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BULLETIN by William Livingstone

and Bob Ankosko

Contest Winners

The winners in the Bad Song Survey conducted by the humorist Dave Barry have been chosen. No. 1 as Worst **Overall Song and Worst** Lyrics is MacArthur Park as sung by Richard Harris (and later by Donna Summer). The runner-up in both categories was Yummy Yummy Yummy (I've Got Love in My Tummy) by Ohio Express (and later by Julie London). Third place went to (You're) Having My Baby by Paul Anka, a deeply hated recording. Great hostility was registered for Achy Breaky Heart by Billy Ray Cyrus, and a Lifetime **Bad Achievement Award** went to Mac Davis (for Baby Don't Get Hooked on Me and other lousy lyrics). Honorable Mention was voted to Bobby Goldsboro by those who hate his Honey.

Feelings (as waxed by various weenies) did not win, place, or show, but Barry was pleased to learn that others besides himself cannot stand Stairway to Heaven. Our hat is off to Mr. Barry for his public service.

At press time judges in the World's Worst Guitar Player Contest conducted by House of Guitars in Rochester, New York, were still listening to the more than 5,000 tapes submitted from around the world, and more were still coming in. Watch this space.

Similarly, Anthem! America, of Raleigh, North Carolina, has postponed announcing the winner in its search for a new U.S. national anthem until the Fourth of July, when we can all rally round the flag. We'll keep you posted.

Speakers with Clout

Roy Allison, noted speaker designer and founder of Allison Acoustics, and Edgar Villchur, inventor of the acoustic-suspension speaker and a founding father of Acoustic Research, have put their talents behind a new speaker venture, Room Designed Loudspeakers, or **RDL** Acoustics. The company's initial offerings include four speakers designed to compensate for the acoustical effects of specific room locations-next to a wall, on a shelf surrounded by books, etc.

No Sticky Floors Home-theater systems deliver a big bang for the buck, according to the findings of a national leisure-time sur

according to the findings of a national leisure-time survey sponsored by the Consumer Electronics Group of the Electronic Industries Association. Nearly 90 percent of hometheater owners say their systems represent an "excellent" or "good" value. (Home theater was defined as a system having a big-screen TV, a hi-fi VCR or laserdisc player, surroundsound processing, and four or more speakers.) Two-thirds of those surveyed said they spent \$3,000 or less on their systems. We suspect that the absence of the sticky floors and overpriced candy common in movie theaters figured prominently in their enthusiasm for home theater.

Beam Me Down, Scotty

The nation's first high-power direct broadcast satellite (DBS) system is scheduled to go on-line next spring, according to DirecTV, a division of Hughes Communications and the major force behind the new service. The system is slated to offer some 150 channels of digital audio/video programming, including pay-per-view movies, professional and collegiate sports, special-interest programs, and a number of CDquality audio services.

Anyone with a TV set will be able to receive DBS broadcasts—all you have to do is pay a subscription fee and purchase a hardware package consisting of an 18-inch satellite dish and a TV-top decoder box. RCA has announced that it will offer a package that includes a universal remote control for about \$700.

There are two floor-standing models (\$650 a pair) and two bookshelf models (\$450 a pair), each of which uses an 8-inch woofer and an Allisondesigned convex tweeter. RDL speakers are available by mail-order only and carry a thirty-day money-back guarantee as well as a full five-year warranty. RDL is located at 26 Pearl St., #15, Bellingham, MA 02019.

Off the Beaten Path

Sanyo's new SPT-1500 Sportable personal AM/FM cassette player (\$70) features a built-in pedometer for calculating distance, a stopwatch, and a calorie counter so you can watch those calories disappear. ... Mass Engineering of Orlando, Florida is offering an electrostatic speaker system for the car. It includes a 1,200-volt power supply and four 3½ x 5-inch panels; price is \$799.

Halls of Fame

Artists inducted into the Rock-and-Roll Hall of Fame this year are Ruth Brown, Cream, Creedence Clearwater Revival, the Doors, Etta James, Frankie Lymon and the Teen-Agers, Van Morrison, Sly and the Family Stone, and Dinah Washington.

This year the National

Academy of Recording Arts and Sciences accepted two classical recordings into its Hall of Fame: Stravinsky's *Rite of Spring with the* Boston Symphony conducted by Pierre Monteux (1951) and Verdi's "Celeste Aida" sung by Enrico Caruso (1908). Both are RCA recordings.

Musical Television

Major musical programs on PBS this month include The Beatles Songbook, May 5, in which songs made famous by the Beatles will be reinterpreted by headliners of today including Los Lobos, Dr. John, Buddy Guy, and Kathy Mattea. . . . On May 26, The Real McTeague, a documentary, will give background to a new opera by William Bolcom. . . . It will be followed by a performance of Stravinsky's Oedipus Rex starring the dynamic American diva Jessye Norman, Ms. Norman, who just received Japan's Grand Prix International Music Award for the best performance by a classical artist in 1992, was included on this year's list of the world's ten best-dressed women. Like Ms. Norman's weight, her dress size has never been made public, but Norman-watchers report that it has decreased greatly in the last two years.

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Cover

There's more than one way to control a trunkmounted CD changer like the Alpine Model 5957S: Alpine's options include its Model 7807 CD receiver (middle) and its Model 1203 controller (top) with wireless remote (on changer magazine). See page 54 for more car CD options.

Photograph by Jook P. Leung

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MUSIC



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Best Recordings

of the Month ... Robyn Hitchcock, the Brahms Piano Concerto No. 1. Scott Hamilton, and Bartók's The Wooden Prince and Cantata Profana

Stereo Review.

Vice President Editor In Chief LOUISE BOUNDAS

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Editor at Large

WILLIAM LIVINGSTONE

Contributors: Robert Ackart, Chris Albertson, Rebecca Day, Richard Freed, José Garcia (Buyers' Guides), Phyl Garland, Ron Givens, David Hall, Bryan Harrell (Tokyo), Roy Hemming, Ralph Hodges, George Jellinek, Stoddard Lincoln, Ian Masters, Alanna Nash, Henry Pleasants (London), Ken Pohlmann, Parke Puterbaugh, David Ranada, Charles Rodrigues, Eric Salzman, Craig Stark, David Patrick Stearns

> Vice President, Group Publisher THOMAS Ph. WITSCHI

Consumer Electronics Group Advertising VP/Associate Publisher Tony Catalano

VP/Regional Advertising Director, East Coast: Charles L. P. Watson, (212) 767-6038 Regional Account Manager, East Coast: Christine B. Forhez, (212) 767-6025 VP/Regional Advertising Director, Midwest:

Scott Constantine, (212) 767-6346 VP&Regional Advertising Director, West Coast:

Robert Meth, (213) 954-4831 Western Advertsing Manager: Paula Mayeri, (213) 954-4830 Sales Assistant: Nikki Parker

National Record Label Sales Representatives: The Mitchell Advertising Group (MAG Inc.) Mitch Herskowitz, (212) 490-1715 Steve Gross, (212) 490-1895

Assistant to the Publisher: Aline J. Pulley **Operations Manager:** Sylvia Correa Advertising Coordinator: Linda Neuweller Sales Assistant: Yvonne Telesford Classified Advertising: (800) 445-6066

Production Manager: Vicki L. Feinmel Production Director: Patti Burns Business Manager: Christine Maillet General Manager: Greg Roperti



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LETTERS

Ready for DCC

think the DCC players sound great! I don't have one yet but plan to buy one. When are the portables coming out and what will the prices be like? MICHAEL WICKENSIMER So. Plainfield, NJ

The first DCC portables are expected this fall from Philips and Technics. The list prices for both models will be \$549.

MiniDisc Insight

Congratulations to David Ranada for his excellent "Inside MiniDisc" article in March. His writing is clear and easy to understand. Best of all, he was not afraid to talk about the techniques Sony used to make Mini-Disc. As a chemistry and geology student, I wish my textbooks were half as well written as Mr. Ranada's article. ANDY CHANG Ithaca. NY

Who Needs Surround?

hy in the world would anyone get something called surround sound? The signal that comes out of the rear speakers is in mono. Doesn't that defeat the whole purpose of listening to a stereo system? You're better off getting one of those old time-delay devicesat least you'll get a stereo signal out of the rear speakers. **RICHARD PUCZKO** Tucson, AZ

Recordings encoded in Dolby Surround have four channels: left, center, and right in the front and surround to the sides or rear, usually reproduced by two speakers. That the surround channel is mono does not impair the basic stereo effect in the front, which establishes lateral placement of sound sources. The surround channel is used for ambient effects and will sound pleasantly diffuse if the speakers reproducing it are set up carefully. Some surround processors-notably the Home THX variety-process the signals going to the surround speakers to make them slightly different and thereby increase the sense of spaciousness.

Many surround processors provide modes designed specifically for ambience enhancement of two-channel stereo music recordings, and these modes often generate stereo surround signals. Digital signal processors can do this much better than the old delay lines did.

Surround Bass

e want to comment on the conclusions regarding surround-channel bass in Peter Mitchell's February article on upgrading to home theater. In "Stage 5: Getting Down," he says that there may be genuine sonic benefits to full-size woofers in surround speakers. We agree that the low-frequency signals he describes do sometimes find their way into the surround channel, and we would not say there is any reason to prevent reproducing them, but it must be realized that these bass signals are always related to front-channel signals and are therefore redundant. As long as at least the front speakers (or a subwoofer) reproduce the bass, it will not be missed if the surround speakers only go down to, say, 100 Hz. Luckily, people cannot easily determine a source's direction at lower frequencies. so the overall system sounds capable of good bass even when it is contributed only from the front.

This same "error" of ignoring the surroundchannel bass occurs in movie theaters and in dubbing stages where movies are mixed, so the result at home is not far off the original even when small surround speakers are used. Therefore, we feel that excellent home theater results are available without reproducing the redundant surround-channel bass signals, thus making it unnecessary to use large speakers for the surround channel. ROGER DRESSLER **Technical Director**

Dolby Laboratories Licensing Corp. San Francisco, CA

Do-It-Yourself Surround

he diagram of "a crude ambience-extraction system" on page 46 in February is erroneous. You ran the same illustration with Peter Mitchell's previous article on surround sound in April 1992, but this time he describes in detail just how to hook it up wrong. The surround speakers should be connected in series, with the + terminal of one connected to the - terminal of the other, the remaining + terminal going to a + output of the stereo amplifier, and the remaining - speaker terminal going to the other + amplifier output.

Connected as Mr. Mitchell recommends, the rear speakers are out of phase with each other, canceling low-to-middle frequencies. If the speakers are closely spaced, the sound will be thin, with increased apparent distortion due to loss of fundamentals. Except for that, the circuit works beautifully, especially for music. Unfortunately, most television labeled "In Stereo" is essentially mono, possibly because it is basically talk. DON L. BONHAM Tarzana, CA

Peter Mitchell replies: The wiring scheme shown does put the surround speakers out of phase with each other, causing partial cancellation of their bass output. Usually this is unimportant: In many recordings the L - R signal is bass-shy anyway, so low frequencies come mainly from your front speakers. If you want to experiment, you could put the surround speakers in phase by swapping the connections at the left rear speaker, but then you may perceive the ambience as a monophonic wodge of sound in the middle of the back wall. With the normal out-of-phase connection the reproduced ambience is diffuse and spacious.

have been contemplating connecting four speakers to my system for surround sound as shown on page 46 in the February issue. I have been told, though, that doing this would change the speaker-load impedance and could damage the amplifier. Is this correct? And if connection is possible without damage, should the surround speakers have the same rated impedance as the main ones? ED NICHOLS Franklin, KY

Additional speakers wired in parallel as in the published diagram will reduce the total impedance "seen" by the amplifier (8 ohms in parallel with 8 ohms is 4 ohms, for example). That could be a problem with some amplifiers if the impedance got extremely low (2 ohms or less), but it should not happen in most cases. Amplifier manufacturers sometimes warn against connections that create a common ground between the two channels, and you should check the manual before using the circuit, but that isn't a problem with most current models, nor with receivers. Surround speakers do not have to have the same impedance as the main speakers.

Test Candidates

A re the very few audio components that you review in a year supposed to be representative of their classes of equipment, or are they the best on the market? KEITH FRICK Santa Barbara, CA

We test a representative selection of good equipment from a variety of manufacturers, with an emphasis on products we think most of our readers would consider interesting and affordable. Selecting only the best for review would require us to test almost everything, which is impossible.

Fixes

Daniel Kumin's "Troubleshooting" in December reminded me of how I fixed my Pioneer receiver several years ago. The left channel sounded great, but the right was anemic. I spritzed the volume and balance controls to no avail, and of course I checked the cables. Finally, on a hunch, I removed the speaker fuses mounted on the back panel, polished the ends on my shirt sleeve, and reinserted them—terrific volume from both speakers again. Since the receiver is over twenty years old, this maintenance shouldn't be needed again for another twenty years.

> CHARLES R. SCHAECHTER Moline, IL

Finally upset enough over the baffleboard and edge reflections/diffraction from my otherwise wonderful fifteen-year-old AR-11 speakers to do something about it, I recently cured the problem. Perhaps others with these speakers (or the similar $AR-10\pi$'s) will be interested in how it was done.

I bought a yard of 72-inch-wide black felt and cut it into fourteen rectangular pieces that would just fit the upper half of the baffleboards. I made a paper template for the tweeter, midrange driver, and upper part of the woofer and cut each piece accordingly. I then lightly glued the pieces into two seven-layer stacks and stitched them together around the edges. I also stitched strips of the "velvet" part of Velcro fasteners to their backs and attached Velcro "hook" patches to the baffleboards. These homemade "Acoustic Blankets" seem to have eliminated all audible edge effects. The entire "fix" cost under \$20! WILLIAM C. LLOYD Madison, WI

Who's to Blame?

Regarding Parke Puterbaugh's review of Roger Waters's "Amused to Death" last November: No, you don't "got to agree" with that eminent political strategist Waters that "the militaristic mentality of the West is largely to blame" for the messed-up world. Such blame more properly falls on ... oh, how about genocidal maniacs like Pol Pot, Saddam Hussein, Stalin, Mao; anyone who imposes more government as a way to improve anything; and driveling dopes like Waters. GREGORY LEHMAN

Port Reading, NJ

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TIME DELAY



35 years ago

In his "Sounding Board" column in the May 1958 issue, Managing Editor David Hall announced that next month the magazine would review its first stereo discs but wondered whether developments in stereo technology would lead to "a magnificent new listening medium for the home—or a fiasco like color TV."

New products this month included an early receiver, Knight's 15-watt KN-315 tuner/preamp/amp combo, a Stereocorder tape deck from Superscope (\$549, without speakers), and Metzner's 60A Starlight turntable, advertised elsewhere in the issue with the



poignant question. "Why buy a changer when there's a Starlight costing less?" Equipment tested included Sherwood's S-1000 11 36-watt amplifier, which was praised for its lack of "wasteful, useless gadgetry."

Sessions Man: Reviewing Mercury's open-reel tape version of Roger Sessions's *Black Maskers Suite* conducted by Howard Hanson, Contributing Editor Bert Whyte declared it perhaps "the best stereo recording yet released run, do not walk to your nearest dealer to get a copy." [The Mercury Living Presence LP version also included works by Virgil Thompson and Colin McPhee; it was remastered from the original tapes and reissued on CD last year.]



20 years ago

Attention, Mario Brothers: An ad for Fisher's Model 504 fourchannel receiver featured a full-page close-up of its master balance control, which is eerily suggestive of the sort of joystick common years later for video games.

In the Best of the Month section, Igor Kipnis went multicultural with a rave review of Las Cantigas de Santa Maria, a Vanguard recording of a work by the thirteenth-century Spanish king Alfonso X, and Noel Coppage took a liking to the Bee Gees "Life in a Tin Can," which he found to be "intelligently crafted and not mired in Hipness." Elsewhere in the review section. Coppage succinctly dissed a Harry Chapin album ("Oh, shut up!"), Chris Albertson dismissed Sonny Rollins's unimaginatively titled "Next Album" as "routine," Eric Salzman hailed Daniel Chorzempa's Liszt organ recital on Philips as



The Bee Gees in 1973: not mired in Hipness?

"Wonderful claptrap on the Flentrop," and Peter Reilly, reviewing "Killer Joe" by Little Jimmy Osmond, youngest of the singing clan, declared, "I developed an irresistible, W. C. Fieldsian impulse to strangle him on the spot."

Errata: In the April Letters column, irate reader Doug Scharf of Des Plaines, Illinois, claimed to have spotted a "blatant" mistake in a March article. "I refer," Scharf wrote, "to Noel Coppage's 'The Troubadour as Middle Class Hero,' in which Noel discussed the musical attributes of Neils Young and Diamond and was *dead serious*!"



10 years ago

Dewey Beats Truman: William Livingstone's May editorial predicted that CD players would coexist with conventional turntables "for probably another decade."

What's a turntable? In "Choosing a Turntable," author Alan Lofft suggested that every home should have two—"a modest automatic model for family and friends, and an uncompromising manual with separate tonearms for purists."



Unminced words: Reviewing the NAD Model 7150 AM/FM receiver, an ebullient Julian Hirsch declared, categorically, that "it is difficult to imagine a combination of separate tuner and amplifier units that could match this receiver's functional and listening qualities—let alone surpass them."

Next! In "Tape Talk," a reader asked Contributing Editor Craig Stark, "Does it hurt to leave my cassettes in the car during really cold weather? If I play them cold they seem to drag severely." Stark's reply: "I think you've answered your own question." —Steve Simels The gentle scrape of fingers fretting a

guitar. The rush of a singer drawing a



breath. The rustle of pages of music being turned.

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GCD-600 CD Carousel



t has been, perhaps, Adcom's toughest act to follow. The GCD-575 CD Player achieved breakthroughs in musicality unsurpassed by CD players at almost any price. *Stereophile* writes, "...in the under \$1000 class the Adcom is the player to beat — or, more to the point, the player to buy."* *Stereo Review* credits the GCD-575 with "in general pushing the state of the art in digital-disc playback."**

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

Round and round she goes.

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

Class "A" without compromise.

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

The cure for "digititis".

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

Take the GCD-600 for a spin.

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

*Peter W. Mitchell, Stereophile, Vol. 12 No. 6, June 1989 ** Stereo Review, 1989



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NEW PRODUCTS



A SANYO

Sanyo's MDX-P1 is the smallest and lightest portable MiniDisc player yet, measuring 3.4 x 1.4 x 5.2 inches and weighing 0.8 pound. Highlights include a 10second "shock-resistant" buffer memory and thirty-two-track programming. Track-to-track access time is said to be less than a second. The MDX-P1 comes with a rechargeable Ni-Cd battery pack, an AC adaptor, and a carrying case. Price: \$600. Sanyo, Dept. SR, 21350 Lassen St., Chatsworth, CA 91311-2329. • Circle 120 on reader service card



🔺 УАМАНА

The DSP-A2070 is an advanced version of Yamaha's popular DSP-A1000 surround processor/ amplifier; it offers greater control over sound-field characteristics and is said to produce a more refined sense of space in its surround modes. There are twelve music and eleven video surround modes, including DSPenhanced Dolby Pro Logic. Power

output is 80 watts for each of the front left, center, and right channels and 25 watts for each of four effects channels. Inputs for five audio and six video sources are on hand as well as line-level subwoofer outputs. Price: \$1,999. Yamaha, Dept. SR, 6660 Orangethorpe Ave., Buena Park, CA 90620.

Circle 122 on reader service card

L.A. CONCEPTS 🕨

The Model 2302-2 CD Torchiere from L.A. Concepts is a steel CDstorage rack that doubles as a stylish floor lamp. The 71-inchtall rack holds sixty discs and features a 300-watt halogen lamp with a dimmer control and a patented FlatPlug that protrudes only ¼ inch when plugged into a standard electrical outlet. Price: \$129. L.A. Concepts, Dept. SR, 19500 So. Vermont Ave., Torrance, CA 90502. • Circle 121 on reader service card



🔻 RCA

The RCA WHP101 cordless headphones operate in the 900-MHz band, which offers improved performance over other radio bands. Operating range is specified as 100 feet from the transmitter/stand, which plugs into the source component using a supplied audio cable. A battery charger is built into the stand; a single charge is good for six hours. Price: \$149. Thomson Consumer Electronics, Dept. SR, 2000 Clements Bridge Rd., Deptford, NJ 08096.

Circle 123 on reader service card



NEW PRODUCTS

KENWOOD

Kenwood's LVD-320 combi-player accepts standard CD's as well as 8- and 12-inch laserdiscs. Highlights include a Midnight Theater audio-compression mode that boosts quiet dialogue passages and softens loud sounds, picture scan, a digital time-base corrector for enhanced picture quality, S-video and fiberoptic digital-audio outputs, and twenty-track CD programming. Price: S599. Kenwood, Dept. SR, 2201 E. Dominguez St., Long Beach, CA 90801-5745.

Circle 124 on reader service card



SONANCE

Designed to be flush-mounted in a wall, Sonance's PSW1 subwoofer has a dual-voice-coil 8-inch woofer and a 150-Hz passive crossover. Retrofit and new-construction mounting brackets are available, as well as a cloth or paintable metal grille. Price: \$349. Sonance, Dept. SR, 961 Calle Negocio, San Clemente, CA 92673. • Circle 126 on reader service card



VSONY

Editing is a strong suit of Sony's MDS-101 bookshelf-size MiniDisc recorder. In addition to being able to erase, combine, and reorder tracks, you can insert cueing points for up to 255 musical segments. The remote control has keys for entering disc/ track information, which is displayed on the deck's LCD panel; up to 1,700 characters per disc can be stored. Price: \$1,000. Sony, Dept. SR, 1 Sony Dr., Park Ridge NJ 07656.





🔺 KLH

KLH says that its Performance Series speakers are designed for loud rock music. The 33-inch-tall SX-9 (front left, S350) and the 30inch-tall SX-8 (rear, \$275) are three-way systems with 15- and 12-inch woofers, respectively; the 16½-inch-tall SX-7 (front right, S325 a pair) is a two-way bookshelf design with an 8-inch woofer. KLH, Dept. SR, 11131 Dora St., Sun Valley, CA 91352. • Circle 125 on reader service card





🔺 CFI

The AV 4319 A/V component rack from CFI is 43 inches high and features six 19-inch-wide smoked-glass shelves. It's made of 20-gauge steel and has black Plexiglas side panels. Price: \$499. CFI, Dept. SR, 31 Pulpit Rock Rd., Pelham, NH 03076. • Circle 127 on reader service card



Madonna-Erotica. Title Cut ntus Deeper And Deeper: and more. (Maverick/Sire) 453-555

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NEW PRODUCTS



PIONEER

The LC-V200 Autochanger from Pioneer Laser Entertainment holds up to fifty discs—CD's or 8and 12-inch laserdiscs. The changer is available separately for \$4,600 or as part of an \$8,000 karaoke package that includes a controller with an RS-422A computer interface, a 240-watt amplifier, and a rack for the controller and amp. Pioneer Laser Entertainment, Dept. SR, 2265 E. 220th St., Long Beach, CA 90810.

Circle 128 on reader service card

TECHNICS

The Technics RS-TR979 is two recording cassette decks in one. Both decks feature the company's new AR1 transport, which is said to rewind a C-60 tape in 45 seconds, Dolby B and C noise reduction, Dolby HX Pro, a bias adjustor, and an automatic tape calibration (ATC) mode that sets recording level, bias, and EQ for a given tape. Price: \$420. Technics, Dept. SR, 1 Panasonic Way, Secaucus, NJ 07094. • Circle 129 on reader service card





FORTÉ

Designed with home theater in mind, Forté's FT-1 power amp is rated to deliver 125 watts into each of three front channels and 55 watts into each of two rear channels. The FT-1 features automatic-turn-on circuitry and a separate gain control for each channel. Price: \$1,590. Forté, Dept. SR, 7325 Roseville Rd., Sacramento, CA 95842.

• Circle 130 on reader service card



MONITOR

Monitor Audio's Studio 6 combines a $6\frac{1}{2}$ -Inch ceramic-onmetal woofer and a 1-inch goldon-aluminum dome tweeter in a $8\frac{1}{2} \times 13\frac{3}{4} \times 10$ -inch cabinet with dual ports. Each speaker pair is said to be matched to a 0.25percent tolerance. Frequency response is rated as 40 to 30,000 Hz ± 3 dB. Prices: \$2,499 a pair in rosewood or black ash veneer; \$3,199 a pair in piano lacquer. Monitor Audio/Kevro, Dept. SR, P.O. Box 1355 Buffalo, NY 14205.

A NORDOST

The Teflon-encapsulated-copper construction of Nordost's Flatline speaker cable is said to make it ideal for use outdoors or in the car. The 12-gauge-equivalent wire Is thinner than a dime. Price: \$2.99 per foot. Nordost, Dept. SR, 420 Franklin St., Framingham, MA 01701. • Circle 132 on reader service card

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*Price does not include cost of audio and video equipment. Country French pricing same as American Impressions. Georgian Court prices slightly higher on selected items. Introductory prices featured in this ad are manufacturer's suggested prices effective through June 27, 1993 and are optional with retailer. Consult your local retailer for their prices. ©1993 Ethan Allen Inc.



THE ULTIMATE HOME THEATRE EXPERIENCE

<u>NEW PRODUCTS</u>

🔻 B&W

B&W's THX-certified hometheater package has seven pieces: 23½-inch-tall front left, center, and right speakers, each with two 6-inch woofers and three 1-inch tweeters; two passive bass modules, each of which measures 22½ inches wide at the base, 23 inches high, and 23¼ inches deep and houses a 12-inch subwoofer; and two triangular surround speakers, each of which is 14 inches tall and houses pairs of 6-inch woofers and 1-inch tweeters. Price: around \$6,000. B&W of America, Dept. SR, P.O. Box 653, Buffalo, NY 14240. • Circle 133 on reader service card



🔻 NIKKODO

Nikkodo's Karaoke Ninja KN-X1 is an outboard device that adds sing-along capability to any CD player, VCR, or CD-based videogame system. The compact 7 x 1 x 4-inch component features two microphone inputs, an adjustable digital echo processor, a three-band equalizer, and an eleven-step digital key controller for matching the musical pitch of a song to the singer's vocal range. Price: S199. Nikkodo USA, Dept. SR, 4600 No. Santa Anita Ave., El Monte, CA 91731. • Circle 136 on reader service card





AUDIO CONCEPTS

ACI's Encore II is a dipolar speaker designed for side-wall mounting in surround systems. Each of its side-firing panels has a 5-inch woofer and a ¾-inch tweeter. Dimensions are 10¾ x 8¼ x 7 inches. Available by mail order in oak or cherry for \$399 a pair (plus \$24 shipping and handling). ACI, Dept. SR, 901 So. 4th St., La Crosse, WI 54601.



🔺 TOSHIBA

Toshiba's TX923 car CD receiver features eight-times oversampling, random and repeat CD playback, controls for a six- or ten-disc Toshiba CD changer, an AM/FM tuner with thirty station presets, and a detachable faceplate for security. Rated power output is 25 watts each into one pair of channels, 7 watts each into a second pair. Price: \$549. Toshiba, Dept. SR, 82 Totowa Rd., Wayne NJ 07470. • Circle 135 on reader service card



A ONKYO

Onkyo's TX-SV515PRO A/V receiver features Dolby Pro Logic and Hall surround modes, an AM/ FM tuner with forty presets, and three video inputs. Power output is 55 watts into each of three front channels plus 20 watts each into two rear channels (surround), or 80 watts each into two channels. In a nonsurround setup, the rear amps can be used to drive a pair of remote speakers. Price: \$500. Onkyo, Dept. SR, 200 Williams Dr., Ramsey, NJ 07446.

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TUDI CLEA



The Art of Entertainment



BY ROBERT RIPPS, MARYANN SALTSER, AND STEVE SIMELS

Canadian national weekly magazine recently selected Ofra Harnoy as one of Canada's twelve most distinguished citizens. Not bad for a classical musician, much less a cellist, not to mention an Israeli-born woman, Harnoy, an RCA Victor/BMG Classics artist since 1984, is also the only Canadian classical instrumentalist since Glenn Gould to have a long-term exclusive recording contract with a major international label. The pop-star image on the cover of her latest recording, "Trilogy," is not surprising for an artist who is a regular on



Tony Bennett . . . frankly

Canadian television shows, where she reports on arts and entertainment topics. The CD features three not-so-pop eighteenth-century cello concertos by Boccherini, Mysliveček, and Giovanni Battista Viotti (a world-première recording of his Concerto in C Major). Harnoy is accompanied on the

MUSIC MAKERS



Distinguished citizen Ofra Harnoy: Pop star? Cellist?

disc by I Solisti Veneti conducted by Claudio Scimone.

