# Stereo Review

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# DIGITAL DECISIONS How Do the New Disc and Tape Recording Systems Stack Up?

MARATHON MUSIC
A Roundup of Compact
Disc Changers

#### **TEST REPORTS**

Sony CD Changer Technics A/V Receiver Memorex Speakers Monitor Speakers





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## Introducing The New Bose Acoustic Wave Music System



Why The New Acoustic Wave Music System In Performance, Size, And Versatility. Pose Research Laboratories

You're probably as interested in music and hi-fi as I am. So I'd like to tell you about I lainn as interested in music and hi-fi as I am. So I'd like to tell you about I lainn as interested in music and hi-fi as I am. So I'd like to tell you about I lain a lain as I am. So I'd like to tell you about I lain a lain as I am. So I'd like to tell you about I lain a lain as I am. So I'd like to tell you about I lain a lain as I am. So I'd like to tell you about I lain a lain as I am. So I'd like to tell you about a lain as I am. You're probably as interested in music and hi-fi as I am. So I'd like to tell you about using as interested in music and hi-fi as I am. So I'd like to tell you about using a music system. Using a music system I believe is very special – the Acoustic Wave and more versatile steren a music system I believe is very special – the Acoustic Wave and more versatile steren a music system I believe is very special – the Acoustic Wave and more versatile steren a music system I believe is very special – the Acoustic Wave and more versatile steren a music system I believe is very special – the Acoustic Wave and more versatile steren a music system I believe is very special – the Acoustic Wave and more versatile steren a music system I believe is very special – the Acoustic Wave and more versatile steren a music system. a music system I believe is very special – the Acoustic Wave music system. Using a music system I believe is very special – the Acoustic Wave music system stereo stereo a much smaller and more versatile stereo waveguide technology, we have created a much smaller and more versatile stereo waveguide technology, we have created a much smaller and more versatile stereo waveguide technology, we have created a much smaller and more versatile stereo waveguide technology, we have created a much smaller and more versatile stereo waveguide technology, we have created a much smaller and more versatile stereo waveguide technology. Dear Fellow Music Lover,

The system includes a CD player, AM/FM tuner, bi-amplification, dynamic equalization and eneakers. It works with AC or DC nower

system - Without sacrificing sound quality.

ization, and speakers. It works with AC or DC power.

High fidelity sound from a system this small may seem like a technical impossibility.
It almost was

When the project began, the technology to make it a reality wasn't available. We enough air to make it a reality wasn't available. We enough air to make it a reality wasn't available. We enough air to make it a reality wasn't available. We enough a rechnology to make it a reality wasn't available. We enough a rechnology to make it a reality wasn't available. When the project began, the technology to make it a reality wasn't available. We spent 14 years in research to develop a technology that would move enough air to spent 14 years in research without large drivers or high amplifier nower reproduce lifelike sound. spent 14 years in research to develop a technology that would move en a technology that would I've been part of many exciting projects at Bose, but I can honestly say that the Acoustic Wave music system is the invention of which Dr. Bose and I are most Acoustic Wave I've been part of many exciting projects at Bose, but I can honestly say that the Acoustic Wave music system is the invention of which Dr. Bose and I are most Acoustic Wave music system is the most rewarding and the most rewardin It almost was.

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Acoustic Wave music system is cally available directly from Bose. For information about how you can hear the Acoustic Wave music system, hear information about how you can hear the Acoustic Wave music system, at the hottom of this name

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The result: Sound you must hear to believe.

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Sincerely,

William Reshort Ur. William M. Short Bose Corporation Principal Research Engineer Dr. William R. Short

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#### Cover

The JVC XL-R304 compact disc changer is one of many new players that are making it easier than ever to program an evening's background music or your own concerts on CD. For more, see page 49.

Photograph by Dan Wagner Computer imaging: Ed Flynn and Dan Wagner

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## Stereo Review.

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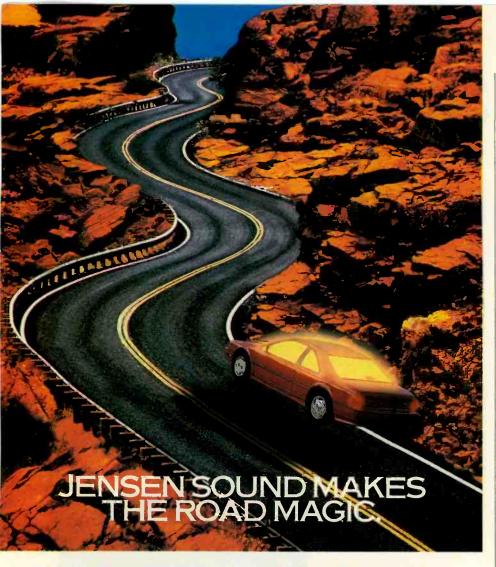


## MUSIC

"The theme always seems to go back to that place in west Texas. . . . And the wind" • by Alanna Nash Best Recordings of the Month ..... Bonnie Raitt, Mozart Sonatas for Violin and Piano, Eric Gales, and Beethoven's Ninth Symphony



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CD9500 CD Receiver

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## Command Performance.



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

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

#### Full Command Of Your Music System

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

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

#### Value Measured By Performance

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

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

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

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

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

#### More Sound, Less Money

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

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

to be Adcom's command performance.

S ADCOM details you can hear

## LETTERS

#### Sound Investment

I must take issue with a statement made by Daniel Kumin in his "Sound Investment" in August. He wrote that "an \$800 system's compact speakers, driven by a small receiver with modest power reserves, simply won't put out viscerally moving volume levels." Why "viscerally"? I rely on my ears, not my guts, to tell me whether a system is playing loud.

Aside from the nuance of language, his advice is incorrect. My receiver puts out 55 watts per channel into bookshelf speakers I purchased for \$100 in the Sixties. If the volume control is turned more than a quarter of the way up with most CD's, the sound becomes intoler-

ably loud.

GEORGE NUSSBAUM New York, NY

Some listeners, particularly to rock and dance music, actually do want to feel the sound as much as hear it, and that requires a volume level that many other listeners find "intolerable." While it is true that you can achieve high volume levels from compact speakers and a modest receiver, the kind of "viscerally moving" levels Mr. Kumin mentioned require more power and bigger speakers.

#### Green Packaging

Congratulations to Bonnie Raitt and Capitol Records for their environmentally conscious approach to packaging her new CD, "Luck of the Draw." Unopened, the box is approximately the same size and shape as those of other CD's and should be equally effective at discouraging shoplifting. But except for a narrow throw-away plastic spine on either side and the cellophane outer wrapping, the entire package is made of recycled cardboard and folds into a standard-size CD case with no waste. Incidentally, the music is also wonderful.

ROBERT WADSWORTH Richmond, VA

See page 66 for a review of "Luck of the Draw.

#### CD Reissues

At least some of the albums mentioned in Marc Mickelson's CD wish list in August "Letters" are, in fact, available today on compact disc. You need only fly to Japan to get them. For whatever reason, Japanese labels have found it in their interest to transfer just about anything you can name to CD, from the dubious commercial successes of early Devo and Was (Not Was) to cult artists like Scott Walker and Robyn Hitchcock.

What we need is either a decent import service or some means of convincing conservative American labels to give us back the full range of music available before the advent of the compact disc.

THOMAS G. UNTERBURGER New York, NY

Two items on Marc Mickelson's wish list, Lou Reed's "The Blue Mask" and "Legendary Hearts," are currently available on CD, as are Reed's other RCA albums, but I haven't yet seen any of his Arista albums in the format. Distribution seems to be a problem with CD's of alternative music. The titles may be available, but finding them is another matter.

> BILL CLEARY Martins Ferry, OH

"Legendary Hearts" was reissued on CD this spring, but according to RCA headquarters, a CD of "The Blue Mask" has not been released in the U.S. If you have a copy, it must be from somewhere else.

#### Pink Floyd

Regarding Richard T. Colombotti's question about pink noise and Pink Floyd in August "Letters," my father claims to have shared more than a few rounds of "pink floyds" in Hong Kong bars during his participation in a navalexchange program with his Australian counterparts in the late Sixties. Any connection?

> J. BYRON DAVIS Mesquite, TX

Most likely the drinks were named after the band, which had its first hit record in Britain in 1967

#### "Systems" Trade-Offs

The professional installations depicted in the "Systems" features in STEREO REVIEW often show fine speakers designed for floor placement (such as the Infinity 9 Kappas in the August issue) elevated to seemingly incorrect heights and buried in large custom cabinets. I would tend to think that in such positions there would be a noticeable loss of lowend response and a potential for highend dispersion irregularities because of the unusually elevated tweeters. Is this not a trade-off of performance for aesthetics?

In addition, incorporating wine racks in entertainment centers seems to be a popular practice, but I can't help but wonder if Baron Rothschild wouldn't turn in his grave if he knew that a bottle of his Chateau Lafite were being subjected to the vibration and heat that any large, enclosed system (such as Mr. and Mrs. Jay's August entry) obviously generates. Or is this just sour grapes? MARK S. BIANCO

Syracuse, NY

Low-end losses and high-end dispersion irregularities are probably measurable when a system designed to be floor-standing is elevated as in the August "Systems," but whether these effects would be noticeable or, if noticeable, objectionable, is another matter. Many variables are involved, and the ultimate effect on the speaker's sound might even be to make it more pleasing to its owners. But you are certainly right that these effects should be considered if a nonstandard placement is planned.

As for the effect of heat and vibration on wine stored near or in an entertainment center, loudspeakers themselves generate no heat and should generate no cabinet vibration if they are properly installed, and a system's power amplifiers should always be well ventilated precisely to prevent any substantial heat build-up.

#### Eric Andersen

I was doubly surprised at the review of Eric Andersen's "Stages" CD in the August issue—both because this material was finally released and also because it was being reviewed in a mainstream magazine. I hope that Alanna Nash's very positive review will create new fans for Andersen's music and, as she suggests, finally gain him the acclaim he has

deserved for many years.

I was disappointed, however, at the erroneous claim that "Stages" would have been Andersen's second album if it had been released in 1973. It would have been his second album on Columbia, but he released five on Vanguard and two on Warner Bros. before 1970. Most of the Vanguard tracks are better than any in his first Columbia album, "Blue River," which Ms. Nash mentioned in her review. Songs such as Thirsty Boots, Violets of Dawn, and Come to My Bedside need to be heard by anyone who would be an Eric Andersen fan.

DICK SCHNEIDERS Salina, KS

We regret that through an editing error the qualifier "on Columbia" was omitted from the reference to Andersen's "second album." Critic Alanna Nash was not at

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## In 1987, critics said Bose changed the way people thought about loudspeakers.

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> Julian Hirsch, Stereo Review, 1987



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> Hans Fantel, The New York Times\*, 1990



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Due to Yamaha's patented HCA Circuitry, the RX-950 delivers pure Class A performance, yet runs exceptionally cool. The amplifier in Yamaha's new audio-dedicated receiver will never degrade to Class AB, no matter how high the output.

A massive 11 lb. 6 oz. bower transformer ensures high outbut power even when driving lowimpedance loads.

The RX-950 features ToP-ART. A new system design that virtually eliminates interference between channels and delivers maximum signal purity.

Pure Direct Switch bybasses all tone and balance controls and the pre-main coubler to maximize signal purity.

When the RX-950 is used with other Yamaha RS-compatible components, the entire system can be controlled by a single remote control.

> Motor-driven input selector and volume controls with LED indicators. A superior system which eliminates the noise and distortion inherent in electronic switching.

Manua Up/Dou Tuning

Record On Selector alle you to reco. one source while listen to anothe.

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Box 6600,

P.O.



The RX-950 delivers 120 watts RMS per channel into 8 ohms from 20-20,000 Hz at no more than 0.015% THD. Or 180 watts RMS per channel into 4 ohms from 20-20,000 Hz at no more than 0.03% THD.

The new RX-950 Bass and combines the perfortreble mance of the finest turnover separates with the requency control. convenience of a receiver.

To keep output impedance to a minimum, speakers are switched in front of their terminals. rather than at the switch position.

Ideally suited for multiple speaker installations. Up to six different zones can be controlled at one time through additional amplifiers connected to the two extra pre-amp outs.

For signal purity, exceptionally thick 1.6 mm high quality wire is used to route signals through the amplifier

Dimensions: (WxHxD)17% inches x 6¾ inches x 17% inches

Integrated Multi-Function LCD Display

The thick base of the RX-950 has excebtional anti-resonance, anti-magnetic and superior damping characteristics.

Offers 4 dedicated audio inputs and 2 video inputs.

Tuner features Yamaha's Direct PLL IF Count Synthesizer, a microprocessorcontrolled tuning system to lock onto the weakest broadcast

Continuously variable loudness control, maintains natural tonality, even at low volume levels.

The RX-950 is designed to rve as the core component of

High Gain AM Loop

The heavy chassis and extra large feet of the RX-950 are designed for

frequencies.

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## NEW PRODUCTS

#### Hughes

The Hughes Sound Retrieval System (SRS), first offered in certain Sony TV sets, is now available as a standalone component, the AK-100. The unit can be plugged into any audio or audio/video system to produce what Hughes describes as three-dimensional sound from a pair of conventional stereo loudspeakers. SRS is based on the way the human hearing system determines where a sound comes from. It processes the sum

(L + R) and difference (L - R) components of a stereo signal to enhance the cues the ears use for source localization. SRS does not add any information not found in the recording, nor does it require listeners to stay in a specific position to enjoy the full effect. Price: \$449. Hughes Aircraft Co., Microelectronics Systems Div., Dept. SR, 29947 Avenida de las Banderas, Rancho Santa Margarita. CA 92688.



#### Yamaha

The Yamaha TX-950 AM/FM tuner features an alphanumeric display that enables users to assign four-character names or keywords for up to twenty-four stations. There is also a conventional forty-station preset memory. The TX-950 features Yamaha's Absolute Linear Phase IF amplifier circuitry and computer servo-lock tuning. Alternate-channel selectivity is given as 85 dB. There is a

manual fine-tuning selector to improve reception in crowded areas. The preset tuning memory retains the fine-tuning frequency, IF mode position, RF-attenuator status, stereo or mono mode, antenna-selector setting, and blend setting for each preset station. A remote control is included. Price: \$399. Yamaha, Dept. SR, 6722 Orangethorpe Ave., Buena Park, CA 90620.





#### Memorex

The CDX-8100 compact disc player is part of Memtek's new line of personal portables. The player has a three-beam laser pickup, an eight-times-oversampling digital filter, and a 16-bit digital-to-analog converter. Operating features include twenty-one-track programming, resume play, shuffle play, auto poweroff, and repeat. It has a built-in battery recharger and comes with an AC adaptor and a carrying case. Dimensions are 51/4 x 7 x 11/4 inches. Price: \$250. Memtek Products, Dept. SR, P.O. Box 901021, Fort Worth, TX 76101.



#### Sparkomatic

The Sparkomatic STW-800 Bass Cannon is an amplified car subwoofer rated for 100 watts maximum power. Its dualvoice-coil, 8-inch, long-throw woofer is built into a rear-ported tube. Frequency response is given as 30 to 250 Hz. The Bass Cannon is designed to be mounted behind a seat or in the trunk or hatchback of a car or truck, and it is said to be compatible with all car stereo amplifiers, cassette receivers, radios, and CD players, facilitating do-it-yourself installation. Dimensions are 18 x 9 inches. Price: \$300. Sparkomatic, Dept. SR, Milford, PA 18337-0277.

#### NEW PRODUCTS

#### Sherwood

Sherwood's RV-5010R audio/video receiver features discrete-transistor amplifier stages and complementary metaloxide-semiconductor (CMOS) switching. It is rated at 85 watts each for the left and right front channels and 15 watts each for two rear channels. It has Dolby Surround decoding circuitry plus Theater and Stadium surround modes for nonencoded programs. There are four

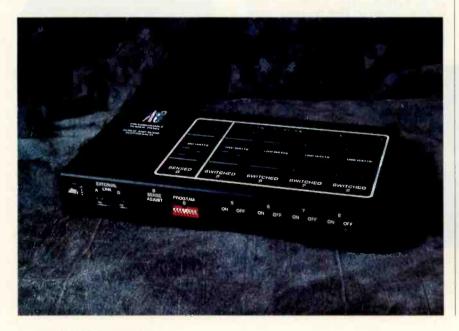
audio and three video inputs, and the AM/FM tuner has thirty presets. Additional features include a front-panel camcorder input, a motorized volume control, video dubbing capability, and a sleep timer. The RV-5010R comes with a remote control and is compatible with Sherwood's Digi-Link remote system, Price: \$300. Sherwood, Dept. SR, 14830 Alondra Blvd., La Mirada, CA 90638.



#### R. F. Engineering

The R. F. Engineering AC-8 is a programmable, current-sensing power panel capable of detecting the activation of two different pieces of electronic equipment, such as a receiver or a TV set. Eight switched outlets for auxiliary components can be programmed to turn on when either of the key pieces of equipment turns on. Each outlet can be independently programmed for delays in

power-on and power-off to enable sequential switching of equipment. An external control link enables the AC-8 to be activated by home-automation and multiroom audio/video systems. Additional features include surge suppression, linenoise filtering, and solid-state zero-crossing power switching. Price: \$299. R. F. Engineering, Dept. SR, 9215 Lowell Blvd., Westminster, CO 80030.



#### Sharp

Sharp's RX-P1 portable DAT player/ recorder comes with all of the accessories needed for use at home, in the car, or outdoors. A 64-times-oversampling 1-bit outboard analog-to-digital (A/D) converter is provided for recording from nondigital sources. The 3\% x 1\1/2 x 4\7/8-inch player incorporates a 1-bit digital-to-analog (D/A) converter with a 256-timesoversampling digital filter. A gooseneck car mounting device, a carrying case, a wired remote control, a coaxial connection cord, an AC adaptor, and rechargeable batteries are also supplied. Price: \$1,500. Sharp Electronics, Dept. SR, Sharp Plaza, Mahwah, NJ 07430-2135.



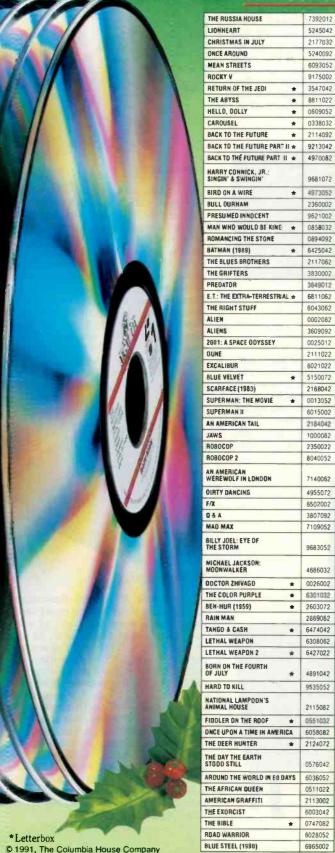
#### Westlake Audio

Westlake Audio, a manufacturer of studio monitors, has introduced a line of loudspeakers for the home. The BBSM-6 three-way system has two 6-inch bassreflex woofers, a 31/2-inch midrange driver in a separate sealed enclosure, and a 1inch dome tweeter. Frequency response is given as 60 to 18,000 Hz ±3 dB, sensitivity as 82 dB sound-pressure level at I meter. Nominal impedance is 4 ohms (2 ohms minimum). Crossover frequencies are 600 and 6,000 Hz. The BBSM-6 comes finished in an oiled walnut veneer with brown grilles or painted black with black grilles. Dimensions are 22 x 10<sup>3</sup>/<sub>4</sub> x 13 inches. Price: \$2,400 a pair. Westlake Audio, Dept. SR, 2696 Lavery Ct., Unit 18, Newbury Park, CA 91320.



