with him (he's still the one who picks up the phone), you might consider that every syllable he utters could be worth many dollars were he dispositionally inclined to ward a performing career (it's actually the rehearsals he likes, not the schedules of the stage business). He has also made violins, and he is starting in on elaborate piano modifications for which he evidently has industry backing.

According to his needs, he designs microphones and amplifiers and produces recordings, some of which turn up commercially in various forms. Considering the foundation of his business, you'd expect him to favor analog recording and reproduction, but he's aggressively pro-digital and has been for years, rebuilding VCR's and digital encoders to meet his standards. And these are merely his activities, past and present, that relate to audio and musicmaking.

The Grado legend, as fostered by the faithful, insists that the hand of the master has been laid upon every phono cartridge that leaves his shop. This is not strictly true. After assembling several dozen preliminary samples to refine production procedures, Grado does make the first 1,000 production units of any new model, even the least expensive. After that, assuming all has gone well, he considers the design sufficiently bullet-proof to be handled by the Brooklyn facility.

Grado readily admits—and even glories in—manipulating the cartridge market now and again. Several decades ago, when a major turntable manufacturer (Dual) teamed with a major cartridge manufacturer (Shure) to provide a virtually free cartridge with every turntable, Grado, who had a turntable in his line at the time, felt his back against the wall. So he threatened, and delivered, a premium-quality cartridge for under $10, thereby winning back much of his market share. Somewhat later, he led other cartridge makers, largely Japanese, on a merry chase to stratospheric price levels, and once he got them there announced that he was going to aggressively defend his basic patents on moving-coil cartridge design. The licensing fees most of them agreed to pay amounted to a handsome income in themselves.

The most noteworthy new products in Grado's Signature line are an all-out headphone that has received the endorsement of many music, recording, and audio people, a small amplifier to drive it, and a forthcoming speaker system. The speakers, 7-foot towers with outboard bass modules, have forty 1⅛-inch drivers in a vertical line array. (These drivers happen to be the same ones used in the headset.) Grado vows that when the design is complete, you will be able—with his microphones, presumably—to record the speakers' acoustical output and get a tape that is indistinguishable from the original source material. I have heard this attempted many times but never with any great success, so I look forward to challenging Grado's claim. There's no telling when I'll get the chance, though. Grado is not interested in putting himself on any timetable for product introductions.

As he says, "I already have enough money and enough notoriety, as well as enough things to do. I'm not interested in being a pioneer anymore. I am willing to teach, however. Just come to me and I'll tell you what I know, and even what I think I know, gladly. This torch has burned pretty brightly. I'd rather pass it on than see it go out."
WHAT MAKES A MOMENT

A MEMORY

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