HIS is shaping up as a very good year for the apparently ageless crooner Tony Bennett. First came a January appearance at the "Call for Reunion" Inaugural concert at the Lincoln Memorial. Then, on February I, Bennett re-ceived the second annual Mother Hale Special Lifetime of Caring Award at a ceremony in New York City, presented by none other than Lena Horne. And if that wasn't enough, Bennett's most recent Columbia album, "Perfectly Frank," a collection of classic torch songs associated with Frank Sinatra, received a Grammy for Best Traditional Pop Vocal Performance. Persistent rumors that Sinatra will be returning the favor with an album called "Yo, Tony!" remain unconfirmed at press time.

N 1990, at twenty-nine, the Austrian-born conductor Franz Welser-Moest became the youngest-ever music director of the London Philharmonic Orchestra. Now thirty-two, he found time in February to



Welser-Moest: wunderkind

get to the U.S., where he made his Cleveland Orchestra debut and paid a return visit to the Atlanta Symphony. But his London job takes up most of his time, and new recordings with the LPO, all for EMI Classics, include a Stravinsky Oedipus Rex due this month and a Bartók Miraculous Mandarin set for October. He'll be back in November for appearances with the L.A. Philarmonic, the Boston Symphony (another debut), the New York Philarmonic, and the Philadelphia Orchestra. By then he'll have reached the ripe old age of thirty-three.



Isserlis plays for Thomas

THE cellist Steven Isserlis was the recipient of this year's Piatigorsky Award from the New England Conservatory. Honoring the memory of # the great cellist Gregor Piatigorsky, the award is presented every three years to a young ecellist (under thirty-five) who exemplifies the ideal represented by the legendary Russian. In addition to a \$10,000 cash prize, concerts and recitals are arranged for the winner. Last month Isserlis was soloist with the New England Conservatory Symphony Orchestra, conducted by Michael Tilson Thomas, at concerts in Boston and New York. On the program was the North American première of The Protecting Veil, a concerto for cello and strings by the contemporary British composer John g Tavener. Isserlis has recorded The Protecting Veil for Virgin 3 Classics.

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Ensemble and Ensemble II are subwoofersatellite speaker systems designed by Audio Hall of Fame member Henry Kloss (founder of AR, KLH and Advent). Cambridge SoundWorks

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could tell you, sometimes quite a lot. Seems when the Alabama natives signed with CBS/Sony a ways back, their producers came up with the moniker and the band assumed that the appropriate trademark search had been made. No such luck: They soon discovered that local bands in Louisville, Kentucky, and L.A. had already claimed the name, and so had Arlo Guthrie's road group. What followed-despite several Gold records-was two vears of expensive litigation that ultimately forced the band to declare bankruptcy and dissolve their Sony contract. Undaunted, Shenandoah finally bought exclusive rights to its name from the other groups and has reappeared on the RCA label. Proving that good things come to those that wait, Shenandoah's new (and obviously appropriately titled) album, "Long Time Comin', has already generated two hit country singles.



"Blues-ette Part II"

ENON Records has already reactivated the legendary Savoy jazz label (prominent from 1942 till the late Fifties) with an extensive reissue program. Now it's lauching a new Savoy Jazz series featuring legendary creators of the bebop sound as well as its younger exponents. The project is being inaugurated with a sequel to the 1959 Curtis Fuller Quintet album "Blues-ette," one of the original label's big-

MUSIC MAKERS



Shenandoah: out standing in their field

gest sellers. All the surviving quintet members—Fuller. Benny Golson, Tommy Flanagan, and Al Harewood-were reunited for the taping, with Ray Drummond sitting in on bass for the late Jimmy Garrison. "Blues-ette Part II" will be followed this year by four more new albums, and plans are to release around five titles annually thereafter.

OOD news for fans of the Ganadian pop singer and songwriter Bruce Cockburn: As part of its project to make all of Cockburn's twenty Canadian albums available in the U.S., Columbia has just released four more on CD. following the eight released previously. The new titles include "Sunwheel Dance" (1972), "Night Vision" (1973), "Joy Will Find a Way" (1975), and "In the Falling Dark" (1977). Cockburn, whose second annual live Christmas radio broadcast last year featured as special guests Rosanne Cash, Lou Reed, and Rob Wasserman, is finishing work on a new studio album scheduled for summer release.

rsula Oppens is among the small but growing group of classical performers who successfully program and record contemporary works as well as masterpieces of the Classical and Romantic eras. Not content to perform the tried and true, she actively commissions new works as well for her recitals and concert appearances around the U.S. and Europe. Last year the New York-born pianist embarked on a three-year project with the Arditti Quartet to expand the chamber-music repertory by commissioning and performing new works for piano quintet. Oppens's latest recordings, on the Music and

Bruce Cockburn (second from left) and pals



Arts label, include an all-Beethoven CD and the second volume in her "American Piano Music of Our Time," consist-ing entirely of music that she has commissioned.

RACENOTES. Relativity GRecords, whose artist roster has until now been confined mostly to alternative rockers (Overwhelming Colorfast) and guitar heros (Joe Satriani), has signed reunited multi-Platinum chart-topper Toto. The new album, "Kingdom of Desire," features the last recordings by the original Toto drummer, Jeff Porcaro. . The 1993 winner of the Richard Tucker Award (\$30,000 and other valuable considerations) is Ruth Ann Swenson, an American lyric- 5 coloratura soprano, who can be heard on CD with Samuel Ramey in Kismet (Sony Classi-



Oppens: contemporary patron

cal) and can be seen on video with Placido Domingo in L'Africaine (Home Vision). . Silo/Alcazar has released "Don't Get Killed" by the satirical folk singer Andy Breckman, who may be better known as the author of screenplays for movies starring Dudley Moore (Arthur 2) and Richard Pryor (Moving).

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Slave Subwoofer

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BY KEN C. POHLMANN

SIGNALS

Getting Psyched

RGUABLY, the second coming of audio technology occurred last Christmas. The Digital Compact Cassette (DCC) and MiniDisc (MD) formats record and reproduce signals in a way that fundamentally differs from any previous high-fidelity method. First-generation technology, from Edison's cylinder to the compact disc, stores signals linearly, as a continuous or sampled waveform. The goal of such systems is to reproduce a waveform that is physically identical to the original. Secondgeneration technology uses perceptual coding, in which physical similarity is waived in favor of perceived similarity. That is a radical change, merging the discipline of audio engineering with that of psychoacoustics.

Whereas traditional audio engineering is to a large extent a matter of specifications and measurements, psychoacoustics is one of psychology and perception. Traditional audio technology is based primarily on the principles governing the physical world around us, but psychoacoustics dwells on the less accessible world inside our brains. Clearly, as Lord Rayleigh said in 1877, "All questions connected with this subject must come for decision to the ear, as the organ of hearing; and from it there can be no appeal." But it is only now, with the advent of powerful digital signal processing (DSP) circuits, that audio engineers can design systems that "hear" sound the same way humans do.

Psychoacoustics is an exciting field, full of insight and paradox and undiscovered secrets. Everything about the ear, and the way it conveys sound to the brain, is wondrously devised. The outer ear amplifies sound, and its intricate folds help us to assess directionality. The ear canal resonates at about 3,000 Hz, providing extra sensitivity in the frequencies critical for speech intelligibility. In fact, the ear is extremely sensitive in that range and can detect a change in pressure amplitude equivalent to one-tenth the diameter of a hydrogen molecule. The three tiny bones in the middle ear-the hammer,

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anvil, and stirrup—provide impedance matching to efficiently convey sound vibrations in the air to the fluidfilled inner ear, where the miracle of hearing takes place. The coiled basilar membrane detects the amplitude and frequency of sound; those vibrations are then converted to electrical impulses and sent to the brain along a bundle of nerve fibers.

That biological design, coupled with the brain's interpretation of the aural information, forms the basis for psychoacoustics. Our threshold of hearing, the softest sound we can hear, varies with frequency. Our ears are most sensitive around 2,000 to 4,000 Hz. Sensitivity decreases at high and low frequencies. For example, a tone at 25 Hz would have to be 60 dB louder (a million times greater intensity) than a 1,000-Hz tone to be barely audible. A perceptual coder compares the input signal to this threshold and discards any parts of the signal that fall below it, because our ears will eventually discard them anyway.

Most people can tell the difference when a 1,000-Hz tone is sounded and raised to 1,002 Hz. The difference between 50 and 52 Hz may be inaudible, however. Everyone who can hear can perceive pitch, although studies suggest that pitch perception changes Not convinced? Hold your hand over this page: It is clearly visible. Now put it under the magazine, where it is concealed. That's an instance of visual masking (just as only Superman can see through walls). Aural masking is the same. The signal exists acoustically but not perceptually.

Perceptual coders employ DSP computers programmed with models of human hearing to encode only the audible parts of a sound. The systems are so efficient that they require just a fraction of the data needed by a linear system. Although data reduction is an important objective of perceptual coding, better fidelity can also result. Listening tests have shown that there is no audible difference between DCC copies (using PASC perceptual coding) and original CD's (using linear coding). Now, instead of limiting PASC to a quarter the data rate of CD, suppose you gave it half the rate. The perceptually coded signal might sound better than a CD.

DCC and MD are already on the shelves, numerous movie soundtracks have been released in Dolby's new SR-D multichannel digital format (based on the AC-3 perceptual-coding system), and the Electronic Industries Association (EIA) is evaluating perceptual coders prior to endorsing a

A perceptually coded signal could actually

sound better than a linearly coded CD.

with age. It may be that middle-aged people hear music a semitone higher than they did as children.

When tones nearby in frequency are sounded simultaneously, louder tones obscure, or "mask," softer ones. For example, a tone of 600 Hz may mask a softer tone of 650 Hz. In that case, a perceptual recording system would ignore the 650-Hz tone and concentrate on coding the 600-Hz tone as precisely as possible. Because the brain can decipher only a limited number of tones at once, much of the acoustical information generated by an orchestra, say, goes unnoticed. standard for digital audio broadcasting. Perceptual coding is probably the hottest topic in audio engineering today, and it's advancing rapidly. Future audio engineers now study digital signal-processing architecture and programming, the psychology of music, and psychoacoustics.

Linear audio systems have served us well for 120 years. But now it's time to turn to more sophisticated methods of sound reproduction. In the years to come, audio systems will conform better to the strengths and limitations of our hearing, making the goal of complete transparency a reality at last.



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AUDIO Q&A

Biwiring a Lone Terminal

I would like to biwire my speakers, but my receiver has only one set of speaker terminals. Is there any way I can do it? PAUL SILVERBERG

Toronto, Ontario

You should have no difficulty: Extra speaker terminals are simply wired together in parallel behind the panel anyway, so duplicating that arrangement on the outside achieves the same end. Simply attach both sets of wire to the same terminals; if the wire you're using is too thick for the connectors to accommodate two cables, you can solder a short piece of solid-copper wire to each lead and attach these thinner leads to the terminals. For short distances—a couple of inches at most—the thinner wire will work fine.

CD Cracks

I recently noticed a small crack in the inner ring of one of my CD's. Might this affect the disc's sound quality? If so, is there any way to fix it? CLENNAN WEBBER Montgomery, AL

It's possible that a crack in the disc's protective coating could let enough air reach the reflective aluminum layer to cause it to oxidize, thus clouding its surface and rendering the disc unplayable in time. That's unlikely if the crack is close to the center of the disc, however. If you're still concerned, a small dab of nail polish should seal the crack.

Quad vs. Dolby

What's the difference between Dolby Surround and the old quadraphonic matrix systems? Did quad use delay?

> G. EPPS Daytona Beach, FL

From a theoretical point of view, the old four-channel systems have a lot in common with today's surround sound-in fact, much of the Dolby Surround system was derived from the earlier technology (except for the delay: none of the quadraphonic standards included that). The old and new systems are, however, different enough in terms of technical detail that there's virtually no compatibility between them. For instance, quadraphonic systems were designed to produce discrete right and left rear signals, but the Dolby system produces a mono surround signal that is simply derived from the left-minusright difference signal and uses the remaining channel for center front signals. Playing an old SO recording through a Dolby Surround decoder can produce some interesting effects, to be sure, but they're unpredictable, and not

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even close to what anyone intended when the recording was made.

Parallel Cartridges

I have two turntables but only one phono input on my receiver, so I have wired the phono cartridges together in parallel using a Y-cord. For some reason, the output of one of the cartridges is very low when connected this way, while the other one is fine. Both work properly when connected individually. What's the problem? GILBERT SEVERINO Tulsa. OK

Without knowing what cartridges you are using it's hard to say exactly what's going on. But connecting the cartridges together the way you have is almost sure to have some deleterious effect, as each cartridge is driving not only the receiver's input circuitry but the coil in the other cartridge as well. Depending on how the two devices relate to each other in terms of internal resistance and inductance, the sound is bound to be affected. If you want to be able to use both turntables at once-for smooth transitions from one selection to the next while making tapes. say-your best bet is to use an inexpensive mixer with its own phono preamps. Otherwise, use a simple switch, such as the one that db Systems makes, to select one cartridge or the other.

Amp Logic

I have recently purchased new speakers and now want to replace my receiver with a separate preamplifier and power amplifier. I want components that provide good imaging and detail, and that work well with all types of music. I want them to have some kick as well. Should I be looking in the 200-watt range, or would 100 watts per channel be sufficient?

> GREGORY A. GRZYBEK, JR. Plainsboro, NJ

To address your concerns in reverse order, it's usually wise to arm yourself with as much amplifier power as you can afford, but in reality the difference between 100 and 200 watts is a matter of only 3 decibels—a just-noticeable variation in level—so if a lower-power amp gives you the features you need and costs substantially less than the bigger one, go for it.

As for the possible sonic benefits of one amplifier over another, we're in more controversial territory. While many audiophiles claim to hear real differences between pieces of pure electronics, such as power amplifiers, even they will usually concede that such differences are very small and noticeable only in direct comparisons. Other listeners feel that such distinctions are largely imaginary, and the evidence of controlled listening tests falls on their side. But whatever the truth of the matter, any competently designed amplifier should be able to handle any music you are likely to feed it.

A Shocking Experience

My receiver sometimes gives me a small shock when I touch the controls, and I can hear a static-like sound from my speakers. It's really annoying. How do I prevent it? MELVIN G. TAMONDONG

Anchorage, AK

A Often simply reversing the power plug will cure the problem, as the chassis would then be connected to the grounded AC conductor. You may have to do this with each piece of equipment in your system, one by one.

If you still get shocked, you may have to add a special ground wire. The easiest way is usually to connect one end of a piece of wire to the ground terminal associated with your receiver's phono input and the other to a coldwater pipe (or the screw in the middle of an AC wall plate). If your receiver lacks such a ground terminal. an RCA plug can be inserted into any unused jack on the rear panel and the sleeve of the other end grounded.

CD's on Videotape

I would like to record a number of my CD's onto videotape, as I have heard that a hi-fi VCR can do a respectable job. My CD player has a variable headphone output, so I could use that to set levels if necessary. Are such recordings worthwhile? If so, what's the best way to go about making them?

JAMES C. MCCOOL Westland, MI

The AFM (audio frequency modulation) recording method used in a hi-fi VCR is excellent, offering both high performance and very long recording times-the audio quality isn't significantly degraded by using slow tape speeds, so it's possible to put as much as 6 hours of high-quality music on one T-120 cassette. Dubbing from compact disc to tape is usually a simple matter of hooking the CD player's analog outputs to the VCR's audio inputs and starting both machines. If yours is one of the few VCR's with input-level controls and meters, set your levels as you would with any other tape deck. Most VCR's control audio level automatically, however, so you can usually sit back and let the recorder take care of things. If there is some sort of mismatch-levels so low that the automatic gain control "pumps" or so high that the inputs are overloaded-you can use the CD player's variable output to correct it, but my experience has been that such mismatches are rare.

Pawn-Shop Speakers

I'm interested in adding a couple of surround speakers to my system, but as I'm retired I would like to do it as cheaply as possible. I have checked out the local pawn shops, but many of the makes and models I have never heard of. As I have some agerelated hearing loss, what I pick needn't be the highest quality, but I would like to obtain the best sound possible. How can I judge a speaker without hearing it played? PAUL MOUNT Corpus Christi, TX

It's almost impossible, but one way would be to restrict yourself to brands you *do* know. Then at least you have a chance of finding out something about it; you may be able to look up a magazine review at the library, for example. That might not do for selecting primary speakers, but it *is* usually possible to make some sonic sacrifices when it comes to the surround channels. In home theater setups, the surround channels typically operate at lower levels and have narrower bandwidth than the main stereo channels, and while you should ideally try to achieve good sound quality even in the rear, most people are reasonably tolerant of minor aberrations in those speakers.

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

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CAR STEREO



Eclipse ECD-412 CD Receiver KEN C. POHLMANN HAMMER LABORATORIES

HILE MiniDisc (MD) and Digital Compact Cassette (DCC) begin to compete for a place in the hearts of car stereo enthusiasts, CD is still far and away their leading sweetheart-and will remain so in the foreseeable future. CD components, dashor trunk-mounted (or both), are fast becoming de rigueur for high-fidelity sound on wheels.

A relative newcomer to the car-CD field, Eclipse has neatly carved out a sizable niche with its sophisticated CD head units equipped to control DSP processors and CD changers. The ECD-412 CD receiver is a moderately priced member of this line, sharing the handsome looks of the rest of the Eclipse family. Its glossy black front panel suggests high technology, yet its rounded contours have an organic look and feel-a great aesthetic blend. The good looks are enhanced by its relatively sparse controls, but because most of the buttons handle multiple functions, it is not lacking in features.

A pair of + and - buttons adjust the volume, fader, bass, treble, and balance. Pressing them simultaneously provides - 20-dB muting-useful when your lawyer calls on your cellular phone. The nearby MO (mode) button toggles those functions. defaulting to volume; holding it down for a few seconds engages loudness compensation, with a 7.5-dB boost at 100 Hz and a 6-dB boost at 10,000 Hz. The TU button turns the radio on and off, and the D. (direct) CALL button lets you instantly call up a preprogrammed AM or FM radio station while in the tuner or CD mode; holding the button down in CD mode displays track time and the number of remaining tracks.

The band button provides access to one AM and three FM memory banks, each of which can hold six stations. A pair of up/down buttons provide manual tuning when they're pressed lightly and seek tuning when they're held down. If you're playing a CD, the same buttons provide track skip and, when pressed simultaneously with the band button, fast audible search. The play/pause and eject buttons perform as expected.

When pressed lightly, the SC button scans through the presets in the selected tuner band; when held down, it provides automatic station memory (the tuner finds the six strongest stations in the area and saves their fre-

> Dimensions 7 inches wide, 2 inches high. 61/8 inches deep (DIN-size slide-out chassis optional) Price

\$475

Manufacturer Eclipse, Dept. SR, 19600 So. Vermont Ave., Torrance, CA 90502

quencies). In CD mode, the SC button lets you audition the first 12 seconds of each CD track. The RNDM button is used for random track playback from a CD. The REP button repeats a CD track or, in tuner mode, selects between local and distant sensitivity. The ECD-412 emits a beep (which can be turned off) whenever one of its controls is operated.

The head's blue fluorescent display shows CD track numbers and times, tuned frequencies, and preset numbers. A horizontal bar graph shows the relative settings for volume, bass, treble, fader, and balance as they are adjusted, and there are blue indicators for sensitivity, stereo reception, and repeat; amber indicators show the tuner band and tell you when a CD is loaded or random playback is engaged.

The ECD-412 employs an eighttimes-oversampling digital filter and dual 18-bit D/A converters. It has a three-beam laser pickup, and its transport mechanism uses silicon dampers, which are said to be 40 percent larger than those in previous Eclipse heads for improved shock resistance.

Lab Tests

The hand-built prototype submitted for this review turned in numbers that are probably not as good as production units will yield. Even so, the ECD-412 performed pretty well. Its CD measurements were all quite good except for a large interchannel phase shift. Defect tracking was particularly noteworthy. The tuner was also quite solid, although distortion in the stereo mode was higher than usual. The head's four amplifiers delivered 3.9 watts per channel into 4 ohms-a hair below Eclipse's 4-watt rating but still adequate for casual listening.

Installation

Installation of the ECD-412 was relatively straightforward once I cleared a DIN space in my 1968 Porsche 911. I slid the mounting sleeve into the opening and secured it by bending metal tabs and bolting on a rear support strap (standard procedure for all head installations). I then removed the transport screw (many manufacturers no longer bother with this precaution against shipping damage) and slid the head into the sleeve until it locked into into the sleeve until it locked into a place. The ECD-412 is designed to be a slide-out mounting kit is available if




Whitney Houston: The Bodyguard Soundtrack (Ansta) 54213



R.E.M.: Automatic For The People (Warner) 00121 5 Erro

NIN

Madonna: Erotica (Sire) 008791

Eric Clapton: Unplugged (Warner/Reprise/Duck) 23690

Genesis: We Can't Dance (Atlantic) 00423 Elton John: The One (MCA) 35022 U2: Achtung Baby (Island) 25174 Garth Brooks: The

Chase (Liberty) 00141 En Vogue: Funky Divas (East West) 61717

Enya: Shepherd Moons (Reprise) 53190 Phil Collins: Serious Hits...Live! (Atlantic) 00324

Bon Jovi: Keep The Faith (Jambco/Mercury) 00868 George Duke: Snapshot (Warner Bros.) 00176

10,000 Maniacs: Our Time In Eden (Elektra) 00126

Arrested Development: 3 Years, 5 Months And 2 Days In The Life Of... (Chrysalis) 25357

Foreigner: The Very Best...And Beyond (Atlantic) 24722

Steely Dan: Aja (MCA) 00409 Guns N' Roses:

Use Your Illusion I (Geffen) 35469 †

Guns N' Roses: Use Your Illusion II (Geffen) 25534 † INXS: Welcome To

Wherever You Are (Atlantic) 11070

Nirvana: Nevermind (DGC) 15600

Frank Sinatra: The Best Of The Capitol Years (Capitol) 00242 Prince And The New Concration:

Power Generation: (Warner/Paisley Park) 11136 †

Megadeth: Countdown To Extinction (Capitol) 63340

k.d. lang: Ingénue (Warner Bros./Sire) 44370

Wreckx-N-Effect: Hard Or Smooth (MCA) 00627 † George Strait: Pure Country (MCA) 83064

ZZ Top: Greatest Hits (Warner Bros.) 83411

Extreme: III Sides To Every Story (A&M) 00119 Bonnie Raitt: Luck Of The Draw (Capitol) 15567

Erasure: Pop! The First 20 Hits (Reprise) 00328 Neil Young: Lucky Thirteen

Lucky Thirteen (Geffen) 00856 Chieftains: The Ceitic Harp (RCA) 00323 Elvis Costello & The Brodsky Quartet: The Juliel Letters (Warner Bros.) 00885 Jesus Jones: Perverse (SBK) 00893

Charile Parker: The Essential Charile Parker (Verve) 00902 Damn Yankees: Don't Tread

(Warner Bros.) 53663 Vince Gill: I Still Belleve In You (MCA) 21063

Elton John: Greatest Hits 1976-1986 (MCA) 00150 Dioppe Warwick:

Dionne Warwick: Friends Can Be Lovers (Ansta) 53776 Kathleen Battle At Carnegie Hall (DG) 35091*

Temple Of The Dog (A&M) 31124 Trespass/Music Fro

Trespass/Music From The Motion Picture (Warner Bros./Sire) 00628 †

Bob James And Car Earl Klugh: Cool Ce (Warner Bros.) 63299 If Y Neneh Cherry: (Lo

Homebrew Wills (Virgin) 00239 Sha Alan Jackson: (SB A Lot About Livin' (And A Little 'Bout Love) (Arista) 74074

(Arista) 74074 The Doors: L.A. Woman (Elektra) 00215 Red Hot Chill Peppers: Blood Sugar Sex Magik (Warner Bros.) 11127 †

(Warner Bros.) 11127 † Jimi Hendrix Experience: Live At Winterland

(Rykodisc) 63650 The Cars: Greatest Hits (Elektra) 53702

The Steve Miller Band: Greatest Hits 1974-1978 (Capitol) 33199

Bryan Adams: Waking Up The Neighbours (A&M) 35175 U2: Battle And Hum

(Island) 00596 Rod Stewart:

Downtown Train (Warner Bros.) 10708 The Smiths: Best...i (Reprise) 24868

Color Me Badd: Young, Gifted And Badd-The

Remixes (Giant/Reprise) 00417 TLC: Oooooooohhh... On The TLC Tip (LaFace) 50167

Best Of The Grateful Dead: Skeletons From The Closet (Warner Bros.) 83892

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Billy Ray Cyrus: Some Gave All (Mercury) 41711

Charlie Haden Quartet West: Haunted Heart (Verve) 00337

The Best Of The Alan Parsons Project (Arista) 00877 Simple Minds:

GlitterIng Prize 81/92 (A&M) 00895 Special EFX: Collection (GRP) 10826

e The Return Of The Brecker Brothers (GRP) 00261 6 Tom Petty &

The Heartbreakers: Into The Great Wide Open (MCA) 35409 Randy Travis:

Greatest Hits Vol. I (Warner Bros.) 21091 Randy Travis: Greatest Hits Vol. 2 (Warner Bros.) 11125

Bernstein: The Final Concert (DG) 35095 John Lennon & Yoko Ono: Double Fantasy (Capitol) 00333

Cecilia Bartoli: If You Love Me (London) 00862* Wilson Phillips: Shadows & Light (SBK) 40763

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SERVICE

Billie Holiday: Billie's Best (Verve) 00135 Bell Biv DeVoe: Polson (MCA) 00547 Mary J. Bilge:

DS OR CASSETTE

Mary J. Bilge: What's The 411? (Uptown/MCA) 30845 † The Heights Soundtrack

(Capitol) 00206 Don Henley: The End Of The

(Geffen) 01064 Peter Gabriel: Shaking The Tree-16 Golden Greats (Geffen) 11089

Greats (Geffen) 11089 R.E.M.: Out Of Time (Warner Bros.) 24762

Traffic: The Low Spark

Of High Heeled Boys (island) 25169 Yes: Classic Yes (Atlantic) 50248

Richard Elliot: Soul Embrace (Manhattan) 00871

The Best Of Al Stewart (Arista) 00875

Patty Smyth (MCA) 25090 Madonna: The Immaculate Collection (Sire) 54164 David Bowle:

Changesbowie (Rykodisc) 43693

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Soundgarden: Badmotorfinger (A&M) 05637

The Police: Every Breath You Take—The Singles (A&M) 73924 Van Halen: For

Unlawful Carnal Knowledge (Warner Bros.) 10016 The Who: Who's

Better, Who's Best (MCA) 00790

Jodeci: Forever My Lady (MCA) 90177

Chicago: Greatest Hits 1982-1989 (Reprise) 63363 DAS EFX :

Dead Serious (ATCO/EastWest) 25328 Garth Brooks:

Garth Brooks: Ropin' The Wind (Liberty) 25535 The Cure: Wish (Elektra/ Fiction) 11116

(Elektra/Fiction) 1111 Olivia Newton-John: Back to Basics-The Essential Collection 1971-1992 (Geffen) 25334

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(London) 35078 Best Of Miles Davis The Capitol/ Blue Note Years

Blue Note Years (Blue Note) 11000

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Elvis Presley: The Number One Hits (RCA) 72190

The Beach Boys: Pet Sounds (Capitol) 00513 Paula Abdul:

Spellbound (Virgin) 73320 Jethro Tull: Thick As A Brick (Chrysalis) 01023

John Mellencamp: Whenever We Wanted (Mercury) 74582

Aerosmith: Pump (Geffen) 63678

Nell Diamond: 12 Greatest Hits (MCA) 84050

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Eagles: Greatest Hits 1971-1975 (Asylum) 23481

Natalie Cole: Unforgettable (Elektra) 83452

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Grand Puba: Reel To Reel (Elektra) 30262 † The Rascals' Greatest Hits: Time Peace (Atlantic) 00357 The Doors (Elektra) 00209 Mõtley Crüe: Decade Of Decadence (Elektra) 40298

Salgon Kick: The Lizard (Third Stone/Atlantic) 00371

The Private Music Of Tangerine Dream (Private) 00221

Malcolm X/ Music From The Motion Picture (Reprise/Owest) 00372

Supertramp: Breakfast in America (A&M) 25246

Battle: The Bach Album (DG) 73670 Emerson, Lake &

Palmer: Brain Salad Surgery (Atlantic) 54608 Michael W. Smith:

Change Your World (Geffen/Reunion) 20936

Whitney Houston: I'm Your Baby Tonight (Arista) 10663

Tanya Tucker: Can't Run From Yourself

Nine Inch Nails: Broken (Interscope) 00145 †

Best Of Dire Straits

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<u>CAR STEREO</u>

you want to practice this form of theft prevention.