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#### NEW PRODUCTS

#### Jensen

The flagship component in Jensen's line of car stereo CD receivers, the removable CD-9500 is rated at 10 watts each into four channels. It also has a separate preamplifier output, for use with an outboard power amplifier, and bass and treble tone controls. Compact disc features include dual 16-bit digitalto-analog converters, multibeam laser tracking, an antishock disc mechanism,

random play, repeat, and intro scan. The tuner section features electronic noise suppression, twelve FM and six AM presets, automatic storage of the six strongest stations, and preset scan. There is a built-in battery for the clock memory. Price: \$429. International Jensen, Dept. SR, 25 Tri-State International Office Center, Suite 400, Lincolnshire, II. 60069



#### Billy Bags Designs

The Billy Bags line of audio/video furniture uses tubular-steel supports with table tops and shelves made of highpressure laminates. The table tops can swivel 360 degrees for viewing flexibility and are available with straight or beveled edges. The units come fully assembled and will support up to 500 pounds. Leg vibration dampers are included; tip toes are optional. The finish is a black-powder coating. The Eurostyle Model 2621 TV/VCR stand shown here measures 26 x 18 x 21 inches; the adjustable speaker stands are 10 x 8 x 10 inches. Prices: TV/ VCR stand, \$399; speaker stands, \$149 each. Billy Bags Designs, Dept. SR, 1637 Pacific Ave., Suite 135, Oxnard, CA 93033.





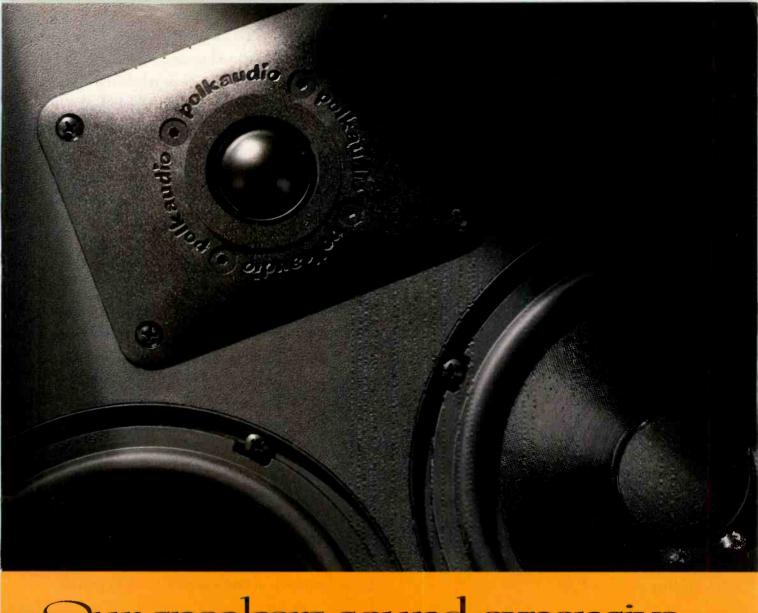
#### Infinity

The Infinity Reference E-L bookshelf loudspeaker has a 51/4-inch polypropylene-cone woofer and a 1/2-inch polycarbonate tweeter. The crossover frequency is 5,500 Hz. Frequency response is rated as 70 to 20,000 Hz ± 3 dB, sensitivity as 89 dB, nominal impedance as 6 ohms. Recommended amplifier power is 10 to 60 watts rms per channel. The Reference E-L measures 11 1/8 x 71/2 x 61/8 inches, and the cabinet is finished in simulated oak or black-ash woodgrain vinyl. Price: \$170 a pair. Infinity Systems, Dept. SR, 9409 Owensmouth Ave., Chatsworth, CA 91311.



#### Blaupunkt

Blaupunkt's BMA 200 five-channel car stereo amplifier is rated to deliver 25 watts into four channels and 50 watts into a fifth, subwoofer channel, all with no more than 0.1 percent distortion. Improved bridged transformerless circuitry in the satellite channels is said to result in higher output power levels and greater stability into low-impedance loads. The subwoofer output is driven by a powerful single-ended push-pull amplifier. The Sallen & Key crossovers, said to be phase coherent at the 100-Hz crossover point, have 12-dB-per-octave slopes. A switchable 15-Hz infrasonic filter is included. The inputs can be used with a floating or common ground. Price: \$330. Blaupunkt, Dept. SR, 2800 S. 25th Ave., Broadview, IL 60153.



Our speakers sound expensive...



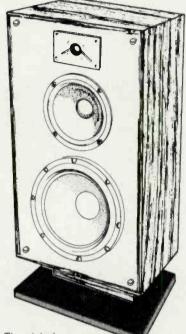
## The Expensive Sound of the Affordable Monitor Series

In 1972, Polk Audio created a new standard for high performance and affordability with the introduction of its original

Monitor 7 loudspeaker.
Audiogram Magazine said,
"we were so impressed we could not believe the prices...they're a steal."
Also referring to the Monitors, Musician Magazine said, "If you're shopping for stereo, our advice is not to buy speakers until you've heard the Polk's."

Today, Polk Audio furthers this tradition of offering state-of-the-art sound at affordable prices with its new Monitor Series 2

Loudspeakers. All of these affordable speakers have one thing in common- the unmistakable, exciting sound of Polk.



The original
Polk Monitor 7 that
started a sound revolution in 1972.

(ultra-low viscocity) magnetic fluid which enables the SL 2500 to exceed normal listening levels without loss of performance or reliability. The resulting dynamic range is dramatic, indeed unique for speakers in this price range.

The compact Monitor 4 features an all new tweeter, the SL 1500 hemispherical, 1" soft dome driver. It delivers superb definition and smooth extended response, all resulting from Polk's exhaustive testing and computer-aided design analysis.

The performance of all the Monitor Series 2 Loudspeakers at high frequencies results in a sound that is easy to listen to, hour after hour, without fatigue. And their extremely wide dispersion characteristics greatly reduce the need for critical placement within your listening room.

#### Better Bass Than Ever Before

The Polk Monitors have always been recognized for their exciting bass performance. The Series 2 loudspeakers sound even better. Each low frequency system was redesigned to provide

## Expensive Sound, Affordable Price

#### Polk's High Performance at High Frequencies

Featured in the Monitor 4.6, 5jr+, 5, 7, 10 and 12, the SL 2500 makes a major contribution to the improved performance of the Monitor Series 2. Sharing much of the technology of the incomparable SL 3000 tweeter used in the Polk flagship SRS series, the SL 2500 is a highly refined, technically advanced driver.

The voice coil, wound around an aluminum voice coil former, is cooled by an exotic ULV

deeper, more realistic bass. The 4, 4.6 and 5jr+ have greater internal cabinet volumes than the previous models, clearly making them the biggest sounding bookshelf speakers available.

Moving up to the Monitors 5, 7, 10 and 12, the bass gets deeper and fuller, each being more capable of filling larger rooms with bass energy that you can feel as well as hear.

## There's a Polk Monitor That's Right for You

Polk offers seven Monitor Series 2 loudspeakers ranging in size, performance, and price. All feature Polk's proprietary trilaminate polymer diaphragm midbass driver for excellent transient response and reduced midrange coloration.

Starting with the Model 4, each subsequent Monitor Series 2 speaker gets larger, more efficient, handles more power, has greater dynamic range and delivers better bass response. They are an excellent choice for multiple speaker systems throughout your home.

Listen to the Next Generation of Monitors

Polk Audio started a sound revolution in the early 70s with its first Monitor 7 by offering state-of-the-art sound at a reasonable price. Today, after nearly two decades of refinement, research and devel-

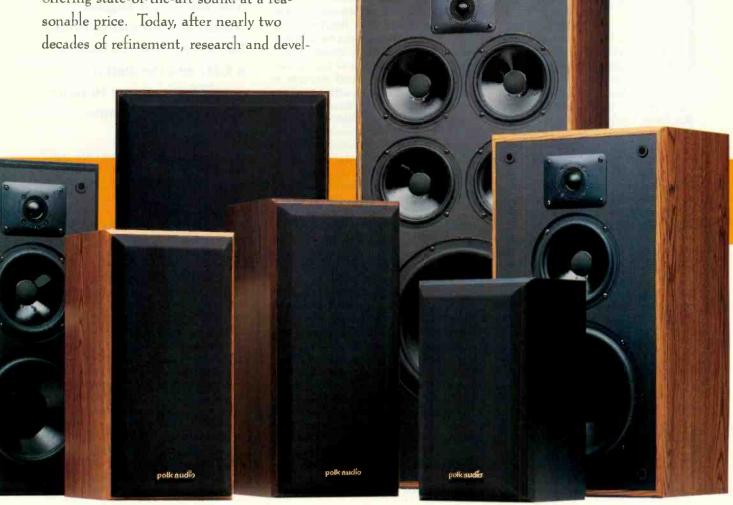
opment, Polk has introduced an entirely new series...the Monitor Series 2. You are invited to your nearest Polk Audio dealer for a demonstration of these remarkable new loudspeakers. You will hear the expensive sound of Polk...at very affordable prices.

You will hear the next generation of loudspeakers.

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#### So Long, FM. Hello, DAB.

MAGINE that you are driving down the highway. You push a button and crystal-clear, high-fidelity sound comes forth. It isn't from a cassette, a CD, or a DAT (or even a DCC or MD). It's pulled directly out of thin air, at no cost to you.

Well, big deal, you say. It's called radio, and it's been around for eons. But listen more carefully. The signal fidelity is exceptional—CD quality, in fact. When you drive in the shadow of a skyscraper, there is no signal degradation from multipath. And there's more. As you're listening to music, a soft voice breaks in to alert you about an accident ahead and suggest an alternate route. What is this?

It is digital radio, more properly called Digital Audio Broadcasting (DAB), and its time is coming. Audio media such as tape and disc have undergone tremendous changes in recent years. With the announcement of Philips's DCC (Digital Compact Cassette) and Sony's MD (Mini Disc), even greater change is soon to come. Meanwhile, radio has remained, well-static. AM and FM broadcasting hark back to the earliest days of audio, and the last successful evolutionary step, stereo FM, took place almost forty years ago. The technology gap has become increasingly obvious, to the point where sales of tuners have started to decline.

The solution is a new, more competitive broadcast format of higher audio

## SIGNALS

by Ken C. Pohlmann

quality and greater user convenience: DAB. Instead of using analog signalmodulation methods such as AM (amplitude modulation) or FM (frequency modulation), DAB would transmit audio programs digitally. The audio fidelity could be comparable to that of a CD, the signal would be immune to many kinds of interference, and subcarrier channels could convey additional, nonaudio information. DAB is even cheaper to put on the air. An analog transmitter might consume 100,000 watts, whereas a DAB transmitter of equal range would consume only 1,000 watts. That could add up to power-bill savings of \$7,000 a month.

Broadcasters everywhere are clamoring for DAB, but there are a number of tough problems to tackle. First, it's not clear how digital audio should be broadcast. Some companies advocate a satellite system in which programs are uplinked to geostationary satellites, then downlinked directly to consumers, creating national radio broadcast services. Such a system would provide great coverage to rural areas, but insuring good signal strength in difficult areas such as urban canyons would require supplemental local transmitters, or "gap fillers."

Other companies advocate a continuation of locally originated broadcasts in which independent stations use terrestrial digital audio transmitters. Alternatively, digital audio programs could be transmitted over home cable-you'd be able to get perhaps thirty CD-quality channels for a \$7 monthly fee. Of course, cable doesn't work for mobile applications. In the long run, a combination of all three systems will probably be employed.

Another complication for the noncable systems is locating the DAB band in the broadcast spectrum. The spectrum is already jammed, and many interested parties, such as cellular telephone services, are lobbying hard for more space. Can new space be found for DAB, or should it occupy the spectrum presently used for AM or FM? And what will happen to AM and FM when DAB is introduced? On some New Year's Day will we all have to junk our current radios and buy new DAB models, or can AM, FM, and DAB co-exist?

Still other questions loom large. It

would be impossible to transmit linear digital audio signals because the bandwidth requirements would be extreme. Thus, DAB must use compression to reduce the amount of data that is transmitted. Although telephone companies have employed data compression for years, this technology has only recently entered the domain of high fidelity, where the performance demands are enormously harder to meet. Once a DAB system is selected, it will be carved in stone for decades; if its data-compression scheme has unfortunately audible artifacts, we would like to discover them before the system is mandated, not after.

All the opportunities, and pitfalls, of DAB are being debated by broadcasters, but it is the Federal Communica-

The fidelity of Digital **Audio Broadcasting would** be comparable to that of a CD, and the signal would be immune to many kinds of interference.

tions Commission that must ultimately decide how, and when, DAB will be implemented in the U.S. There are dozens of proposals before the FCC, each with its own merits.

The European Broadcasting Union is expected to approve a DAB standard based on the Eureka 147 format this year; production of consumer receivers is planned for 1995. In the U.S., Stanford Telecommunications has developed a system for CD Satellite Radio with one hundred DAB channels—sixty-six satellite and thirty-four terrestrial—that is said to be cheaper and to use less bandwidth and power than the Eureka system. Meanwhile, Digital Music Express, Digital Cable Radio, and Digital Planet have inaugurated digital cable services.

So when will you be able to drive to work enjoying CD-quality digital radio, confidently navigating around traffic jams before you hit them? Five years, or sooner. Unless the FCC has a flat tire.





Chris Isaak: Heart

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Tom Petty: Full Me Fever (MCA) 339 Starship: Greatest Hits (RCA) 90207

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## For What We Are About To Receive

Getting to the heart of a system-the

first in a series on the practical

business of buying audio equipment

HERE'S a lot of fantasy in audio and video. Sure, some people can walk into a store, point to a rack, and say, "Gimme that one," but for most of us choosing a system begins with research into what's available. This can take the form of talking to friends, reading hi-fi magazines, visiting local stereo shops, or—usually—all of the above. At some point, however, we have to decide which of the thousands of components on the shelves will suit our needs and tastes . . . and fantasies.

In the coming months, we will look at each of the major equipment categories and suggest what you need to consider (or not) in order to make a sensible choice. This month, we start with the heart of most audio systems, the receiver.

But while you're considering each of the various components, don't forget that an audio/video system is indeed a system, and no part should be thought of in isolation. So before you begin to choose, say, a receiver, you will have to know whether you want a receiver at all. And if you do, the perfect choice on paper may turn out to be less than ideal because of availability or price or the requirements of other components in the system. In short, don't consider specific models until you have built a context to put them in. But take heart; the process is fairly simple.

WHAT DO YOU NEED? First, what do you want your system to do? If you have a basement full of vinyl recordings, for instance, you will probably want to include a turntable. If you're considering a home theater setup, however modest, you will probably need video-switching functions, and you may have to take into account the possibility of the speakers interfering with your TV monitor, Maybe you'll want your system to do absolutely everything, but it's a good idea to start with the minimum and build expansion capability into what you choose.

what can you spend? Setting a budget can be a sobering experience; trying to match the system you want to what you have in the bank may make the whole project seem impossible. But cost is a pretty uncertain guide to quality, and excellent equipment is available in all price ranges, so

you should come pretty close to what you want without flattening your wallet unduly. You may have to postpone some elements of your dream setup, but now's the time to figure that out. Whatever you decide you want to spend, it's not a bad idea to build in a little flexibility to permit some



impulse buying. Also, by the time you add in cables and stands and sales tax and suchlike, things always cost more than you think they will. Be prepared.

WHAT'S IN A NAME? No brand of audio (or of anything else) is an absolute guarantee of quality, but you shouldn't ignore the manufacturer of the equipment you buy entirely. A major brand name may offer the security of prompt service today and continued existence tomorrow, and economies of scale may result in lowish prices, but its products may not satisfy special technical requirements or even simply your desire to own something special or unusu-

INCTRATIONS BY MARK EALLS

BY IAN G. MASTERS

#### BUYING TIME

al. Brands of whatever stripe that consistently garner good reviews in the audio press are good bets; those that your friends like are even better. Either way, check that whatever you want to buy is available locally. It is relatively easy to buy from a faraway company, and the possible savings might be attractive, but you usually can't listen to your choice before purchasing it, and shipping a broken component back for service can be a real hassle.

WHERE DO YOU BUY? Choosing the right store to deal with is easily as important as picking the equipment itself. You might, of course, buy each component from a

different outlet, but that's usually not the best policy. A store that sells you the whole works is likely to give you a price break, and it may offer to come and set the system up if you want that. Also, a knowledgeable dealer will be able to help you choose components that work well together, and you will be able to audition all of them together before you lay down your money—an absolute must. Don't be too concerned if the store doesn't carry all the models you have chosen; almost all components (except, perhaps, speakers) have equivalents that will fit your system as well as what you selected initially. If the store's staff knows its stuff and has an attractive service and returns policy, stick with it.



HE more rarefied sort of hi-fi enthusiast tends to be somewhat sniffy about the receiver, preferring separate components that can be mixed and matched—and replaced to his taste. But most audio systems in this country have been built around receivers for decades, whatever the self-designated cognoscenti might think. A receiver is, after all, a very convenient thing, containing most of the electronics you need for audio enjoyment. Hook up a couple of speakers and you can listen to FM radio; plug in a turntable or CD player and you can program your own music-or switch back and forth between radio and recordings. Connect a cassette deck and make your own recordings. Very flexible.

And with the marriage of audio and video systems, the all-in-one control center becomes even more attractive. But the very flexibility of the format means that receivers exist in a huge

variety of forms, from simple lowpower two-channel stereo jobs to multichannel surround-sound units capable of handling numerous inputs, both audio and video, and driving up to five speakers at a time. So making a choice isn't easy, but it's not impossible if you have a clear idea of what you want right from the start.

• Decide whether you even want video capability. If not, you can consider an audio-only receiver—but simple video switching doesn't add a lot to a receiver's cost as long as it's not too elaborate, so it may be wise to provide for the future by choosing a model that handles at least one or two video sources. If you know that yours will be an audio/video system, however, you will probably want a receiver that is fairly flexible when it comes to routing video signals. Still, you may not require surround-sound capability built into the control unit. Although the top

receivers offer quite advanced surround circuitry, only a handful come close to the performance of free-standing decoders. It may be preferable to use the receiver to control all your signals, but to use external equipment for the more complicated sorts of signal processing. The receiver's own amplifiers can still be used for the main stereo signals and for reproduction of straight music signals.

• Analyze your room, speakers, and listening habits to determine the amount of power you are likely to need, at least for the main signals. In order to get the output you require, it may be necessary to put up with a few features you won't use—functions and output power tend to increase hand in hand as you go up the price scale—but extra switches and knobs usually don't cost a lot. By the same token, you may be forced to buy more power than you really need in order to get

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• The physical aspects of receiver design-looks, size, and so forth-have little to do with quality, although they may become important if it comes to trying to fit a large unit into a small space or if your system will be prominently displayed. Very small components are becoming more and more popular, and using them rarely means any compromise in sound quality. Minireceivers suffer mainly from low power (large amplifier sections do take up space) and restricted functions (a small panel simply hasn't enough room for a lot of controls). If your system requirements mean you have to buy a big, ugly receiver, there's no reason it can't be hidden from sight. If that causes a problem with your infrared remote control, extensions are available that will enable you to use your remote even when you can't see your equipment (or, more important, when it can't see you).

#### WHAT MATTERS

A receiver does a lot of things, and the manufacturer's literature typically outlines performance and features in exhaustive—and exhausting—detail. But actually only a few specs and features matter when it comes to your buying decision.

- POWER OUTPUT. All receivers combine many functions, but most of them are similar when it comes to FM performance and control options. One of the most important ways receivers differ is in the amount of power they can deliver to the speakers, and models are available ranging from a couple of watts output to more than a hundred. Find out how much power you need, and then make your choice from the receivers that can deliver it.
- NUMBER OF CHANNELS. For many systems, the traditional two-channel stereo receiver is enough, but if you are integrating audio with video, you may want to take advantage of the surround signal included in the sound-tracks of many movies. For this you will need extra outputs. The simplest surround-sound receivers provide amplification for the main stereo chan-

## The Lingo

very part of audio has its own vocabulary. Although the receiver shares terminology with other components, just as it shares functions, there are a couple of distinctive words and phrases.

RECEIVER. Don't be fooled. A "receiver" isn't just something that picks up radio broadcasts: That's a tuner. A receiver does include a tuner, to be sure, but only if it also has a control section (a preamplifier) and two or more power-amplifier channels is it a receiver. An audio/video or A/V receiver is almost entirely an audio device with a few video-switching options thrown in—it certainly doesn't receive any video.

SURROUND SOUND, Anv. receiver with the word "surround" in its designation will provide some sort of ambience enhancement, but how this enhancement is accomplished varies widely and may have an effect on the other equipment you choose: You may, for instance, have to provide extra amplifiers and anywhere from two to five extra speakers. Positioning of the speakers may be affected as well. Receivers with simple "surround" or "enhance" functions usually detect out-of-phase information and feed it to a pair of rear speakers. Dolby Surround does much the same thing, but according to a standard designed specifically for the reproduction of Dolby-encoded movie soundtracks. Dolby Pro Logic is an advanced version of Dolby Surround decoding that provides a dedicated center-channel output and improved channel separation. Both Dolby systems usually sound best with the surround speakers beside, rather than behind, the listeners.

A receiver equipped with digital signal processing, or DSP, uses digital techniques and multiple speakers to simulate specific acoustic environments as an enhancement of a standard stereo signal.

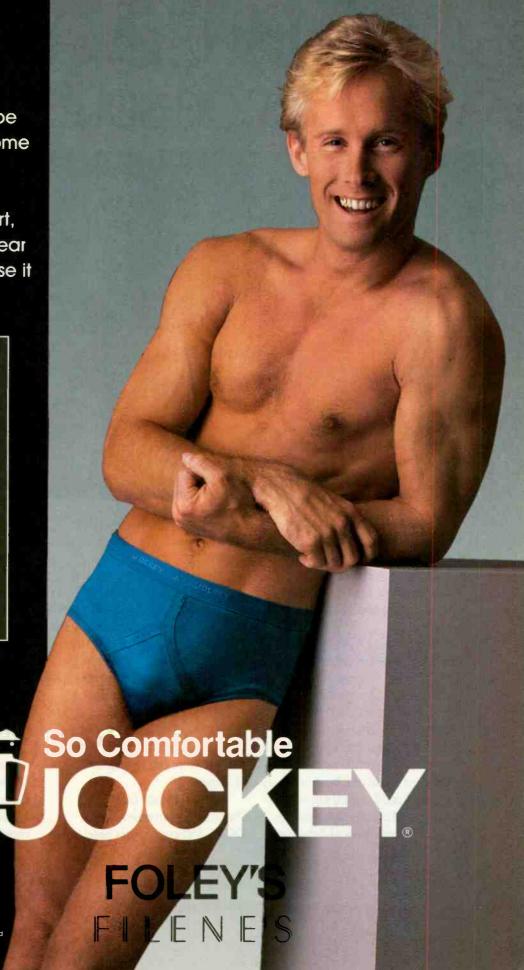
nels and line-level outputs for the surround channels (you have to supply another amplifier for these). More advanced models also include rear-channel amplifiers and often an amplified center-channel output, usually associated with a Dolby Pro Logic decoder built into the receiver, and occasionally separate line-level outputs for driving one or more subwoofers. More and more receivers include five channels of amplification, but for subwoofing, you're still on your own.

- VIDEO CONNECTIONS. Any receiver that calls itself "audio/video" will have some provision for controlling video signals, but these are almost all simply a matter of switching. Only a handful of models have any provision for modifying the video signal (usually just simple sharpness enhancement). Most receivers duplicate one tapemonitor loop in video, so either an audio deck or a VCR can be controlled by that switch. Some offer extra tape loops to permit video dubbing; others provide input switching for connection of a play-only videotape machine or a laserdisc player. All provide linelevel video outputs to feed a monitor. The most elaborate units offer not only a wide selection of video-switching options, some tied to audio switches, but also duplicate the standard composite-video jacks with S-video connectors. Not all of these features are immediately obvious from a cursory look at the front panel, so make absolutely sure that the receiver you are considering can accommodate your requirements without too many frills.
- REMOTE POSSIBILITIES. An infrared remote control can be a real enhancement to a receiver, or any other component for that matter, but not all remotes are created equal. Some are so complex that graduate engineers stare at them in abject bewilderment, so before you pick a receiver, look closely at the remote control that comes with it. It may be that the remote is simply too confusing, or that its buttons are too small, or that its markings are illegible, or-too oftenall of the above. On the other hand, a very simple remote may not do enough, or it may commit you to a table full of remotes, one for each component in the system. One keypad for your whole system is an attractive

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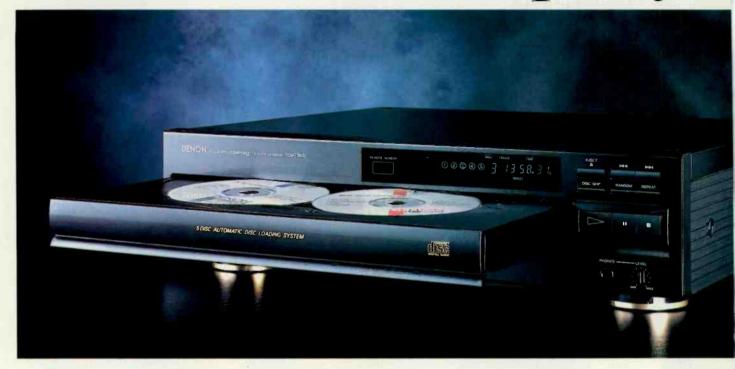


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option, but beware: Some multicomponent remotes work only with products from one manufacturer; others, such as some of the "learning" remotes, are more flexible but are difficult to program and use. So take the remote control into account when you choose your equipment, and take the time to figure it out.

#### WHAT DOESN'T

Essentially, receivers are very similar, which makes it hard for those trying to sell them to promote one over another. Mostly they resort to touting things that you can safely ignore.

- MOST SPECIFICATIONS. Audio was built on specs, and they are still important, but with receivers many of them can be taken more or less for granted because the differences are minute and any distortions are well below audibility, even with inexpensive models. Power output does vary, and that's important, and some aspects of performance may merit attention depending on your needs and circumstances. You should consider FM sensitivity if you live in a fringe reception area, for instance, or phono performance if you have a large vinyl collection (although, even here, differences tend to be fairly small). Otherwise, buy a receiver on features and price.
- FANCY SCHMANCY. Audio companies love to give their amplifier circuits exotic-sounding names, mostly to give the impression that they are a form of Class A device or that they have done away with some feature of normal amplifiers, like negative feedback. In all cases these innovations do indeed represent some form of unusual design wrinkle, but they almost never pay any sonic dividends that matter. Ditto for gold-plated contacts and exotic internal wiring. Buy them if you want, but don't feel that you have to get them to achieve good sound. More orthodox designs and materials tend to be cheaper.
- RADIO PRESETS. Most of us listen to two or three radio stations most of the time, with only the occasional excursion into new territory. So there's not much point in paying for the two or three dozen presets many receiver manufacturers offer.



Find out how much power you need, and then make your choice from the receivers that can deliver it.

• THE VEGAS LOOK. Many receivers sport status displays on their front panels that are bright enough and have enough elements that you can read by them. Such displays may look terrific in the store but can be distracting—or downright annoying-when you are enjoying a quiet evening in the soft light of your living room. The hopping and bouncing orange or green displays can sometimes be turned off or dimmed-in which case, why have them at all? Things like power meters tell you nothing you need to know, and as for source indicators, if you can't tell whether you are tuned to FM or listening to a CD, perhaps it's time to dig out the Stromberg-Carlson in your

mother's attic and enjoy some real oldfashioned sound.

• GRAPHIC DEGRADATION. AIthough minimalist manufacturers and audio purists eschew tone controls. they can be helpful in correcting minor anomalies in a listening room (or taming an over-bright recording). An extension of tone controls is the built-in equalizer with five or seven bands-or even more—at an appropriate cost. But if you really need drastic modification of your sound, you need some method of measuring both what's wrong and the effect of the corrections you make, neither of which facility is provided in a receiver. A built-in equalizer simply asks for trouble; most people overuse equalizers and end up with worse sound than without them.

#### **GET WITH IT**

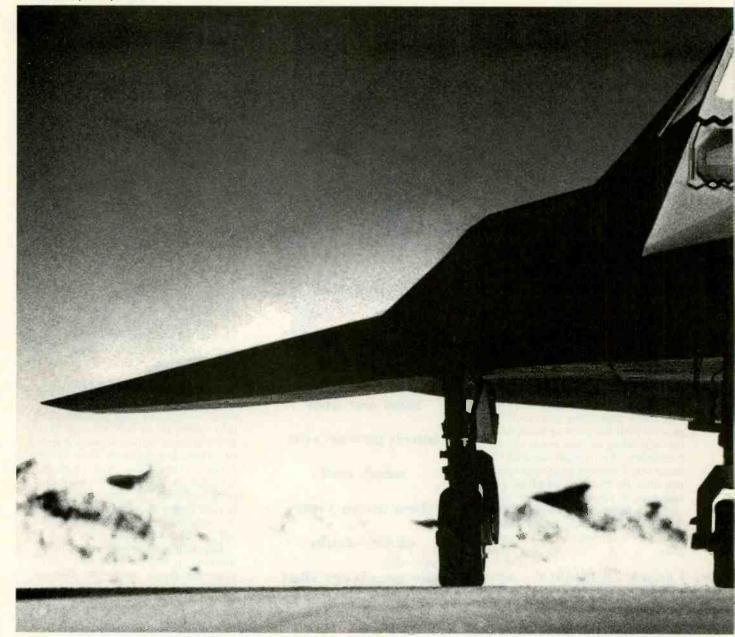
Almost by definition, a receiver is a self-contained device and requires fewer accessories and add-ons than other parts of an A/V system. Still, you will require cables to hook it up to the others. In most cases, source components are supplied with patch cables, but you may feel you want something different, or you may simply require longer leads (but not too long, please), and you will certainly also need speaker wire of some sort.

Depending on where you will be listening, it may be necessary to replace the simple dipole FM antenna packed with the receiver with something more advanced, but that's best left until after you have set up your system and discovered if you have any reception problems to correct.

Otherwise, a damp cloth to keep the panel clean and perhaps some contact cleaner to spritz the jacks and switches occasionally are about all you'll need to keep a receiver happy.

NCE you have made a tentative choice of receiver, take some time to play with it in the store before you plunk down your hard-earned money. This will be the operations center of your system, after all, and if you find it awkward or confusing to use, or if it won't do something that you need done, it's not for you. 

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Compare Maxell's XLII-S to an ordinary cassette. An obvious difference is the size of the windows. Remember: there are no bay windows in rockets, but in houseboats there are.

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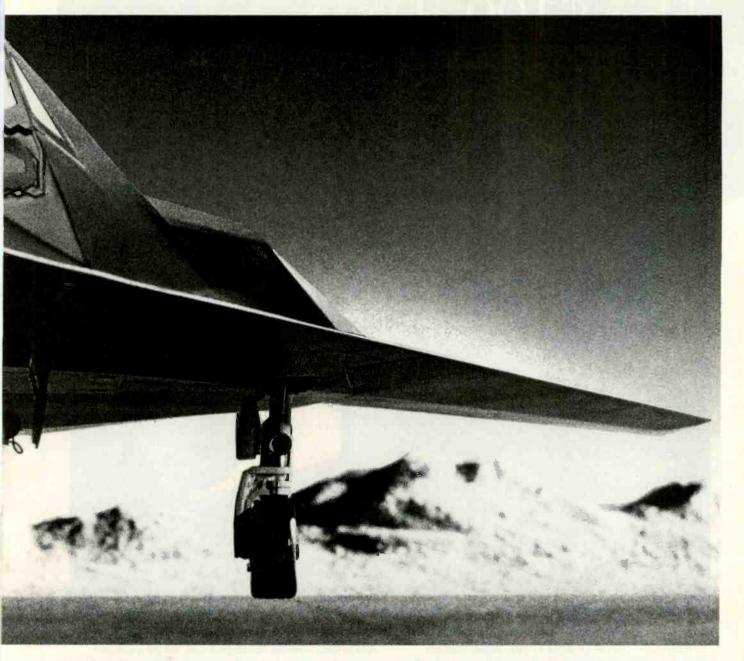
greater rigidity and durability.

The shell itself is a compound of ceramic and polymer resins. With 1.4 times the specific gravity of standard cassette shell material, it's antiresonant, absorbs vibrations that can cause modulation noise.

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staggering dynamics, real music." And
in their review of Type II tapes, they



## E, THE SMALLER THE WINDOWS.

rated XLII-S, "Head, shoulders and torso above the rest."

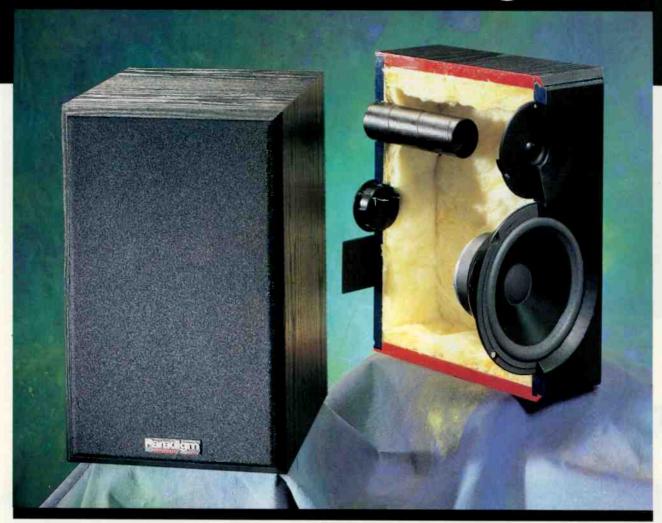
Of course, an XLII-S cassette is going to cost you more than one with big, low-performance windows and matching sound.

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# Paradigm



#### The Audio Time Machine, Part II

ORE than a year ago (June 1990) I described in this column the experience of retesting my old Acoustic Research AR-1 speaker, circa 1955, with today's equipment and techniques. As it turned out, the venerable AR-1, which was one of the major milestones in the development of modern high-fidelity loudspeakers, acquitted itself admirably at the advanced age of thirty-five.

By the standards of the mid-1950's, the AR-1 was extremely inefficient (today it would rank at least average in that respect). The popular Williamson amplifier, in many ways one of the finest of its day, delivered perhaps 10 watts. Although it could (and did, in my system) produce some excellent sound driving the AR-1, the speaker simply could not play loudly enough to compete with the more sensitive, public-address-derived home speakers of the time.

The AR-1's inefficiency was a serious problem for dealers attempting to demonstrate the new speaker, since few amplifiers at that time could deliver more than 20 or 25 watts. A few "high-end" amplifiers, such as the McIntosh MC-60 and the Marantz power amplifier (which had no model number) could be and were used, but they were a bit expensive for the aver-

## TECHNICAL TALK

by Julian Hirsch

age audiophile—both listed for about \$200, a large sum in 1958.

The birth of a new company, Dynaco, was roughly contemporaneous with the introduction of the AR-1. Founded by David Hafler (who was later responsible for numerous advances in hi-fi product design), Dynaco at first made amplifier kits. Kits were very popular in those years, when they provided worthwhile cost savings as well as the pleasure of "rolling your own." The Dynakit Mark II, at \$69.75, delivered 50 watts with less than I percent distortion. The Dynakit Mark III, at \$79.95, was rated at 60

Clearly, anyone spending \$185 for an AR-1 (remember, stereo was yet to come) would prefer to spend \$70 or \$80 for an amplifier kit, plus a few hours' work assembling it, to buying a \$200 amplifier. Dynaco and AR became the key components of a large number of hi-fi systems in the second half of the 1950's. Although I am just guessing, I suspect that today's dollar figures are inflated about tenfold from those prices, which were not insignificant at the time.

By 1960, Dynaco had added the Mark IV amplifier, rated at 40 watts, for \$59.95, and the Stereo 70 (with two 35-watt channels) for \$99.95, as well as preamplifier kits. The Stereo 70, its first stereo amplifier, remained in the line for about eighteen years, last appearing in STEREO REVIEW's 1978 Stereo Directory and Buying Guide (still in kit form, at a list price of \$169). By that time, there were a number of powerful solid-state amplifiers in Dynaco's line,

and the tube models were dropped shortly after.

The early Dynaco amplifiers quickly achieved a "classic" status despite, or perhaps because of, their modest cost. They were excellent products, and their performance was difficult to beat at almost any price. Reliability was another of their merits. I still have the Mark IV that I built more than thirty years ago, and it works perfectly, with all its original parts and tubes.

In the 1970's, David Hafler sold Dynaco and went on to found the company that bore his name and earned a similar reputation in its own right. Dynaco later went through several changes of ownership, most recently becoming a part of Panor, Inc., of Hauppauge, New York, which decided to reissue the classic Dynaco Stereo 70 in a form as close to the original as possible. The result is the Dynaco Stereo 70 Series II, which we have tested and will report on fully in an upcoming issue.

Unpacking our test sample of the Series II awakened feelings of déjà vu in me. Unlike the resurrection of my own AR-1, this was not exactly a "time machine" trip. It was more like meeting an apparent clone of a living being from the past and finding that its genes had been subtly altered, leaving it recognizable but not quite identical to its original form.

Some of the changes in the Series II are evolutionary, in the interests of survival. Certain tubes used in the old Stereo 70 are no longer available; fortunately, the 6CA7 output tubes are. Even if the old rectifier tube had been available, it played no direct part in the electrical performance of the original amplifier and was one of its least reliable parts. Clearly, replacing it with solid-state diodes would have been desirable even if the 5AR4 tube had been available. Similarly, a huskier and higher-rated power transformer was justifiable and desirable, especially since a perfect recreation was no longer possible.

Probably the sine qua non of the recreation process was using the original output transformers, which have a great deal to do with the performance of the amplifier. Luckily, the design specifications and data for the original transformer were available to Panor's

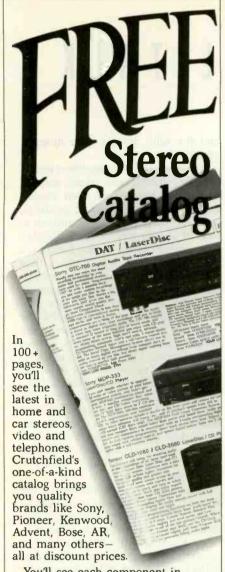
#### TESTED THIS MONTH

Sony CDP-C67ES Compact Disc Changer

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#### TECHNICAL TALK

engineers, and the heart of the Stereo 70 was accurately replicated.