I wired the four line-level phonojack outputs to external power amplifiers and connected the ignition and battery back-up leads, both of which have in-line filters and fuses. I also connected the remote-amplifier turnon lead and ground strap (I ignored the power-antenna lead for this installation). Finally, I wired the illumination lead to my car's headlight switch; when the headlights go on, the ECD-412's display dims and the CD loading slot lights up—a classy touch.

For installations in which the head's internal power amplifiers are used, you ignore the line-level outputs and connect the wires running from your speakers directly to the head's speaker leads. A switch on the bottom of the chassis lets you configure the amps for two- or four-channel output. Another installation option is to use the head's two-channel output to power the front speakers and to run the line-level outputs to an external amplifier for the rear speakers.

Road Tests

Satisfied that the ECD-412 was properly secured, I hit the road, focusing my attention on the tuner. I've noticed in the past that Eclipse tuners could distinguish between strong stations in dense urban environments while providing ironclad rejection of multipath interference. In no time at all, it was clear that the ECD-412's tuner follows this design preference. I was able to tune in a station in the densest part of the FM band and drive through urban Miami without severely compromising signal quality, particularly when the sensitivity switch was set to local. When the switch was set to distant, the tuner did a good job of pulling in weak stations, but at the expense of added noise and interference. Tuner design always involves compromise, and the ECD-412's forte is rejecting strong-signal interference. If you do a lot of city driving and are tired of noise and static, take this urban commando for a test drive.

Next I loaded a disc and turned my attention to the CD player. Starting with pop music and working my way to more demanding classical works, I auditioned the ECD-412 with an ear toward transient response, low- and high-frequency reproduction, imaging, low-level linearity, and clarity. At the end of the session, which included both driving and parked listening (Porsches can get pretty noisy), I was satisfied with the player's sound quality. Pop/rock music sounded great, with punchy, hard-hitting bass response and a crisp high end. Classical music sounded smooth and full, with accurate timbre reproduction and solid imaging. Thumbs up.

Finally, risking my car's front-end alignment, I headed down an especially wretched stretch of road to evaluate the transport's ability to handle shock. The player negotiated some very stiff bumps without mistracking, proving that under normal driving conditions (and then some) the ECD-412 should have no problems—provided that it's properly installed.

A couple of peeves: Although I rarely use the search controls on car CD players, I found it cumbersome to press the band and up/down buttons simultaneously. (Eclipse should adopt the single-button scheme used by most manufacturers: You press the button lightly for track skipping and hold it down for audible searching.) Also, the electronic volume control is way too slow-it seemed to take forever to raise and lower volume. Otherwise, the ergonomics are very good. Buttons are clearly labeled, and the consolidation of functions is intuitive. This is one head unit whose design actually makes it easy to use all of its functions instead of using only a few because you've forgotten (or can't figure out) how to work the others. And the display is highly legible-a particularly important consideration when driving in bright sunlight.

Minor gripes aside, there's no question that the ECD-412 is a fine example of mobile audio engineering. Its appearance is striking, it offers both linelevel and speaker-level outputs, tuner performance is clear and robust, and the CD player's fidelity is excellent even driving over rough pavement. In short, the ECD-412 delivers high-end car audio at an affordable price. DCC and MD, eat your hearts out.

MEASUREMENTS

CD SECTION	
Maximum output level	.5 volts
Frequency response	
+0.04, -1.02 dB, 20 to 20,	000 Hz
De-emphasis error (16,000 Hz) – (0.04 dB
Channel separation	
1,000 Hz	75.2 dB
20,000 Hz	52.6 dB
Maximum interchannel phase shift	r
(at 20,000 Hz)	
Signal-to-noise ratio (A-wtd.) 10	0.1 dB
Dynamic range (A-wtd.)	93.4 dB
Distortion (THD + N at 1,000 Hz)	
0 dB	0.016%
- 20 dB	0.056%
Linearity error (at -90 dB) +	2.1 dB
Defect tracking (Pierre Verany #	2 test
disc)	500 µm
Impact resistance	•

TUNER SECTION

All measurements except frequency response are for FM only.

Usable sensitivity (mono)	
50-dB quieting sensitivity (mo	no) 23.6 dBf
Distortion (THD + N at 65 dBf)	
mono	0.87%
stereo	1.66%
Signal-to-noise ratio (at 65 dB)	()
mono	
stereo	

Channel separation (at 1,000 Hz)	33.9 dB
Selectivity	
alternate-channel	73.2 dB
adjacent-channel	18.5 dB
Copture rotio (at 65 dBf)	
AM rejection	47.7 dB
Image rejection	62.5 dB
Frequency response	
FM	-0.4 dB
AM	-7.0 dB
Maximum output level	

(100% FM modulation) 1.36 volts

AMPLIFIER SECTION

Unless otherwise noted, all measurements were made with 14.4-volt DC power and all four channels driven into 4 ohms.

1,000-Hz output at clipping

8 ohms	
4 ohms	
Distortion (THD+N at	1.000 Hz. 1
watt)	
Damping factor	
Frequency response	
20 to 20,000 Hz + 0	.06. – 2.06 dB
Signal-to-noise ratio	
(A-wtd., referred to 1 watt)	
Tone-centrol range	
100 Hz+10.	75, -10.55 dB
10.000 Hz +10	.20, -9.84 dB



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What Makes a Product "Good"?

NE of the most important goals of every consumer is to make the best possible choice in every purchasing decision. "The best" can be defined in many ways: the least expensive, most expensive, smallest, largest, most reliable, newest, oldest, and, for a small percentage of buyers, the one that gives the best performance regardless of other considerations.

Frequently "best performance" is equated with "most expensive," although few people can afford the costliest product in the category of their principal interest. When the product is ornamental the equation may be perfectly valid, since its price can truly be a major part of the item's "value."

But what about high-fidelity components? In general, their function is to reproduce music (or other sounds) with some degree of realism and believability. I think most of us are looking for the closest approach to the live listening experience that we can attain within our budgets (and, ultimately, the current state of the art).

Unfortunately, what makes a hi-fi product "good" is not easily defined. For most people, sound quality is the criterion of goodness, but what determines the quality of sound? In my view, the sound is determined primarily (say, about 95 percent) by the source (the recording), as modified by the loudspeakers and the listeningroom acoustics. To a much smaller degree, the electronic components-CD player, amplifier, or tuner-can affect the ultimate sound, though hardly as much as some people would have you think. Passive accessories, such as cables and the like, have virtually no effect.

So the questions still remain: What is good sound, how do you get it, and how do you recognize it when you hear it? I would not presume to answer those questions for *you*. For *me*, the sound I hear at a live performance in a well-designed concert hall is by definition good (disregarding the specific music being played). I have never heard reproduced orchestral music that comes close to duplicating the live sound, nor do I ever expect to.

TECHNICAL TALK

JULIAN HIRSCH

So what is my goal in the enjoyment of recorded music? I am willing to settle for a "bare bones" outline of the original live performance, translated to my home well enough that I can recognize what it is trying to mimic. At best, the reproduced sound suggests the quality of a concert hall, though it would not fool me (or anyone else) for a moment. Your goal may be very different, of course, and fortunately each of us can travel his own path toward its attainment.

But consider, if you will, the extreme subtlety of any sonic differences resulting from a hi-fi system's electronics, and the enormous range of prices that can be paid for components whose actual electrical properties differ by very small amounts, if at all. I realize that my suggestion will raise the blood pressure of some readers, for which I apologize in advance, but does anyone really think that an amplifier costing \$3,000 gives a tenfold improvement in sound over one costing \$300? Certainly some people do, but double-blind listening tests have told by an audiophile or a hi-fi salesman that Model A sounds much better than Model B and therefore is worth its substantially higher cost. Often a neophyte who does not hear the described qualities is reluctant to question the claims of those who say they do. That is understandable, and following an expert's guidance may seem like an easy and logical choice. Just remember, though, that sometimes the emperor *really* has no clothes, despite the acclaim of those who praise his wardrobe.

I am not suggesting that expensive, "high-end" electronics are a fraud, or that they do not offer value for the money. Most that I have seen and used are very good by any standard. But their added value is not in their sound per se. A \$1,000 watch, for example, might not keep time more accurately or last longer than one costing \$25, but it may still be well worth its cost in respect to materials and workmanship, to say nothing of style.

The same is true of good high-end audio products. I find most of them to be gemlike in appearance and control action, and they usually use the finest components and construction techniques. If money were no object, I would probably have them in my sys-

Sound quality is determined primarily by the

recording, the speakers, and the listening room.

shown that very few, if any, listeners can actually hear the differences between those extremes unless one of the amplifiers is poorly designed, defective, or overloaded in some way.

In sharp contrast, the differences between speakers are usually unmistakable. A \$3,000 speaker will almost certainly sound better than a \$300 speaker, though not necessarily ten times better.

I recognize that my criteria of goodness are not necessarily yours. What I am suggesting is that each prospective buyer of a hi-fi component or system trust his or her own ears. You may be tem. I recognize how easy it is to convince yourself that these expensive products sound better than more affordable ones, but I have also made A/B comparisons between them and their mass-market equivalents and found no audible differences whatever.

So I guess "good" is what makes you happy, and what you can afford. That probably applies to just about anything we buy, from candy to cars. But why credit your choice with qualities it does not have? We are fortunate that today's audio components give us more good sound per dollar than ever before. Enjoy them for what they are.

Why won't conventional hi-fi speakers work for Home Theater?

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

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above or below the screen, creating the impression that the sound is coming *directly* from the screen.

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TEST REPORTS

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McIntosh MC7100 **Power Amplifier**

JULIAN HIRSCH HIRSCH-HOUCK LABORATORIES

CINTOSH Laboratory was probably the first company to design and manufacture a truly highquality audio amplifier (even by today's standards), almost a half-century ago. And it's still going strong today, producing a full line of state-of-the-art audio components, from tuners to loudspeakers.

Currently the lowest-priced and the lowest-powered amplifier in the McIntosh line, the MC7100 is a basic stereo power amplifier rated at 100 watts per channel into 8 ohms or 150 watts into 4-ohm loads. A switch on the amplifier's back panel converts it to bridgedmono operation, with a 300-watt power rating into 8 ohms.

McIntosh amplifiers have always been noted for their very low distortion, and the MC7100 is no exception. It is specified to have no more than 0.005 percent total harmonic or intermodulation distortion at any power level from 250 milliwatts up to the

rated output, at any frequency from 20 to 20.000 Hz.

Like other McIntosh amplifiers, the MC7100 incorporates the company's Power Guard circuit, which effectively prevents audible clipping distortion as well as any speaker damage that could result from such operation. Power Guard compares the input and output signal waveforms, which are ordinarily identical except in amplitude. If the difference between them in either channel is more than the equivalent of 0.3 percent harmonic distortion, the amber front-panel Power

> Dimensions 171/2 inches wide, 35/2 inches high, 151/2 inches deep

> > Price \$995

Manufacturer McIntosh Laboratory, Inc., Dept. SR. 2 Chambers St., Binghamton, NY 13903-2699

Guard light for that channel flashes as a warning. If the difference continues to increase, the Power Guard circuit operates an electronic attenuator at the input to reduce the amplifier gain just enough to prevent any further increase in distortion. McIntosh says that distortion will not exceed 2 percent with as much as 14 dB of overdrive. Unlike some conventional amplifier protection circuits, Power Guard cannot introduce distortion of its own into the sound.

The MC7100 is protected against damage (to itself or to the loudspeakers) by several additional circuits. Sentry Monitor senses the dynamic operating conditions of the output stage and protects it from damage due to driving a short circuit or an undesirably low speaker-load impedance. The MC7100 is relatively efficient and needs no cooling fan, but prolonged operation at high power levels without adequate ventilation could result in undesirably high temperatures. In that event, a thermal cutout turns off the speaker output and the Power Guard lights come on to indicate that thermal protection is engaged. The amplifier protection is engaged. The amplifier turns back on automatically when the δ temperature returns to a safe level. Finally, a circuit protects the speakers

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TEST REPORTS

from damage by shutting off the outputs if a DC voltage should appear.

The MC7100 is a relatively compact amplifier with about half of its interior occupied by the massive heat-sink structure for its twelve complementary-symmetry output transistors and a large toroidal power transformer. Its rear apron has barrier-type terminal strips for the speaker outputs, accepting only wires or spade lugs. There are also finger-operated input-sensitivity controls for the two channels, a small slide switch that converts the amplifier from stereo to bridged-mono operation, a line-fuse holder, and an unswitched AC outlet.

Like other McIntosh products, the MC7100 is designed for installation in cabinets or racks with the company's Panloc system. Once the Panloc shelves (supplied with the amplifier) have been screwed into the cabinet, the amplifier can be slid in and fastened by turning two front-panel thumbscrews. If necessary, its removal is just as simple and quick. Since the amplifier has a normal steel protective case and an unusually attractive front panel, it is equally suited to an open installation on a table or shelf.

The McIntosh MC7100 became only moderately warm during our preconditioning and testing (in normal use, its exterior remained very close to room temperature). It exceeded its power

MEASUREMENTS

Output at clipping (1,000 Hz)	
8 ohms	126 watts
4 ohms	
Clipping headroom (referred to	rated output)
8 ohms	I.0 dB
4 ohms	1.25 dB
Dynamic power	
8 ohms	144 watts
4 ohms	220 watts
Dynamic headroom (referred to	rated output)
8 ohms	I.6 dB
4 ohms	1.7 dB
Frequency response (20 to 20,	000 Hz)
	±0.02 dB
Maximum distortion	
(THD, I watt to rated power)	
8 ohms	3% at 1 watt
4 ohms	44% at 1 watt
Noise (A-weighted, referred to	l watt)
	98 dB
Sensitivity	
(for a l-watt output into 8 ohms)	

specifications by a comfortable margin and produced exceptionally low distortion in the process. Total harmonic distortion (THD) at 1,000 Hz ranged from 0.0043 to 0.0037 percent from 1 to 100 watts into 8 ohms with both channels driven and from 0.0044 to 0.0029 percent from 1 to 150 watts



into 4 ohms. (The thermal protection shut the amplifier down several times during these tests, but it came on again after a minute or so.) Maximum power output into 8 ohms at 0.1 percent distortion was 132 to 136 watts from 50 to 20,000 Hz, falling to 124 watts at 20 Hz. Into 4 ohms, the available output was between 205 and 210 watts from 80 to 20,000 Hz and 192 watts at 20 Hz.

Input sensitivity for a 1-watt reference output into 8 ohms was 140 millivolts (mV) with the sensitivity adjustment at maximum and 260 mV with the control at its detented middle setting. which McIntosh recommends if the overall system levels permit it. Noise was unusually low and frequency response extremely flat—within ± 0.02 dB from 10 to 100,000 Hz and down just 0.25 dB at 200,000 Hz.

The McIntosh MC7100 represents a happy combination of truly state-ofthe-art performance and design, handsome styling, and electrical and mechanical ruggedness from a company that has enjoyed an enviable reputation for customer support and product reliability for almost fifty years. It is also something of a bargain for a McIntosh product. Priced well below most so-called "high-end" amplifiers, it appears to provide most of their good qualities at a price not far above those of many well-known mass-market designs. That's great engineering.

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 EL- Absolute Sound insight; Ft. Perce* Stereotypes: Daytor

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 GA-Audio Washouse: Savannan* Stereo Shop: Martinez*

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 IA- Audio Logic: Des Moines* Custom AVI: Cedar Rapids.

 ID: Good Ear: Boise.

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 KY: Ovation Audio: Clarksville, Latereo Studio: Palatine* Selection: Wichta* Audio Junction: City

 Sound: Studic: Lexington, Louisville.

 <t

L Future Sound: Ypsilarti* Listening Room: Midland, S aw Pecar's: Detroit, Troy* Sound North: Iron Mountain. N- Audio Perfection: Minneapolis. Q- Independence Audio Video: Independence (K.C.)* ound Central St. Louis. Q- Audio Video Systems: Charlotte* Stereo Sound: urham, Greensbow, Raleigh, Winston Salem. D- Pacific Sound: Bismarck. E- Custom Electronics: Omaha, Lincoln. H- Cookin*: Nashua, Manchester, Newington, Salem, S. ashua

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TEST REPORTS



Denon TU-680NAB AM/FM Tuner

JULIAN HIRSCH HIRSCH-HOUCK LABORATORIES

s our regular readers probably know, AM performance is perhaps the least of the concerns of most tuner designers. Of the hundreds of tuners and receivers I have tested and used over the past thirty-five or more years, those with AM quality adequate for anything more than speech reproduction could easily be counted on the fingers of one hand. The frequency range of their audio output rarely extends as high as 3,000 Hz, and a more usual upper limit is in the range of 2,000 to 2,500 Hz.

In an effort to expand the audience for AM radio, the Electronic Industries Association (EIA) and National Association of Broadcasters (NAB) several years ago jointly established a committee (the NRSC) to develop standards for improved AM broadcast quality. To enable broadcasters to evaluate the success of the proposed AM broadcast standard, Denon designed and manufactured a limited number of tuners incorporating the committee's recommendations.

The Denon TU-680NAB is essentially that tuner, now available to the general public. Its stereo AM tuner

section, using the widely accepted C-Quam system, meets the new AM broadcast standards (AMAX), and its FM tuner section is of comparable quality. A major goal of the AMAX standard was to increase the audio bandwidth of AM programs, as received by the listener, to a range of 50 to 7,500 Hz. To that end, it calls for a 75-microsecond pre-emphasis (the same characteristic used in FM transmission) to boost the level of the high frequencies in the audio program. A fully compatible receiver will have a complementary de-emphasis in its audio section, resulting in an overall response essentially flat over a range of 50 to 7,500 Hz or more (the specifications of the NRSC call for an AM response of 50 to 7,500 Hz +1.5, -3

> Dimensions 171/8 inches wide, 27/8 inches high, and 111/4 inches deep

Price \$600

Manufacturer Denon America, Dept. SR, 222 New Rd., Parsippany, NJ 07054

dB). Since this pre-emphasis has a negligible effect below 2,000 or 3,000 Hz, it will not impair the quality of reception through existing receivers or tuners that do not pass the higher frequencies. If anything, it should slightly improve their sound.

The Denon TU-680NAB is a very conventional-looking component, with none of the "glamorizing" design or styling features often found on stateof-the-art products. It is small and light (less than 7 pounds), with a simple black panel and a conventional grouping of control buttons. A row of ten numbered buttons and an Enter button enable up to thirty preset AM or FM station frequencies to be memorized and recalled. A parallel row of buttons above them controls the tuning mode (auto-mute or manual), intermediate-frequency (IF) bandwidth (wide or narrow on both AM and FM bands), and FM and AM noise reduction (NR/NB). Two large tuning buttons scan up or down in frequency, one channel at a time or continuously until a signal is acquired, depending on the setting of the auto mute/manual switch. A large power button is located at the left end of the panel.

The display window shows the tuned frequency, band, and preset channel number (if applicable), plus legends identifying the operating mode (stereo, mono, auto, manual). A multisegment signal-strength indica-tor and identifying lights for the bandwidth and noise-reduction functions g complete the display.

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<u>test reports</u>

On the rear apron are the output phono jacks for left and right channels and three sets of antenna terminals. These include inputs for the furnished detachable and pivoting AM loop antenna, a separate powered AM antenna or long wire, and a coaxial 75-ohm FM antenna.

Operating the tuner is as simple as can be. Stereo/mono switching is automatic for both AM and FM (with a clear indication of stereo reception in the display window). The bandwidth selector offers narrow-band reception for best interference rejection or wideband reception for highest sound quality with clean signals. The noise-reduction system has distinctly different functions for the two bands. In stereo FM reception, it progressively blends the two channels at high frequencies as the signal weakens, reducing noise while maintaining useful stereo separation at middle frequencies. In stereo AM, it switches in a noise-blanking circuit designed to reduce impulse noise rather than the hiss that can disturb weak FM signal reception.

The tuner comes with a wireless remote control that duplicates the front-panel band-selector, tuningmode, and band-scanning functions as well as providing buttons that automatically scan the preset channels or an entire band.

The instruction "manual" is a single sheet, folded in quarters, explaining the tuner's operating controls and rear-apron terminals and their functions. Although it also includes the usual performance specifications, there is no information on the tuner's special features.

Our laboratory tests confirmed the TU-680NAB's outstanding performance on both the AM and FM bands. Lacking stereo test facilities for AM, we had to judge that aspect of the tuner's performance by listening to stereo AM broadcasts. The stereo indication in the display window lit on six AM channels, although the program material rarely gave any audible clues that it was broadcast in stereo.

The basic quality of its AM reception, however, in respect to both frequency response and noise, was clearly superior to what we are accustomed to hearing on that band. Subjectively, it came remarkably close to FM quality. Unfortunately, the only good music station in the New York area to have simultaneous outlets on the AM

MEASUREMENTS

All figures are for FM only except frequency response.

Usable sensitivity (mono)	f
50-dB quieting sensitivity	
mono I7 dB	f
stereo (wide/narrow)	f
Signal-to-noise ratio (at 65 dBf)	
mono (wide/narrow)	3
stereo (wide/narrow)	3
Distortion (THD + N at 65 dBf)	
mono (wide/narrow)	6
stereo (wide/narrow) 0.10/0.259	6
Capture ratio (at 65 dBf)	
wide/narrow	
AM rejection (wide/narrow) 80/85 dl	3
Selectivity	
alternate-channel (wide/narrow) 48/75 dl	3
adjacent-channel (wide/narrow) 5/20 dl	3
Pilot-carrier leakage	B
Hum	B
Channel separation	
100 Hz	
1,000 Hz (wide/narrow) 62/40 d	B
10,000 Hz (wide/narrow)	B
Frequency response	
FM	B
AM (wide)	B
AM (narrow) 60 to 7,300 Hz +0.3, -3 d	B

and FM bands recently changed the format of its AM facility, so we were unable to make a true A/B comparison between the two modes.

The measured AM tuner frequency response was flat within ± 1 dB from 100 to 8,800 Hz and down 3 dB at 57 and 10,000 Hz in the wide-bandwidth mode. In its narrow-band mode, the response was identical to the wideband measurements up to 3,000 Hz, down 1 dB at 6,500 Hz, and down 3 dB at 7,300 Hz. In either mode, the TU-680NAB was vastly superior to any other AM tuner we have seen in years.

A notice accompanying the tuner advised that its AM noise blanker is effective on impulse noise like that created by some automobile ignition systems but may have no effect on constant noise. We discovered this for ourselves: The noise blanker had no effect that we could discern (our major sources of AM noise are the fluorescent lamps in the lab, and only critical positioning of the AM loop antenna has any effect on that). But I must say that this was the quietest AM tuner we have used in many a year, in addition to its other admirable qualities.

The FM section was equally noteworthy. As with most good tuners, its frequency response was flat within better than ± 0.5 dB from 20 to 12,000 Hz, though it fell off sharply to -1.3dB at 15,000 Hz (not an audibly significant loss). The stereo channel separation, as often happens, was slightly different from left to right than from right to left. The "poorer" of the two displayed 50 dB of separation (outstanding) from 300 to 3,000 Hz and was still a very good 43 dB at 12,000 Hz, above which the separation fell sharply. In the "better" direction, the separation was greater than 60 dB from 350 to 1,200 Hz, falling to about 50 dB between 3,000 and 12,000 Hz. In both cases, the separation fell at low frequencies, where it is subjectively less important, to about 33 dB at 20 Hz. The narrow-IF-bandwidth FM mode considerably reduced channel separation, although it always remained greater than required for subjectively complete stereo separationabout 35 dB across most of the audio range, falling to 25 dB at 14,000 Hz.

The FM 50-dB quieting sensitivity was good in mono and superb in stereo. The "usable sensitivity," which actually has little practical significance, matched the published specification. The other tuner specifications were also verified, and in some cases surpassed, in our tests, within the normal range of measurement error. Especially noteworthy were the 1.1-dB capture ratio, 80-dB AM rejection, and 80-dB image rejection. We verified the rated 75-dB alternate-channel selectivity with the narrow IF bandwidth, and in its wide mode our reading came very close to its 50-dB rating.

Good as these measurements are, the proof of the tuner's quality lies in the listening. Without checking back through years of test files, I cannot say with certainty whether this is the "best" tuner we have ever tested, but my strong impression is that it is. Totally lacking in glamour, it brings AM into almost the same league as FM insofar as audible qualities are concerned. I have no doubt that if AM and FM stations were transmitting the same program, it would be difficult to distinguish between them with much material. The Denon TU-680NAB is a winner if I ever saw and heard one, and a good value at its price.



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TEST REPORTS



Bang & Olufsen Beolab 8000 Loudspeaker System

JULIAN HIRSCH IRSCH-HOUCK LABORATORIES

HE Danish firm of Bang & Olufsen (B&O) is well known for the innovative design of its audio and video products. B&O components are designed for people who appreciate attractive styling as well as good listening or viewing quality and are willing to pay for a combination of those features.



The new B&O Beolab 8000 speaker is an excellent example of the company's approach to product design. Its shape is unlike that of any other speaker, resembling an organ pipe tapering to a mere half inch in diameter at its bottom, where it is fastened to a heavy cast-iron base. The speaker enclosure is a polished aluminum tube 3³/₄ inches in diameter and 391/2 inches long. Each speaker weighs 47 pounds.

The B&O 8000's speaker panel, 51/8 inches wide, is covered by a thin, opaque, nonremovable black grille cloth that effectively hides the drivers. At the top of the conical support section is a hinged door that opens to reveal a multicontact DIN socket, a three-position slide switch, a standard phono jack, and the socket for an AC line cord.

Despite its compact dimensions, the Beolab 8000 is a powered speaker, containing two 80-watt amplifiers and an electronic crossover network. A single 3/4-inch tweeter, cooled and damped by ferrofluid, is located about a foot below the top of the column. Below it are two nominally 4-inch woofers (as closely as we could determine by feeling them through the grille, their actual radiating diameter is about 3 inches).

The crossover from the upper woofer to the tweeter (whose centers are only about 31/2 inches apart) is at 4,200 Hz, with fourth-order (24-dB-per-octave) slopes for both drivers. The lower woofer operates only below 300 Hz, with a 6-dB-per-octave cutoff slope, and reproduces only the lowest part of the system's range. The aluminum tube serves as a vented enclosure, with a 2-inch port located at the top of the panel.

Below the drivers is the compact dual-80-watt amplifier, occupying the bottom 16 inches of the aluminum tube. The response of the bass amplifier is boosted at low frequencies to compensate for the natural rolloff of the small woofers. B&O says that the maximum bass boost in the range of 30 to 250 Hz is about 8 dB. Minor level corrections for different driver sensitivities are made during manufacturing by trimming the amplifier gain, which is said to keep the variation in overall sensitivity from one Model 8000 to 3 another within 0.4 dB. The amplifier's heat sinks, in the front portion of the 8 tubular column, did not become noticeably warm in normal use.

The B&O Beolab 8000 is designed to be driven from the line outputs of a tuner, receiver, tape deck, or CD player. When used with a B&O receiver, the connection is made through a special cable with eight-pin DIN plugs at both ends. The switch within the support structure can be set to drive each speaker from either channel. With a conventional (non-B&O) source component, a single-channel cable fitted with standard phono plugs is used, and the third position of the speaker's selector switch connects its amplifiers to the adjacent phono jack.

The speaker is designed to be plugged into a live socket at all times, which lights a red LED at the bottom of the enclosure. When a signal appears at the input terminal, the speaker switches on automatically, and the light changes to green. If no signal is present for about 2 minutes, the speaker automatically returns to its standby mode.