The only significant circuit change in the amplifier itself was the elimination of its phase-correction network, a resistor/capacitor combination that rolls off the high-frequency open-loop gain within the overall feedback loop to insure stable operation. Panor engineers consulted with the well-known designer Frank Van Alstine, who has created many Dynaco modifications that have succeeded in making already fine products even better. Van Alstine suggested the use of a simple bandpass filter at the input to the amplifier, limiting its bandwidth to the audio range of 20 to 20,000 Hz. This is claimed to reduce distortion at the frequency extremes while retaining adequate bandwidth for music reproduction.

Finally, when the original Stereo 70 was created, printed circuit boards were crude phenolic affairs subject to environmental effects of all kinds. It was logical, therefore, to use a high-quality fiberglass board in the Series II, reflecting the advances in manufacturing technology over the past few decades.

So the Dynaco Stereo 70 Series II, whose kinship to the original is immediately obvious to the eye and whose performance would be difficult to distinguish from that of the original, either by ear or by instrument, is really a skillful copy that adheres closely to the spirit of the original even though some of its physical features are slight-

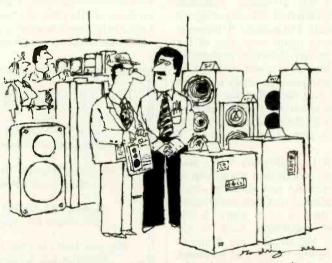
ly different. And in every case we could see, the differences appear to be improvements.

Our test data fully justify that conclusion. As I have said on more than one occasion, I have little nostalgia for the "good old days" of tubes. They were hot, power-wasting, noisy, and ultimately unreliable devices. They

The early Dynaco power amplifiers quickly achieved a "classic" status despite, or perhaps because of, their modest cost. They were excellent products, and their performance was difficult to beat at any price.

still are. But I must admit that when the tube amplifier is new and as well designed and constructed as this one, any imperfections it might have are not audible (to me, anyway).

It was a pleasant surprise to see how well a thirty-year-old design, translated into modern technical idiom, could perform. Combined with my similar experience with the AR-1, it renews my respect for the designers of the landmark products from the early years of high fidelity.



"The voice coils of these speakers here were wound counterclockwise for use below the equator."

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The cube speaker arrays feature Bose Direct/Reflecting speaker technology. They can re-create a natural balance of reflected and direct sound that conventional speakers cannot match. Rotate the arrays to cause big rooms to sound more intimate, or small rooms more spacious. You can listen from almost anywhere in the room and still hear full stereo. All the music, even the lowest bass notes, appears to come from the small cubes, regardless of where the bass module is hidden.

The Acoustimass bass module contains technology unlike that of any conventional speaker. It launches sound into the room by an air mass, rather than directly from a vibrating surface. Some benefits of this patented Bose technology are shown in the pictorial on the lower left.

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The best way to appreciate the benefits of this technology is to ask your dealer to demonstrate it side by side with conventional speakers costing far more. For more information about Bose products, and names of Bose dealers near you, call toll-free;

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We and many other critical listeners believe that this anachronistic addition to an already excellent CD player design significantly enhances its sound.

#### THE AMPLIFIER THAT DOESN'T AMPLIFY.

Between a CD player's D/A converter and external outputs is circuitry called a buffer amplifier which actually doesn't boost the signal strength at all. Instead, the buffer amp is a unity gain device which increases output current, and acts as a sort of electronic shock absorber, isolating the relatively fragile D/A chip set from the nasty outside world of demanding analog components.

#### **TUBES VERSUS SOLID STATE.**

More than 98% of all CD players use solid state devices for buffer amplifiers. A handful of hard-tofind, esoteric designs in the \$1200 to \$2500 range employ one or more tubes instead. As does our readily-available \$699 SD/A-490t.

In ultra-expensive preamplifiers and power amplifiers, tube sound is subjectively described as "mellower", "warmer", "more open and natural" or simply "less harsh than solid state". Objectively, it's safe to say that tubes: 1) Produce even-order distortion versus transistors' odd-order distortion, particularly 3rd harmonics which are especially unpleasant to the ear; 2) Act as a pure Class A device when used in a buffer stage (Class A output is considered the optimal amplifier configuration) 3) "Round off" the waveform when they clip, while over-driven solid state devices cut off sharply, causing audible distortion.

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Our new CD player uses two 6DJ8 dual triodes placed between the digital-to-analog converter and

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**BRING YOUR TWO BEST CRITICS TO A** CARVER DEALER. It's tempting to further regale you with how well we think the SD/A-490t's tubes and Single Bit D/A circuitry improve the sound of a compact disc. But

your own ears should be the final arbiter of quality.

more. Suffice it to say that almost all critical listen-

ers not only are able to hear a difference, but prefer

the sound of the remarkably affordable SD/A-490t's

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- Optical and Coaxial Digital Outputs
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\*Source: 1990 Audio Magazine Annual Equipment Directory

## TEST REPORTS



## Sony CDP-C67ES Compact Disc Changer

Julian Hirsch, Hirsch-Houck Laboratories

HE CDP-C67ES, a new member of Sony's ES series of deluxe audio components, is an exceptionally versatile compact disc changer. As many as five discs can be loaded on its carousel, which rotates to place the selected disc into playing position. It also has a full complement of programming features for dubbing discs to tape or simply for listening convenience.

A unique feature among current CD players is the C67ES's digital signal processing (DSP) circuitry, which can add a number of delayed and equalized signals to a stereo program to simulate multiple room reflections for added realism in conventional two-channel playback. In addition to a "flat" mode (normal stereo operation), there are five DSP modes, simulating acoustic environments as diverse as a church and a disco. The level of the added effect signals is adjustable. Unlike typical add-on DSP processors, this one does not require additional ampli-

fiers and speakers; the ambience signals are simply added to the regular program being played through front stereo speakers.

The C67ES offers a variety of playing modes, including consecutive play of all tracks on a disc, random-order shuffle play, a programmed sequence of up to thirty-two tracks in any order, and repeat play of any selected track or group of tracks. Each of these modes can include tracks from any or all of the discs on the carousel.

There are several features designed to facilitate making tape dubs from CD's. A FADER button reduces the audio output level to zero over a period adjustable between 2 and 10 seconds (5 seconds is the default setting) and puts the player into pause mode. A second touch on the button resumes playback and slowly returns the output level to its original value. The PROGRAM EDIT feature displays the cumulative playing time of a series of selections to be taped, as they are

being programmed, and the player can also perform a similar function automatically, selecting the maximum number of tracks that can be accommodated on a given tape length. In addition, the PEAK SEARCH feature scans a disc for the maximum level recorded on it and repeatedly plays 4 seconds of the peak-level program to simplify setting the recording gain.

For all the versatility of the C67ES, its front panel is relatively uncluttered and not difficult to use. The instruction manual is complete and specific, but it is likely to be needed only for mastering some of the changer's special features. Ordinary playback is perfectly conventional.

The C67ES is a fairly large CD player. The carousel drawer, extending across most of the width of the front panel, opens and closes at the touch of a button at the upper right of the panel. A smaller button, labeled DISC SKIP, advances the carousel to the next position for loading or removing discs. Large buttons control the transport functions (play, pause, stop), and smaller buttons below them operate the track-skip and fast-search functions.

Another group of square buttons at the upper left of the panel, numbered I through 5, selects the discs to be played. Smaller buttons below them are marked CONTINUE, SHUFFLE, PRO-

## TEST REPORTS

GRAM, and PEAK SEARCH. The CONTIN-UE button selects continuous play of either a single disc or all of those loaded, SHUFFLE initiates random play of the tracks on the selected discs, and PROGRAM is used to select a sequence of tracks. Small CHECK and CLEAR buttons for programming are located below the carousel drawer.

Other small buttons in a row at the bottom of the panel provide direct access to any numbered track, and larger buttons select the various DSP programs. A small knob adjusts the level of the delayed and processed

signals in the audio output. At the lower right of the panel is another small knob, which controls the level at the variable analog outputs in the rear and at the front-panel headphone jack. (There is also a fixed-level analog output and an optical digital output.)

The music-scan feature automatically plays the first 10 seconds of each track on a selected disc. If more than one disc is loaded and none is selected, it will play the first 10 seconds of each disc.

The display window at the top center of the panel provides complete

information on the player's current operating state. Numbers across the top of the window represent discs in the corresponding carousel positions. The numbers are initially surrounded by red circles, which disappear after a disc has been played; a white bar appears under the number of the disc currently playing. A twenty-selection music calendar shows the remaining unplayed track numbers on the current disc. Other indications include the current mode (pause, stop, play), the status of the various taping and editing functions, and the usual display of track number and elapsed or remaining time.

The instruction manual lists a few of the player's performance specifications but makes no mention of its circuit or technical design features. The front panel does indicate, however, that the changer uses Sony's HDLC 1-bit digital-to-analog (D/A) converter.

The Sony CDP-C67ES measures 17 inches wide, 151/4 inches deep, and 5 inches high, and it weighs 151/2 pounds. It is finished in black, with gold panel markings. The remote control furnished with it duplicates virtually all its front-panel control functions. Price: \$380. Sony Corporation of America, Dept. SR, Sony Dr., Park Ridge, NJ 07656.

#### Lab Tests

The frequency response of the CDP-C67ES was exceptionally flat, within  $\pm 0.04$ , -0.02 dB from 20 to 20,000 Hz. The de-emphasis error was a maximum of -0.17 dB at 16,000 Hz. Channel separation was 100 dB from 100 to 1,000 Hz and decreased only slightly at higher frequencies, to 94 dB at 10,000 Hz and 89 dB at 20,000 Hz. Interchannel phase shift was -0.2 degree at 20 Hz and within  $\pm 0.05$  degree from 1,000 to 20,000 Hz.

An analysis of the output noise spectrum from an unmodulated test track showed random noise decreasing from -125 dB in the 5,000- to 20,000-Hz range to -140 dB between 500 and 1,500 Hz. There were two power-line hum components, -119 dB at 180 Hz and -116 dB at 60 Hz.

Total harmonic distortion plus noise (THD + N) at a 0-dB level was 0.0027 percent from 20 to 2,000 Hz, rising slightly to a maximum of 0.0033 percent at 10,000 Hz. At 1,000 Hz, THD

#### FEATURES

- Five-disc carousel changer; can play 3-inch CD's without adaptors
- Can program up to thirty-two tracks for playback, from one or several discs
- Track skip and manual search with
- Repeat of disc, track, or programmed sequence
- Shuffle play
- Digital signal processing (DSP) circuits to simulate acoustic environments of a disco, stadium, jazz club, church, or hall
- Can select tracks to fit a desired total time.

- Display of track and disc numbers, elapsed or remaining time, numbers of unplayed tracks on current disc (music calendar), status of special functions
- Music scan (first 10 seconds of each track or disc)
- Fader automatically fades program out and pauses play; resumes play with fade in
- Peak-level search locates maximum signal level on disc to set recording level
- Fixed- and variable-level analog outputs, optical digital output
- Headphone jack with volume control

#### LABORATORY MEASUREMENTS

Maximum output level: 1.95 volts

Frequency response: +0.04, -0.02 dB from 20 to 20,000 Hz

De-emphasis error: -0.17 dB at 16,000 Hz

Channel separation: 100 dB at 100 and 1,000 Hz, 89 dB at 20,000 Hz

Dynamic range (A-weighted): 97.6 dB

Distortion (THD + N): at 0 dB, 0.0027% from 20 to 2,000 Hz, 0.0033% at 10,000 Hz, 0.002% at 20,000 Hz; at 1,000 Hz, 0.0017% from -80 to -20 dB, 0.0024% at 0 dB

Signal-to-noise ratio (A-weighted): 117.5 dB

Maximum interchannel phase shift: -0.2 degree at 20,000 Hz

Linearity error: -0.35 dB at -70 dB, -0.53 dB at -80 dB, +0.3 dB at -90 dB, -1 dB at -100 dB

Defect tracking: tracked 1,000micrometer errors on Pierre Verany #2 test disc

Slewing time: 2 seconds

Cueing accuracy: A

Disc-change time: 8 to 9 seconds

Impact resistance: top, A; sides, A



George Thorogood And The Destroyers—Boogle People (EMI) 418 • 061

White Lion-Mane Attraction (Atlantic)418-038 Tanita Tikaram-

Everybody's Angel 418-004 (Reprise)



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Roger Norrington— Mozart: Sym. Nos 39 & 41 London Classical Players (Angel) 420-513

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Hits) (Tamia) 314-997/394-999 Creedence Clearwater

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417-378 Ricky Van Shelton Backroads (Columbia)

416-909 Great White—Hooked (Canitol) 416-784 David Lee Roth-A Little Ain't Enough (Warner Bros.) 416-610 Roger McGuinn—Back From Rio (Arista) 416-149 The "Amadeus" Mozart -Music featured in the hit 416-123 film (CBS)

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Comes Naturally (MCA) 413-955 The Traveling Wilburys— Vol. 3 (Warner Bros./ Wilbury) 413-872 Joe Walsh-Ordinary Average Guy (Epic/Associated) 418-012

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Garth Brooks—No Fences (Capitol) 411-587 Warrant-Cherry Pie (Columbia) 411-389 Toto—Past To Present 1977-1990 (Columbia)

411-371

The Vaughan Brothers— Family Style (Epic/Associated) 411-306 Living Colour—Time's Up (Epic) 410-357 (Epic) Trixter (Mechanic) 410-266 Alias (EMI) 409.789 Brahms: The 3 Violin Sonatas—Itzhak Perlman and Daniel Barenboim (Sony Classical) 409-367 Alexander O'Neal-All True Man (Tabu) 409-169 Poison-Flesh & Blood (Capitol/Enigma) 408-963 Jane's Addiction—Ritual (Warner Bros.) 407-098 Bad Company-Water (ATCO) -Holy 406-694 Winger—In The Heart Of The Young (Atlantic) 406-678 Vladimir Horowitz—The

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Time (Capitol) 381-087 Depeche Mode-Violator (Sire/Reprise) 405-423 Pretty Woman—Original Soundtrack (EMI) 405-407 Sinead O'Connor-I Do

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Not Want What I Haven't

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Greatest Hits (Warner Bros.) 375-782 U2-Rattle And Hum (Island) 37 \$-017/394-015

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Pretenders—The Singles (Sire) 362-541 Huey Lewis And The

News—Foret (Chrysalis) 347-955 The Cars-Greatest Hits (Elektra) 339-903

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412-106

Bee Gees-High Civilization (Warner Bros 420-091

Sheila E.—Sex Cymbal



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Freddie Jackson-Do Me Again (Capitol)

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Spyro Gyra—Collection (GRP)

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(GRP)

(GRP)

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(Sire/Reprise)

Hits—Tim (Atlantic)

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Joe Sample—Ashes To Ashes (Warner Bros.) 414-151

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Sound (Sire/Reprise) 420-141 Hank Williams, Jr.-Pure Hank (Warner Bros./Curb)

420-109 Paul Simon-Negotiations And Love Songs 1971-1986 (Warner Bros ) 400-721/390-724

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Joe Jackson-Laughter And Lust (Virgin) 420-240 Another Bad Creation-

Coolin' At The Playground Ya' Know! (Motown) John Lennon/Yoko Ono

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+ N was less than 0.0017 percent from -80 to -20 dB, rising to 0.0024 percent at 0 dB. The linearity of the D/A converters was superb. The output amplitude error did not exceed 0.5 dB down to -90 dB and reached a maximum of 1 dB at -100 dB.

The slewing rate of the laser tracking servo was good, only 2 seconds from Track 1 to Track 15 of the Philips TS3 test disc. The time required when a disc had to be changed was about 8 to 9 seconds from the first track of the first disc to the last track of the second (it varied with the number of disc positions the carousel had to turn).

The headphone volume was good with medium-impedance phones; lower-impedance, more sensitive phones would provide even more volume. The player had very good isolation from physical shock, requiring a hard slap on the top or side to cause a momentary dropout.

The player's ability to track through

disc defects was adequate but not outstanding. It was able to track defects of 1,000 micrometers from the Pierre Verany #2 test disc but mistracked at the 1,250-micrometer level. It also mistracked when a 1,000-micrometer defect was combined with a nonstandard track pitch or when the same size of defect recurred in rapid succession.

#### Comments

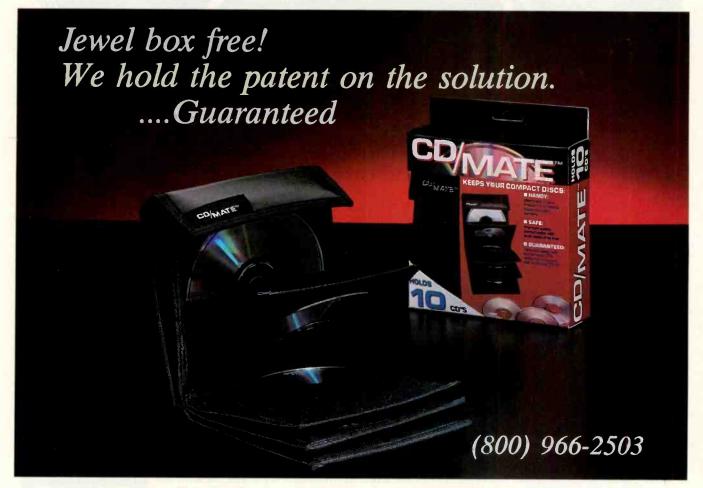
The Sony CDP-C67ES is clearly a very fine CD changer whose overall measured performance ranks with that of the best players we have tested, and the functional grouping of its controls makes it surprisingly easy to use. To be sure, if you expect to avail yourself of all of its features, a bit of study and practice will be required, but you will be amply rewarded.

Many of the features (and much of the performance) of the C67ES can be found in other fine CD players, though not necessarily in any single model,

but the DSP feature is, at least for the present, unique to this and some other Sony changers. And it really worked, producing a plausible sensation of the selected environment. Although the ambience was not distributed spatially around the room, as in a typical surround-sound installation, the DSP circuits effectively added qualities that the CD's we played previously lacked.

The DSP circuits cannot subtract any ambience that is already presentit cannot convert the recorded sound of a spacious concert hall to that of a more intimate listening environment. But the reverse is possible, and if the feature is used discreetly, the results are quite pleasing and natural.

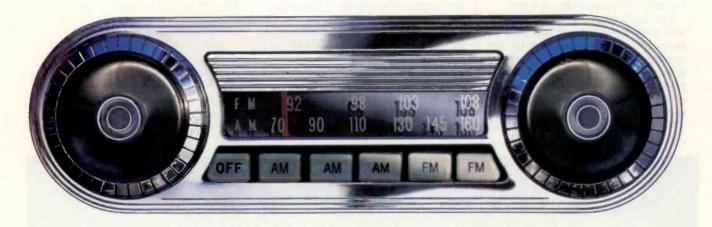
The Sony CDP-C67ES offers today's state of the art in CD reproduction technology and extensive facilities for taping from discs, combined in an attractive and easy-to-operate fivedisc carousel changer. It's an impressive achievement.





"So, Russ and I are bombing down the coast in Ozzie, the land shark, when he says, 'Hey, check out my

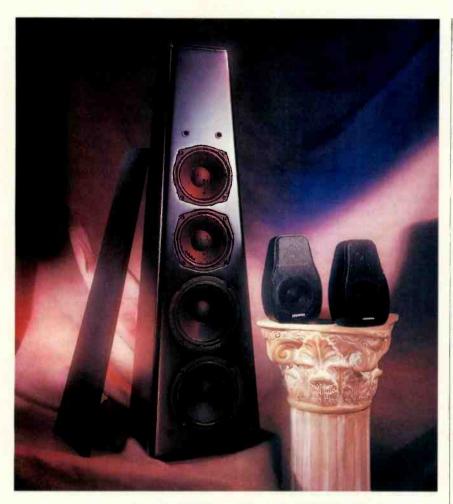
new CD player.' I look down and all I see is the radio. I'm like, 'I don't get it.' That's when he pulls out the remote.



So now I'm thinking, 'Whoa, don't tell me he's got a TV in this starship, too.' Turns out it's the controller for the CD. He had hooked the whole thing up so the CD system worked right through a frequency on his regular FM radio, with a 6-disc CD changer

tucked away in the trunk. Cool."





## **Memorex Triumph TS-5** Loudspeaker System

Julian Hirsch, Hirsch-Houck Laboratories

HE Memorex Triumph TS-5 is a three-piece subwoofer/satellite loudspeaker system that differs in several respects from its competition. Although it is like most others in that it consists of two small satellite speakers and a separate bass module (the "subwoofer"), the components do not follow the usual design pattern for this increasingly popular speaker configuration.

Each of the black, pear-shape satellites measures 7 inches high, 5 inches wide, and 31/2 inches deep, just large enough to enclose a 4-inch cone midrange driver and a %-inch dome tweet-

er, which is stepped back slightly for proper time alignment with the larger driver. A second %-inch tweeter is mounted on the back of the enclosure. facing rearward and upward at an angle of about 10 degrees. The crossover from the midrange to the tweeters is at 3,000 Hz, with 12-dB-per-octave slopes.

The plastic satellite enclosures have fixed perforated-metal grilles to protect the drivers. Spring-loaded connectors, which accept stripped wire ends, are recessed into the rear of the cabinets, and keyhole slots are provided for wall mounting (each satellite

weighs only 2 pounds). The flat bottoms of the satellites also allow for shelf, table, or stand placement.

The TS-5 subwoofer is also unlike those of other three-piece systems. It is shaped like an obelisk, measuring 36 inches high, 10 inches square at the base, and 51/2 inches square at the top. Attractively finished in a semigloss black, it weighs 28 pounds.

Mounted in a vertical row on one face of the obelisk are two 61/2-inch and two 51/4-inch long-throw woofers, all of which share the same enclosure volume. Each channel drives two of the woofers, one of each size, in the frequency range below 120 Hz. The 61/2-inch drivers are mounted nearer the bottom of the cabinet and the 51/4inch drivers closer to the top.

Spring-loaded connectors are on the bottom of the cabinet, which has an integral base about an inch high that is slotted to allow passage of the speaker wires. The side of the obelisk that contains the drivers is protected by a removable cloth grille. Surprisingly, the wiring exits on the same side. which may seem inappropriate for a highly visible component such as this. but the instructions suggest placing the bass module so that its drivers face the wall and are about a foot from it. Apparently the grille serves more for protection than as a cosmetic feature.

The system crossover components are located in the bass module. According to the specifications, the crossover from the satellites to the subwoofer is at 120 Hz. with 12-dBper-octave slopes for both sections. The specifications also include a frequency response of 32 to 20,000 Hz ±3 dB, sensitivity of 91 dB soundpressure level (SPL), and recommended amplifier power in the range of 15 to 100 watts. The nominal impedance is 8 ohms. Price: \$650. Memtek Products, Dept. SR, P.O. Box 901021, Fort Worth, TX 76101.

#### Lab Tests

We set up the Triumph TS-5 system with the bass module placed behind the right-channel satellite, a foot from the wall behind it and 4 feet from the side wall. The satellites were on stands about 3 feet in front of the wall, 3 feet above the floor, and 8 to 10 feet apart.

The system's room response was § quite uniform, within ±3 dB, from 500 get to 10,000 Hz. Output rose at higher

frequencies, to about +8 dB at 14,000 Hz, before returning to the midrange level at 20,000 Hz. Below 500 Hz, there was a cyclic variation in output: It rose to about +5 dB at 250 Hz, fell to -7 dB at 180 Hz, rose to a maximum of +10 dB at 80 Hz, and fell off steeply at lower frequencies.

We also measured the response of each driver in the system, using close microphone spacing. In particular, we were trying to establish the anechoic response of the subwoofer, or bass module. The responses of its different-size woofers were virtually identical except that the level was 2 to 3 dB lower from the smaller cones. The response of all four woofers peaked at 86 Hz and fell off at about 24 dB per octave above 100 Hz and at 12 dB per octave below 80 Hz.

The low-frequency response of the midrange drivers in the satellites dropped at 12 dB per octave below 300 Hz. The response above 300 Hz was very flat, within 1.5 dB overall up to 1,500 Hz (the highest frequency to which we could make valid close-miked measurements).

The big problem was splicing the separate response curves to develop a composite frequency response. Using the clues provided by our other measurements, plus measurements on the same units supplied by Memorex (taken under different conditions, with different test equipment), we were able to create a composite curve that closely resembled the way the system sounded in our test room.

The resulting curve was very flat and smooth from 250 to 4,000 Hz, sloping down about 5 dB over that range. There was an unmistakable "hole" in the response between the upper limit of the subwoofer's range and the lower limit of the satellites' midrange coverage. The hole reached a depth of -10 dB at 180 Hz and affected the response between 100 and 250 Hz. The output at 90 Hz was about 5 dB greater than the midrange average, and it fell to 3 dB below the midrange level at 45 Hz. The output was 2 to 4 dB below the midrange level from 5,000 to 10,000 Hz, and it rose to a +8-dB peak at 14,000 Hz.

The system's nominal impedance, following conventional rating methods, was 3.4 ohms at 90 Hz, and it reached as low as 3.1 ohms at 10,000 Hz. The maximum impedance was 16

ohms at 25 Hz and 15 ohms at 180 and 1,600 Hz. Although the impedance remained greater than 8 ohms from 180 to 2,900 Hz, possibly justifying the manufacturer's 8-ohm rating, not all amplifiers will take kindly to actual loads of 3 ohms or so at certain frequencies (each satellite alone, without the crossover system, has a minimum impedance of 2.7 ohms at 10,000 Hz).

Sensitivity, measured at 1 meter with one satellite placed on top of the bass module, was 88.5 dB SPL with an input of 2.83 volts of pink noise. Distortion measurements at an input of 3.3 volts (equivalent to a 90-dB SPL) showed readings of 7 to 8 percent total harmonic distortion plus noise for either size woofer at 45 Hz, falling to 1.5

In deep-bass performance, the Memorex Triumph TS-5 clearly outpointed all of the others to which we compared it, providing a solid 32-Hz output.

percent at 60 Hz, 1 percent at 90 Hz, and 0.3 to 0.4 percent in the 95- to 110-Hz range. The midrange satellite driver had very low distortion, less than 0.4 percent from 500 to 1,800 Hz and less than 1 percent over its full range of 300 to 3,000 Hz.

The satellite's horizontal dispersion was moderately good, but above 2,000 Hz there were appreciable changes in overall frequency response (not merely a high-frequency rolloff) between the on-axis measurement and one 45 degrees off the forward axis.

The 5½-inch subwoofer drivers reached the limits of their suspensions before the larger drivers showed audible signs of distress, with a 100-Hz pulse input of 300 watts into the system's 4.1-ohm impedance. At higher frequencies, our amplifier clipped before the speaker was overloaded.

#### Comments

At first listen we felt that the Memorex Triumph TS-5 had a tendency toward "sizzle" at the highest frequencies and a somewhat exaggerated upper-bass range. Subsequent mea-

surements confirmed these reactions and clarified their significance.

This system sounded more like a good conventional single-box speaker than any other subwoofer/satellite system we have tested. Its sound stage was spatially unified, with never a hint that the bass was coming from the black obelisk near the wall. Its lateral and vertical imaging, with the Chesky JD37 CD, was possibly the very best we have heard from any speaker.

The TS-5's low-frequency response anomaly was subjectively a hole in the octave from 100 to 200 Hz. Below that range, the bass was emphasized, but to no greater degree than with a large number of conventional speakers we have tested. The high-frequency peak was also real, though it is too high in the spectrum to change the tonal balance of a program. Upper harmonics and transients were emphasized, but not to an unpleasant degree.

As with any speaker, every person has to listen and form his own opinions. Our views concerning the Triumph TS-5 changed considerably as we lived with it. Its frequency-response aberrations were certainly audible in side-by-side comparison with some other speakers, but it was not easy to decide which was "better." That judgment, as always, depended strongly on the program material, and the TS-5 was as likely as not to be the speaker of choice.

One point where there was little competition was in deep-bass performance. The TS-5 clearly outpointed all of the others to which we compared it, providing a solid, room-filling 32-Hz output that seemed to belie our bass measurements. Actually, those measurements are effectively anechoic, and room interaction with a bass module can make a huge difference.

The bottom line is that the Memorex Triumph TS-5 is an unconventional three-piece speaker system that manages to sound a lot better than any measurements we could make would indicate it should. It offers an attractive alternative to the now-conventional "black box" bass module that is intended to be hidden from view. Systems with such modules are usually very satisfactory performers, but we have heard none that can deliver the low bass of the TS-5. Yet it is not much greater a visible presence in a listening room.

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... Trust your senses.



## Technics SA-GX505 Audio/Video Receiver

Julian Hirsch, Hirsch-Houck Laboratories

HE Technics SA-GX505 is a compact, powerful stereo receiver that provides switching control and connections for two VCR's and a video monitor in addition to audio control capabilities for a CD player, a tape deck, a turntable, and its own built-in AM and FM tuners. It includes Dolby Pro Logic surround-sound decoding circuits and amplifiers for driving rear effects speakers and a center (front) speaker. A special Dolby 3 Stereo mode uses the center-channel signal and speaker to fill in the center of two-channel stereo programs.

The SA-GX505 has impressive audio features, including a digital-synthesis AM/FM tuner with thirty station presets and a novel digital. response-control system with conventional bass and treble tone controls as well as a parametric equalizer that allows the frequency response to be adjusted separately at fifteen different center frequencies. A fifteen-channel real-time spectrum analyzer constantly displays the program spectrum during normal operation and instantly switches to show the amplifier's frequency response while equalization is being adjusted.

The center of the front panel contains a large display window, a row of ten buttons for setting and recalling the preset tuner channels (each preset can be used for either AM or FM), and larger input-selector buttons for VCR1, VCR2, tape/DAT monitoring, CD, tuner, and phono. Between the tuner controls and the input selectors are a number of controls that affect surround-sound operation. They select either Dolby Surround or Dolby 3 Stereo mode, set the center-channel mode to off, normal, or phantom (for use in Dolby Surround operation without a center speaker), adjust the levels of the center and rear speakers, and switch on a noise test signal that steps automatically through the channels for setting relative volume levels.

The right side of the panel contains the tuning and volume-control knobs. The volume knob is motor-driven when the remote control is used and has an illuminated red index marker. The tuning knob sends pulses to the frequency-synthesizer circuits as it is turned. A small button next to it selects one of three tuning modes, indicated by LED's. In auto mode, a slight turn of the knob in either direction starts a frequency scan in the same direction that continues until a receivable signal is intercepted. In manual, the tuner frequency shifts (in steps of 100 kHz for FM and 10 kHz for AM) in the corresponding direction as the knob is turned. The lock mode effectively disconnects the tuner knob from the synthesizer circuits, preventing the tuned frequency from being changed by an accidental touch on the knob.

Other buttons in this section of the panel select AM or FM tuning, mono or automatic stereo FM operation, and memory scan, which tunes in each of the preset channels in turn, stopping when the button is pressed again. The SA-GX505 also has a convenient automatic-memory mode, in which it tunes automatically through the AM and FM bands, storing the frequencies of all receivable signals (this can also be done manually). Small knobs control channel balance and surround input balance, and a button engages the loudness-compensation circuit.

The left side of the panel contains the power button, individual speaker switches for the two sets of frontchannel outputs, and a headphone jack. Other controls include two knobs (free to rotate continuously) and fourteen small buttons dedicated to frequency-response modification. Be knobs are marked CENTER FREQ



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## FEATURES

- Digital frequency-synthesis AM/FM tuner with thirty presets
- Auto-scan and manual tuning with knob
- Inputs for CD, phono, two VCR's, audio tape deck
- Video monitor output
- Dolby Pro Logic decoder
- Dolby 3 Stereo mode for enhancement of non-surround-encoded programs
- Five amplifier channels
- Parametric equalizer with fifteen bands (centered at 40, 63, 100, 160, 250, 400, 630, 1,000, 1,600, 2,500, 4,000, 6,300, 10,000, 12,000, and 16,000 Hz)
- Bass and treble tone controls

- Balance control
- Switchable loudness compensation
- Connections and switching for two pairs of front speakers
- Inputs for 75- and 300-ohm FM antennas, AM loop antenna (supplied)
- System remote control supplied
- Jack to connect compatible Technics components for unified control
- Front-panel display of complete system operating status
- Volume-control knob motor-driven in remote operation
- Cooling fan with automatic variable speed
- Two switched AC outlets

## LABORATORY MEASUREMENTS

 Tuner Section (all figures for FM only except frequency response; measurements in microvolts, or μV, referred to 300-ohm input)

Usable sensitivity: mono, 15.5 dBf  $(3.3 \mu V)$ ; stereo, 27 dBf  $(12.3 \mu V)$ 

**50-dB quieting sensitivity:** mono, 24 dBf  $(8.7 \mu V)$ 

Signal-to-noise ratio at 65 dBf: mono, 74.5 dB; stereo, 77.5 dB

Harmonic distortion (THD + N) at 65 dBf: mono, 0.1%; stereo, 1.05%

Capture ratio at 65 dBf: 1.9 dB

AM rejection: 45 dB

Pilot-carrier leakage: 19 kHz, -38 dB; 38 kHz, -40 dB

Hum: - 75 dB

Stereo channel separation at 100, 1,000, and 10,000 Hz: 30, 39, 35 dB

Frequency response: FM, +1.4, -0.2 dB from 30 to 15,000 Hz; AM, +0.5, -6 dB from 90 to 2,950 Hz

• Amplifier Section

1,000-Hz output at clipping\*: 144 watts into 8 ohms, 94 watts into 4 ohms

Clipping headroom\* (relative to rated output): 1.17 dB

Dynamic power output\*: 162 watts into 8 ohms, 100 watts into 4 ohms, 144 watts into 2 ohms

Dynamic headroom\*: 1.7 dB

Maximum distortion\* (20 to 20,000 Hz into 8 ohms): 0.057% at 1,000 Hz and 110 watts output

Sensitivity (for a 1-watt output into 8 ohms): CD, 28 mV; phono, 1.8 mV

A-weighted noise (referred to a 1-watt output): CD, -77.5 dB; phono, -72.2 dB

Phono-input overload (1,000-Hz equivalent levels): 200 mV at 20 Hz, 88 mV at 1,000 Hz, 90 mV at 20,000 Hz

Photo-input impedance: 43,000 ohms in parallel with 100 pF

Tone-control range: 100 Hz, +4.8, -6.2 dB; 10,000 Hz, +9, -10 dB

Loudness-compensation range: 50 Hz, +9 dB; 10,000 Hz, 0 dB

Parametric equalizer range: ± 10 dB BASS and LEVEL/TREBLE, corresponding to the parametric-equalizer and tone-control modes, and either function can be selected by toggling the P.EQ/TONE button. The P.EQ SYS off/on button controls the entire audio response-control system, regardless of the mode in use.

In the tone mode, the two knobs behave like conventional bass and treble tone controls, but their effects appear graphically in the display window. The horizontal frequency scale has fifteen calibrated steps from 40 to 16,000 Hz, with a vertical amplitude scale of ±10 dB. In the P.EO mode, buttons marked EO1, EO2, EO3, and EO4 select the frequency bands into which the audio spectrum is divided, and the CENTER FREO/BASS knob shifts the center frequency of the equalizer within the range of the selected band. The other knob (LEVEL/TREBLE) varies the gain of the amplifier, indicated by the vertical position of the blinking light bar corresponding to that frequency, over a ±10-dB control range. The FINE button slows the scanning rate and makes it easier to select the desired frequency.

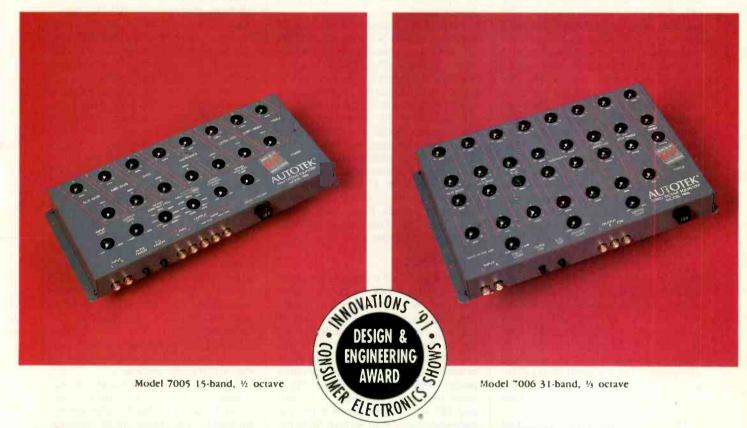
There are three preset equalization responses (plus flat), which can be selected by a button on the panel and displayed graphically. Three user-designed frequency-response characteristics can also be stored and recalled later. Finally, a button toggles the frequency-response display between its P.EQ and spectrum-analyzer functions (with a choice of line or bar displays).

The SA-GX505 has a built-in "demo" mode that simplifies using its parametric equalizer to full advantage. Pressing the demo button for 3 seconds initiates an automatic program that introduces a wide variety of equalization responses, shifting smoothly from one to another so that the user can hear the effect on any program material while watching the shape of the response curve in the display window.

Although the display window's most prominent feature is the equalization and spectrum-analyzer display, it actually presents a complete overview of the receiver's operating status. This includes preset channel number, frequency, band, tuning lock, and stereo/mono information for the tuner section, large letters showing the

\* main front channels only

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selected input source, smaller letters for the VCR or tape-monitoring functions, loudness compensation, and muting (a volume reduction accessible only from the remote control). The selection of either the Dolby Surround Pro Logic or Dolby 3 Stereo mode (and submodes such as normal and phantom center) is clearly shown, and a small horizontal scale shows the relative level setting for the center or rear speakers, as applicable. The complete status of the P.EQ/TONE system controls and its preset characteristics is presented.

The SA-GX505 is a very powerful receiver, at least in its main front (stereo) channels. It is rated to deliver 110 watts into each of these channels, with both driving 8-ohm loads, from 20 to 20,000 Hz with no more than 0.05 percent total harmonic distortion (THD). Although it does not carry specific 4-ohm ratings, the receiver is designed to drive loads of 4 to 6 ohms safely when a small switch on the rear apron is moved from its normal 8-ohm setting to the 4/6-ohm setting. This switch apparently reduces the DC supply voltage to the output transistors to prevent damage from excessive heat dissipation. The surround (rear) channels and center (front) channel are each rated at 10 watts into 8 ohms with no more than 0.8 percent distortion.

The SA-GX505 is protected against overheating by an unusual cooling fan whose speed is proportional to signal level. Normally, the fan does not turn, but when the receiver's output exceeds its threshold the fan comes on at a low speed, and its speed then follows the average output level. It is not likely to be audible in use, because any output level that turns on the fan will certainly be generating a very high sound level in the room.

The rear apron of the receiver contains all the audio and video signal input and output jacks, binding-post antenna inputs for 75- and 300-ohm FM antennas and the supplied wireloop AM antenna, and speaker-output connectors (which accept only the stripped ends of wires) for two pairs of front speakers, a pair of rear speakers, and a single center-channel speaker. There is also a center-out jack, at line level, for driving speakers through an external power amplifier.