For our measurements and listening tests, we placed the B&O Beolab 8000 speakers as we would any conventional speakers, several feet from any wall. They were driven directly from laboratory signal generators or a preamplifier instead of a power amplifier.

With minor variations, the composite frequency-response curve sloped down with increasing frequency from a maximum in the 60- to 120-Hz range to a plateau about 8 dB lower between 2,500 and 12,000 Hz, then rose about 5 dB from 12,000 to 20,000 Hz. The "raw" room response was similar above 300 Hz, where there was a slight peak of about 5 dB. It returned to the midrange level at 180 Hz and was remarkably flat below that point, within ± 1.5 dB from 60 to 200 Hz. Output dropped precipitously below 60 Hz, at about 24 dB per octave.

Response measurements on the tweeter's axis, with a sweeping onethird octave noise band, roughly confirmed our other measurements, specifically the elevated output at 300 Hz (4 dB in this case). The tweeter's dispersion was very good, with the response 45 degrees off-axis only 2 dB down at 10,000 Hz and 8 dB down at 20,000 Hz.

Quasi-anechoic MLS frequency-response measurements showed a relatively flat response above 4,000 Hz (in the tweeter's range) and a drop of 3 to 5 dB between 1,500 and 4,000 Hz. These response aberrations, it must be

<u>TEST REPORTS</u>

realized, are quite moderate for a loudspeaker and should not be compared with the response measurements of electronic components.

The sensitivity of a powered speaker cannot be compared directly with that of a conventional speaker. The Beolab 8000 required an input of 400 millivolts (mV) of wide-band pink noise to generate a 90-dB SPL at 1 meter. That result suggested, and we confirmed it by our use tests, that the speaker can be driven to very adequate listening levels by any normal stereo component.

To measure the woofer distortion, we drove one speaker with a constantlevel 400-mV signal stepping from 20 to 2,000 Hz. In a close-miked measurement with our Audio Precision test system, distortion readings probably exacerbated by the amplifier's bass boost—were rather high below 100 to 200 Hz. We obtained readings in the vicinity of 1 percent from 300 to 2,000 Hz, rising to 10 percent at 100 Hz and a maximum of 30 percent at 50 Hz.

To put these figures into perspective, the bass *sounded* solid and surprisingly potent—one would never suspect that it was generated by two tiny cones. In listening to a variety of program material, we found the Beolab 8000 to have a very adequate bass response, comparable to that of many compact conventional speakers. With most music, the Beolab 8000 was able to play surprisingly loud in our listening room (loud enough to interfere with conversation) without sounding strained or distorted. As with almost any speaker, a good subwoofer would be helpful, but we did not find the bass lacking in any substantive respect, and any such deficiency would be more than compensated for by the speaker's remarkable invisibility.

I use "invisibility" advisedly. Not only does this speaker fit almost any decor, but it is certainly one of the most *audibly* invisible speakers available. The sound simply fills the space at the front of the room, never appearing to come from the slender aluminum and black columns. And, not incidentally, the apparent instability of these relatively tall speakers, each supported by a single $\frac{1}{2}$ -inch stainlesssteel bolt, is also an illusion (although I wouldn't want them to share a room with small children). They *can* be tipped over, but not easily.

You do pay a price for the combination of acoustical and aesthetic qualities built into the B&O Beolab 8000 speakers. At \$3,000 a pair they're not cheap, but the price is quite reasonable when you consider the sophistication of their design, the quality of their construction and sound, and the elimination of the need for a bulky and expensive power amplifier.



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 STEREO REVIEW

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Klipsch kg^{2.2} Loudspeaker System

JULIAN HIRSCH HIRSCH-HOUCK LABORATORIES

HE Klipsch kg^{2.2} is a compact twoway speaker with two 61/2-inch woofers in a vented enclosure that cross over to a horn-loaded tweeter at 2,200 Hz. The woofers are located near the top and bottom of the speaker panel, with the tweeter between them. Like other Klipsch speakers, the kg^{2.2} has aboveaverage efficiency, with sensitivity rated as 93 dB sound-pressure level (SPL) at 1 meter with a 2.83-volt drive signal. Its nominal impedance is 8 ohms, its frequency response is specified as 50 to 20,000 Hz \pm 3 dB, and it is recommended for use with amplifiers rated up to 75 watts output.

The speaker's wooden cabinet has a removable black cloth grille. Bindingpost terminals recessed into the rear of the cabinet, just below the enclosure vent, accept wire ends, lugs, or dual banana-plug connectors.

For room-response measurements

and listening tests, we placed the speakers on 26-inch stands, 3 feet in front of a wall and about 8 feet apart. The room response was excellent, with an overall variation of about 5 dB from 60 to 20,000 Hz, except for an unavoidable floor reflection that introduced a 5-dB peak at 270 Hz.

The close-miked woofer response, when combined with the port radiation, resulted in a response curve that varied about ± 2.5 dB from 30 to 200

> Dimensions 19¼ inches high, 9¼ inches wide, 9¼ inches deep

> > Finish Oak veneer

Price \$450 a pair

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What the competition will be using for target practice this year.



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<u>test reports</u>

Hz and sloped off smoothly to about -12 dB at the nominal 2,200-Hz crossover frequency. Obviously, no simple or unambiguous splice would be able to create a believable response curve combining the close-miked and room responses. But when we ignored the floor-reflection peak in the room curve and assumed that the response was reasonably flat between 150 and 400 Hz, the two curves matched up very nicely to form a composite response varying only about ± 3 dB from 30 to 20,000 Hz.

While the kg^{22} system's actual variation in response through the bass and lower midrange is arguable, our ears provided convincing evidence that a pair of these speakers can generate an impressive output in the 30- to 60-Hz range. True, there were audible amounts of harmonic distortion, but the fundamentals were unmistakably there.

The horn tweeter had somewhat narrower dispersion than typical small dome tweeters, causing the high-frequency response at 45 degrees off-axis to be down about 6 dB at 10,000 Hz and down 14 dB at 20,000 Hz.

A quasi-anechoic MLS frequencyresponse measurement, although differing in many respects from the room measurements, confirmed the reality of a dip in output in the vicinity of the crossover frequency. Depending on the measurement conditions, the dip ranged from 2 to 5 dB, but it was clearly a real effect, appearing in every measurement (except room response, which tends to smooth out irregularities in a speaker's response). Another indication that all was not ideal at the crossover point was the group-delay plot, which showed a sharp jog from 800 to 100 microseconds at that frequency.

Woofer distortion, measured with a 2.12-volt drive to the speakers (equivalent to a 90-dB SPL in our sensitivity measurement), was between 1 and 2 percent from 70 to 2,000 Hz, rising to the 5- to 9-percent range between 70 and 20 Hz.

The 8-ohm impedance rating of the $kg^{2/2}$ seems unrealistic, since its impedance remained well under 8 ohms for most of the range below 1,000 Hz. The lows were 4 ohms at 50 Hz and 3.5 ohms between 120 and 400 Hz. The bass-resonance peaks of 22 and 16 ohms occurred at 24 and 90 Hz, respectively. Fortunately, the speaker's

high sensitivity means that there is little likelihood of amplifier overload, even with amplifiers specifically *not* recommended for use with loads lower than 8 ohms.

Despite its high sensitivity, the Klipsch kg^{2.2} was able to handle very high peak input levels without distress or damage. At 1,000 and 10,000 Hz, the amplifier clipped at 900 watts output into the speaker's 8-ohm impedance with no signs of difficulty from the speaker. With a single-cycle 100-Hz tone-burst signal, the woofers began to sound hard at a few hundred watts, and we stopped at 550 watts into their 10-ohm impedance at that frequency even though the speaker cones were not audibly bottoming. These measurements should convey some idea of the high peak sound levels the $kg^{2.2}$ can generate—most comparably small full-range speakers would require several kilowatts of input to play as loud!



The Klipsch $kg^{2.2}$ sounded very smooth and well balanced, quite consistent with the final composite response curve we had created. As mentioned earlier, the bass was both smooth and deep, and the highs were as extended and effortless as one could wish. In listening to music, the crossover dip was never audible.

All in all, the $kg^{2.2}$ was a very easy speaker to listen to for extended periods. It's a fine choice for those who want good sound quality, high output capability, and an attractive appearance at a very affordable price.

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CONSIDER for a moment now much time you spend in your car. If you're like many Americans, you probably pass upwards of 15 percent of your waking life behind the wheel—which works out to a pretty hefty chunk of your potential leisure. It's no wonder that car stereo sales are booming and that an estimated one household in ten now has a CD-equipped vehicle in its driveway: Music is a great traveling companion, and the music most worth listening to—in the car as elsewhere---comes from CD's.

Just a few years ago, outfitting an automobile for CD playback was a project reserved for car-fi aficionados with extensively customized installations and generous budgets. No more: Equipment prices have plummeted, and automotive CD options are now legion.

The Quick Fix

BY

Although there is an abundance of dedicated car CD players and changers to choose from, Discman-type portables are still a very popular means of getting CD into the car---perhaps because they offer a quick-fix

DANIEL KUMIN

A guide ło gełłing CD inło your car





prevent vibrations from reaching the laser pickup mechanism, an airtight aluminum chassis, a 20-bit D/A converter, and a coaxial digital output.

Sony's top-of-the-line CDX-U8000 CD tuner (\$680) features controls for the company's Unilink CD changers, highspeed music search, an AM/FM radio with diversity tuning, and an antitheft detachable faceplate.



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Blaupunkt's Sante Fe cassette receiver (\$400) is a removable-chassis model featuring controls for the company's CDC M4 CD changer, Dolby B and Dolby C, and an AM/FM radio with diversity tuning. Maximum output is 25 watts into each of two channels. Kenwood's KDC-9000 CD tuner (\$550) uses two 1-bit D/A converters per channel. Highlights include an AM/FM tuner with twenty-four station presets, an automatic muting circuit for a cellular phone, and a detachable faceplate to deter theft.





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Clarion's Model 5632CD CD receiver (\$350) is a fixed-chassis model featuring 1-bit D/A converters, linelevel outputs, and an amp with a continuous-power rating of 12 watts each into two channels.





Highlights of Alpine's Model 7807 CD receiver (\$550) include a 20-bit D/A converter, CD-changer controls, an AM/FM tuner with strongest-station presets, and a detachable faceplate for security. Maximum power output is 30 watts into each of four channels.



Denon's DCH-700 five-disc changer (\$700) measures 7 x 2 x 10½ inches, making it suitable for installation in some dashboards. Operation requires a Denon head unit with CD-changer controls.



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Pioneer's DEH-M990DSP CD receiver (\$950) boasts a DSP section offering four ambience modes, a three-band parametric equalizer, and an imageshift control. CD-changer controls are also included.

JVC's KS-RX835 (\$800) combines a 1-bit CD player, a cassette deck with Dolby B, an AM/FM tuner, and a fourchannel amplifier in a "double-DIN" chassis. Highlights include an auxiliary input and a subwoofer output with level control.



solution. Ranging in price from about \$150 to \$500 (including several models specifically enhanced for in-car use). portable CD players can be powered via a cigarette-lighter adaptor or a 12volt adaptor that's hard-wired to the car's electrical system. The easiest way is to route the CD signal to an existing autosound system via an inexpensive cassette-shaped adaptor (supplied with some portables) that converts the CD output into magnetic signals that are picked up by the tape deck's playback head; you plug the wire from the adaptor into the player's auxiliary or line-out jack and insert the fake-cassette portion into the head unit's tape slot. As you might expect, the downside to this method is poorerthan-cassette frequency response and distortion (though the dynamic range is better than a cassette's).

For fidelity's sake, it's best to tap directly into the head unit's preamp stage. Fortunately, a growing number of after-market head units—and even a few stock models—have a frontpanel minijack for this purpose.

W do you keep your portable from flying across the car when the guy in front of you slams on his brakes? While you could affix the unit to your dash or console with Velcro, it makes more sense to use a mounting kit like Scosche's PDS-1 (\$35) or Geneva's PF-795 (\$60), both of which provide quick-release mounting and a vibration-damped platform; Geneva's kit even has integrated power and au-

dio leads. Portable CD players provide an easy way to get CD into any vehicle, but built-in players typically offer superior road-going performance, ease of use, and security. The variety of models is somewhat staggering, but they can be divided into two broad categories: in-dash radio/CD units, which offer at-hand disc changing and access to multiple sources, and hideaway CD changers, which have the same long-play capability that has made changers such a huge hit in the home. Both types are available from all major car stereo makers-and over a very wide range of prices. Which CD component or configuration is right for you depends on your vehicle, existing audio system, taste, and budget.

One Disc at a Time

Single-play in-dash CD/radio head units cover the widest range of prices—from less than \$300 to \$1,000 or more. They let you change CD's on the fly (with a little practice), and most



include a full complement of familiar CD features such as shuffle play, track skip/search, and repeat, to say nothing of AM/FM tuner features. (A handful of CD-only heads are available, but the vast majority are CD receivers, which include a tuner and a modest power amp.) Extra features that you may find in more expensive models include direct track access, which lets you select a particular track by keying in its number rather than having to skip-search to the desired cut; intro scan, which previews each track; a wireless remote control, which gives passengers or the driver control without reaching across the car (that may sound silly, but it can be quite handy); and selectable illumination, which lets you match the head's display color to that of the car's dashboard display.

On-board power is one feature that deserves careful consideration. CD head units come in three basic forms: preamp-only CD tuners, which typically offer front and rear line-level outputs for connection to one or more outboard power amplifiers; "highpower" CD receivers, which are typically rated to deliver 20 to 30 watts per channel-some have four outputs to run both front and rear speakers; and standard CD receivers rated to deliver 5 to 10 watts per channel. A word of caution: Head-unit power ratings are almost always generous, many being specified at unrealistically high distortion levels. A typical "30-watt-perchannel" head unit will usually yield no more than 15 watts per channel, tops, if it is held to home-hi-fi standards of distortion and bandwidth.

For legitimate high-fidelity reproduction at realistic listening levels, a CD-based car system demands substantially more power than the typical head unit is capable of delivering—in order to enjoy the CD format's wide dynamic range, you need enough power to overcome road, wind, and engine noise. Although multispeaker highend systems with four, six, or more amplifier channels are not uncommon, many systems get by with a two-channel setup that delivers a legitimate 30 to 100 watts per side. On the other hand, a system consisting of four highly efficient, properly installed speakers and a modestly powered CD receiver with four outputs may do the job quite nicely for casual, background-level listening.

Jukebox on Wheels

Nearly all car CD changers have either a six-disc or a ten-disc loading magazine, although there are a few twelve-disc models on the market and at least one that handles eighteen discs. Most fall into the \$400 to \$1,000 price range, including a control module. Ten-disc models obviously offer longer unattended playback, for those cross-country marathons; six-disc changers tend to be smaller, able to fit in tighter spaces (like the glove compartment). If the idea of swapping CD magazines between your home and car appeals to you, compatibility with your home CD changer may be the deciding factor.

EGARDLESS of capacity, most changers offer two control options: a handheld or dashmounted controller that's wired to the changer, or a CD or cassette head unit of the same brand with built-in changer controls. While both perform basic CD functions, dedicated changer controllers tend to offer a higher level of control. On the other hand, using a cassette receiver with changer controls sets the stage for a three-source system, and a CD receiver with changer controls offers both long-play and instant-access CD options.

In the past, changers have been fairly bulky, requiring mounting in the trunk, rear-hatch area, or, at best, under a seat. But multidisc hardware is shrinking. It's now possible to install many six-disc and even some tendisc changers in the glove compartment or center console, under a seat, or in other creative spots. Up-front mounting greatly simplifies magazineswapping and disc-loading. The downside is that a passenger-compartment changer is one more target for thieves, and it can eat up valuable storage space.

Wiring a CD changer to an existing autosound system presents several challenges—principally, getting the

changer's signal into the system. Using a changer and a head unit/controller from the same maker avoids the problem: The changer's output feeds into the head, yielding integrated volume, tone, and CD control. Otherwise, a popular solution is to use an FM, or RF (for radio frequency), modulator, a device that converts the output signal from a changer (or singledisc player) into an FM radio signal and feeds it to the antenna input of a car tuner (after-market or stock). Most major brands offer RF modulators for about \$70, or about \$100 along with a CD controller, or as part of a package with a changer. All work similarly, requiring you to tune the host radio to a specified frequency (usually at the extreme lower end of the FM band) to pick up the CD signal.

RF conversion is simple, cheap, and clean, as it imposes no cutting of wires or extensive new cabling-and in the case of some stock systems it may be the only option. But because the RF modulators are confined to FM's 15,000-Hz high-frequency limit, and limited as well by the intrinsic quality of the existing head unit, they fall far short of delivering full CD-quality sound. To preserve sound quality, you can go another route and install a current-sensing switch that accepts line-level inputs from both the head unit and the CD component, automatically selecting whichever is playing. Although such devices cost just \$35 to \$80, this setup is feasible only in a component system that uses outboard amplifiers.

Taking Stock

Retrofitting an after-market CD component to a factory-installed stereo system has long been a tricky undertaking because of the anonymous wiring schemes used by car makers, but it's getting easier. Alpine, for example, offers a line of car-specific Shuttle Link adaptors, starting at about \$25, that enable you to plug one of several six-disc changers (or a single-play CD player) directly into the wiring harnesses of most vehicles. Sherwood has responded to the interface dilemma with its EZ-Link system, standard on all its new head units: All wires are color-coded according to Electronic Industries Association standards so they can be easily connected to a car-specific adaptor that plugs directly into the car's wiring harness. And "OEM interface" kits are available from several after-market accessory companies, including Scosche.

More Twists and Turns

In-dash changers are the latest wrinkle in car CD. At least two are now available: Alpine's three-disc Model 7980 (\$900) and Denon's five-disc DCH-700 (\$700). The Alpine changer comes with a tuner in an outboard chassis that must be installed somewhere close to the head unit. Denon's changer-only design requires a compatible head unit/controller for operation, and though it conforms to the width and height of a standard DIN dashboard cutout, it's a few inches too deep to fit in some dashboards. Compared with single-disc players, both of these changers sacrifice fast discswapping: Neither accepts a single CD for immediate playback (a cartridge must be ejected to change discs). In exchange, however, both provide extended play and in-dash convenience.

Handling CD's and cassettes in a single in-dash setup is by no means out of the question. One option is an outboard CD changer and a head unit/ controller from the same manufacturer, as mentioned earlier. But putting both discs and tapes at your fingertips requires two head units. CD-only players from Alpine, Pioneer, Sony, and others can be stacked above or below an existing cassette head (provided there's space), after-market or stock, and integrated by means of existing auxiliary inputs, an outboard switcher (where feasible), or an RF modulator. For ground-up installations, or if you want to upgrade a stock cassette receiver, several firms, JVC and Pioneer among them, offer "double-DIN" tuner/CD/cassette head units. Twice the height of a standard cassette or CD head, these are designed primarily to replace the double-deck setup in many popular vehicles, especially Japanese imports. The double-DIN solution crams all-mode utility into a single, fully integrated package.

Don't Scrimp on Installation

Unless you are exceedingly handy with wire cutters, crimp connectors, shrink-tubing, continuity-checkers, and soldering irons, unless you know what a ground loop is, and unless you're able to contort yourself into awkward under-dash crannies, a qualified, experienced installer is by far the most important component of any mobile-CD conversion. There are no hard-and-fast rules for locating such an individual. Of course, if you buy your CD gear from a car stereo specialist or an audio salon experienced with mobile electronics, that's the first

One factor to consider early in the shopping process is security. Car stereo theft is a serious problem almost everywhere today. Fortunately, equipment makers have responded with increasingly sophisticated countermeasures. The newest-and most popular-solution is the detachable-face head unit, a design pioneered (ahem!) by Pioneer but now offered by several major brands. Instead of removing the entire head unit from the dash, as you would a pull-out model, you hit a release button and remove only its faceplate-complete with all buttons and knobs, the display, and even some critical circuitry-leaving behind a nondescript black panel. Only the most dimwitted thief would consider a faceless chassis worth the effort of a brick through the window.

Pull-out head units offer a greater level of security than detachable-face models.

place to check. Confine your search, at least initially, to establishments that have been in business for a year or two, and don't be afraid to shop around for both price and quality. Ask how familiar a shop is with your particular car model, system, and add-on gear. Most reputable outfits can show you a portfolio of their best work and supply references.

Whatever you do, don't scrimp on installation—even of relatively inexpensive gear. CD players or changers that are improperly installed are more likely to skip when you hit rough terrain, putting a serious damper on your CD enjoyment. A penny saved can easily turn into a dollar lost. because you can't steal what's not there. The problem is that they're bulky and therefore less likely to be removed every single time you leave the car—the only sure deterrent. One forgetful or lazy moment is all it takes. Still, pull-out models are more widely available than their detachable-face counterparts, especially in the lower price range.

A CD changer mounted in the trunk offers the least theft potential, assuming that its control module is hidden and you don't leave stacks of CD's lying around in plain view. Of course, a whole-car alarm system—complete with shock and motion detectors—is never a bad idea, particularly if you own a nice set of wheels and live In the city. Most car stereo specialists also sell, install, and are knowledgeable about automotive security packages. It pays to take a look at what's available. —D.K.

NE last word of warning: Once you begin listening to CD's in your car, you may quickly decide you need new speakers, power amplifiers, equalizers, crossovers, digital signal processors, and, ultimately, a newer, cushier, quieter car in which to listen to them. As with home audio. car CD components are more demanding of associated equipment than are their analog counterparts, and they may prove to be every bit as addictive as their indoor cousins. But, unlike most other vices, this one won't hurt anything but your pocketbook. And there's at least one beneficial side effect: sweet music.

STEREO REVIEW MAY 1993 59



SECURITY



THIRTY-FIVE YEARS OF AUTOSOUND From AM to DSP: What a long, strange trip it's been!

IN its thirty-five-year history, STEREO REVIEW has witnessed extraordinary developments in autosound, whose humble beginnings trace all the way back to the early 1900's. From bulky boxes crammed with tubes and inefficient hand-wired circuits to microprocessor-controlled wonders, it's been an exciting—and at times quirky—journey. Technical revolutions have appeared at almost every turn, and new products have popped up out of nowhere, some to stay, others to vanish as quickly as they arrived. The road of progress has been straight and smooth for some companies, filled with twists and turns for others. One thing is certain: Whether you lived through those years or can only read about them, the following chronology—which begins when the magazine did, in 1958—should convince you that no matter how strange the road, it's been a very fast ride indeed. Read straight through, or pick out your favorite years; either way, you'll discover, or rediscover, that there have been few dull moments in the evolution of car audio.



1958 AM radios with mechanical pushbuttons reign supreme. Most use only vacuum tubes, but some have Class B transistor outputs. New 12volt-plate tubes eliminate the need for bulky, voltage-hungry tube power supplies. Pontiac introduces the Delco Sportable AM radio (called the Transportable in Oldsmobiles), which can be pulled from the dash and run on household batteries. An add-on FM tuner is optional in the Lincoln Continental. Record labels tentatively plunge into stereo recording. The première issue of a new magazine called HiFi & Music Review rolls off the printing presses.

1959 Motorola's under-dash FM-900 is the first FM car radio to be massproduced in the U.S. RCA's AP-1 car record changer provides automatic playback from a stack of fourteen 45rpm discs; the records are played upside-down to facilitate storage. Ford discontinues the Edsel.

1960 Numerous companies begin making all-transistor AM radios, many with Class A amplifiers and five pushbutton presets; their arrival signals the end of the vacuum-tube era. Transistorized radios are smaller, more durable, and draw less power from the car battery than tube models. Sales of Motorola's FM-900 exceed projections by 60 percent; one-third of all car radios are made by Motorola. Chrysler offers the RCA-built Ultra-Fi 45-rpm record changer as an option in some models—its second stab at selling record players. *HiFi & Music Re*- view becomes HiFi/Stereo Review. Howdy Doody goes off the air.

1961 Mechanical search tuning is a feature of some radios: A small motor moves the dial, stopping automatically on strong stations. Delco's Wonder Bar radio, offered in the Chevy Bel Air and other cars, popularizes this feature. Ford acquires Philco, a major radio supplier. The FCC approves stereo FM broadcasting. Chubby Checker's *Let's Twist Again* nets a Grammy.

1962 Chrysler is at it again: This time the company introduces a trunkmounted spring-reverb unit and an independently amplified rear speaker both radical for the time. Originally designed for broadcast and background-music applications, the fourtrack Fidelipac cartridge format is adapted for use in the car; tape speed is 3³/₄ ips. Astronaut John Glenn takes a spin around the earth in Friendship 7. Marilyn Monroe dies.

1963 The first combination AM/FM radios appear from Delco, Ford, Motorola, and others. Several companies now market 45-rpm record players. Heathkit's GR-41 under-dash FM radio makes its debut; it contains ten transistors, weighs 7 pounds, and costs \$65. President John F. Kennedy is assassinated.

1964 Autostereo markets an underdash four-track Fidelipac tape player, and the format grows in popularity; half-hour, one-hour, and two-hour playing times are available. Early four-track manufacturers include Metravox and Craig. Among the rarest (and wackiest) of car audio products: car LP players. Ford introduces the Mustang. The Beatles rule the charts.

1965 Motorola, RCA, and Ford join to manufacture the first eight-track tape players for the auto market. The wide availability of high-frequency transistors enables mass production of solid-state AM/FM radios; typical units have three AM and two FM mechanical presets. The incompatible Orrtronics-Consino four-track cartridge system appears briefly. Delco Electronics ships its 50 millionth radio. President Johnson orders air strikes in North Vietnam.

1966 Tape mania sweeps the country, starting in California and Texas. If you are a male high-school student who has a car, you own-or intensely desire to own-a Muntz four-track under-dash tape player. Typically impressive four-track specs are frequency response of 100 to 8,000 Hz, channel separation of 20 dB, and power output of 3 watts per channel. RCA and Lear Jet (yes, the aeronautics company) bring the Stereo-8 eighttrack cartridge system to market; tape speed is 3¼ ips, and a single, continuous-loop cartridge holds four 20-minute stereo programs. Critical listeners consider the eight-track format sonically inferior to four-track, which is less expensive to boot, but four-track players require manual track switching, whereas eight-track switching is automatic. Ford offers an AM radio/



eight-track tape player in select cars.

Norelco (Philips) markets the portable Carry-Corder 150 featuring the new Compact Cassette system; it has a tape speed of 17/8 ips and offers a halfhour of recording/playing time per side. An automobile mounting bracket is available, and the deck can record from a microphone or directly from high-level sources like the car's radio. The cassette format is given little chance against the established cartridge formats because it's incompatible and its fidelity is mediocre, though it does offer the novel convenience of fast forward and reverse. Miniskirts are in thanks to Twiggy.

1967 Alps Electric of Japan and Motorola form Alps-Motorola, Inc., in Japan to build car audio products. Nineteen days later, the company demonstrates the first Japanese-made eight-track car player. RCA's ads for Stereo-8 hail the format as "the Detroit-approved system for new-model cars." More than 40 percent of all Thunderbirds are ordered with eighttrack players. SJB introduces the Model 603M/48 player, which accommodates both four-track and eighttrack cartridges (\$130), and the ST1008 combination eight-track/stereo FM radio (\$300). Norelco introduces its first stereo cassette player designed for car use, featuring a "letterbox" loading slot. Aiwa introduces the TP-718 under-dash monaural cassette player; output power is 1 watt through a built-in 3¹/₂-inch speaker. High-end car audio pioneer Paul Stary and others open small autosound shops. Chevy introduces the Camaro. The Monterey Pop Festival introduces Jimi Hendrix to the U.S.

1968 Chrysler introduces the wonder of the decade-an eight-track player with a built-in AM/FM radio. Lear Jet offers under-dash eight-track decks with fast forward and an AM or FM radio (with an optional multiplex adaptor for stereo reception); Craig also offers an eight-track/FM combo. More than three million eight-track players are sold. Cartridge prices range from \$3.50 to \$6. To fit musical selections between track switching points, record producers routinely shorten some works and pad others by dubbing in repeats of certain passages. Classicalmusic lovers lament the lack of orchestral titles. The cassette format gains in popularity. Blaupunkt offers the Derby auto/portable cassette recorder. Mercury, Musictapes, and Dubbings Electronics are among the few companies that sell prerecorded cassettes. HiFi/Stereo Review becomes Stereo Review. Martin Luther King, Jr., and Senator Robert F. Kennedy fall to assassins.