There is a socket for the removable AC line cord and two switched AC

outlets. A jack allows interconnecting the SA-GX505 with certain other Technics components so that they can be operated from the receiver's remote control.

Most of the buttons on the remote control supplied with the SA-GX505 are dedicated to other system components, including TV, VCR, CD player, and tape deck, but it does operate the power, volume, muting, surround, and rear-level functions of the receiver.

Considering its capabilities, the Technics SA-GX505 is a relatively inexpensive, compact, and light receiver. Attractively styled and finished in dark gray with contrasting gold markings, it measures 17 inches wide, 12 inches deep, and 5½ inches high, and it weighs 22 pounds. Price: \$499. Technics, Dept. SR, One Panasonic Way, Secaucus, NJ 07094.

### Lab Tests

The SA-GX505's main front channels delivered 144 watts to 8-ohm loads at the clipping point, corresponding to a clipping headroom of 1.17 dB. For driving 4-ohm loads, we set the impedance selector to its 4/6-ohm position. The clipping-level power was 94 watts per channel. Dynamic power output was 162 watts into 8 ohms (dynamic headroom = 1.7 dB) and 242 watts into 4 ohms using the high-impedance load setting. With the impedance selector set to 4/6 ohms, the dynamic output was 100 watts into 4 ohms and 144 watts into 2 ohms.

The center-channel amplifier delivered about 18 watts output into 8 ohms at its rated 0.8 percent distortion between 80 and 20,000 Hz. We did not measure the rear channels, whose ratings are identical to the center channel's.

We measured the total harmonic distortion (excluding noise) of the main front channels by spectrum analysis. At 100 watts output the distortion was 0.0063 percent, and at 1 watt it was 0.017 percent.

Power-bandwidth measurements with 8-ohm loads showed that the front channels delivered about 140 watts at 0.1 percent THD plus noise (THD + N) between 50 and 20,000 Hz, falling to 127 watts at 20 Hz. At 0.05 percent distortion the output was about 123 watts over most of the frequency range, decreasing to 102 watts at 20 Hz.

The basic ("flat") frequency response of the front channels was +0, -0.9 dB from 20 to 20,000 Hz. The center-channel response was +0, -3 dB from 20,000 Hz to 100 Hz, dropping off to -17 dB at 20 Hz. The loudness compensation boosted the response below 1,000 Hz, to a maximum of +9 dB at 20 Hz, at volume settings of -30 dB and below.

The tone-control characteristics were somewhat unusual. The bass control affected the output only below 200 Hz, to a maximum of +9, -11 dB at 20 Hz. It also produced a slight opposite effect between 200 and 1,000 Hz, with a magnitude of -1, +2 dB. The treble control's characteristics were similar, with the response above 3,000 Hz varying over a range of +10, -11 dB and an opposite  $\pm 1$ -dB variation between 700 and 1,500 Hz.

The parametric equalizer is able to create almost any desired response shape if the user's patience is equal to the task. The control range in each band measured ±10 to 11 dB, and the center frequencies were close to the indicated values. The "Q" of the equalizer's response was slightly over 1 in the broad setting and roughly 4 in the "steep slope" setting.

The FM tuner section had a mono usable sensitivity of 15.5 dBf (3.3 microvolts, or  $\mu$ V, at the 300-ohm antenna input). The mono 50-dB quieting sensitivity was 24 dBf (8.7  $\mu$ V). The stereo threshold (and usable sensitivity) was 27 dBf (12.3  $\mu$ V). At 65 dBf, the distortion was 0.1 percent in mono and 1.05 percent in stereo, with respective signal-to-noise ratios of 74.5 and 77.5 dB.

FM frequency response was +1.4, -0.2 dB from 30 to 15,000 Hz, and channel separation was 39 dB in the midrange, decreasing to 20 dB at 30 Hz and 34 dB at 15,000 Hz. Capture ratio was 1.9 dB, AM rejection was 45 dB, and image rejection was 43 dB. Selectivity was 67 dB for alternate-channel spacing and 5.8 dB for adjacent channels. The 19,000-Hz pilot-carrier leakage into the audio was -34 dB, and the 38-kHz signals were at -40 dB. Hum was -75 dB. The only measurement we made on the AM tuner section was of its frequency response, which was +0.5, -6 dB from 90 to 2,950 Hz.

The phono preamplifier overloaded at 1,000-Hz-equivalent inputs of 200

mV at 20 Hz, 88 mV at 1,000 Hz, and 90 mV at 20,000 Hz. Its input impedance was 43,000 ohms in parallel with a 100-pF capacitance. The RIAA equalization error was +0.15, -0.8dB from 30 to 20,000 Hz and down to -2.1 dB at 20 Hz.

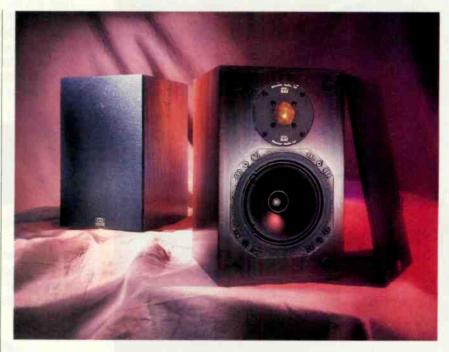
#### Comments

Our measurements show that the Technics SA-GX505 has an average AM tuner section, an FM tuner typical of many moderately priced receivers, but probably quite adequate for the majority of users, and a good, very powerful main amplifier section. The center- and rear-channel amplifiers, though rather low-powered compared to those of more expensive A/V receivers, are nevertheless adequate for an installation in an average-size listening room with speakers of normal efficiency.

When it comes to the very important matter of user-friendliness (ergonomics), the SA-GX505 is nothing less than outstanding. Not only does it have possibly the most versatile frequency-response modifying system we have seen in a receiver (at any price), but it is remarkably easy to use. True, one would be advised to study the superb instruction manual, whose fifty-seven pages leave nothing to the imagination, but the display window shows at a glance the status of every function of the receiver.

We used the SA-GX505 part of the time in a modest surround-sound system. Although our impression was that it did not quite match the "you are there" quality of some far more expensive A/V amplifiers and receivers, it acquitted itself admirably for a receiver that costs a fraction of the price of other A/V control centers we have used. But most of the time we used the SA-GX505 simply as a stereo receiver, and it left little to be desired in that role. Its Dolby 3 Stereo mode definitely produced a more solid, stable stereo image than ordinary two-channel operation.

The least expensive A/V receiver we have seen, the Technics SA-GX505 offers a competent tuner section, a rugged and very powerful stereo amplifier with a first-class cooling system, and a uniquely versatile and easy-to-use equalization system. It all amounts to an impressive value in today's market.



## **Monitor Audio MA700 Gold** Loudspeaker System

Julian Hirsch, Hirsch-Houck Laboratories

ONITOR AUDIO of Cambridge, England, is a long-established manufacturer of high-quality speakers, though its products are not as well known in the United States as in Britain. The company is somewhat unusual in that it manufactures all its own drivers, crossovers, and cabinets (and it supplies cabinets to many other English speaker manufacturers).

The MA700 is the smallest model in Monitor Audio's Gold series of audiophile-quality speaker systems. It is a two-way system with a rugged 61/2inch woofer constructed on a die-cast chassis and operating in a vented enclosure. The woofer cone is formed of a polypropylene copolymer, with a molded-rubber edge surround, and a concave dust cap is said to increase the rigidity of the voice coil. Wound on an aluminum former, the voice coil is cooled by vents in the pole piece.

There is a 6-dB-per-octave crossover at 3,900 Hz to a 1-inch metaldome tweeter with magnetic-fluid

cooling. The dome is formed from aluminum alloy and gold-anodized to increase stiffness and damping. The tweeter's resonance is said to be around 28,000 Hz, well above the level of audibility.

The Monitor Audio MA700 Gold has a nominal impedance of 8 ohms and a rated sensitivity of 89 dB soundpressure level (SPL) at 1 meter with a 1-watt input. It is recommended for use with amplifiers rated between 20 and 100 watts per channel. The rated frequency response is 45 to 30,000 Hz within 3-dB limits.

The cabinet is finished in matchedgrain wood veneer, in a choice of Santos rosewood, black ash, California oak, or American walnut. Its inside surfaces are also veneered, to balance the stress on the panels and insure against warping with time. It measures 133/4 inches high, 81/2 inches wide, and 10 inches deep, and each speaker weighs 17½ pounds. The black cloth grille unsnaps to reveal a finished speaker panel with flush-mounted



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\*Ford Compact Disc Systems are optional on select Ford, Mercury and Lincoln vehicles.



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drivers and a gold-colored metal screen protecting the tweeter dome.

The rear panel of the cabinet contains the woofer port and two sets of gold-plated binding posts, normally joined by jumpers. By removing the jumpers, the system can be operated in a biwired or biamplified mode. The connecting posts accept either single banana plugs or wire ends. Price: \$1,200 a pair. Distributed by Kevro International, Dept. SR, P.O. Box 1355, Buffalo, NY 14205.

### Lab Tests

We installed the Monitor Audio MA700 Gold speakers on 26-inch stands, 3 feet from the wall behind them and about 7 feet apart. The averaged room response from the two speakers was quite uniform from 60 to 20,000 Hz except for a peak between 200 and 300 Hz that was evidently caused by a floor reflection.

The close-miked (quasi-anechoic) frequency response of the woofer was flat within 5 dB from 85 to 1,600 Hz. At higher frequencies the output dropped rapidly, which seemed inconsistent with the uniform room-response measurement and a crossover at the specified 3,900 Hz. (Our impedance measurements also suggested a crossover closer to 2,000 Hz than to almost 4,000 Hz.) After correcting for the relative diameters of port and cone, we combined the frequency response at the port output with the woofer-cone response to create an overall bass frequency-response curve that reached its maximum at 70 to 80 Hz and extended downward to the vicinity of

At first, splicing this bass response to the room response curve appeared to be straightforward, as there was more than an octave's overlap between them. But the result—an elevated bass response broadly peaked between 50 and 100 Hz-was not consistent with what we heard from the speakers and was probably open to question below 200 Hz. The output was smooth from 200 to 20,000 Hz, however, varying a mere  $\pm 2.5$  dB. Although the low frequencies were not as prominent as our measurements suggested, listening tests confirmed that the speaker's useful bass range extended well below 50 Hz, with a notable lack of audible distortion at reasonable listening levels-completely consistent with the manufacturer's ratings.

The system's sensitivity, with a fullrange pink-noise input of 2.83 volts, was 86 dB SPL at 1 meter. Impedance reached a minimum of 7 ohms at 200 Hz, with peaks of 20 and 19 ohms at 32 and 95 Hz, respectively, and a maximum of 29 ohms at 2,300 Hz. It averaged well above the rated 8 ohms over most of the audio range. With a constant drive level of 4.5 volts (corresponding to our standard 90-dB SPL reference level), the woofer distortion was between 0.1 and 1 percent from 1,000 Hz down to 90 Hz, increasing to 3 percent at 70 Hz and to 7 to 8 percent between 25 and 30 Hz.

The speaker's horizontal dispersion was excellent. The on-axis and offaxis response curves remained within 5 or 6 dB of each other up to 8,000 Hz and diverged smoothly above that point, differing by less than 10 dB at 20,000 Hz. Quasi-anechoic FFT measurements showed a prominent tweeter resonance at 26,000 Hz, with an amplitude of about 18 dB.

The MA700 Gold performed impressively in pulse power-handling tests, although the speaker's relatively high impedance made the amplifier the limiting factor. The speaker absorbed 320 watts at 100 Hz, 450 watts at 1,000 Hz, and 720 watts at 10,000 Hz without damage or audible overload.

#### Comments

The sound of the Monitor Audio MA700 Gold was completely consistent with our measurements except in the low bass, where it was clearly more accurate than our woofer measurement would suggest. It had a silky-smooth sound that gave no audible hint of its small size. The bass was clean and useful down to well below 50 Hz, and there was practically no upper-bass coloration of voices. Only a slight tendency toward warmth (at least in our listening room) gave away what was probably a modest emphasis of the lower octaves.

In comparing the MA700 Gold with some other speakers of comparable size and frequency-response range, but considerably lower price, the most striking difference we found was in the sense of space generated by the MA700 Gold. The "air" it created was unmistakable, making the other systems sound somewhat pinched and artificial in comparison. Although there are no obvious features of the MA700 Gold that would explain its sound qualities, it seems likely that they were achieved by a number of techniques, including flush-mounting the drivers for minimum diffraction at the front-panel boundaries, as well as good basic design of the drivers themselves.

Whatever the reasons, the listening quality of the speaker was truly excellent. We have heard a number of larger speakers in the same general price range that also deliver this caliber of sound, but the compactness of the MA700 Gold sets it apart from its sonic peers.



"You're right, it sure does give you plenty of controls for the money. Say, what are these two buttons-'pre-on' and 'post-off'?"

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Whether you're on a budget or just seeking maximum value, don't be fooled by bargains that sound cheap at the store—they just might sound cheap when you get home.

Even Denon's most economical receivers, such as the DRA-335R and DRA-435R, preserve sound quality *first*. (This is Denon's Design Integrity principle.) Both of these receivers employ electronic switching and elegant circuit topology for the most direct signal paths. This not only lowers noise and distortion; it greatly enhances reliability.

For superior audio quality, the finest components are used throughout the signal path, including polypropylene and polystyrene capacitors and metal film resistors. Competitive receivers use skimpy transformers and IC output stages, which restrict your system's dynamic

range. Denon's discrete output transistors and substantial transformers give the DRA-335R and DRA-435R the power to drive even the most "difficult" speakers.

At Denon lower cost need not preclude important features. Both the DRA-335R and DRA-435R feature Variable Loudness and full Integrated System (IS) remote control of a CD player, CD changer and cassette deck. The 16-station programmable tuners of the DRA-335R and DRA-435R feature improved AM NRSC deemphasis.

Even though the Denon DRA-335R and DRA-435R receivers pack in so many features for the price, never forget the real reason to buy a Denon: Sound.

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Puntil recently, CD changers—players that can handle multiple compact discs for uninterrupted extended play-have been of two types, magazine and carousel. In a carousel configuration, up to five discs can be laid on a large, flat platter that feeds each disc into the player mechanism in a clockwise progression or any other order you program into the changer. In the magazine configuration, multiple discs are loaded onto individual trays stacked in a single, removable magazine or cartridge and then played from top to bottom or, again, in any order programmed. The carousel and magazine configurations still dominate the world of CD changers, but they're no longer the only games in town. And manufacturers that are still using the tried-and-true designs are adding new twists to them all the time.

Changers that have broken away from the magazine/carousel pack include Nakamichi's CDPlayer2 and CDPlayer3 and Sansui's CR-280. The MusicBank system in the Nakamichi models doesn't employ a removable magazine but an internal stacker that stores six discs while allowing you to play a seventh. Sansui's CR-280 features what the company calls a Robot changer. It uses three "wells" one where five CD's are loaded, another where single CD's are played, and a third where already-played discs are stored. An arm lift moves each disc to the appropriate well in order or according to your programming instructions. This method saves space, enabling the Robot changer to fit nicely into the "minisystems" that are now so popular with music lovers who don't have the room for

large components.

In current magazine and carousel changers, the emphasis is on greater flexibility and even longer playing time. Since a CD can hold more than 70 minutes of music, a five-disc carousel changer can yield about 6 hours' worth, and a six-disc magazine changer can play for 7 hours. Pioneer's PD-TM1 ups the ante substantially—the player accepts three magazines of six discs each, for a total of eighteen discs and more than 21 hours of music. You may protest that no one has that kind of time on his or her hands, and you'd be right, but continuous play is just one option here. The greater the number of discs loaded, the greater your programming flexibility. With the recent advent of multidisc boxed sets highlighting the classic tracks of great artists, genres, and even labels, loading up several magazines and hitting the random-play button is one way to create an instant party mix, and for this use the more discs the merrier.

Another advantage claimed for magazine changers is the use of the magazine

itself as a semipermanent storage unit for discs. With extra magazines relatively affordable (most cost from \$10 to \$25 apiece), you can store discs of a particular genre in the same magazine and label it ("jazz," say, or "classical" or "thrash") so you can pop in a supply of CD's to match your mood. Changers in Mitsubishi's Home Theater Systems feature a video output that displays the title you've given a magazine when it's inserted in the machine. Of course, storing discs in a magazine means storing them away from the jewel boxes, which means away from the liner notes, which means away from any pertinent information about what you're listening to, which is certainly not an advantage.

A few carousel changers, which make no pretense to storage, give you the option to build your multidisc program in increments—or to change your mind without interrupting the music. Models from Yamaha, Denon, and Technics let you add, subtract, or substitute discs in any of the four other positions on the carousel platter while the current disc keeps playing. Similiar machines from other manufacturers allow you to change only one or two discs.

Even changers that don't have such special features often have their own inventive touches in programming options. Practically every major manufacturer offers at least one CD changer. The selected models shown on these pages

represent the range of choices, in terms of both versatility (sometimes there's actually an embarrassment of riches) and price.



BYGLENN

## CHANGERS



Carrera's CD-3400 six-disc magazine changer (\$250) features dual digital-to-analog converters and comes with a thirty-fourfunction remote control.

Breaking away from the pack, Carver's TLM-3600 (\$700) features a magazine that holds ten CD's instead of the usual six and the company's switchable Digital Time Lens circuit to smooth out harsh-sounding recordings.





The Denon DCM-320's five-disc carousel rotates in either direction for fast access and allows replacement of any disc that's not playing. The changer has three random-play modes. Price: \$300.

The TL8600, a top-loading fivedisc carousel changer from Harman Kardon, has a number of deluxe features, including gold-plated output jacks. A remote control is supplied. Price: \$700.





JVC's XL-M705TN (\$480) has a six-disc magazine as well as a single-disc tray. Proprietary pulse-edge-modulation 1-bit digital-to-analog converters are said to insure accurate reproduction at all signal levels.

NAD's Model 5060 is a six-disc magazine-type changer featuring auto-pause, which suspends play after a selected track. A remote control is supplied. Price: \$450.





Nakamichi's CDPlayer3 (\$500)
dispenses with a loading magazine
and stores up to six discs internally.
A seventh disc can be loaded and
played independently of the stored
CD's. A special disc stabilizer
clamps onto the disc that's playing
to guard against external vibration.

The DX-C310 features Onkyo's Accubit digital-to-analog converter, which is said to eliminate distortion at low signal levels. The six-disc magazine changer also has four repeat modes. Price: \$360.







The Optimus CD-6200 (\$250) is a five-disc carousel changer with a supplied remote control and thirty-two-track programming capability.

Accepting three six-disc magazines, Pioneer's PD-TM1 (\$510) expands programming flexibility as well as playing time. More than 21 hours of music can be loaded at once.





Neither carousel nor magazine, Sansui's CR-280 five-disc Robot changer uses a mechanical "arm" to move discs between its playback and storage "wells." The unique design saves space, enabling the changer to fit comfortably in a minicomponent system. Price: \$240. The DX-C1800 (\$290) from Sharp is a six-disc magazine changer that has thirty-two-track random-access programming.





Sherwood's CDC-3010R is a live-disc carousel changer with a disc-intro leature that plays the first 10 seconds of each disc in sequence, Price; \$225.

The Technics SL-PC705 (S220) allows any of the four discs visible under its plastic cover to be changed while a fifth disc is playing. A Spiral Play feature plays the first tracks of all five CD's in sequence, then the second tracks, the third tracks, and so on.





All of Yamaha's carousel changers permit any of four loaded discs to be replaced while a fifth is playing. The CDC-715 shown here also features four preset digital equalization modes and Program/EQ File, which can store individual programming and EQ settings for as many as a hundred CD's. Price; \$430.