1969 Sales of four-track players fade, and car cassette players are dismissed by the eight-track community as a flash-in-the-pan technology. The Lear Jet Model A-50 eight-track player sells for \$60. Stereo FM car radios become more popular, but their multiplex decoders typically lack stability and do not maintain good performance over time. The Woodstock rock festival makes a lasting impression, as does Neil Armstrong when he leaves the first human footprint in the gray lunar dust—best of all, we see it live on TV.

1970 Floor-mount ("hump-mount") eight-track players dominate the scene; many have built-in speakers that are conveniently located next to the driver's ankles. Floor-mount cassette recorder/players are also marketed: Chrysler offers one, as an option, that can record from the radio or the supplied microphone; the Webcor Model 1115 boasts a frequency response of 80 to 10,000 Hz. The Utah SA-55 stereo speaker kit sells for \$30. It includes a pair of 5¹/₄-inch dual-cone speakers and snap-on chrome grilles for installation in car doors; power handling is 5 watts. Ken Pohlmann buys his first vehicle, a 1948 Willys Jeep; it does not have a radio. Worse, late one night he discovers that it also does not have reliable brakes.

1971 In-dash autoreverse cassette players appear from Clarion and others. Sony/Superscope introduces the TC-10 hump-mount cassette player. Sales of cassette players increase steadily yet slowly as eight-track continues to dominate the market.

1972 Simple integrated circuits (IC's) are introduced in preamplifier and amplifier stages, improving reliability and decreasing package size and complexity. Pioneer establishes a car audio division in the States. Jensen introduces a 6 x 9-inch speaker with a coaxially mounted 3-inch tweeter soon to find its way into countless rear decks; price is \$70 a pair. Craig and others introduce cassette-listening drivers to Dolby B noise reduction; the modern era of car stereo is born. Olympic gold-medalist Mark Spitz becomes an instant celebrity.

1973 "High-power" enters the autosound lexicon with the debut of Craig's PowerPlay line of under-dash



eight-track and cassette players (some with a built-in radio), which feature 12 watts per channel. The terms "Watergate" and "expletive deleted" enter the U.S. vocabulary (thank goodness daytime talk shows haven't been invented yet). Detroit begins making vehicles that comply with tough new emissions standards; muscle-car enthusiasts go into mourning.

1974 Blaupunkt owns the high-end cassette-player market. ADS introduces the Model 2001 biamplified minispeaker system. The \$495 package includes 1-inch tweeters, 4-inch woofers, and a standalone 160-watt amplifier with the industry's first switching power supply-soon to be the accepted method of getting high power output from a 12-volt battery. Reviewer Richard Heyser comments: "It's not a Klipschorn, but it is clean as far down as it goes, which is plenty low." Highquality AM/stereo FM tuners and eight-track players are combined in one component; some models even contain CB (citizen's band) transceivers. Chrysler introduces a dramatic new look in radio styling: the "flat face"-the forerunner of contemporary head-unit styling. Sales of eighttrack players begin to fade, but Detroit is slow to respond to demand for cassette players. Hank Aaron breaks Babe Ruth's home-run record.

1975 IC's are used for FM detection, phase-locked-loop (PLL) stereo decoding, and audio output stages, improving tuner stability and overall reliability. Linear Power introduces a forward-looking three-channel amplifier with a built-in crossover that delivers 30 watts each to two channels and

60 watts to one (for a woofer). The shift from eight-track tape players to cassette players is suddenly swift; prototype eight-track/cassette combos are abandoned for lack of interest in eight-track. Sony introduces its first two-shaft in-dash cassette receivers. The CB boom is in full swing.

1976 Pioneer introduces the KP-500 cassette player/FM tuner, featuring Supertuner circuitry for improved reception and a huge rotary tuning dial that even by 1976 standards is considered very funky. Jensen introduces the industry's first triaxial speaker, with a midrange and tweeter suspended over a 6 x 9-inch woofer. Power boosters, which reamplify the receiver's already amplified output, are hot. Clarion offers the first graphic equalizer/power booster. The ADS Model 2002 powered speaker system and Nakamichi 250 portable cassette player are marketed together as a \$670 car package. AudioMobile introduces the SA-500 amplifier, which delivers 20 watts with only 0.3 percent distortion, and is the first company to display a vehicle with a car stereo system at the Summer Consumer Electronics Show (CES); crowds gather for nonstop demos. Zapco opens its doors, selling a 100-watt amplifier manufactured in an old farmhouse that was built by company president Robert Zeff's grandfather. The Bicentennial party begins.

1977 Car stereo surpasses CB as the most talked about automobile electronics product. Alps-Motorola is a major supplier of after-market cassette receivers. Concord introduces the first cassette deck with preamp outputs, Clarion the SK99 three-way

plate speaker for rear-deck mounting, and Linear Power a 250-watt power amplifier with a separate power supply that sparks curiosity among home audiophiles. Combination AM/FM/CB transceivers appear as a factory option from Ford and others. Delco Electronics ships its 100 millionth radio. Sales of home videocassette recorders take off like a rocket. Saturday Night Fever shoves the disco craze into overdrive. Elvis Presley dies at age forty-two.

1978 Chrysler introduces one of the first electronically tuned receivers (ETR's), featuring electronic search tuning and station presets. Quartz-PLL tuning becomes widely available. The Alps-Motorola joint venture is amicably dissolved, and Alps Electric of Japan forms Alpine of America. Fujitsu Ten offers a cassette receiver with Dolby B noise reduction. The first test-tube baby is born.

1979 Pioneer dominates the aftermarket cassette-player scene. ADS introduces the L300i two-way plate speaker and the 100-watt Power Plate 100 amplifier. Reviewer Joe Hanna says the duo "... gave me all the guts and clarity I would ever ask of a car system." Sony introduces a separates line with cassette decks, tuners, a novel nine-band graphic EO, and more than a dozen speakers. Ford offers an electronic AM/FM radio with a quadraphonic eight-track player-even though four-channel, or "quad," is dying in the home market. The CB boom goes bust, and many ex-CB dealers open autosound specialty shops. OPEC tightens the oil supply and long lines form at gas stations everywhere. "Three Mile Island" and



"Ayatollah Khomeini" become part of the nation's vocabulary.

1980 Kenwood enters the car stereo market with cassette players featuring automatic noise reduction. The use of bridged IC's enables higher-power receivers. Ford options include a cassette player with Dolby B noise reduction and a six-speaker system. Japan builds eleven million cars, surpassing Detroit as the world's largest automaker. Ex-Beatle John Lennon is gunned down in New York City. Mount St. Helens blows.

1981 Advertisements for the ADS CS400 subwoofer/crossover system advise readers that "frequencies below 80 Hz can now be heard!" A novel extension of the personal-stereo boom, Sony's XRM-10 Music Shuttle in-dash AM/FM tuner provides a caddy for a Walkman cassette player. Delco replaces its aging mechanically tuned radios with electronic models and celebrates the production of its 200 millionth car speaker. The stainless-steel DeLorean sports car makes a brief appearance on the assembly line. The space shuttle Columbia embarks on its maiden voyage.

1982 The Delco/Bose premium sound system is announced as an option in the 1983 Cadillac Seville and other upscale GM vehicles. Heralding a new era of competitiveness between factory-installed systems and after-market rigs, it's the first sound system tailored to the acoustics of a specific vehicle. Cassette receivers with IC outputs are widely available. Sony offers a three-way component speaker set with an 8-inch woofer. The compact disc is introduced for home applications. Honda starts car production in the U.S.

1983 Kenwood introduces a cassette receiver with an unheard-of twenty-four AM/FM presets that automatically switches to the radio during fast tape winding. Audiophiles rejoice when Nakamichi introduces its first car cassette tuner, the TD-1200, which features the same azimuth-control system used in its top home deck, the Dragon. GM and Toyota agree to produce a subcompact car in the U.S.

1984 Compact disc hits the road with Pioneer's CDX-1 player (first in the world) and Sony's CDX-5 and CDX-R7 player/preamps (first in the U.S.). All three are in-dash units, but the CDX-R7 is the only one with provisions for AM/FM radio (via a hideaway tuner box). Sony executives gingerly transport the one-and-only CDX-5 prototype on a pillow as they make their way from Chicago's Knickerbocker Hotel to the Summer CES in a taxi. Some critics wonder how anyone could use 90 dB of dynamic range in a car and claim that there's no way to stop CD players from skipping.

Kenwood's KRC-626 cassette receiver is one of the first heads to feature a removable chassis; it slides in and out of the dash on a special bracket and uses pin connectors for the audio and power connections. A leader in the booming cassette receiver market, Alpine downplays car CD as it becomes the first Japanese firm to manufacture autosound equipment in the States. Nakamichi and Precision Power are among the first to offer multichannel power amplifiers: Nak's four-channel PA-350 boasts 35 watts each with 0.005 percent THD; Precision Power's PPI-475 delivers 75 watts each to four channels and has a built-in crossover. Southern Audio Services (SAS) introduces the tube-enclosed subwoofer; its patented Bazooka Bass Tube is offered first in Texas and Louisiana by company president Jon Jordan during a sales blitz financed by his mother's credit card. The last eight-track products finally disappear.

1985 Prototype DAT players appear at the Winter CES in Las Vegas. Ford inaugurates its premium twelvespeaker Ford/JBL system in the Lincoln Continental. Kenwood combats turn-on "blast" with a circuit that automatically reduces volume when the head unit is turned off. Alpine introduces the Model 7347 cassette receiver with dbx noise reduction. Chrysler introduces stereo AM radios-nobody pays much attention. Driving his Bazooka-equipped demo pickup truck more than 100,000 miles. Jon Jordan of SAS establishes more than 350 retail accounts nationwide. Sales of home-CD players break the one-million mark. STEREO REVIEW launches its Car Stereo Buyers' Guide.

1986 Sony introduces the first trunkmounted CD changer, the ten-disc CDX-A10. Changers gain instant popularity. A couple of dozen in-dash CD players are available; most are preamponly units, but a few have subchassis tuners. Footnote in history: Alpine introduces a car cassette changer, and everyone wonders why. Ford is the first car maker to introduce a factoryinstalled CD player, offered as an option in the Lincoln Town Car. Denon's



DCC-8900 is the first CD tuner with a slide-out chassis. The Statue of Liberty turns one hundred. Chernobyl melts down.

1987 Pioneer and Sony bring out cassette receivers with controls for remote CD changers. A cartridge loading system for CD's appears in a few head units but never catches on. ADS introduces the industry's first sixchannel power amplifier, the 300-watt PH15, which can be configured for six-, five-, four-, or three-channel operation. Car DAT players are offered by Clarion; consumers show great restraint in purchasing these coveted

units. The Delco/Bose system is now available in sixteen car models. The Acura/Bose system is introduced as standard equipment in the Legend LS Coupe. The Chrysler/Infinity premium sound system makes its first appearance. Motorola manufactures its last auto radio and divests itself of the business. Alpine sponsors the Car Audio Nationals (CAN), which for the first time organizes car stereo competition on a national level. STEREO REVIEW launches Car Stereo Review. Proving once and for all that Monday is the worst day of the week, the stock market crashes on a Monday.

1988 Pioneer's DEH-66 is the first CD head unit with on-board power. High-end signal processors abound: Audio Control's EQT thirty-band trunk-mount equalizer is an instant hit among enthusiasts. Ford offers a DAT player for the Lincoln Continental's ten-speaker Ford/JBL package—the first automaker to do so. Flat-face DIN head units are the rage; traditional two-shaft radios are becoming harder and harder to find. Delco ships its 170 millionth car radio.

1989 Pioneer's KEX-M800 is the showcase for a clever new security feature-the detachable faceplate; the concept spreads like wildfire. Alpine's Model 7909 CD tuner quickly becomes a reference piece among car audiophiles; the \$1,200 head features CDchanger controls. The new Lexus LS 400 is offered with a seven-speaker premium audio system from Nakamichi. The Precision Power DCX-1000 active crossover features a unique digital remote control linked by fiber optics. The International Auto Sound Challenge Association holds its first national competition, picking up where its predecessors CAN and NACA (National Autosound Chal-



lenge Association) left off. Major record stores begin to phase out the vinyl LP. The Berlin wall falls.

1990 Eclipse introduces the EOS-1000 digital ambience processor with preset and user-adjustable sound fields; it's the first car product to employ digital signal processing technology. Blaupunkt's CDC-M1 is the first car changer with a fiber-optic digital output. Cost-effective 1-bit D/A converters appear in CD heads; they're more rugged and more accurate than conventional multibit converters. Nakamichi presents the first outboard car D/A converter. A growing number of amplifiers feature built-in active crossovers. Enthusiasts go ga-ga over center-channel speakers; Audio Control comes out with the ESP-3 centerchannel processor. Germany reunites.

1991 High technology abounds: Rockford Fosgate makes a radical departure from car stereo tradition with the introduction of Symmetry-the first modular, computer-based digital processing and amplification system. Sony redefines high-end autosound with the launch of its \$2,500 Mobile ES system, featuring a digital preamp with extensive DSP functions and a highly configurable digital crossover. Honda offers a DSP/ambience-enhancement option in the 1992 Acura Vigor-a first for automakers. SAS (the Bazooka Bass Tube guys) makes Inc. magazine's list of America's fastest-growing companies; many other companies, including Pioneer, begin making tube-type subwoofers-and many are promptly sued for patent infringement. Nothing much happens

on the international scene: The Soviet Union is dissolved. Operation Desert Storm makes Stormin' Norman a hero.

1992 Alpine's Model 7980 becomes the first in-dash CD changer; it features a three-disc loading cartridge, a removable chassis, and a separate tun-

er pack. Denon follows with the DCH-700, a quasi-in-dash fivedisc changer that requires a compatible head unit for operation. Component speakers-especially subwoofers and tiny neodymium-magnet tweeters-are the rage as car stereo continues to move upscale. Eclipse introduces the EQS-2000 digital processor, featuring plug-in DSP chips, a bus architecture that consolidates wiring in a single cable, and a fiber-optic input. Clarion merges in-dash electronics with the CAL-1000-a unique DIN-size component that controls a voice-recognition cellular phone (with handset), a supplied subchassis tuner. and an optional CD changer. Claiming to have licked problems associated with high-power digital switching amplifiers, Infinity announces the DPA-275 150-watt Class D amp. The Digital Compact Cassette (DCC) and Mini-Disc (MD) formats are launched with home DCC decks and MD portables.

1993 Sony introduces the MDX-U1 car MD player/tuner, featuring CD-changer controls and a detachable face. Denon markets the first cassette receivers with RDBS-equipped tuners, which display radio-station call letters and music formats and receive traffic bulletins. Panasonic announces the CQ-DC1 DCC player/tuner with CD-changer controller; it plays both analog cassettes and the new digital cassettes—sorry, no four- or eight-track cartridges.

YES indeed, today's mobile audio products are light years beyond the mechanical-pushbutton radios of 1958 —to say nothing of the cars themselves. One can hardly imagine how Buddy Holly would react to a 1993 Mazda RX-7 loaded with an MD player, CD changer, digital ambience processor, 500-watt power amplifier, ten-speaker complement, and voice-activated cellular phone. Now, skip ahead thirtyfive years. Think of how you'll react when you see a 2028 RX-7 with well, we'll just have to wait and see. □

Additional research and reporting for this article was contributed by Senior Editor Bob Ankosko.

Private Concert Hall

T gets cold in Havre, Montana, in the winter. Bill Hamilton has seen the mercury drop to 58 degrees below zero, and -30degree temperatures are not uncommon in this town of 10,000, forty miles south of the Canadian border. That kind of weather makes Hamilton's listening room—a 24 x 36foot addition that's larger than the house it adjoins-a popular place from November through March. Its double-insulated, 3-inch sheetrock walls hold in the heat and offer a "nice place to snuggle" for Hamilton and his wife, Marjee.

"My wife and I don't smoke or drink, but we very much enjoy music," says Hamilton, explaining why they traded their backyard for a sound room. In fact, there's not much music the Hamiltons don't like. Their tastes run all over the place, from AC/DC to Bach. And Hamilton, a brakeman for the railroad, finds New Age music to be the perfect sedative after a long day on the tracks. "I often get home in the middle of the night, and I like to go out to the sound room, kick back, and relax to Andreas Vollenweider or Kitaro," he says. "The room is well insulated, so it doesn't bother anybody in the house."

But four potent Klipschorn speakers don't exactly represent the listening tastes of a typical New Ager. When he's out of the mellow mode, Hamilton cranks the dial on his Denon PRA-1100 preamplifier (which feeds two Denon POA-2200 200-watt-per-channel power amplifiers) to 12 o'clock and enjoys a Beach Boys or Neville Brothers concert video on laserdisc.

Hamilton bought four Klipschorns because he wanted surround sound. Also he figured, "If two Klipschorns are good, four are better." No subwoofers are necessary with the horns, but he does plan to add a centerchannel speaker and an amplifier to power it as soon as he gets around to buying a Dolby Pro Logic decoder. For now, Hamilton uses the speaker complement in his 60-inch Hitachi Model 60SX1K projection TV.

The rest of the equipment comprises a Denon DE-70 equalizer, a Yamaha DSP-1 digital ambience-enhancement processor, a Denon DCD-1500 CD player, a Kenwood DPM-6640 six-disc CD changer, a Pioneer CLD-2070 CD/laserdisc combi-player, and a Kenwood KV926HF VHS Hi-Fi VCR. Hamilton fiddled with the equalizer when he first

bought it until a perfectly flat curve appeared on a friend's spectrum analyzer. But flat didn't last long. "I didn't care for the sound," he says, "so we nudged up the bass and high frequencies while de-emphasizing the midrange." The resulting curve is more to his liking, and he never has to touch the equalizer.

Hamilton does, however, enjoy manipulating the apparent size and ambient characteristics of his private concert hall using the DSP-I's sound-field presets. His favorite settings are JAZZ CLUB, which turns the immense space into an intimate environment, and DISCO, which pumps up the bass. He and his sixteenyear-old son Robb have been known to wow visitors with a private screening of "Top Gun" to show off the system's theater-like abilities. He also thinks the CATHEDRAL setting-with four "awesome" seconds of rearchannel delay-sets the stage for an impressive performance of Bach's Toccata and Fugue in D Minor.

Hamilton's sound room was a lifelong dream, and aesthetics were always just as important to him as acoustics. "I've always liked the combination of polished brass, oak, and an emerald-green carpet," he says. "I wanted it to look as good as it sounded." A local cabinet maker built the CD racks and an oak hutch for the equipment according to Hamilton's specs. All wiring is tucked neatly away in the glass-block wall behind the system, along with the room's furnace and air conditioner. Monster Cable speaker wire runs through the walls.

There's no cassette deck in Hamilton's dream system because he "can't stand to listen to tapes any more." Besides, he's already replaced most of his analog recordings with CD's. You won't find a tuner in the system, either, but not because Hamilton doesn't like radio. "There are only two stations to listen to in Montana," he laments. The nearest one is 100 miles away. There's hope, though: He plans to move his Drake satellite receiver from the house to the sound room so he can pull in digital radio broadcasts.

Hamilton has had a hard time explaining how he could devote so much time, space, and money (\$50,000 for the complete job) to a hobby. "A lot of people don't understand," he says, even after he blows their socks off with a demonstration. "But I just tell them it's -Rebecca Dav what I like."




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PUHPED-NP PREAMPS

Preamplifiers are changing ło meeł łhe new requiremenłs of digiłal audio and audio/video inłegrałion. A PERSON encountering high-end h:-fi for the first time might understandably be puzzled by the survival of the preamplifier preamp, for short—a component whose continued popularity has perplexed even some manufacturers. After all, functions and performance that used to be obtainable only in separate-component systems (built around separate preamps and power amplifiers) can now be found in a multitude of garden-variety receivers and integrated amplifiers.

But anybody who's gone shopping for an all-in-one A/V receiver can tell you that they are bulky. And anyone who's opened up one of those behemoths can also attest that they are absolutely crammed: multiple power amplifiers (five or six) fed by a massive power transformer and cooled by sizable heat sinks, as well as lots of circuitry for the preamp, tuner, and surround-sound decoder subsections. Even with extensive use of integrated circuit chips, either something is going to be left out—high output power or versatility—or performance will not be top-drawer in all respects. There's simply not enough room to do everything superbly.

Breaking a receiver down into its component subsections (separate tuner, preamp, power amp, etc.) can yield considerable benefits, not the least of which is that you can upgrade each component individually without also replacing the parts you are satisfied with. Also, a service problem won't necessarily entail total loss of sound, since it is unlikely that all the components would break down simultaneously.

Of most immediate benefit, however, is the increased versatility



and, possibly, better sound quality that you can get with the most advanced of today's preamplifiers. Because a preamp designer doesn't labor under the space constraints imposed by a receiver or integrated amplifier, he can be more generous with circuitry, both in amount and quality. Performance can sometimes be improved by the use of more elaborate circuitry or more expensive parts and by better spacing and shielding of the internal signal paths. Furthermore, a back panel that doesn't have to carry multiple speaker connectors can be filled instead with additional inputs for the rapidly growing family of audio-and video-signal sources.

The customary duties of a preamplifier are four in number:

1. To amplify and equalize the lowest-level signal sources. This now applies only to phono cartridges, but years ago preamps also included circuitry for microphone and analog tape-head inputs.

2. To select the signal source (including the output of the phonopreamp section) to be fed to the power amplifier.

3. To provide some signal-process-

times audible differences among phono-preamp circuits. Particular concern about phono-stage performance is still justified for antidigitalists and those of us with hundreds or thousands of LP's in our collections. Phono-stage performance can be ignored altogether if you don't have or need a turntable.

It was also about fifteen years ago that the primary requirements of good phono-preamp design were elucidated by Tomlinson Holman (then chief engineer at Advent, now corporate technical director at Lucasfilm): low circuit noise, correct resistive input impedance (close to 47,000 ohms) at all frequencies, provision for adjustment of the capacitive loading of the phono cartridge, accurate RIAA equalization (within ± 0.2 dB), freedom from overload at high cartridge outputs (ability to handle about 100 millivolts at 1,000 Hz is usually more than adequate), good immunity to radio-frequency interference (RFI), and, possibly, the inclusion of infrasonic filtering to remove unwanted signals generated by record warps and other ultra-low-frequency garbage. There are many different ways to

Many preamplifiers now include surround-sound processing and video as well as audio switching.

ing options, the minimum being a volume control.

4. To interconnect signal sources to each other and to tape recorders.

Most of these duties continue to apply as new audio/video and digital audio sources add to the burdens preamps are expected to shoulder. But one traditional preamp chore, though still important to many people, is starting to fade from the scene.

Phono Mania

In the good old days—say, five to fifteen years ago—preamp spec sheets usually made a big fuss over the phono section, the portion of the circuitry necessary to raise the very low output of a phono cartridge to standard line level (see "How the Preamp Got Its Name" on page 72). This preoccupation with phono-section quality was justified, however, because phonograph records were then the primary music source and because there used to be easily measurable and someachieve these goals, but all of them must be realized for topflight phonosection performance. Fortunately, doing so is neither difficult nor expensive, so there's not much excuse for a designer getting it wrong nowadays.

With the decline of the phonograph record, one might think that much of the rationale for separate preamplifiers has disappeared. Not a chance. There's still a lot of connecting, switching, and signal processing to do, and these are proving the most fruitful areas for preamp progress.

Connection Craze

The advent of the CD and, more important, the incorporation into home audio systems of video-related sound from multitudinous sources have brought switching and connections to the fore in preamp design. The most versatile now have as many as ten different inputs, for signals from satellite-TV decoders, television sets, VCR's, videodisc players, CD players, analog and digital tape decks, tuners, and, if you're lucky, a good old phonograph cartridge. Several preamps now on the market already provide optical and coaxial digital connections for CD and laserdisc players and digital recorders, a feature that is bound to spread. Eventually you'll probably need connections for an MD or DCC recorder, and within five to seven years you'll be contending with signals from digital radio and probably four or more channels of digital audio from HDTV (high-definition television) broadcasts, discs, and tapes.

Home theater brings further connection and switching responsibilities to a preamp, in the form of video signals. And these come in two varieties: composite and S-video. Ideally a preamp should handle both types, although S-video connections are just now becoming common.

Switching tends to be fairly straightforward technologically, but there are some design considerations that bear scrutiny when it comes to switching a variety of A/V signals. With so many signals of different types being fed to a preamp's input terminals, unless the circuitry is well laid out there can very easily be some intersource crosstalk, with the signal from one input (whether selected or not) appearing at a reduced level somewhere it shouldn't. With most preamps this is not a significant problem in normal listening, but switching systems that enable you to listen to one source while recording another can lead to contamination of the recording by the wrong source if signal routing is not carefully done. And the low noise level from digital program sources may not hide such signal leakage during normal listening. Of course, to be safe from all this, you can simply turn off all the sources you aren't using (the tuner especiallywhich you can't do with a receiver).

Careful internal-signal isolation, termination, and shielding are even more important if the preamp is also used to route video. Video signals have a nasty habit of contaminating any nearby audio signals with hums and buzzes whose strength and sonic character can change with the picture content. Inaudible high-frequency components of a video signal leaking into an analog tape recorder can cause the mistracking of noise-reduction systems. Such leakage can also cause problems that increase distortion and reduce dynamic range if it seeps into a digital recorder. So even if you don't have immediate plans to use the video capabilities of an A/V-oriented preCarver's C-20v (\$900) provides seven digital surrour d-sound modes, including Dolby Pro Logic. It has inputs and switching for four audio and five video sources, with both S-video and compositevideo connections.

mic nost

The Marantz AV-500 (\$899) provides Dolby Pro Logic and ambienceenhancement surround modes. All five A/V inputs, including a set on the front panel, have S-video and composite-video connections; there are four audio-only inputs.

Sony's TA-E2000ESD (S1,200) uses digital signal processing for surround sound, equalization, and dynamic-range compression and expansion. It has analog audio, digital audio, and composita- and S-video inputs and outputs.

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THE DEP

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SONY

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arman/kardon AVPI >=

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The Denon AVP-5000 (\$2,500) has two separate DSP chips, so it can do two types of signal processing, such as surround sound and equalization, at once. It has analog and digital audio and composite- and S-video inputs.

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The McIntosh C39 (\$2,795) provides comprehensive audio/video switching and control. Dolby Pro Logic decoding is included, and an optional THX-1 card (\$410) can be installed for Home THX processing. Harman Kardon's AVP-1 (\$2,499) can be used as a basic A/V surround breamp with volume control and source selection or as just a surround processor, with Home THX, standard Dolby Pro Logic, and ambience-enhancement modes.

How the Preamp Got Its Name

The audio signals supplied by all popular signal sources are too weak to drive a loudspeaker directly. Phono cartridges have such low outputs that they can't even drive a headphone. Signals from all these sources thus have to be amplified to become listenable.

In olden times (I'm talking 1940's and 1950's here), it was more convenient to divide the necessary source-toloudspeaker amplification factor (or "gain") into two stages and to use a separate component for each stage than to do everything in one fell swoop. The component responsible for the last stage of amplification is now called a power amplifier (it used to be just an amplifier), which boosts the voltage and the current from the source to the higher levels that speakers need. The term "power amplifier" comes from the basic formula for electrical power: voltage (in volts) times current (in amperes or, confusingly, "amps") equals power (in watts).

The standard power-amplifier inputsignal level—a level that can drive it to

amp, try to glean, from a data sheet or test report, some idea of whether the manufacturer has considered audio/ video crosstalk in the design, perhaps to the extent of enabling you to switch off the video circuitry when it isn't being used.

A Digital Future

The most electronically elaborate home preamps now available include surround-sound decoders as well as audio and video signal routing. That makes good sense, and not only because it reduces the intercomponent wiring that normally accompanies the installation of an outboard surroundsound processor. It makes superb sense if the surround-sound functions are performed by digital signal processing (DSP). DSP isn't essential for excellent surround-sound performance-nor does DSP guarantee that you'll get it-but the full use of digital processing power in a preamp can also bring unprecedented versatility and precision to the traditional preamp functions of switching, connection, and signal processing. The Sony TA-E2000ESD, for example, uses DSP to

its maximum output-is from 1 to 2 volts and is called "line level." All homeaudio signal sources except phono cartridges have line-level outputs. Cartridges need additional voltage amplification to get up to line level, and that is supplied by a phono preamplifier, so called because it amplifies a signal before the "real" amplifier, the power amplifier, gets it. The phono preamp also has the function of reversing the frequency-response shaping applied during the cutting of a phonograph record. That response shaping is necessary to reduce disc noise during playback and is called RIAA equalization, after the Recording Industry Association of America, which standardized it.

The name "preamplifier" eventually came to be associated with the entire component in which a phono preamplifier resides, which has subsequently taken on switching and connection functions in addition to just boosting the phonocartridge output, though there are still devices on the market that perform only that function. These separate phono

provide dynamic-range processing and a high-precision equalizer in addition to digital Dolby Pro Logic decoding and a host of ambience-enhancement modes.

The TA-E2000ESD is one of an emerging breed of advanced products that define the future of the preamplifier. Among design trends evident, collectively, in these leading-edge preamps are the following:

• Increased switching and connection possibilities for multiple audio and video sources.

• More versatile control facilities, such as infrared remotes and multi-room hookups.

• Incorporation of a tuner. This old "half-receiver" idea is being revived in components not much larger than a standard preamp (most preamp chassis are nearly empty). You can then move the bulky parts of a receiver (the power amplifiers) to where they can be heard and not seen.

• On-board analog-to-digital (A/D) and digital-to-analog (D/A) conversion with increased use of digital inputs and outputs. Manufacturers and audiophiles will obsess—indeed, are alpreamps may actually increase in number as manufacturers see fit to remove phono stages from their preamps, integrated amps, and receivers because of the collapsing popularity of phonograph records.

Certain phono cartridges, the movingcoil variety, have extremely low outputs. at least ten times weaker than those of typical moving-magnet or moving-iron pickups. Moving-coil cartridges require some supplemental gain just to reach normal moving-magnet output levels. Again, the most reasonable engineering approach has been to split the gain into two stages, the second being the standard phono preamp and the first being the still more clumsily named prepreamp, or head amp, which receives a moving-coil cartridge's output and feeds it to a standard phono preamplifier. Prepreamps-which are sometimes nothing more elaborate than a step-up transformer-are available as separate devices, or they can be built into a standard phono-preamp section and switched in when necessary. ____.

ready obsessing—over the technology employed in preamp A/D and D/A converters, just as they did over the elements of phono-section design.

• Advanced digital signal processing for surround sound, ambience enhancement, equalization, tone controls, and other signal modifications. Future models will—I hope—incorporate digital noise reduction to clean up the sound of analog tapes and discs.

As it has with other types of products, the digital future promises to blur distinctions. Further down the road, preamps will probably look more like general-purpose audio computers, with nearly all sources and all audio processing-even RIAA phono equalization-remaining in the digital "domain." Power amps, because you will probably need so many of them to drive a multichannel concert-hall/ movie-theater surround system, will migrate out of receivers and integrated amplifiers, which would otherwise become impractically bulky and complex. Far from being a dead product category, the preamplifier may ultimately survive as receivers evolve into obsolescence. Always at the cutting edge of technology and innovative design, Coustic's team of audiophiles/engineers is again setting a milestone with the debut of our new premiere **Design Reference™** series, creatively engineered and handcrafted in the U.S.A.



DA-55 Digital to Analog Processor

Coustic's DA-55, an advanced Digital to Analog Processor, created especially for the car audio environment to provide the highest quality performance in digital sound reproduction. Now, car audio enthusiasts can really hear what they've been missing.



DM-2 Balanced Line Driver

Coustic's exclusive Balanced-Differential Interface[™] (BDI) technology, a balanced/differential signal interface circuitry, is incorporated in our DM-2 Balanced Line Driver and all Design Reference[™] electronic products to provide maximum musical fidelity with minimum noise interference.



DX-28 Electronic Crossover

DX-28 Mobile Electronic Crossover features a class "A", all discrete, Optimized Transient Response (OTR) balanced input and *true* balanced output circuitry. The very first product that is capable of driving the DR amplifiers in true balanced mode.

Design Reference

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"How many opera

singers get to be a sex symbol?"

LIVINGSTONE AM

HEN men look at the singer Samuel Ramev, they see a manly fellow secure in his masculinity, a

nice guy, a potential good buddy. When women look at him, they see a manly fellow secure in his masculinity, a sex object, a potential good lover. When other singers look at him, they see a manly fellow secure in his masculinity, a disciplined artist, and a talented colleague.

Ramey may be all those things, and on stage he is quite multifaceted. "My repertoire contains a nice variety of heroes and villains, comic and dramatic characters," he said when I interviewed him in his New York apartment. "The one that is most like me is Figaro in Mozart's The Marriage of Figaro. His temperament is so like my own that I can just sort of relax in the part and be myself."

Figaro, the resourceful servant, clever at outwitting his master and at ease with the female characters both upstairs and downstairs, may be natural for Ramey, but he is not limited to downstairs roles. With equal success he has played the aristocratic Count in The Marriage of Figaro. Does having played the servant give added insight to playing the master?

'No, I don't think so. Not any more than it does in Don Giovanni, in which I've done both Giovanni and his servant Leporello. I've been singing the title role a lot-at the Metropolitan and in Salzburg-and the trend these days is to set the opera in the eighteenth century, in Mozart's time. I'm not really comfortable with that because I think it softens the character. Something about the eighteenth-century costumes, the hair, is not right. Setting it in the sixteenth century makes it easier to get the dashing Errol Flynn look, which is more Spanish. I see Don Giovanni as demonic, a little in league with the devil, and certainly dangerous."

Wearing cowboy boots, jeans, and an open-collared shirt, Ramey looked anything but dangerous. His flat stomach, narrow waist, and full head of hair made it difficult to believe that he has turned fifty. He carries his age as lightly as the mantle of World's No. 1 Star Basso, at home in the most prestigious opera houses in San Francisco, Chicago, New York, London, Paris, Milan, and Vienna.

"During the Mozart Bicentennial in 1991 I just did Figuro and Don Giovanni, but some other singers did nothing but Mozart that year. I've recorded Sarastro in The Magic Flute for Philips, but roles like that-high priests and kings-can wait until I'm older. For the present, while I'm still young and lithe-spirited, I prefer to continue with lively roles that have more personality."

Ramey opened the 1992-1993 season at the Metropolitan singing all four villains in Offenbach's The Tales of Hoffmann, a tour de force that has won him acclaim since his days at the New York City Opera. With his warm, resonant voice he projects lots of life and personality as the devil. "I've gebeen singing the title role in Boïto's Mefistofele for about fifteen years. It's one of the few operas in which the bass is the central character. I also enjoy singing Mephistophélès in Gounod's Faust, which is a very different view of the devil—a suave bon vivant. Still another kind of devil is Nick Shadow in Stravinsky's The Rake's Progress, which I sang recently at Covent Garden in London.

Some French operas, such as Massenet's *Don Quichotte*, are sometimes revived specifically for Ramey. "One of my most recent recordings is Massenet's *Chérubin* on RCA, which is quite charming." Verdi's *Attila* has been one of Ramey's greatest successes, and lately he has begun singing the priests and kings in such Verdi operas as *Aïda*, recorded for Sony Classical. He opened the 1992-1993 season at La Scala as King Philip in *Don Carlos*, which was recorded by EMI/Angel.

Rossini has loomed large in Ramey's career in the theater and on recordings. Last year, in a televised tribute to the composer on his twohundredth birthday, Marilyn Horne (often described as this century's greatest Rossini singer) said, "We couldn't have had the current Rossini revival without Samuel Ramey. You can't perform some of those operas without a bass who can handle the coloratura."

"It was kind of her to say that," Ramey commented. "Yes, I feel that I have made a contribution to the revival. For five years running I sang at the festival in Pesaro, Rossini's birthplace, doing seven or eight operas. The most demanding roles, and the ones that interest me most, are in Semiramide and Maometto II, and those are the ones I think-to put it bluntly-that I sing better than anyone else today. The ability to sing coloratura is an integral part of my voice, and my first teacher in college encouraged me to work on it to keep the voice light and flexible.

"He assigned me an aria to learn— "Non più andrai" from The Marriage of Figaro—and I found a recording of it by Ezio Pinza. That was my first exposure to opera, and it is what prompted me to prepare for this career."

Born in Colby, Kansas, Ramey grew up in a family that loved to sing, though they were not professional musicians. Like most American singers he started in church choirs and at school.

"Today radio and television broadcasts of opera inspire young singers in remote parts of the country, but I didn't even hear the Met broadcasts where I lived. Operatic recordings didn't come into my life until I was at the university."

Other basses besides Pinza whose recordings inspired him include Cesare Siepi, George London, and Giorgio Tozzi as well as the earlier Pol Plançon and Feodor Chaliapin. "From recordings I learned a lot about interpretation and languages. Now I have mixed feelings about too much influence from other singers. I don't want to copy them. I'm preparing *Boris Godounov* for Geneva in May—I in On the Town, due from Deutsche Grammophon in August, and that company also has his recording of *Semiramide* awaiting release.

Ramey is at ease with his reputation as opera's sexiest male singer. "I've been taking some heat about that from certain critics who I think are tired of seeing my bare chest. I hope they know I don't *ask* for those bare-chested costumes. But I don't mind that kind of attention. How many opera singers get to be a sex symbol?"

Wealth and fame do not come into

"...a nice variety of heroes and villains, comic and dramatic characters."



As Attila (left), King Philip in Don Carlos, and the Poet in Kismet

always said I'd wait until I was fifty to do it—and a study tape of other performances helps with the Russian."

> AMEY'S discography covers all major labels and is so extensive that he is the most recorded bass in history. Asked to recommend a few CD's for readers who do not yet know his work, he said, "First I'd choose

The Marriage of Figaro I made with Solti for London, and then Attila on EMI/Angel. I'm very happy with both of those. I like the French recital on Philips and the collection of Rossini arias on Teldec. I'm also pleased with the Argo recording of American songs by Copland and Ives."

Like Pinza, Ramey has crossed over into Broadway musicals. He has recorded *Carousel* for MCA and *Man of La Mancha* and *Kismet* for Sony. He is Ramey's conversation. He and his wife enjoy traveling to the world's great cities where he performs, and he envisions no major changes in his life in the next few years. "A good thing about the lower voices is that they hold up better, and you can sing longer. I'd like to think I could go on as long as Jerome Hines, who's going strong past seventy.

"I'm quite content with my life. I work well in the recording studio, and I'm happy going to rehearsals every day or to perform in the evening. I feel that I am the luckiest person in the world to be able to make a living doing what I like best."

A competitive streak in most men makes us resent any other man who is too young, too good-looking, and too successful. But Ramey's modesty and sincerity are disarming. It's gratifying to know that nice guys don't always finish last.

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current releases

Robyn Hitchcock: A Pop Eccentric Tackles the Big Themes

F you were to envision the wild kingdom of rock-and-roll as a menagerie full of earthbound boars and bovines. Robyn Hitchcock would be a colorful toucan perched high above it all. Certainly no other currently active musician possesses such an unfettered imagination. For him the kaleidoscopic palette of possibilities pioneered by the late-period Beatles, Syd Barrett's Pink Floyd, the Byrds, and their generation didn't go gray at the end of the Sixties. After a series of magnificent albums that combined equal parts of strangeness and charm, deploying the melodic gifts of a Paul McCartney in the service of lyrics that scanned like Lewis Caroll fixated on the biological realm, Hitchcock hit a plateau with 1989's "Queen Elvis." For the first time he began to sound compulsively eccentric, even a little self-conscious. He's since sidestepped that pitfall, much as Peter Gabriel did around the time of "So," by taking a more userfriendly tack, skirting accessibility without surrendering his essential nature.

Hitchcock's latest, "Respect," follows his Beatlish pop exercise, 1991's "Perspex Island," with a set of songs that are more introspective than usual. addressing the issue of mortality with sober intent and brittle wit. There are only two uptempo songs in "Respect" The Yipsong, an explosive number that alludes to the medical agonies of his late father's final days, and Driving Aloud (Radio Storm), a quasi-acoustic number in which disembodied verses build to an unearthly and strangely hypnotic chorus. Most of the album is quieter in tone, musically experimental (with preference given to unamplified instruments and found percussion), and the emotionally naked songs do strange things like changing tempo in the middle of a chorus, as in Railway Shoes. You'll never hear a track odder than Waffle Head, in which Hitchcock purges his predilection for the far side in one Captain Beefheartian exhalation.

Hitchcock tackles the big themes here, variously meditating on death, survival, love, and wisdom. He and the Egyptians transform themselves into the Band in Serpent at the Gates of Wisdom. a song that sounds like it was written with the voice of the late Richard Manuel in mind. Railway Shoes, on the other hand, features some lovely three-part harmonies, sung in unconventional intervals, that have a Crosby, Stills & Nash cast to them. A more direct musical allusion can be found in The Wreck of the Arthur Lee, an ode to the one-time leader of the West Coast band Love that briefly quotes a haunting melody line from the band's classic Alone Again Or. "Believe in love," goes the chorus, and you can read that either way you like.

Long-time Hitchcock fans may wonder where all the wasps, squids, and creepy-crawlies have gone, but his turn here toward themes with a more human face, with no loss in his vigorous creativity, may be his greatest accomplishment to date. Parke Puterbaugh

ROBYN HITCHCOCK AND THE EGYPTIANS Respect

The Yipsong; Arms of Love: The Moon Inside: Railway Shoes; When I Was Dead; The Wreck of the Arthur Lee: Driving Aloud (Radio Storm): Serpent at the Gates of Wisdom; Then You're Dust: Waffle Head A&M 540 064 (37 min)



The Best Brahms First Concerto Ever?



The planist Steven Kovacevich: surpassing himself

TEVEN KOVACEVICH first recorded Brahms's mighty D Minor Piano Concerto for Philips with the London Symphony under Colin Davis. His new one on EMI, with the London Philharmonic under Wolfgang Sawallisch, not only surpasses his own previous version but, as far as I'm concerned, pretty much every other recorded version.

Sawallisch sets the tone with a fireand-brimstone orchestral opening; Kovacevich responds with a surprisingly modest but superbly phrased solo statement. It is in the development section that all the Brahmsian demons are let loose, only to be tamed by the meltingly beautiful second subject. The slow movement (Brahms's poignant memorial for Robert Schumann) opens with tenderness and closes, over pedal point, in a surge of passion. The demonic fireworks return stronger than ever in the finale, where Sawallisch and the orchestra do themselves proud in the tricky central fugato. Ideally recorded, this is a superb achievement all around!

By way of a bonus, Kovacevich joins the contralto Ann Murray and the violist Nobuko Imai in the touching pair of songs that make up Brahms's Op. 91: Gestillte Sehnsucht, with a text by Rückert, and Geistliches Wiegenlied, which uses a German translation of a Nativity poem by Lope de Vega (the viola weaves an old carol, Josef, Lieber Josef Mein, into the musical texture). Murray's voice may not have the throbbing warmth of a Jessve Norman or Marian Anderson, but her delivery is quietly forthright and her enunciation flawless. Imai's viola faultlessly realizes the coloration Brahms intended. All told, a disc to be treasured. David Hall

BRAHMS:

Piano Concerto No. 1; Alto Songs Kovacevich, Murray, Imai; London Philharmonic, Sawallisch EMI 54578 (59 min)

Jazz **Ballads** to **Die For**

HEN the tenor saxophonist Scott Hamilton came on the scene in the late Seventies, he was regarded as something of an anachronism. That was the age of fusion, a time when young musicians plugged into a wall outlet and drowned their shortcomings in synthetic sounds. Hamilton, who was still in his twenties, relied only on his Selmer (which was older than he was) and a good reed to produce a lush, silken sound in an endangered style that hitherto had been the province of much older players. His repertoire also reflected a love for the past, and when he recorded an album of ballads, even sharp-penned critics became downright nostalgic.

Now he has once again messed with time to enrich his ever-growing recorded legacy-and our CD collections-with "Scott Hamilton with Strings," a Concord Jazz set that is drenched in romance. Accompanied by a rhythm section and twenty of the smoothest string players you've ever heard, the nownearing-forty saxophonist takes us on a slow ooze through a program that could melt an iceberg. It is an hour of music that will produce only a modicum of toe taps and finger snaps, but it is guaranteed to make the glow from the fireplace seem warmer and-if you are old enough-to conjure up memories of the way it was when great jazz players showed their gentle sides and crossed the bridge to middle America. At that time, four decades ago, jazz purists accused such men as Charlie Parker, Clifford Brown, and Coleman Hawkins of going commercial, but these and other

Scott Hamilton jazz greats went lush without sacrificing their artistic integrity.

There are several reasons why this CD is a sound from the past, a major one being that record companies are reluctant to pay the high cost of assembling so many musicians for recordings that clearly won't make the pop charts. Concord owner/producer Carl Jefferson should be commended for giving us this gentle puff from the past, and Hamilton gets an extra mark for insisting that there be no overdubs or prerecorded tracks everybody was in the same studio at the same time. Then, too, someone should be saluted for having the pianist Alan Broadbent write the charts. Like Hamilton, he has captured to perfection this engaging blend of jazz and romance. *Chris Albertson*

SCOTT HAMILTON Scott Hamilton with Strings

My Foolish Heart; Goodbye Mr. Evans; The Shining Sea; Angel Eyes; Heart's Desire; The Look of Love; Nancy (With the Laughing Face): Young and Foolish; I Concentrate on You; Tonight I Shall Sleep with a Smile on My Face CONCORD JAZZ 4538 (58 min)

Bartók + Boulez = Magic

OT too long ago Sony brought back on CD the recording of Bartók's first ballet score, *The Wooden Prince*, that Pierre Boulez made during his tenure as music director of the New York Philharmonic back in the Seventies. It was one of those performances that fully justify the use of that tired old adjective "revelatory"but it is brilliantly surpassed in every respect by Boulez's new recording with the Chicago Symphony Orchestra on DG. In addition to the expected improvement in the sonics, in terms of both richness and detail, the remake has an extraordinary level of performance. The great Chicago orchestra has probably become more at home in the Bartók idiom than any other in our country, for all of its music directors over the last four decades-Boulez's French compatriot Jean Martinon, the Hungarians Fritz Reiner and Georg Solti, and their Czech predecessor, Rafael Kubelíkgave Bartók's music a prominent place in their repertory. But there is also Boulez's own deepened response to this

marvelous score, which insures not only the most scrupulous clarity of detail, as before, but a more complete immersion in the fairy-tale essence of the work. The interpretation is a bit more expansive and frankly romantic now, with the wonderful colors giving off a positive glow as well as the frequent sparks.

On Boulez's Sony CD The Wooden Prince is accompanied by a less than fully persuasive account of Bartók's Dance Suite; on the new DG disc he gives us a downright irresistible performance of the seldom heard Cantata Profana, with the tenor John Aler, the baritone John Tomlinson, and Margaret Hillis's splendid Chicago Symphony Chorus singing the Hungarian text. The cantata is another sort of fairy tale, based on an old Romanian carol. Listeners who are not familiar with it will find it an enchanting discovery, as magically evocative in its way as the ballet score, for which it provides a touching and most effective introduction on this superbly recorded and generously filled disc. The CD leaflet includes the full text

The conductor Pierre Boulez: more expansive

of the cantata, some of Miklós Bánffy's original costume designs for *The Wooden Prince*, a detailed synopsis of the ballet's action, and an exemplary note by Paul Griffiths. *Richard Freed*

BARTÓK:

The Wooden Prince; Cantata Profana Aler. Tomlinson; Chicago Symphony Chorus and Orchestra, Boulez DEUTSCHE GRAMMOPHON 435 863 (73 min)

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• THE NEW BOMB TURKS: Destroy-

Oh Boy! CRYPT 032. Sell-out reissue of an album released last year on vinyl only. Perhaps to compensate, these amusing Midwestern punksters point out that the CD does not contain the LP bonus track Spinning Clock. • SWANS: Cop. SKY 5068. The 1984 album by the pioneering downtown New York noise-rock ensemble, personally remastered by leader M. Gira.

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• BEETHOVEN: Voriations ond Vignettes. Brendel. VOX BOX 3 CD3X 3017 (three discs). Variations on everyth ng from "God Save the King" to arias by Salieri in early-Sixties performances by the pianist Alfred Brendel.

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PAUL BRADY Songs and Crazy Dreams FONTANA 512 397 (67 min) Performance: Solid, but... Recording: Very good

eretofore, Paul Brady has been better known among his songwriting peers than by the general public. Bonnie Raitt recorded two of his songs, including the title track, for her "Luck of the Draw" album, and touring as a support act with Eric Clapton and Dire Straits at least introduced him to a likely audience. He's got a warm, burry voice with an oboe's sonority and a cache of fine songs. Problem is, his performances skirt the outer edges of passion without diving in. On record he seems too easily tamed, his feverish Celtic soul submerged by productions and arrangements that are too slick and middle-of-theroad. Yet evidence of great talent is everywhere, which is probably why he's a songwriter's favorite.

In "Songs and Crazy Dreams," a retrospective gathered from four albums and released, no doubt, to cash in on the Raitt connection, he occasionally breaks through the tidy trappings to communicate raw passion (*Nothing but the Same Old Story*) or Irish-folk authenticity (*The Homes of Donegal*). On the basis of the twelve songs here, it's not too farfetched to propound that if Bruce Hornsby can make it with the thirty- to forty'something crowd, Paul Brady could easily be adopted as well. I suspect he has a Van Morrison-type lion inside him waiting to bust out. *P.P.*

> MARTY BROWN Wild Kentucky Skies MCA 10672 (40 min) Performance: Hair-raising Recording: Very good

Arty Brown, whose 1991 debut album, "High and Dry," made nearly every critic's Best of the Year list, is back with another record that confirms what his first suggested—that the twenty-seven-year-old Maceo, Kentucky, native has a talent so radiant that its like shows up only once every few decades.

As before, several of the songs come steeped in Hank Williams, Sr.'s doomed negativity or the Everly Brothers' nervous optimism. And again Brown proves he's equally adept at recreating their trademark vocal sounds and melodic structures. especially in the Hank-like *No Honky Tonkin' Tonight* and the Everly-ish *It Must Be the Rain*. But if "High and Dry" showed Brown to be the least self-conscious artist in recent memory, full of



New recordings reviewed by Chris Albertson, Francis Davis, Phyl Garland, Ron Givens, Roy Hemming, Alanna Nash, Parke Puterbaugh, and Steve Simels

unguarded emotion and out-of-control pain, "Wild Kentucky Skies" peels the skin back yet another layer. Now when his catch-and-moan vocal technique carries his sturdy baritone to a high twang, Brown isn't just reporting the child-rattling knowledge that Daddy's off doing things he shouldn't with another woman. This time he's embodying far greater anguish.

Brown refuses to be love's victim in Honey I Ain't No Fool and in Jackson Leap's I Don't Wanna See You, where he abandons his hickfrom-the-farm persona to take care of his heart. But in the unsettling She's Gone he moves into completely different territory, that of Hank, Sr.'s final phase, when Williams stood on the edge of today, saw there was no tomorrow, and managed to scribble a few lines about it before his chauffeur delivered him to eternity. Williams would have traded his last hit of morphine for a song as bone-chillingly bleak as She's Gone, and he would have envied Brown's eerie howl, which says he's got one foot in the grave, the other in a life beyond, and can't decide which way to go. It takes uncommon artistry to write and sing with this much abandon. And it takes guts-uncommon in Nashville, anyway-to let anybody else hear it A.N

ELVIS COSTELLO AND THE BRODSKY QUARTET

The Juliet Letters WARNER BROS. 45180 (53 min) Performance: Huh? Recording: Good

Or maybe you have to wonder at his foolishness. "The Juliet Letters" is a project as high-minded as it is loopy. First of all, Mr. C. performs all these songs—that is, the seventcen (out of twenty) in which he sings—with a string quartet. Second, the music here is supposed to be neither pop nor classical but some other species. Third, these songs are supposed to add up to a cycle of letters, some (but not all) to Juliet Capulet, as in Shakespeare's *Romeo* and Juliet. Doesn't all this sound like somebody has been thinking a little too hard? Well, the album sounds that way, too.

The best tunes here are the ones in which the letter-writer's personality comes shining through, musically as well as lyrically-the deeply suspicious wife of For Other Eyes, for example, or the unrequited lover of The Letter Home, who vents her bitterness after years of silence. Maybe because these songs are full of character, they seem like show tunes-or maybe I just like them better because they have some formal hooks. Most of the arrangements strike me as inconsistent blends of pop and classical, sometimes relying on a strong beat or following the vocal line closely, sometimes swooping independently of the vocals. Some may call "The Juliet Letters" a bold experiment. I mark a lot of it: "Return to Sender." RG

> DIGABLE PLANETS Reachin' (a new refutation of time and space) PENDULUM 61414 (57 min) Performance: A different warld Recording: Good

Warning to Earth: Three life forms—selfdescribed "insects" from "Sector 6" have come to your planet and released an album of "music." You can easily identify these life forms because they appear to be rap musicians, but, strangely, the sounds they produce are in fact closer to beat poetry with a cool jazz soundtrack. They are armed with hipster tendencies and may be considered dangerous to old-school rappers. Instead of



Marty Brown: artistry and guts

criticizing their fellow young people and describing inner-city turmoil, these Digable Planets contemplate such subjects as how to relax on a Sunday ("Ain't nothin' to do / Check out some Fromm, some Sartre, some Camus"). The somewhat intoxicated views these life forms express are limited, and so are their spare, jazzy arrangements, but the general effect of listening to this combination is fresh. This trio, in fact, really has the potential to make your planet more digable. RG



Griffith: payback time

NANCI GRIFFITH Other Voices, Other Rooms ELEKTRA 61464 (62 min) Performance: Odds and ends Recording: Very good

Before she wandered off to MCA, where she tried everything from commercial country to MOR, folkabilly singer Nanci Griffith recorded two magical albums in the country-folk vein for Philo/Rounder. Produced by Jim Rooney, who knew all the best acoustic pickers, as well as how to build the perfect instrumental framework for Griffith's fragile blend of innocence and worldly wisdom, they remain her finest recordings.

Now Griffith begins a run at a new label, the rejuvenated Elektra. More interesting, however, is that this reunites her with her old producer, Rooney, bringing her back full circle to the folk style with which she started her career. In other ways, though, "Other Voices. Other Rooms" is a departure, a wholly borrowed album, from the title (Truman Capote's 1948 novel) to the seventeen-song repertory. The idea, Griffith explains in her liner notes, was to pay tribute to the songs, voices, and writers who originally influenced her.

The record is surprisingly low-key, and the guest artists-which include Dylan (blowing a half-hearted harmonica in Boots of Spanish Leather), Carolyn Hester, Emmylou Harris, John Prine, Iris DeMent, Guy Clark, Arlo Guthrie, and Chet Atkins-for the most part stay far in the background. Not once does Griffith lose her integrity by yucking it up with her guests as if they're best friends, a standard practice with many such all-guest albums.

But "Other Voices, Other Rooms" has other problems. While such songs as Are You Tired of Me, Darling (done as a thrilling vocal blend

POPULAR MUSIC

with Harris and DeMent), Prine's Speed of the Sound of Loneliness, Gordon Lightfoot's Ten Degrees and Getting Colder, and Woody Guthrie's Do Re Mi are inspired choices, others leave you wondering what Griffith had in mind. The traditional South African song Wimoweh, delivered with a cast of thousands from Odetta to the Indigo Girls and John Gorka, never goes anywhere and ends almost as soon as it begins. Other songs, such as Malvina Revnolds's relentlessly sentimental Turn Around, in which Griffith is also uncharacteristically off pitch, either don't seem to belong to the project or never get off the ground.

Still, the main shortcoming of the record is that Griffith is so in awe of the songs' creators that either her own delivery is too reverent and stiff or she copies the phrasing and vocal inflections of the original singers too closely to put her own stamp on the material. And so, apart from Are You Tired of Me, Darling, there are no spectacular performances here, nor, for that matter, songs that immediately capture the heart. But there are some genuinely lovely moments just the same. How much you enjoy them depends on how well you tolerate Griffith's little-girl voice (although she's learning how to be throatier when the material calls for it) and how offputting you find her arrogance as a keeper of the flame. Here, at least, her heart is usually in the right place, even if her musical sensibilities wander. A.N.