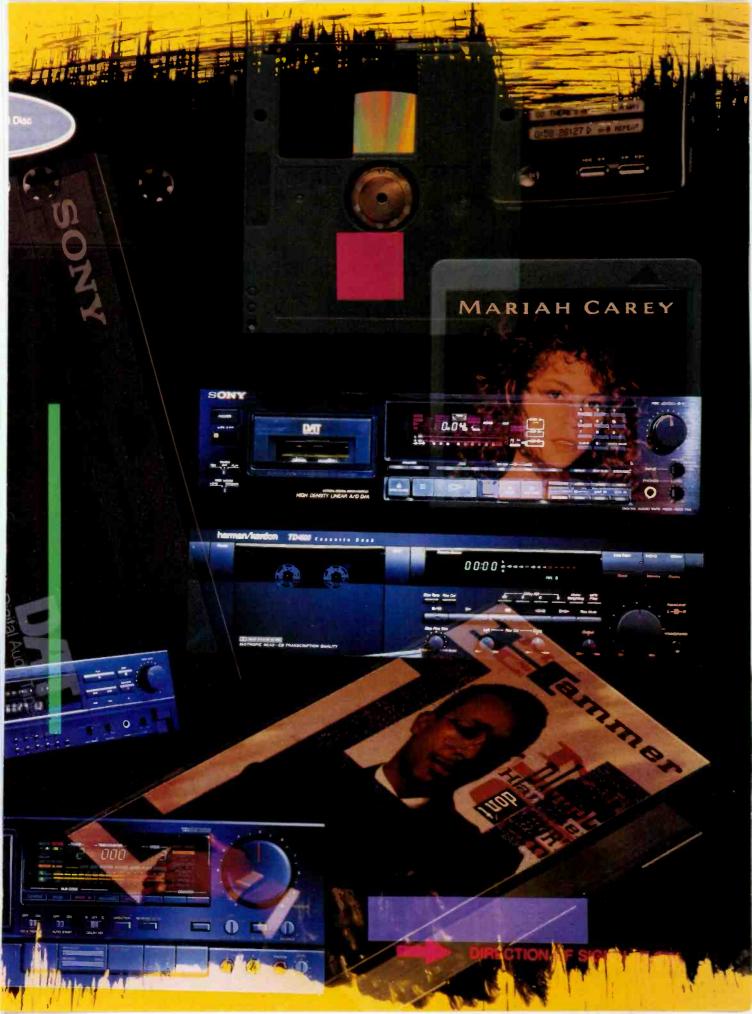
By the end of next year there will be three digital recording formats to choose from. How do they compare? by Michael Riggs

UST a few years ago, the future of home digital recording seemed obvious: We were all going to buy digital audio tape (DAT) decks. How times have changed. First came the DAT debacle, as a fearful music industry battled fearful audio manufacturers to a marketing impasse. By the time DAT was officially launched in the United States, several years later than initially expected, the wind of industry and consumer excitement had gone out of its sails. Manufacturers were still wary, mindful of relatively weak demand in other markets and of a lawsuit brought against Sony (characteristically, the first in the door with the new machines) by a music-industry group. Potential buyers of the technology were confused and perhaps a bit put off by still high prices, limited product availability, and the near total absence of prerecorded DAT titles.

Another important factor was a rumor of a new digital recording format from Philips that would be compatible somehow with ordinary analog cassettes (an earlier Philips development and now by far the most popular music-distribution medium in history). At the beginning of the year, Philips confirmed the existence of this system, called the Digital Compact Cassette, or DCC, now expected to be introduced around June of 1992. A few months after the Philips revelation, Sony announced the development of another digital recording system, called Mini Disc, or MD, to be available around the third or fourth quarter of next year. So where once there was only DAT—a real, here-and-now home digital-recording format—and the relatively distant prospect of some sort of recordable CD, we now have DAT and two close-on-its-heels competitors. What's a

It's a situation guaranteed to engender many cases of what might be called (somewhat mean-spiritedly) the I-bought-Beta syndrome—a paralyzing fear of committing to something that eventually turns out to have no future. We have no magic palliative for such anxieties. We can, however, help you understand a little better the pros and cons of the various alternatives soon to be before you, and knowledge is the essential

foundation of a sound decision.



#### **Door Number 1: DAT**

Digital audio tape has the unique advantage of being available right now. It is also very likely to survive, if only because it is so deeply entrenched in the world of professional audio and so unlikely to be dislodged by either of the upstarts. Because DAT's digital encoding process is essentially identical to that used for compact discs, its sonic performance is almost by definition the same as that of the CD system. You can make digital dubs from CD to DAT that are bitfor-bit identical to the original (a claim neither DCC nor Mini Disc can make). Cueing is much faster and more precise than on analog cassettes, though not quite a match for CD's in raw speed. DAT cassettes are also very compact—almost to a fault, as they have little room for labeling and are definitely easier to lose than CD's or analog cassettes.

Their size also imposes certain technical obstacles. Data density on DAT is extremely high, which means that the tape must be capable of storing large amounts of information in a small area, have an exceedingly low dropout rate, and be better protected from the elements than the tape in an analog cassette. These requirements tend to make DAT cassettes relatively costly. The recorders that use these cassettes must be capable of writing and reading data at extraordinarily high rates and densities, and the overall system must incorporate powerful error-correction strategies to compensate for the many small tape flaws that will inevitably crop up.

At the time the DAT format was designed, the only practical way of meeting these needs was to employ a rotary-head mechanism like those used in VCR's. In fact, DAT transports are very similar to camcorder tape transports, which has helped bring down the prices of DAT decks. These mechanisms are inherently fairly complex, however, and relatively delicate, so the cost of manufacturing DAT decks will probably always be greater than the cost of building CD players or DCC or MD recorders.

#### Door Number 2: DCC

The Digital Compact Cassette benefits from its relative youth, drawing on advances in several fields since the time when the DAT format was finalized. Most significant among these advances is data compression. The DCC format incorporates a system



that Philips calls PASC, for Precision Adaptive Sub-band Coding. Although the ins and outs of how PASC works are rather elaborate, the basic idea is simply not to record sounds that would be masked by louder ones at nearby frequencies and thus never be heard anyway. We experience masking of one sound by another every day—when trying to converse or listen closely to something in a noisy environment, for example—but taking advantage of this phenomenon in the way PASC does without introducing audible distortion is tricky and requires very sophisticated signal analysis and processing. Further compression is achieved by coding the data on tape using a floating-point system that is more efficient than the straight 16bit coding used for CD's and DAT's. The end result is about a 4:1 reduction in the amount of data that must be stored on tape.

Reducing the data rate so drastically relaxes the constraints on the design of the recording system. PASC enabled. Philips to build DCC around tape transports of the kind already used in analog cassette decks, moving relatively conventional tape past a fixed head at the familiar 1% inches per second (ips). The head, however, is a multitrack "thin-film" type much like those employed in computer hard-disc drives, and the cassette itself, though the same size as an ordinary analog cassette, does not flip over and has a metal shutter that closes to protect the tape inside when it is not in use. Since the cassette does not have to be turned over, one side can be used entirely as label area. Information is recorded in both directions of tape travel, however, so all DCC decks will autoreverse at the end of a "side."

The slickest thing about the whole design is that the head in a DCC deck

has gaps for analog as well as digital playback. Since the transports will be mechanically compatible with both DCC and analog cassettes, DCC decks will be able to play both, enabling users to ease into the era of digital tape recording. This compatibility and the system's relative mechanical simplicity, which should help keep manu-

facturing costs down, are its biggest selling points.

DCC's cueing accuracy should be excellent, and though it won't be quite as nimble as DAT, it should be quite a bit better than analog cassettes in this regard. A weakness it will share with both DAT and the analog cassette is an inevitable susceptibility to physical damage in normal use, which is not a concern with optically read media

such as CD and Mini Disc.

But DCC's most controversial feature, at least among audiophiles, is sure to be PASC. People who leapt to their feet in righteous indignation at the idea of chopping an audio signal into lots of little pieces will probably keel right over at the thought of throwing most of those pieces away. Doubtless it will worry others, too. Digital recording actually works very, very well, however, and it should likewise be possible to make a compression system based on psychoacoustic masking that does its job without leaving dirty fingerprints on the sound. Philips says its DCC design team went to great lengths to make sure that PASC's effects are entirely benign, putting each new revision of the system through batteries of controlled listening tests with trained, experienced auditors until none of them could hear any difference between music before and after compression.

Finding out just how good PASC is or isn't will be the first order of business when we finally get our hands on a real live DCC deck, but Philips's own demonstrations of the system so far have been impressive. At the very least, it seems clear that DCC will offer performance that is both better and significantly more consistent than that of the analog cassette, the format that Philips says DCC is designed to eventually replace.

#### **Door Number 3: MD**

In at least one respect, Mini Disc is to CD as DCC is to DAT: It is a format based on data compression as opposed to one that uses straight 16-bit linear PCM (pulse-code modulation) digital encoding. The primary purpose of compression in this case is not reduction of data density per se, but physi-

## How the Formats Stack Up

	Compact Disc	DAT	DCC	Mini Disc	Analog Cassette
Recording method	Linear PCM	Linear PCM	Floating-point PCM with PASC data compression	PCM with ATRAC data compression	Analog
Sampling rate	44.1 kHz	48, 44.1, or 32 kHz	48, 44.1, or 32 kHz	44.1 kHz	Not applicable
Maximum recording time	About 74 minutes (times approaching 80 minutes are possible, but only by violating CD track- pitch standard)	About 120 minutes at highest sampling rate	Initially, about 45 minutes in each direction (about 90 minutes total) at highest sampling rate; later, about 60 minutes in each direction (about 120 minutes total)	About 74 minutes	Typically 45 to 50 minutes in each direction (90 to 100 minutes total); abou 60 minutes in each direction (120 minutes total) with thinnest tape
Dynamic range	Approximately 98 dB	Approximately 98 dB	108 dB (claimed)	105 dB (claimed)	65 to 75 dB
Frequency response	Essentially flat to 20,000 Hz	Essentially flat to 20,000 Hz at 48- and 44.1-kHz sampling rates, to 14,000 Hz at 32-kHz sampling rate	Essentially flat to 20,000 Hz at 48- and 44.1-kHz sampling rates, to 14,000 Hz at 32-kHz sampling rate	Essentially flat to 20,000 Hz	Depends on tape, adjustment of deck, and other factors, but typically within ±3 dB from 30 to 18,000 Hz with good equipment
Channel separation	Typically 90 dB or more, limited only by analog electronics	Typically 90 dB or more, limited only by analog electronics	Typically 90 dB or more, limited only by analog electronics	Typically 90 dB or more, limited only by analog electronics	Typically 40 to 50 dB at low frequencies
Distortion	Extremely low	Extremely low	Said to be extremely low in conventional measurements	Said to be extremely low in conventional measurements	Typically low (less than 0.5 percent at normal recording levels) but can reach several percent on peaks
Wow and flutter	Unmeasurable	Unmeasurable	Unmeasurable	Unmeasurable	Typically between ±0.05 and ±0.15 percent on good decks
Input/output	Analog or digital (output only)	Analog or digital	Analog or digital	Analog or digital	Analog
Vibration sensitivity	Moderate to low, depending on player design	Low to very low	Expected to be low to very low	Expected to be low to very low	Low to very low
Durability	Excellent	Good	Should be good to very good	Should be excellent	Good to very good
Overall reproduction accuracy	Superb	Superb	Said to be at least as good as CD	Said to be nearly as good as CD	Fair to excellent



(Photos not to scale)

cal miniaturization. An MD can store as much music as a CD on a disc just slightly more than half the diameter.

Sony says it developed the Mini Disc to serve as a high-performance medium for portable audio, hence the desire for miniaturization. It might seem DCC could serve that purpose (indeed, portable use is clearly one of the applications for which it is intended), but Sony felt a small optical disc would offer advantages over a tapebased system, such as true randomaccess cueing and the greater durability of a noncontact medium. But if you have a portable CD player or have followed the history of car CD players, you know that vibration-induced skipping can be a problem. This led Sonv to develop what it calls Shock-Proof Memory—a small memory buffer that stores about 3 seconds' worth of compressed data from the disc. If the laser pickup is momentarily jarred offcourse, data from the buffer will keep the music flowing until the pickup finds its bearings again.

Although Sony's Adaptive Transform Acoustic Coding (ATRAC) compression system is similar in principle to PASC, it is executed differently, in part to achieve a higher compression ratio—approximately 5:1 as compared to PASC's approximately 4:1 ratio. All else being equal, the greater the degree of compression, the more likely it will have audible side effects. It may be significant, therefore, that Sony's performance claims for MD are somewhat less ambitious than Philips's claims for DCC: sound that is "almost CD-quality" rather than "at least CDquality." Again, this is something we will have to assess when the product becomes available later next year.

Mini Discs will come in two varieties: playback-only prerecorded discs, which are made of aluminized polycarbonate in the same way as CD's, and recordable magneto-optical discs that can be erased and reused many times. Both will be housed in protective plastic cases like those used for 31/2-inch computer floppy discs. Although this is basically a good idea (and probably should have been done for the CD), it does make it next to impossible to build a single-transport deck capable of playing both compact discs and Mini Discs. On the other hand, the MD was designed from the ground up for portable use, and we can imagine some novel exploitations of its characteristics-in-dash multidisc changers for the car, for example.

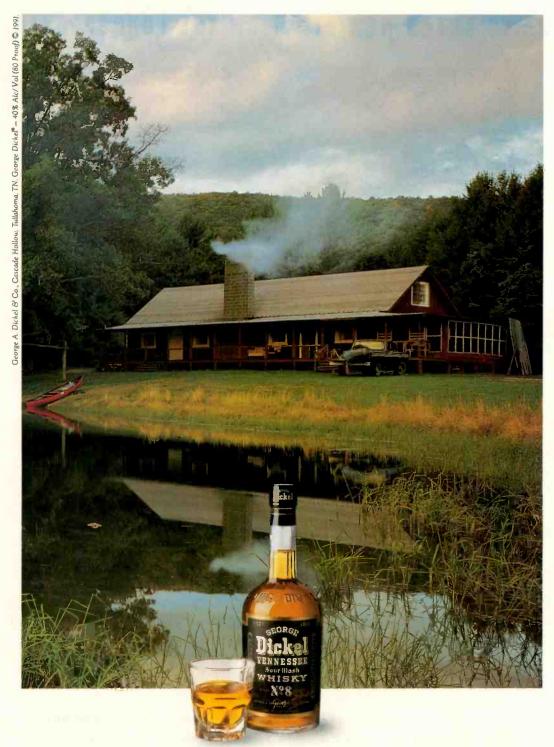
## **Picking a Winner**

In the table on page 57, we've summarized some of the basic characteristics of the three digital recording systems—DAT, DCC, and MD—as well as the compact disc and the analog cassette. The information given for the DCC and the Mini Disc is necessarily based on what we've been told to expect, and in some categories, such as vibration sensitivity, the listings for all of the formats are somewhat imprecise. Nonetheless, it is evident that each of the three digital recording systems has particular benefits and drawbacks compared with the others.

It is too soon to tell which system will win out, if indeed it is correct to think in those terms, and it is possible that more than one will survive (certainly DAT seems destined to live on, if only as a professional and semipro

format). Now that the audio and music industries have settled their differences with a proposed royalty compromise, the competitors at least have a clear field of battle. A great deal undoubtedly depends on how much support Philips and Sony can round up for their respective entries from record companies and other equipment manufacturers, as well as on the prices charged for equipment, commercial recordings, and blanks. DCC appears to have an early lead on all these fronts at the moment, but that could easily change as the introduction of Mini Disc draws nearer. And DAT seems now to lack strong support from any direction as a consumer format.

In the end, it could even turn out that so many people are satisfied with the combination of CD's and analog cassettes that none of the digital recording systems makes it as a massmarket consumer format. CD is still the best format for prerecorded music in the home, and we are convinced it will remain the leading system in that role regardless of how DAT, DCC, and MD fare in the marketplace. But we also think the time is ripe for a highperformance recording system to replace, or at least supplement, the analog cassette. As good as cassettes can be (which is really very good when everything is tweaked up just right), maintaining consistent sound quality is difficult, especially when cassettes are recorded and played back on a number of different decks. Digital decks, in whatever form, can make that kind of variability a thing of the past and provide a higher level of performance in the bargain. We can hardly wait.

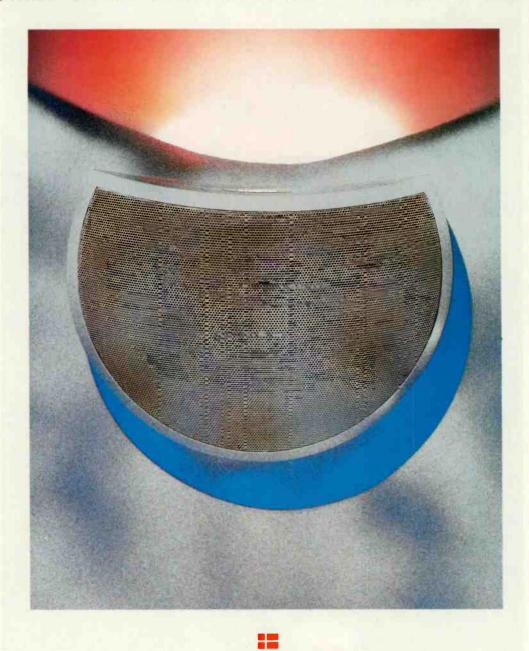


Afternoons at the secret fishing hole of the Little Meadows Hunt Club, and the smooth mellow taste of George Dickel.

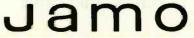
Ain't Nothin' Better.

George Aprickel.

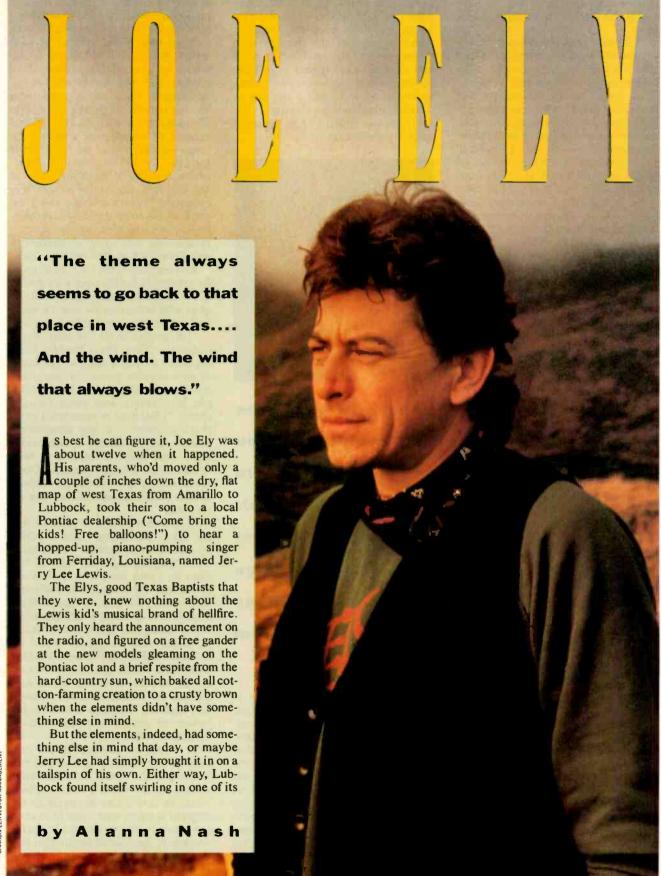
## JAMO SHEDS NEW LIGHT ON THE LOUDSPEAKER



CONSIDER a more enlightened approach to the loucspecker-JAMO ATMJSPHERE. Discree-ly and "cstefully, ATMOSPHERE combines the clarity of a 1" dome tweeter with the response of c 5 1/4" woofer. Ur.Equely, its recessed top surface houses a halogen light that makes it the only sconce/speaker truly suitable for the discriminating home environment. In black or white lacquer finish. How's that for a bright idea?