MICK JAGGER Wandering Spirit ATLANTIC 82436 (54 min) Performance: A Stone turned

Recording: Very good hich Glimmer Twin has the tony solo career? Until now, it's been Keith Richards, who basically didn't give a spit. For his two solo albums, he just plugged in his guitar and riffed away, caring so little about aesthetic grace that he sang-or, more accurately, croaked-the lyrics himself. So what if it sounded like the Stones with a strep-throated singer? In sharp contrast, Mick Jagger has previously played it oh-so-smart in his solo outings by trying to sound different from the way he does in his day job-and ended up sounding nothing but boring. But "Wandering Spirit" shows Jagger being true to his own self. In other words, a lot of it would sound right at home in a Rolling Stones album.

A number of these songs have a simple whomp-whomp-whomp beat and a crunchy guitar spitting out riff upon riff. Wired All Night, Put Me in the Trash, and Mother of a Man all set the classic-rock stage on which Jagger struts his outrageous stuff. He also trots out some familiar tricks, uncorking his funky falsetto in Sweet Thing and showing some country ham in Evening Gown and Hang On to Me Tonight. Of course, you could say Jagger is reworking what's he's done with his band, and you could footnote and cross-reference every little melisma, but who really cares when it sounds this good? Basically, Jagger has followed his natural instincts, whether they roll like a Stone or not. And some of the surprises are just as much fun, particularly his stalwart delivery of Handsome Molly, a tearstained folk song about a lad whose heart has been broken. Out of the fourteen tunes in a "Wandering Spirit," only one really seems flat, which is better than Richards's last record. But who, other than these two guys and much of the world, is keeping track? R.G

CHRIS MARS 75% Less Fat SMASH/ISLAND 162-88-004 (40 min)

Performance: Skewered fillets Recording: Good, but . . .

Chris Mars, the drummer and founding member of the Replacements whose solo album, "Horseshoes and Hand Grenades," was a boffo surprise last year, returns with an equally arresting follow-up, "75% Less Fat." Exactly where he cut all that excess is a mystery (a veiled attack on the Replacements, perhaps?), but this is Lean Cuisine to be sure.

OPENING ACTS

GRANT LEE BUFFALO Fuzzy

SLASH 45217 (49 min)

Listening to this L.A. band's quite astonishing debut initially involves sifting through a dizzying array of influencessolo John Lennon, Roger McGuinn, "Ziggy"-period David Bowie, Neil Young, the Velvet Underground's noisier freakouts, Sixties psychedelia in general. And that's just in the first couple of songslater on you detect equally surprising blues and country motifs. Miraculously, however, it all seems to cohere, and by the time you're done you realize that despite the theoretically retro approach, Grant Lee Buffalo (yes, the name bites) has come up with something unaccountably originalthe most charming (there's no other word) rock record in ages. A major surprise. S.S.





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from its garage-band grunge to the hard-tounderstand lyrics and no-frills production.

Mars specializes in sardonic social comment and put-'em-down lyrics, driving his often funny lines with a propulsive beat, raw guitars, and stark, Sixties-style drumming. Most of the songs are snapshots of people caught in self-important poses (Stuck in Rewind, Whining Horse), and no one goes unskewered, from Mars's former mates (No Bands) to nature lovers who want to rough it without getting their feet wet (Car Camping). Only once does he turn the mirror toward himself, in Demolition, where he finds he doesn't much like what he sees: a destruction engineer. No matter-anyone who can build an album this solid probably deserves a second chance A.N.

PAUL McCARTNEY Off the Ground CAPITOL 80362 (50 min) Performance: Light

Recording: Good

Paul McCartney is fifty years old, but he's still trying to be cute. That isn't so bad when he's tossing out another silly love song, like the title tune in "Off the Ground." It's bouncy and mildly syncopated and, well, *silly*. When he sings, "I need lovin' / You need lovin' too / Doesn't take a lot to get off the ground." you almost can't help swaying back and forth. But there are tunes in this album where McCartney's trying to tackle serious subjects, tunes where he's trying to be *angry*. For instance, *Looking for Changes* is supposed to be a nasty swipe at people who experiment on animals, but the mildly rocky music is actually



STEVE

Chris Mars: Replacements Lite?

POPULAR MUSIC

quite pretty. (In one new B side that didn't make the album, *Big Boys Bickering*, about the bad people who're responsible for great evils in the world, he actually swears, but it sounds like a kid trying to shock his parents with dirty words.) A lot of the time McCartney simply sounds out of touch. In *Peace in the Neighbourhood*, he dreams about peace and harmony only to wake up to reality; the contrast, however, comes down to happy platitudes versus sad platitudes.

McCartney is better off not trying to deal with the real world. In tunes like *Mistress and Maid* and *Biker Like an lcon*, he tells us short stories with tart, driving musical narratives. Not having to impress us with his grasp of serious issues and his admirable sincerity allows him simply to entertain us, and that's something for which he has a natural, even mature gift. It's surprising he doesn't exercise this talent more often, because in songs like these, he can sometimes get away with being cute. *R.G.*



ZACHARY RICHARD Snake Bite Love A&M 75021 5387 (53 min) Performance: Smokin' Recording: Very good

Zachary Richard, who weds the sadness and romance of Cajun music with the passion of Van Morrison and the muscle of the early Rolling Stones, is in top form in "Snake Bite Love," a powerhouse collage of accordion-laced zydeco, New Orleans jazz, and French blues. Veering from the rollicking rock of Roll Me to the deep-dish funk of Crawfish to the affecting Sunset on Louisianne, a story song of personal and environmental decline. Richard performs like a man possessed, as if the entire future of Louisiana lay in his trust. There's no compromise in his delivery-the color of his voice may be unremarkable, but he sings each song as if delirious with anxietyand he's not ashamed at revealing his vulnerability. There's no artifice in his sound, either. If he beefs up the R&B factor with a black female chorus (Zydeco Jump) or horns, it sounds organic, not grafted on.

Anyone who equates zydeco with quaint. old-fashioned, and (dare I say?) boring music from the outlands of Louisiana simply hasn't heard Richard. There's nothing sentimental in his Cajun roots, and his brief forays into French-language songs are missions of truth and beauty, not soft-headed mush. And if you still think the squeeze box is for sissies, check out *Come On, Sheila.* Richard is the real item, the cat other guys just cop from. Beg, borrow. or steal to hear him. *A.N.*

MARTHA WASH RCA 66052 (52 min) Performance: Incendiary Recording: Okay

f you're caught up in a deep blue funk, this new recording by former Weather Girl Martha Wash is a ready antidote. Operatically trained and gospel-rooted, Wash sings like a whole choir, yet her distinctive voice has a laserlike quality that enables her to slice through walls of accompanying sound and jolt you into an aural high.

Although Wash's power and delivery are exceptional enough, electronic effects are used in this debut solo album to enhance her explosive quality even further, as in Things We Do for Love and Just Us (Dancin'), where fragments of her vocals are manipulated through sampling to transform her into a human machine gun spitting out syllables. These effects are entertaining, but Wash's talents are somewhat shortchanged. She's a much better singer than is demonstrated here. When she's permitted just to sing a song, without help, as in the prelude to Someone Who Believes in You that opens the album, she proves she belongs in the top rank of soul singers. P.G.

Collections

THE BEAT GENERATION

RHINO WORD BEAT 70281 (three CD's, 197 min) Performance: Like cool, man Recording: Choice cuts

Beat began in the Fifties, when Senator McCarthy's witch-hunt and the atom bomb loomed over America's future. Every era has its counterculture, but electronic mass media gave leaders of the beat generation a spotlight that was somewhat brighter than anything their predecessors had ever basked in. Rhino's wonderful set of three CD's or cassettes captures and preserves for nostalgia buffs and future generations the sounds of a postwar movement that united rebellious youth against an establishment seemingly bent on destroying the earth, gave aging bohemians déjà vu, and laid the groundwork for the flower-power generation and the antiwar movement of the Sixties. The poets, writers. and musicians of the beat generation created many enduring works, but they also inspired horrendously bad ripoffs by the commercial media. It's all here-the superb, the good, the bad, and the downright embarrassing.

Of course, there is a good measure of jazz, which gave the movement its background and character (beat jargon, dress styles, etc. came



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from the black jazz milieu), with glorious jazz sounds from such artists as Dizzy Gillespie, Lee Konitz, Kenny Clarke, Gerry Mulligan, Charlie Parker, and Chet Baker. Also included are the street-wise observations of Babs Gonzales, who invented much of the beat vocabulary; the tall tales of Lord Buckley; the wonderful "word jazz" of Ken Nordine; William Burroughs reading an excerpt from his *Naked Lunch*: readings and observations by the poets Allan Ginsberg, Carl Sandburg, Kenneth Rexroth, Rod McKuen, and Langston Hughes (who's accompanied by Charles Mingus); and

WORDS & MUSIC



or more than twenty years, songwriter James Talley (hailed as a true poet in Seventies Nashville) and photographer Cavalliere Ketchum worked together on a book of photographs and verse chronicling the lives of Hispanic mountain families of New Mexico, many of them as dignified and self-reliant as they were destitute and hopeless. Finally published in 1992 in tandem with a corresponding CD of story songs that Talley began writing as an Albuquerque welfare worker, "The Road to Torreón" (Bear Family) is a loving tribute not only to a people, but to a region. In a style that mixes the confessions of Leonard Cohen, the folk of Pete Seeger, and the Mexican lilt and spoken sagas of Marty Robbins and Johnny Cash with elements of country-pop and rockabilly, Talley proves as adroit as Ketchum in creating lasting images of such characters as the Buick-driving dandy who wore a "pompadour of curls that hung from his forehead like a sagging bedspring" and the laborer father of eight whose drinking landed him under the cab of an overturned pickup in a ditch, his family too poor to afford a Mass. Neither the book nor the record would stand on its own (Talley is stronger on images than he is on melody, hook, and vocal prowess), but together they make for a noble and indelible tour of the spirit and heart. -A.N.

"The Road to Torreón" is available for \$37 postpaid from Sunshine Music, 200 Atlanta Ave., Stuart, FL 34994.

POPULAR MUSIC

Ben Hecht interviewing Jack Kerouac. Less enjoyable are the stodgy network-news commentaries by Howard K. Smith and Charles Kuralt, the strained, sophomoric "hipness" of Steve Allen, and a sprinkling of pop music that ranges from Perry Como singing *Like Young* and Nelson Riddle conducting his *Route 56* theme to the perfectly dreadful *Kookie's Mad Pad* by Edd "Kookie" Byrnes.

But even the mediocre selections help weave a mesmerizing picture of the period. So slip into something synthetic, turn out the lights, plug in the lava lamp, curl up with a bongo, and listen to this fascinating mélange of cool and not-so-cool. C.A.

YOU'RE THE TOP:

Cole Porter in the 1930's INDIANA HISTORICAL SOCIETY/KOCH

INT'L CLASSICS DMC1-1020 (three discs, 203 min) Performance: Wow! Recording: Topnotch remastering

t may be a little late for the 1991 Cole Porter Centennial, but this collection certainly eclipses anything else released for that occasion. Taken primarily from tapes and records that Porter bequeathed to Yale University, the superbly remastered set contains the best and most interesting songs from all the Broadway and London shows and movies Porter wrote between 1930 and 1939—an especially fecund period for him, to say the least. The aim was *not* to recreate the original versions but to reflect a wide range of interpretations within traditional pop and jazz frameworks.

The performers include Porter himself, Artie Shaw, and a virtual Who's Who of classic pop singers. Fred Astaire, Rosemary Clooney, Bing Crosby, Ella Fitzgerald, Judy Garland, Libby Holman, Teddi King, Barbara Lea, Mary Martin, Mabel Mercer, Ethel Merman, Bobby Short, Sylvia Syms, Ethel Waters, Lee Wiley, and Julie Wilson are just some of those represented! They're heard in a total of sixtynine tracks, with several songs (such as Night and Day, Begin the Beguine, Easy to Love, and In the Still of the Night) repeated in fascinatingly different arrangements. Besides wellknown numbers, there are several rarities and two songs even the most ardent Porter fans may not be aware of, What Am I to Do? (from The Man Who Came to Dinner) and River God (from the British play The Sun Never Sets). The boxed set comes with a handsomely illustrated 108-page book with essays on Porter, the songs, and the performers that set a new standard for compilation albums. R.H.

JAZZ

JOHN BLAKE

SUNNYSIDE 1058 (47 min) Performance: Kinda Stuffy Recording: Very good

Although the violin lends itself beautifully violinists have graced the scene. Among the current crop—and a meager one it is, in terms of numbers—John Blake stands out. He has not always associated himself with equals, but his Stuff Smith-inspired style is engaging even in so-so company.

In "Ouest," his first album in over three years. Blake has wisely chosen to unplug those boring synthesizers and get down to some unadulterated playing. Even Grover Washington, Jr., seems more inspired than usual in the two selections he contributes to, Moment's Notice and Val's Blues, but those and the selections featuring Joe Ford's soprano would be better off without the saxophone. Blake soars higher when he is propelled only by his rhythm section, and those violin/soprano unison statements of the themes lend the proceedings an aura of prefabrication. Let's hope Blake sheds the fusion veil, surrounds himself with artists of real substance, and makes an album worthy of his talent. This new release is okay, but with two exceptions, Chaplin's Smile and Blake's own Easin' It, it is sadly wasteful. C.A.

> CHRIS CONNOR As Time Goes By

ENJA 70612 (46 min) Performance: Modest perfection Recording: Very good

hort of Billie Holiday, you couldn't ask for more than we get here. Chris Connor is a veteran singer whose slight nasality and occasionally brittle phrasing used to come across as affectations but now seem evidence of character. In this new release, she offers lived-in but undistressed interpretations of ten songs whose very familiarity deepens their meaning-songs like the title tune, from Casablanca, to which listeners bring their own associations. The rhythm back-up is flawless, with the septuagenarian pianist Hank Jones as elegant as ever, drummer Keith Copeland attentive and unobtrusive even in uptempo passages. and bassist George Mraz bracingly hornlike in his solos. The only bone anyone could possibly pick with this CD would be its skimpy playing time. As someone who values consistency over quantity (and who thinks that most CD's are too long, anyway), I myself am not about to complain. ED.



JOHNNY GRIFFIN Dance of Passion ANTILLES 512 604 (58 min) Performance: Captivating Recording: Very good

Thirty years ago, the tenor saxophonist Johnny Griffin was a solid player who could sooth the senses with a mellow approach or fuel a tenor battle with a robust, incendiary assault. He's just as versatile and engaging today, although perhaps a bit more polished. "Dance of Passion." his second Antilles release, also demonstrates the good taste that

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POPULAR MUSIC

QUICK FIXES

ALISON BROWN

Twilight Motel VANGUARD 79465 (43 min)

In her second solo album, the banjo virtuoso Alison Brown continues to carve out an impressive niche for herself as a highly original player and writer, giving the traditional banjo a voice that's fluent in progressive fusion and jazz. Brown never wanders as far into space-grass territory as Bela Fleck, but her artistic vision, while less flashy, is no less profound. A.N.

TISH HINOJOSA Culture Swing

ROUNDER 3122 (44 min)

Hinojosa may recall the young Emmylou Harris, but her material embraces the *corridos* and *conjunto* of her Hispanic heritage as well as progressive country. A Tex-Mex winner. A.N.



LITTLE CHARLIE AND THE NIGHTCATS Night Vision

ALLIGATOR 4812 (52 min)

Superior bar-band blues, a little more Jimmy Reed-style languid than a comparable album by, say, the Nighthawks, but equally accomplished in a less in-your-face way. Pick hit: the sardonic My Next Ex-Wife, which fully lives up to its title. S.S.

DAVID MASSENGILL Coming Up for Air

FLYING FISH 70590 (49 min)

David Massengill (yes, of the femininehygiene-business Massengills) is a neo-folkie who sings in a rich whisper, writes with lyrical imagery and dramatic scope, and weaves the strains of an Appalachian dulcimer through his work as easily as he might thread a needle. He strikes gold often in this album, particularly in the civil-rights saga *Number One in America*, and he's already more interesting than the John Gorkas or Tracy Chapmans of this world. Give him time and he'll eat their lunch. *A.N.*

A MEETING BY THE RIVER

WATER LILY ACOUSTICS CS-29 (40 min) Ry Cooder's first foray into Indian music results in a dazzling meeting of East and West. Cooder (on bottleneck guitar) collaborates here with V. M. Bhatt (on a stringed instrument called the Mohan vīnā), and their work touches my mind, heart, and soul in places seldom reached by World Beat or New Age music. An important release, superbly recorded. [Available from Round Up, 1-800-443-4727.] William Livingstone



THE POOH STICKS Million Seller

ZOO 11043 (35 min) These Brit youngsters—rigorous pop formalists with a cutesy streak more than a mile wide—apparently see themselves as the missing link between Neil Young and Edison Lighthouse. Few less auspicious concepts have ever been digitally preserved. S.S.



SKULLCRUSHERS RELATIVITY 1160 (48 min)

An all-star (Suicidal Tendencies, Obituary, Prong, Voivod) compilation from a genre that might be called Metal from Hell, featuring the ineffably tender *Pull the Plug* by Death. And while we're speaking of bad taste, what do you call a sing-along laserdisc by Dr. Kevorkian? Answer: Hari-Karaoke. Heh heh. S.S.

THE SPIRIT CRIES

Endangered Music from the Rainforests of South America and the Caribbean RYKODISC 10250 (60 min)

Mickey Hart, the drummer with the Grateful Dead and a tireless advocate of World Music, has launched a praiseworthy series of digitally remastered field recordings from the folk archives of the Library of Congress. When rainforest cultures die out, this music will remain. The sound in this first compilation makes you feel that you are there beside the campfire, but the ceremonial chants from cultures so remote from American life will give pleasure only to death-defying multiculturalists with a strong anthropological bent. *W.L.*

JOY WHITE

Between Midnight & Hindsight COLUMBIA 48806 (37 min)

Arkansas newcomer Joy White knows how to turn a song inside out and check its pockets, from the Bakersfield shuffle of *Little Tears* to Kevin Welch and Harry Stinson's progressive *These Shoes*. At this point, she's as subtle as a bulldozer, but with work, she could be a latter-day Patty Loveless, a singer who makes art out of raw emotion. *A.N.* has always characterized his performancesand his often overlooked talent for composing. Griffin wrote all but one tune here. Cole Porter's All Through the Night, which receives a fiery treatment from all concerned, not the least being the drummer, Kenny Washington. The title tune, a boppish bolero to which trombonist Steve Turre contributes delightful outbursts, reminds me of one of the first instrumental jazz records 1 ever heard. John Kirby's Dawn on the Desert. Like Washington. Turre deserves much wider recognition than he is getting, as does pianist Michael Weiss, who either arranged or co-arranged (with Griffin) most of these selections. This CD is no hastily assembled studio session but a kaleidoscopic slice of straight-ahead jazz. C.A.

JOE HENDERSON So Near, So Far (Musings for Miles) VERVE 674 (73 min) Performance: Superb Recording: Very good

Joe Henderson grew up listening to his brother's Jazz at the Philharmonic records, which may account for the intensity with which he plays. He began recording thirty years ago, but it is only in recent years that he has begun to get the recognition due him. Henderson's first Verve release was a tribute to Billy Strayhom; his second, "So Near, So Far," has him pointing his horn toward Miles Davis. The homage is made more personal by featuring a group whose members—John Scofield, Dave Holland, and Al Foster—all worked for the late trumpeter (Henderson also played at Miles's side briefly, in 1967).

"So Near, So Far" is Henderson's finest effort in recent years, a superb album that moves smoothly through a program of tunes from Miles's repertory—a nearly chronological trek that includes *Milestones*. *Flamenco Sketches*, *Miles Ahead*, and *Circle*. Every cut is a gem. Henderson plays with stunning authority and grace. Scofield is truly inspired, and . . . well, suffice it to say that this is an allstar group in top form. I hope they get together again, because one rarely hears such highcaliber jazz in a new recording today. *CA*.



THELONIOUS MONK QUARTET FEATURING JOHN COLTRANE Live at the Five Spot BLUE NOTE 99786 (43 min) Performance: Holy Grail Recording: Better than nothing Comparable in importance to Dean Benedetti's surreptitious Charlie Parker recordings, this is the first release of a table-top tape made by Naima Coltrane at the Five Spot Cafe in New York in 1957 during an engagement of the short-lived Thelonious Monk quartet of which her husband. John. was a member (a group that entered the studio only long enough to record half an LP). It answers the question of what Monk and Coltrane sounded like together in live performance at what amounted to a crucial juncture in both their careers— Monk on the verge of public recognition after a decade of being considered a fringe eccentric, and Coltrane just beginning to experiment with the possibility of playing two or more notes simultaneously on his horn.

There is uncertainty about the rest of the personnel: Blue Note lists Ahmad Abdul-Malik on bass and Roy Haynes on drums, which are reasonable guesses. The recording is marred by crowd noises, electronic crackle, and a frustrating dropout during Monk's crisscrossed choruses in Epistrophy. In Crepuscule with Nellie, another of the five Monk compositions included. Coltrane sounds almost timid. as though he were still learning the piece. And because Monk lays out midway through Coltrane's solos, the group never sounds as conceptually unified as Monk's later quartets with Johnny Griffin or Charlie Rouse. But all that ceases to matter whenever Coltrane works up a full head of steam to Haynes's drumming (their interplay is like a blueprint for the saxophonist's later confrontations with Elvin Jones) or whenever Monk engages in his trademark semaphore to send Coltrane on his way. Such moments are plentiful, and they're electrifying. You feel as though you're eavesdropping on history. FD

HENRY THREADGILL Too Much Sugar for a Dime AXIOM 514-258 (54 min) Performance: Terrific

Recording: Ditto

Although Henry Threadgill shares a pro-duction credit for the album, co-producer Bill Laswell and engineer Oz Fritz are probably the ones to thank (along with Tony Dawsey, who did the mix) for fanning out the guitars of Masujaa and Brandon Ross and bringing Threadgill's alto sax and Gene Lake's drums way up front on the four tracks featuring Threadgill's seven-member Very Very Circus. The sound on this band's two previous recordings (for Black Saint and Taylor-Made) was distant and somewhat muddy, but there's no such problem here. "Too Much Sugar for a Dime" (another of those huh?-producing Threadgill titles) sounds as forceful and immediate as a rock album, but with a clarity that enables you to separate the two guitars and the three brass instruments (two tubas and a French horn).

But if it isn't in the music, it isn't going to be in the mix, and it's the music that's ultimately worth raving about here. The catchiest of the septet tracks are *Try Some Ammonia*, a hoedown of sorts that sounds like what Ronald Shannon Jackson was striving for about a decade ago, and *Little Pocket Size Demons*, a skittish march with the tubas voiced a halfstep below (and a half-step behind) Threadgill's exhortatory alto. But the most irresistible tracks of all are *In Touch* and *Better Wrappedl Better Unrapped*, which feature such disparate ingredients as Simon Shaheen's oud, Leroy



Threadgill: back to the future

Jenkins's violin, two chanting. Chano Pozolike percussionists, and a pair of women singers who often sound like Cathy Berberian performing music of Luciano Berio but also rap (discreetly). Long after today's tadboppers have been forgotten, this will be one of the albums people will listen to in order to gain a sense of the exciting directions that jazz's boldest thinkers were pursuing in the final years of its first century. It's as entertaining as it is adventurous. *ED*.

Collection

RCA VICTOR JAZZ: THE FIRST HALF-CENTURY The Twentles Through the Sixties

RCA BLUEBIRD 66084 (five discs, 354 min) Performance: Potpourri

Recording: Decent remastering

CA recorded the very first jazz record, the Original Dixieland Jazz Band's Livery Stable Blues, in 1917. That one isn't here, though the ODJB's Tiger Rag from the following year is. From the 1920's to the mid-1940's, Victor's jazz roster rivaled that of any other label, and for an even longer span of time its recording techniques were superior to those of its competitors. Sidney Bechet, Jelly Roll Morton, Duke Ellington, Fats Waller, Artie Shaw, and Benny Goodman were among the musicians who recorded their best work for RCA, and all of them are well represented here. But since the end of World War II and the arrival of bebop, RCA-like the other major labelshas assumed a much less important role in jazz. What this means in terms of this collection is that although the last two discs, devoted to the 1950's and 1960's, have their share of excellent performances (including Charlie Parker and the Metronome All Stars' Victory Ball, George Russell's Concerto for Billy the Kid, Sonny Rollins's The Bridge, and Lennie Tristano's previously unissued Spontaneous Combustion). you'll have to search elsewhere for a primer on hard bop, cool, or free jazz. Still, as samplers go, this one is enjoyable from start to finish. Whether you need it depends on how broad your taste in jazz is and how many of the tracks you already have in your CD collection. F.D.

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Moby Grape Now



HE problem with American lives, wrote F. Scott Fitzgerald (who knew about such things), is that they have no second acts. And if that's true of American rock bands as well, then Moby Grape -who for several months in 1967 bid fair to become our homegrown version of the Beatles and the Stones-is a classic example. Here was a band that had literally everything going for it-a blistering, innovative three-guitar attack, glorious five-part harmonies. world-class songs, photogenic good looks, a charismatic lead singer, a supportive major record company, a stage act with more energy than all their San Francisco contemporaries combined, and even a fairly broad base of both critics and actual record buyers who liked them. And yet, two years after its debut, the Grape's career was essentially over, the music all but forgotten and the records relegated to the cutout bin of history.

Or maybe not, because Columbia/ Legacy has at long last released the definitive Grape anthology ("Moby Grape," 53041, two CD's or cas-

BY STEVE SIMELS

settes), and it's hard to imagine anybody hearing it without concluding that this was a very major band indeed. Not to mention a guintessentially American one. The Grape's sound was an ahead-of-its-time aural stew of blues and country and soul and rock and jazz and psychedelia dished out with a breathless ensemble approach that was almost proto-punk in its intensity and with high-lonesome neo-Everly Brothers vocals on top. That sort of electicism made the Grape popular with other musicians-you can hear its influence on just about every L.A. country-rock guitar band of the early Seventies, and it was surely no accident that R.E.M. singer Michael Stipe recorded a Grape tune a decade later. But it's also safe to say that nobody who followed in the Grape's wake had anything like the band's take-no-prisoners performance style.

The reasons the Grape never realized its potential (translation: self-destructed) are hardly secret: drug-induced mental problems, an initial record-company publicity hype (five debut singles released simultaneously!) that backfired about as badly as those things can backfire, and a series of legal battles with the band's original manager that left them without even a claim to their own name. Less clearup till now, at least—is why the Grape

Grape differed from the rest of the Bay Area bands by playing mostly concise, singles-oriented rock-and-roll and openly aspiring to pop stardom, neither tendency exactly PC.

In any event, Legacy's Grape set should go a long way toward putting the record straight. Disc One begins with a superbly remastered version of the whole of "Moby Grape," aptly described by annotator David Fricke as "the rarest of rock artifacts, the Perfect Debut Album," now actually improved by the inclusion of the original studio ending for Omaha and a previously unheard tune from the band's audition sessions. There are also some revelatory early versions of songs from later albums and searing live tracks, including an as-natureintended (sans horns) version of the concert showpiece Miller's Blues. Disc Two, meanwhile, reprises the bulk of the second and third Grape albums ("criminally underregarded"-Fricke again), including two versions of frontman Skip Spence's magnificent Seeing, the song that Greil Marcus surely had in mind when he wrote that the Grape's best numbers sounded less like a rock band than a gang fight.

Of course, if the Grape on CD gets the attention it deserves, Fitzgerald's second act may yet come for these

n 1967, Moby Grape was the best

rock band in San Francisco, maybe even America.

So how come you never heard of them?

doesn't figure more prominently in any critical history of Sixties rock, although I have my suspicions. Part of it is probably lingering embarrassment over the name itself, the punchline to a goofily absurdist Sixties joke ("What's purple and swims in the ocean?") that in my high school at least was considered cool for about five minutes. And another factor may be lingering San Francisco hippie snobbism, since the

guys. Stranger things have happened, after all-Columbia's Robert Johnson box sold half a million copies-and the band still performs together from time to time, so who knows? But even if it doesn't, "Moby Grape" is clearly the rock reissue of the year, if not the decade. In the words of the late Lester Bangs (who knew from both Fitzgerald and the Grape), you should "hear ar Dough it and be changed."

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CIRCLE NO. 21 ON READER SERVICE CARD

BARBER: Symphony No. 1; Adagio for Strings; The School for Scandal, Overture; Essays Nos. 1 and 2; Music for a Scene from Shelley Baltimore Symphony, Zinman

ARGO 436 288 (64 min) Performance: Handsome

Recording: Resplendent

avid Zinman has gathered together on this CD the cream of Samuel Barber's early orchestral output. His Baltimore players bring immense warmth and dramatic vitality to the music, enhanced by a recording rich in body, superbly detailed in texture, and graced by a wholly apt acoustic surround.

The famous Adagio for Strings emerges with a truly dignified pathos. The lively School for Scandal overture is beautifully paced, with its lovely oboe melody blending into the musical fabric rather than heavily underlined. The First Essay packs a fine dramatic wallop, and the more elaborate Second comes across as a real blockbuster. The lesser-known Music for a Scene from Shelley shines forth in all its lyrical splendor. As for the wonderful Symphony in One Movement, it gets the best recorded reading I have heard since the 1955 Eastman-Rochester version led by Howard Hanson. It all hangs together thanks to the flawless tempo transitions between its four large sections. The climax of the slow section is shattering, and the final passacaglia, done at Barber's con moto marking, brings a true catharsis. Don't let the opportunity to acquire this collection pass you by. DH



Stern, Ma, Laredo, and Ax delight in Fauré

BEETHOVEN: Pigno Concertos Nos. 1-5

Zimerman; Vienna Philharmonic. Bernstein (Nos. 3-5) **DEUTSCHE GRAMMOPHON 435 367** (three discs, 184 min) Performance: Can't win 'em all **Recording: Good**

rystian Zimerman and Leonard Bernstein achieved a fine partnership in the two Brahms concertos (also with the Vienna Philharmonic on DG), and in 1989 they set out to follow up with live recordings of the five by Beethoven. Bernstein died after recording only the last three, however, and Zimerman was eventually persuaded to conduct from the keyboard in Nos. 1 and 2. In that respect this



George Jellinek, Eric Salzman, and **David Patrick Stearns**

is not a truly "integral" cycle, and, in any event, it is not a consistently successful one.

The strongest performance here is the last of the five concertos, the "Emperor," in which Bernstein seems very much in command-a sort of field marshal personally overseeing every detail of a grand-scaled campaign, with Zimerman the front-line general in wholehearted and productive accord. The Third Concerto, with the adrenalin running a bit lower, is tidy and well coordinated, the Fourth a bit less so; here Zimerman seems pointedly reserved, Bernstein seeking broader vistas. But in the first two concertos there is a sort of breakdown in both the overall momentum and the level of dialogue between the two performing elements. The orchestra too often sounds perfunctory, or downright limp and lifeless. The slow movement of Concerto No. 2 suggests an image of players wearied with disbelief over the distended tempo and exaggerated pauses.

While Zimerman's solo playing is never less than beautiful (and particularly so in Nos. 3 and 4), I could not help feeling that he brings little to this music in the way of the freshness and illumination and that guick-witted responsiveness to what is "between the notes" that have made his Chopin, Brahms, and Liszt so cherishable; I had to wonder, though, whether that impression would have been nearly as strong if this set had been limited to the last three concertos. The sound is studio-smooth in Nos. 1 and 2, good with occasional odd balances in Nos. 3-5. RF

FALLA: La Vida Breve

Nafé, Ordoñez, Notare, Keen, Wadsworth; May Festival Chorus, Cincinnati Symphony, López-Cobos TELARC 83017 (63 min) Performance: Oh, those Sponish dances! **Recording: Brilliant**

Boy seduces gypsy girl: boy marries some-one else: gypsy girl interrupts wedding to throw herself down dead at boy's feet. End of opera

La Vida Breve was written by the young

Manuel de Falla for a one-act opera competition held by the Spanish Royal Academy of Fine Arts in 1904-1905, and it won. Although he was still in his twenties. Falla had already written five zarzuelas, none of them successful. The opera has not fared much better; in fact, it has always been better known for its Spanish dances-complete with flamenco singing. dancing, and guitar playing-than for its dramatic success.

The dances are great; the rest is not bad either, except that the story is so thin and the characters so shallow that there is not very much for the music to hook on to. Still, even a flawed theater work by a fascinating figure in twentieth-century music is worthy of recording. This version, with a very capable Hispanic-American cast (Alicia Nafé and Antonio Ordonez among others) under the knowing direction of Jesus López-Cobos, gives the work its best shot, but it can hardly provide the musico-dramatic strength that is not there in the first place.

Ultimately, the dances are the real point. There are lots of castanets and a guitar (played by Carmelo Martinez), with strong orchestral support and a brilliant contemporary recording as well. Every castanet click goes right to the feet, and everything else is forgotten. E.S.

FAURÉ: Piano Quartets Nos. 1 and 2

Ax, Stern, Laredo, Ma SONY 48066 (67 min) Performance: Idiomatic Recording: Big

manuel Ax (piano), Isaac Stern (violin), Jaime Laredo (viola), and Yo-Yo Ma (cello) have by now developed the happy characteristics of a permanent ensemble-and one with a permanent recording venue, the Troy Savings Bank Music Hall in upstate New York. Following their attention to the three piano quartets of Brahms, they interact splendidly in conveying the distinctive character of these marvelous works by Gabriel Fauré-especially the expansive Second Quartet (in G Minor, Op. 45). Every phrase reflects real affection for the music as well as real delight in exploring together its reserves of sweetness and passion, fantasy and elegance. The sound is a little larger than life but otherwise well suited to the material. R F.

HAYDN: Piano Trios Nos. 12, 25, 27, and 28

Kalichstein-Laredo-Robinson Trio DORIAN 90164 (72 min) Performance: Radiant **Recording: Excellent**

here are surprisingly few recordings of the Haydn trios on CD, and none is more satisfying than this lovely assortment: "enlivening" is the first word that comes to mind, 'radiant" the impression that remains. Joseph Kalichstein, at the piano, sets an especially merry pace-but never quite a breathless merry pace—but never quite a finale of g one—for the famous Gypsy Rondo finale of g the G Major Trio, No. 25, and the concluding g presto of the C Major, No. 27, is full of frisky, unforced charm. The string parts may be less prominent, but, as Jaime Laredo (violin) and Sharon Robinson (cello) make effortlessly clear, they are far from perfunctory; the delicious pizzicatos in the twilit opening movement of the E Major. No. 28, or the melting bowed exchanges in the slow movement of the



G Major, are as much of an enticement as the crystalline keyboard playing.

The E Major, in fact, is the gem here. More consistently inward than the other works on the disc, it comes closest to our notion of chamber music as an equal-participation genre. Its Bach-like allegretto, the shortest but surely the most strikingly original of the slow movements in this particular program, takes us into a deeper realm, and the somewhat pensive finale is content to remain there. The recording itself, made at the Troy Savings Bank Music Hall, could hardly be better: crisp, clear, ideally focused in respect to balance and perspective. yet with enough warmth for an overall effect of intimacy. *R.F.*

MAHLER: Symphony No. 7 City of Birmingham Symphony, Rattle EMI 54344 (77 min) Performance: Ardent Recording: Mostly very good

Apparently the first all-digital Mahler Seventh on a single CD, this live recording, directed by Simon Rattle at the 1991 Aldeburgh Festival, has a vitality and poetry that come close to those of the Leonard Bernstein and Claudio Abbado versions on Deutsche Grammophon. Bernstein's is a dare-all performance, but Abbado's exhibits the finest sense of control and proportion in a work whose outer movements can, in less skilled hands, sound wayward to the point of incoherence.

There is no incoherence either in Rattle's reading or in the playing he elicits from his orchestra. The "rowing" tune for tenor horn at the start seems to take a while to gather momentum, but it is a pleasure to hear it in almost ideal balance against the orchestral texture and with a genuine cantabile quality. Rattle's whole first movement reveals a keen sense of ebb and flow, with tempo changes that fluctuate without seeming mannered. The acoustics of the smallish Snape Concert Hall seem strained at some of the bigger climaxes, but revealing inner detail comes through in the less densely scored pages.

The "night music" second movement is just a bit fast for my taste, and again I would wish for more sense of space for the marvelous echo episodes. The central scherzo is properly spooky, especially with the terrific snap-pizzicato that spells the turning point. The Andante amoroso of the second Nachtmusik comes as a blessed surcease. Rattle and his orchestra make the most of the eight-part rondo-finale in a blazingly taut and brilliant performance. While I am never happy with the inclusion of applause in a recording, I can hardly blame the

CLASSICAL MUSIC British audience for its reaction at the end of

this performance, and its quietness earlier is exemplary. D.H.

MUSSORGSKY: Pictures at an Exhibition STRAVINSKY: Three Movements from "Petrouchka"

Anatol Ugorski (piano) DEUTSCHE GRAMMOPHON 435 616 (54 min) Performance: Highly personalized

Recording: Very good

Fifty-year-old Anatol Ugorski. a relatively recent emigrant to Germany from his native Russia, is clearly an interpreter with a mind of his own—and a formidable technician and colorist in the bargain. His performance of *Pictures at an Exhibition* is no run-of-the-mill affair. He seems to be putting a subjective gloss on the work, as though he were trying to enter Mussorgsky's mind as he viewed the drawings by his dead friend Victor Hartmann.

The initial Promenade is thoughtful, but the Gnomus that follows seems wayward in its tempo relationships. After that things settle down. The Old Castle is somberly brooding, the Tuileries a fine bit of tone painting, and the Bvdlo Oxcurt carries more menace than usual. The Limoges marketplace episode captures the speech rhythm beautifully. Catacombs and the succeeding evocation of Hartmann's spirit and the glowing skulls are as creepy as anyone could ask, and the Hut on Fowls' Legs is a virtuosic display, with superb coloration in the central episode. But in the Heroes' Gate at Kiev Ugorski goes wayward again in an attempt to treat the finale as a kind of sublime meditation, at the end of which all seems to disappear as in a vision. Decidedly individual, in short, and perhaps not to every taste.

Stravinsky set the three movements from *Petrouchka–Russian Dance*, *In Petrouchka's Room, and Shrovetide Fair*—for piano on commission from Artur Rubinstein. The piece is a knucklebuster, and Ugorsky carries it off superbly in a vividly characterized exhibition of his pianistic and coloristic prowess. All told, venturesome stuff for the mind and the ear, and magnificently recorded to boot. *D.H.*



PROKOFIEV: Romeo and Juliet; Sonata No. 8 Sergei Edelmann (piano) RCA VICTOR 60848 (68 min) Perfarmance: Excellent Recording: First-rate The Eighth is the biggest and most remark-

able of Prokofiev's piano sonatas—not as a tour de force like the Seventh, but as a personal document, expressed in the composer's most distinctive balance of brilliance, depth,

wit, and, in this case, a lyricism as openhearted as in his great ballets and Fifth Symphony. The work has been subjected to a remarkable variety of interpretive approaches. and seems virtually to invite them; while several readings may be equally convincing, Sergei Edelmann's strikes me as the most compelling on records since Sviatoslav Richter's Deutsche Grammophon version more than thirty years ago. Edelmann takes the big opening movement very expansively, but he doesn't allow it to sprawl. The brief middle movement is just relaxed enough to give sentiment its due while at the same time showing a bit of muscle, and the finale is simply stunning in its momentum and drive-and color-without undue brittleness. Edelmann seems to be comfortably "inside" this music, able to make it work without gratuitous staging.

He makes the *Romeo and Juliet* pieces work pretty well, too. Even though the arrangements are Prokofiev's own, I find it hard to listen to them without missing the winds and strings in his greatest ballet score. Edelmann, however, plays all ten pieces with such unfailing sympathy and taste that most of them surely the minuet and "Juliet, the Little Girl'—come off as real piano music. They get a big boost, as does the sonata, from the exceptional recording, which is about as close as we are likely to get to ideal piano sound vivid, well defined, and ideally focused from the perspective of a seat in the middle of a good hall instead of inside the instrument. *R.F.*

RACHMANINOFF: Paganini Rhapsody LUIOSLAWSKI: Paganini Variations SHOSTAKOVICH: Piano Concerto No. 1

Jablonski: Royal Philharmonic, Ashkenazy LONDON 436 239 (54 min)

Performance: Yauthful Recording: Excellent

his recording is a model of effective programming. The Shostakovich and Rachmaninoff pieces show what two Russian composers were doing at the same time (the early to middle 1930's) on opposite sides of the Soviet fence, Rachmaninoff being a fully westernized concert pianist and Shostakovich composing under the shadow of Stalin. Though one tends to think of them as diametric opposites, their pieces here share a sense of wit (Rachmaninoff's being dryer), and the harmonic vocabularies overlap far more often than one would think. And in some ways the 1978 Lutoslawski set of variations on the same Paganini theme used by Rachmaninoff is the best surprise of all. Like Rachmaninoff, Lutoslawski is conservative for his time, but since more than forty years separate them, Lutoslawski's variations sound like Rachmaninoff from a narallel universe

In terms of performance, the Swedish pianist Peter Jablonski and his close collaboration with the conductor Vladimir Ashkenazy make this disc worth owning. Jablonski gives Rachmaninoff a rhythmic snap that pianists often neglect, and he never indulges the music's lyricism for its own sake. It's a thoughful, probing performance. In the Shostakovich he looks past the surface audacity in order to find the music. He treats the Lutoslawski as though it were as familiar as Rachmaninoff. Clearly, Jablonski is far more than a pair of hot, youthful hands. D.P.S.



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Did "Klinghoffer" Get a Bum Rap?

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The piece, said to presage a new form of opera, was commissioned jointly by the Brooklyn Academy of Music, the Monnaie Théatre in Brussels, the Lyon Opera, the Asian view of an incontrovertible East Meets West historical event. It did not prepare anyone for the hammer-blow seriousness of *Klinghoffer*, a Biblical treatment of very living passions and hatreds. Accusations of bias (mostly not very well founded) inevitably greeted this extraordinary and perhaps misguided attempt to turn the Israeli/Arab conflict into an operatic meditation. The Death of Klinghoffer ended up as a celebration of the death of reason and the demise of the new-opera movement in America.

Or did it? In my opinion, Klinghoffer, set



Sanford Sylvan, as Klinghoffer, and his dancer double in "Aria of the Falling Body"

Glyndebourne Festival, the Los Angeles Festival, and the San Francisco Opera. It was put together by that enfant terrible of modern opera, the director Peter Sellars, with the same team that created the earlier, more successful Nixon in China: the writer Allce Goodman and the composer John Adams. Kent Nagano was music director, and the superb original cast was headed by James Maddalena as the Captain, Thomas Young and Eugene Perry as two of the terrorists, Sanford Sylvan as Klinghoffer, and Sheila Nadler as his wife.

Nixon In China was, like Sondheim's Pacific Overtures, a witty Western take on an

SCHUBERT: Sonata in A (D. 664); Impromptu in B-flat (D. 935); Klavierstück (D. 946); "Wanderer" Fantasy

André Watts (piano) EMI 54153 (65 min) Performance: Polished Recording: Exemplary

Titled "The Schubert Recital," this interestingly programmed CD opens with the limpid and largely carefree A Major Sonata of 1819, followed by the B-flat Impromptu of 1827 (with a variant, and variations, on the up for a fall, got a bum rap. Now, with the recording in hand and in the ear, it is much easier to take the long view.

For starters, it is not an opera or music drama at all. It is an oratorio or passion play. The story is narrated—as if it happened in some distant past—by the ship's Captain. Events are referred to in dream-like fashion as a frame for meditative arias and choruses. Only at the very end, when the Captain tells Mrs. Klinghoffer of her husband's death, is there anything like action and interaction. Everything else is remembered and recounted from a great distance: the shipboard events, the childhood of the terror-

Rosamunde melody also used in the A Minor String Quartet), and the tempestuous E-flat Minor Klavierstück. It winds up with Schubert's one formidable virtuoso piano piece, the "Wanderer" Fantasy, which in its structure and thematic metamorphosis anticipates the work of Liszt. The performances by André Watts are best in the sonata and impromptu, where elegance and polish are most in order. One senses total control in the muted loveliness of the sonata's slow movement and in the utterly carefree rondo-finale. ists, the musings of the Captain, the Biblical story of Hagar (shared by both Jews and Muslims), the Handelian choruses of night and day, ocean and desert, the extraordinary arla of Klinghoffer's falling body set as a gymnopédie.

Klinghoffer is not a great success as an opera because it is not a theater piece, but it is a tremendously powerful oratorio for our time. Without the high-tech set and video monitors of the Sellars production, without the redundant Mark Morris choreography, all rather pretentious and irrelevant, the strength of the words and music comes through. Goodman's libretto, severely criticized, is in fact a brilliant prose poem, and Adams's setting of it is inspired. The music-simple, severe, highly emotional-never loses its way; it takes the tragedy, as it must, to the higher plane. In the recorded version (somewhat revised from the one seen in New York), the Klinghoffers are truly tragic figures. Marilyn Klinghoffer's final aria of anger and rage is a brilliant and touching stroke; it gives her a stature that the Captain, with his Hamlet-like philosophizing, and the terrorists, lost in their romantic infatuations with righteous memory, violence, and death, never achieve.

This is one of those ultimate international recordings with a mostly American cast, a French orchestra, and an English chorus, all excellent. Nagano, a talented young conductor from San Francisco who's now in charge at the Lyon Opera, gives the plece shape, drive, and a great deal of nuance amid the powerful dramatic strokes. The recording itself, made in the Auditorium Maurice Ravel in Lyon, is a bit claustrophobic and therefore not always kind to the spaciousness and grandeur of the music. Even so, the magnificent score comes through and reinforces the notion that John Adams has taken the so-called minimalist movement to a very maximalist place. E.S.

ADAMS: The Death of Klinghoffer

Maddalena. Young, Perry, Sylvan. Nadler. others: London Opera Chorus; Lyon Opera Orchestra, Nagano ELEKTRA NONESUCH 79281 (135 min)

In the *Klavierstiick* and the "Wanderer" Fantasy, Watts's well-oiled-machine approach simply won't do-more fire is needed for both works, though the "Wanderer" hangs together better here than in his 1975 Columbia reading. He does best in the somber slow-movement variations on the song for which the work is named. Keyboard coloration is well handled all the way through, and he plays the presto nimbly. On the whole, Watts is a far more mature artist now than in the 1970's, but 1 think he can use another ten years to get to the heart of late Schubert. The recording, done in a Berkeley, California, Unitarian Church, is a pleasure. D.H.



SHOSTAKOVICH: Symphony No. 15 Cleveland Orchestra, Sanderling ERATO 45815 (51 min) Performance: Transcendent Recording: Excellent

Kurt Sanderling, who turned eighty last September, has earned a sort of reverence on the part of the American orchestras he has conducted in the last several years, and the last of Shostakovich's fifteen symphonies is a work with which he has identified on an especially personal level. The symphony suggests Mahler to him, and not only in a general sense

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but specifically *Das Lied von der Erde*—as a conscious valedictory gesture, a farewell to life. Sanderling has been quoted, too, as wishing that the Fifteenth be performed at his own memorial. There is always value in having such a work recorded by a musician who feels deeply about it, and this is a beautifully accomplished presentation, with the great Cleveland Orchestra at the top of its form and superbly recorded. Whether every listener will find the performance fully convincing is an other question.

Sanderling's Shostakovich is no longer the bitter chronicler but resigned, contemplative, putting mere human events in their proper perspective in the cosmic cycle. It is an expansive view of the score. less overtly dramatic than we might expect. The overall timing is a good 7 or 8 minutes longer than the norm, and most of this difference is accounted for in the final adagio, which runs more than 20 minutes, a third longer than its usual timing. It doesn't seem stretched out, though, for Sanderling's momentum never falters; he simply invests the music with a sense of serenity in which every thought, every notion seems reduced to its very simplest terms, leaving no room for staged effects or pretentiousness. It may not be the norm, and surely it is not the only view of this enigmatic symphony, but in Sanderling's hands it is a persuasive one, and at the very least a strong argument for having more than a single recording of the work. RF

Collection

REMBRANDT CHAMBER PLAYERS:

20th Century Baroque CEDILLE 90000 011 (60 min) Performance: Neoclassical Recording: Effective

This is. in effect, a collection of modern trio sonatas, more or less classical works for flute, oboe, cello, and harpsichord—to which are added, in the case of Manuel de Falla's Harpsickord Concerto, clarinet and violin, and in that of Dominick Argento's Six Elizabethan Songs, voice and violin.

The Falla, written for Wanda Landowska, is a work of great Neoclassical (and only occasionally Spanish) charm, and the relatively early Sonata for Flute, Oboe, Cello, and Harpsichord by Elliott Carter, although showing many of the hallmarks of his difficult later work, is almost ingratiating in its generous wit and inventiveness. The other two works, the Sonata da Camera by the Czech composer Ilja Hurník and the set of songs by Argento, an American, are much more traditional in method and sound. The Argento, pleasantly sung by the soprano Patrice Michaels Bedi, is made up of fluent, somewhat glib settings of sixteenth- and seventeenth-century poems. Strong performances by the Chicago-based Rembrandt Chamber Players and an effective recording. ES




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BEETHOVEN: Violin Sonata No. 5 MOZART: Violin Sonata in B-flat MENDELSSOHN: Violin Sonata in F Vengerov, Golan, Markovich

TELDEC 76349 (65 min)

Beautifully poised readings by the nineteen-year-old Siberian-born violinist Maxim Vengerov (now living in Israel), with flawless collaboration from the planists Itamar Golan (Mozart, Beethoven) and Alexander Markovich (Mendelssohn) as well as examplary sonics. The Beethoven is the F Major "Spring" Sonata, Op. 24, the Mozart the well-known K. 378, the Mendelssohn a good but not top-drawer work from the composer's twenty-ninth year that was discovered and edited by Yehudi Menuhin. Vengerov has also recorded the Beethoven "Kreutzer" and the Brahms G Major sonatas for Teldec. He bears watching. DH

CHOPIN: Piano Concerto No. 1

LISZT: Pigno Concerto No. 2 Barto; Royal Philharmonic, Fischer EMI 54648 (65 min)

The world definitely needs more pianists willing to take strong interpretive stances like the so-called Romantic pianists of old, and Tzimon Barto, with his pouting good looks and formidable piano technique, would seem to be a good candidate. Unfortunately, he reduces the Chopin and Liszt concertos recorded here to a lot of sighing, whispering, and macho posturing. This is Romanticism all right—of the Liberace variety. D.P.S.

DVOŘÁK: Siavonic Dances

Katia and Marielle Labèque

(piano, four hands)

PHILIPS 426 264 (68 min) The Labèque sisters' playing does not lack animation, but it does lack character, and the overreverberant recording hardly gives them, or the music, a fighting chance. It's time Deutsche Grammophon revived the sparkling account of these dances by the brothers Kontarsky. *R.F.*

IBERT: Suite Élisabéthaine; Flute Concerto; Symphonic Suite, Paris; Capricelo

Manhattan Chamber Orchestra, Clark NEWPORT 85531 (69 min)

Ibert, a prolific poor-man's Poulenc, wrote eight operas, six ballets, and sixty-three film scores. He also wrote a lot of incidental music for the theater, some of which shows up here in the form of two suites, as well as a good deal of ensemble music like the Flute Concerto, neatly recorded here by Eugenia Zukerman, and the Capriccio for Winds and Strings. He was a witty man and a witty composer but only rarely inspired. He is at his best in the short vignettes that. make up the "Paris" Suite; in this kind of aphoristic theater music, concision and wit are big virtues. Good performances by a New York pick-up orchestra in a respectable recording. E.S.



MENDELSSOHN:

Symphonies Nos. 1 and 5 Bamberg Symphony. Flor RCA VICTOR 60391 (58 min) While Claus Peter Flor's accounts of these two symphonies are as persuasive as any offered on a single CD. Walter Weller's, with the Philharmonia on Chandos, are no less fetching and come with a bracing performance of the *Hebrides* Overture. *R.F.*



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The L.A. Quartet is the best (and most durable) of the guitar ensembles that sprang up in California in the early 1980's. I'm glad they have survived and found a stable company to record them. William Livingstone

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Trained Listening

RECENTLY I went to the movie theater I had vowed I'd never enter: a miserable affair with one behind-screen speaker and ancillary equipment that was probably purchased at a fire sale. But the film was dialogue-intensive, and the place was conveniently close, so I took the chance. As it turned out, the speech was mostly intelligible, but the bits of music, and particularly the solo piano in Reel I, would have been much better if not heard at all.

Film passing through a projector is subjected to two modes of motion: the start-stop jerks with which the picture is thrown onto the screen at a rate of twenty-four frames per second, and the absolutely constant velocity at which it must travel when it encounters the sound head. A film with a magnetic soundtrack encounters the sound head first, and this may help, as does the firm film-to-head contact required. An optical sound head, as in this theater, receives the film after it has passed through the projection lens and must somehow contrive to calm its agitation. That the film is often not well supported within the sound head doesn't help. In fact, nothing helped on this occasion.

Somehow I endured the fuzzing piano tones and grotesquely fragmented reverberant tails, but I was completely taken aback when, afterward, I learned that my wife hadn't noticed a thing. How could she be oblivious to such wretchedness?

"Expectations," says Dr. Floyd Toole, now the engineering chief of JBL/Harman International and formerly a senior researcher at the National Research Council of Canada. "You were aware of, and probably even had had some experience with, a mechanism for distortion that could seriously compromise a cinema presentation. She wasn't, and her ignorance turned out to be bliss." Dr. Toole might also have pointed out that I had predicted pretty grim audio reproduction when we bought our tickets, and so she was prepared to make allowances. But still . . .

This matter of "still" is an absorbing one for many audiophiles, because it bears directly on the question of "golden ears," who has them, and how the rest of the world can be confident that they do. For the elaborate listening-panel tests that he has had much experience designing and conducting, Toole has frequently had recourse to both "trained" and "untrained" listeners, as have other investigators. Does this distinction suggest that a way has been discovered to identify people who are truly talented in audio discernment? Maybe yes, but more likely no.

THE HIGH END

BY RALPH HODGES

In this sort of research exercise, a "trained" listener is usually one who has been trained for the specific experiment being undertaken. If the object is to identify timbral colorations in an audio component, he or she will first be played deliberate examples of the type of coloration being sought, until it's certain that the idea has been absorbed. Then instructions will normally be given to ignore everything else and concentrate only on the phenomenon of interest. In other sorts of tests, in which the object may be to detect any difference between two components, and even to suggest which one is better, the investigator might wish he could train his listeners, but there really is no practical way to do it. The test itself becomes the training, and the listeners' resulting proficiency is judged by the consistency with which they have the same responses to the same stimuli.

By contrast, a golden-eared listener would be characterized by a researcher as "experienced," or perhaps even "diagnostic," implying the ability both to detect a flaw in reproduced sound and to identify its cause. You'd think that such a listener would be prized by testers, but you'd be only half right. Even the experienced must prove their performance for the purposes of the test at hand. And, unfortunately, many of the most experienced have done too much listening and suffered hearing losses. Often they can compensate wonderfully well for their handicaps, but there will always be certain test circumstances in which they'll be unreliable or even useless.

There is a feeling among some researchers that musicians tend not to make the best subjects in a listening panel, perhaps because they focus too strongly on performance values and, being accustomed to hearing music under all conditions, are too ready and able to compensate mentally for deficiencies in sound reproduction. Evidently it is sometimes necessary for them to unlearn long-established habits of listening in order to learn the new ones appropriate for a test. The general lay public, on the other hand, unaccustomed to anything but casual listening, can respond rapidly to experience gained in listening sessions, provided their ears are healthy. Toole reports that even a day may suffice to bring performance up from erratic to full potential. He also notes, ruefully, that, lacking this experience, people walking into an audio showroom bent on a purchase are in the worst possible position to do themselves a favor.

Participating in a rigorously designed listening test is a tiring activity-one much more taxing than merely hooking up a new preamplifier and trying to decide whether you like it. A major reason is that strict controls are typically imposed on the stimuli presented and their ordering and duration, in the interests of treating all listeners equally and of reaching a conclusion to the test in a reasonable amount of time. Given the travails involved, researchers feel grateful that so many test subjects are willing, and even eager, to volunteer their time and their emotional equanimity.

O is a trained listener a golden-eared listener? Certainly not necessarily. A properly equipped and trained listener will demonstrate consistency in judgment, yet may not possess, or even claim to possess, the exceptional acuity that is the presumed mark of the golden-eared. It is possible, however, that the trained listener will have more influence on future audio designs. Nobody knows what golden-eared listeners hear but themselves. But the conductor of a carefully designed listening test will have a very good idea of what his trained listeners are hearing, and he will know how to evaluate and act on their perceptions.



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