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famous dust storms, a wall of dust raging through the town at 60 miles an hour.

"I'll never forget that vision of my childhood," says Ely, relaxing the day after a house-burning acoustic set at the Birchmere in Alexandria, Virginia. "You could hardly see across the street, and then here's this madman up there pounding on the piano. The wind was blowing so hard that it would blow the microphone over. Jerry Lee would be singing and the microphone would go thump! And somebody'd run over and pick it up, and it would fall over again. It was like a vision from hell. But it was so wonderful, because it seemed like it fit, with the wind and the static electricity in the air. I always look back to that moment as the very beginning, the spark that made me consider doing this as my life."

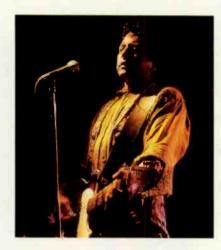
Thirty-two years later, Ely still tries to capture that moment every time he steps on stage or pulls out his writer's notebook. He makes no attempt to hide his debt to the Killer with his exaggerated vocals in such uptempo songs as the rocking Musta Notta Gotta Lotta and Fingernails.

And ask him if he thinks any one theme runs through all of his work, from the lyrical ballads to the Texasstyle rock-and-roll, and the forty-four-year-old Ely, shy and pockfaced as a cactus, stammers a bit before finally answering. "It always seems to go back to that place in west Texas, between Lubbock and Amarillo," he says in a voice that is, like his songs, at once tender and tough. "And the wind. The wind that always blows. That seems to be the main theme."

After some thirteen albums and twenty years of critical acclaim, Ely remains a cult artist whose commercial success has yet to catch up with his reputation as one of the foremost practitioners of Texas country-rock. Technically, however, his music is not country-rock, not truly country, nor essentially rock, but an accordionand-steel-guitar-laced brand of personal music that reflects the ghosts of other west Texas musicians who came before him, notably Buddy Holly, Roy Orbison, and Waylon Jennings, with a little blues from Mississippi son Jimmie Rodgers for good measure.

"The godfather of cowpunk," as Dwight Yoakam likes to call him, Ely has the dubious distinction of being revered more by his fellow singersongwriters—who have long been influenced by his mix of honky-tonk, ballads, and Tex-Mex—than by the public. And although he was always

ahead of his time—his early work was filled with such imagery as Cornbread Moon and Because of the Wind, in which he equated the memory of a former love to the west Texas wind and himself to the border trees bent down by those gales—he nonetheless looked up from his guitar one day in the early Eighties to find his time in the spotlight had faded like a fingernail moon on the Texas horizon.



"That's probably the best compliment you can pay someone, to take things from their music. That's what makes the world go 'round, makes things change. Makes 'em interesting."

Yet perhaps Ely's luck is about to change. MCA, the label that distributed his work from 1977 to 1985, has rereleased his first four studio albums, "Joe Ely" (1977), "Honky Tonk Masquerade" (1978), "Down on the Drag" (1979), and "Musta Notta Gotta Lotta" (1981), as well as a 1989 concert recording, "Live at Liberty Lunch," named after the noisy Austin club in which it was taped. In addition, the label re-signed him to the roster for future studio albums.

"Live at Liberty Lunch," Ely's most recent record, showed up on a

number of "Best of 1990" lists, receiving a respectable amount of radio airplay. But Ely was re-signed to MCA in part because of the success of such artists as Yoakam and Steve Earle. whose work, an intelligent amalgam of country and rock and lyrical but unsentimental vignettes of small-town life, is a natural outgrowth of the style Ely pioneered as early as 1972. With a number of artists now covering his songs-Kelly Willis recorded Settle for Love for her new "Bang, Bang' album, and Marty Stuart had a shot at Me and Billy the Kid, a wonderfully evocative Western tall tale about the punk who brought down William Bonney-Ely's enjoying something of a renaissance, as a new generation of country-rock fans discovers his work.

And because there isn't much room for grudges in his let-it-roll personality, Ely harbors no bitterness toward the guys who borrowed his eclectic ideas and got the lion's share of the acclaim.

"Oh, no, not at all," he offers in his distinctive west Texas ramble, sucking down a Coke and sporting a lubricious rockabilly hairdo, his jeans and boots temporarily traded for pink Bugle Boy shorts and black running shoes. "I feel kind of honored. I think that's probably the best compliment you can pay someone, to take things from their music. Because I took things from people's music. That's what makes the world go 'round, makes things change. Makes 'em interesting."

Ely's own hybrid style of music was far more "interesting" than anything his middle-class parents had in mind when they started their elder of two sons on violin lessons in the second grade and encouraged his participation in the First Baptist church choir. But violin and church singing soon lost out to steel-guitar lessons and a totable six-string when young Ely dialed his radio to XERF, the powerful 100,000watt radio station just across the border in Mexico, where Wolfman Jack slipped Bo Diddley, Muddy Waters, and Lightnin' Hopkins records in between the gospel hour and Mexican rancheros tunes.

In retrospect, Ely says he felt very close to the Mexican culture and music, especially since as a part-time worker in his father's used clothing store, he sold cheap garments to the migrant workers who came in to chop the cotton in the outlying fields. On the weekends, he filtered back down into the lower part of downtown Lubbock, where the *conjunto* serenades blared out of the Mexican bars and poolhalls

and the streets were alive with workers so drunk on tequila that they had one foot in Saturday night and the other in Sunday morning.

HEN he got old enough, Ely slipped across to the border towns to hear the Mexican sounds that eventually made their way into his own musical synthesis, and soon he began sitting in with the Mexican bands. The music had both a therapeutic and a rejuvenating effect: His father had died when he was twelve, and feeling somewhat of an outsider, he spent his days struggling through school and practicing with his band, and his nights playing for change and washing dishes and cooking short-order at a little grease joint called the Chicken Box to help keep the family afloat.

Ely's mother didn't share her son's musical taste—she had always particularly disliked country music—but nonetheless, "She was real supportive of my playing," Ely remembers, his face dissolving into a dimpled smile. "She'd run the cops away from the door when they'd come to tell us to turn down when we were practicing." And she understood when her seventeen-year-old son took off to play dives and beer palaces in Houston, Dallas, and eventually Los Angeles.

For the next seven years Ely lived a perfect Woody Guthrie fantasy, hoboing around California, existing hand-to-mouth, playing guitar for handouts around Venice, California, and, in general, just knocking around. He learned to befriend the brakemen in the old freight yards and rode the rails back and forth in between the major West Coast cities. Eventually, he even went to Europe with a theater troupe.

Yet, no matter where he rambled. his wanderlust always pulled him back to Texas, where the small-town isolation and the vastness of the landscape conspired to produce some of his most memorable early work. At one point, around 1970, he joined up with fellow Texas songwriters Butch Hancock and Jimmie Dale Gilmore to form a "living-room band," a country-folk trio called the Flatlanders. In 1972, they recorded a seminal but ill-fated album for Shelby Singleton's revamped Sun label. The record, now available on a Rounder CD, wasn't released until Ely attained notoriety on his own, although the alliance would cement a triumphal friendship among the three, Hancock and Gilmore continuing to supply Ely with much of his most evocative material,

such as Hancock's poetic *Boxcars* and *She Never Spoke Spanish to Me* and Gilmore's bluesy *Dallas*.

No matter how strong the lure to return home, however, Ely would soon strike out again—to pick fruit with the migrants, to test his luck in New York (he auditioned at all of the famous folk clubs, none of which booked him for a regular gig), and to join the circus, where one summer he shoveled elephant waste and played nursemaid to the world's smallest horse.

The Ringling Brothers experience convinced Ely that his future lay more in dance halls than in big tops, and one day in the mid-Seventies, sitting in a coffee shop near Lubbock's Texas Tech University, Ely decided the time had come to get a band together and start playing his songs. A week later, he and most of the band that played on his MCA debut were ragging out songs around Lubbock, Dallas, and neighboring New Mexico. A year later, in 1977, he had his record deal and began cutting his classic country honky-tonk albums.

For a time, Ely, who now lives in Austin, got lumped in with all the other migratory Austin acts such as Willie Nelson, Waylon Jennings, and Jerry Jeff Walker, although his roots were far more authentic than most of his compatriots'. But radio programmers and record stores found that his music slipped through the cracks—that it was too hard to categorize for mass consumption, "too country" for rockers and "too rock" for country fans.

In the U.S. that made him a cult figure, but in Europe it made him more like a star. In 1980, when his music edged closer to rock, he toured Europe with the punk-rock band the Clash, an association that cost him a portion of his more conservative country audience. The spirited rockabilly album of 1981, "Musta Notta Gotta Lotta," his next release after the disappointing "Down on the Drag" (1979), was a startlingly original work and his resulting stage show a whitehot wonder. His "Live Shots" concert recording, which was recorded in England in 1980 but not released stateside until after "Musta Notta Gotta Lotta," made him a ripe-and-ready opening act for both Tom Petty and the Rolling Stones.

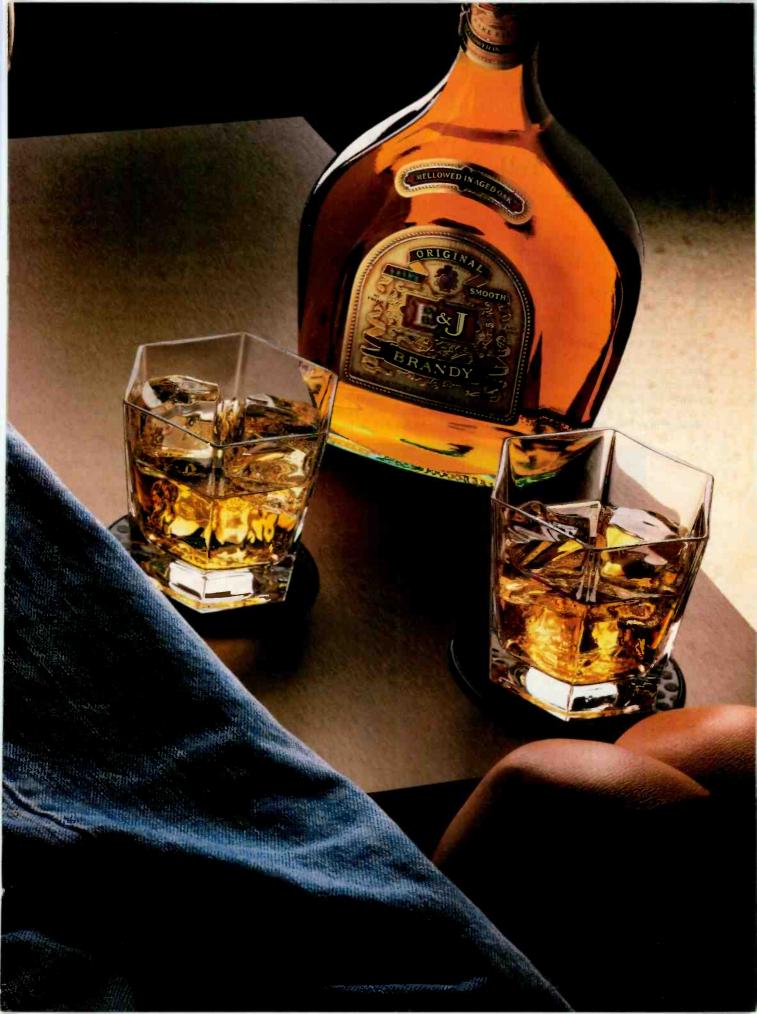
Ely should have been able to write his own ticket after that, but a series of albums that might have established him as a brilliant fusion artist went awry, derailing his career in the process. "Hi-Res" (1984), an experimentall and ultimately disastrous electronic album that was originally conceived as the soundtrack to a never-released video, seemed amputated and ill-conceived. And "Dig for Love," now referred to as the "lost" album—meaning MCA chose not to release it—was buried in an avalanche of back-up singers and strings.

In 1985, his MCA contract canceled, Ely watched helplessly as his band fell apart and his career crumbled into dust. Two years later, tired of watching videos on MTV, he regrouped to take a number of songs such as Rich Man, Poor Boy, Settle for Love, and Dig for Love (retitled as Dig All Night) from the failed albums and rerecord them, along with such gems as Me and Billy the Kid, My Baby Thinks She's French, and Silver City. for two hard-driving albums, "Lord of the Highway" (1987) and "Dig All Night" (1988) on the independent label Hightone Records. Later, he hired a mobile truck and taped a live set that included Drivin' to the Poorhouse in a Limousine, an ironic song about life as an itinerant musician, and more of the "lost" songs, including Cool Rockin' Loretta, for "Live at Liberty Lunch," the album MCA eventually picked up to launch his return to the label.

ODAY, it seems, things are finally on the upswing. With a new band in place—"bigger, for more textures and stuff"—Ely's currently writing songs for an MCA studio album, having recently completed a collaborative writing project with John Prine and Dwight Yoakam ("I know the chorus, but Dwight's got the lyrics folded up in his pocket somewhere") and the soundtrack for a John Cougar Mellencamp movie. And with a new regime in charge, MCA is even thinking of releasing tracks from the lost LP.

But Ely is adamant that he won't be disappointed if MCA's muscle doesn't catapult him into a major star or radio act outside of his native Texas.

"You hear everybody bitching and moaning about this label stuff, and what kind of music you make and how you're pigeonholed," he shrugs. "But I don't care about it any more. I really feel like I'm fortunate to keep making records. I love to make music. The radio isn't as important to somebody who's established and stubborn and knows what he wants to do. I never looked at making music as making records. I always looked at it as, 'This is what I'm gonna do with my life.' For me that's all that counts."





## **Bonnie Raitt Tells the** Hard Truth

HE morning after Bonnie Raitt won her slew of Grammy awards for her eleventh album, 1989's "Nick of Time," a few jillion Americans asked the question, "Bonnie who?" And furthermore, "Where did she come from?"

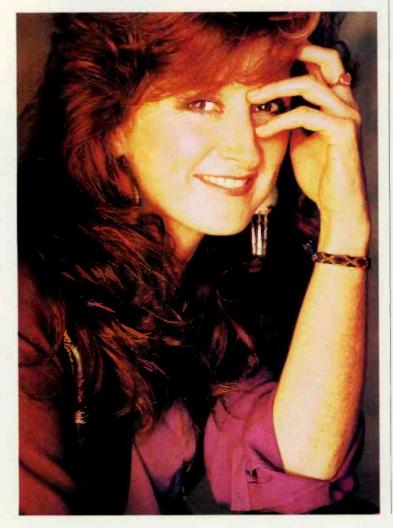
Raitt came from where she's always been—smack in the middle of a personal synthesis of urban and rural blues, commercial r-&-b, pop, rock, folk, funk, and reggae. It's a sound she pumped out night after night for twenty years on the road, her slide guitar still humming long after the clubs and roadhouses had closed and her small, but loyal, cult of followers had gone home.

That's why it's no surprise that her new album, "Luck of the Draw," makes no sudden hairpin turns or detours down blind alleys. Raitt continues to do what she's always doneplay marvelously expressive, earthy music that manages to stir the loins and the soul at the same time. The album is loose and playful, and yet seductive in a serious, subtle way.

Working again with producer Don Was, who keeps her increasingly authoritative voice the right distance from her spare but crack players (including Richard Thompson on electric guitar and drummer Ricky Fataar), Raitt also draws on a handful of songwriters who have helped shape some of her best work. These include John Hiatt, Mike Reid, and Raitt herself, who wrote or co-wrote four of the album's most emotionally intense tunes—and the ones that set its tone and theme: that adult romantic love cannot thrive without commitment and emotional honesty. As she sings in Tangled and Dark, a sexy piece of deep-dish funk that calls for love with no holding back, "Gonna tell the truth about it/Honey that's the hardest part."

"Luck of the Draw" is a travelogue of emotions. Beginning with Shirley Eikhard's flirty Something to Talk About, in which a male-female friendship stands ripe to blossom into something more, the album profiles a pair of lovers who filter in and out of each other's lives, running headfirst into trouble in Good Man, Good Woman, a saucy Cecil and Linda Womack tune that Raitt reprises with Delbert McClinton. Something about this duet doesn't work, however, and Raitt is far more effective in the next tune, I Can't Make You Love Me, a deadserious ballad about truth and vulnerability in love. In one of her most gorgeous, powerful, and understated deliveries, Raitt asks her lover simply to hold her close and not to patronize her-she's there to take her comfort without illusions.

Fittingly, the record soon begs the emotional relief of Come to Me, a cocky stretch of reggae that calls for a man with "the guts to stick around," and John Hiatt's quirky No Business, a sort of natural sequel to Thing Called Love in "Nick of Time." Raitt stays the balance with other celebrations of love-gone-right, most notably Paul Brady's Not the Only One, a hallelujah that climbs to a resounding gospel finish, and Papa Come Quick (Jody and g Chico), Billy Vera's amusing skiffle- ?



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laced story of the elopement of an empty-headed young girl and her Chicano boy friend. Half the fun of the tune comes from Raitt's spritely acoustic-guitar work, which mocks the subject as it sets the music's pace.

In the end, though, it's Raitt's repeated examining and questioning that sticks in the mind—the ambivalence of the complicated lovers of One Part Be My Lover, the despair and hope of the waitress of the title song, who writes screenplays on the side; and the palpable ache of the mother of All At Once, at her wits' end after repeated fighting with her daughter. This last piece of remarkable songwriting, Raitt's most mature and impressive, presents the album's, and life's, biggest challenge: gathering the strength to go on in the face of adversity, finding the hope in the most hopeless of situations.

Such eloquence does not come from the "luck of the draw," of course, but belongs to survivors, like the screenwriting waitress, who plug on and on to "keep the flame burnin'" and to "write their fire in the sky." Raitt's voice may not be as sweet now as it was in the Seventies, but in the occasional frayed or grainy note she simply reveals the road-weariness of her personal journey. After twenty years, Bonnie Raitt has done more than just seen her fire blazing in the strato-

sphere—she has written her law on the heart. Alanna Nash

BONNIE RAITT: Luck of the Draw. Bonnie Raitt (vocals, guitars, electric piano); Delbert McClinton (duet vocal, harmonica); Bruce Hornsby (pianos); Benmont Tench (organ); Kris Kristofferson (backing vocals); John Hiatt (vocals, guitars); Richard Thompson (electric guitar); Billy Vera (electric tremelo guitar); Ricky Fataar (drums); other musicians. Something to Talk About; Good Man, Good Woman; I Can't Make You Love Me; Tangled and Dark; Come to Me; No Business; One Part Be My Lover; Not the Only One; Papa Come Quick (Jody and Chico); Slow Ride; Luck of the Draw; All at Once. CAPITOL @ C2-96111 (54 min), © C4-96111.

# Irresistible Mozart Sonatas

ISTENERS sometimes have good cause to be skeptical when supervirtuosos are recorded together in chamber music. There have been more than a few cases in which such projects have been dreamed up by promoters and undertaken without more in the way of "seasoning" than a handshake in the studio. But Itzhak Perlman and Daniel Barenboim have actually been performing the Mozart sonatas for violin and piano together for years, bringing to their performances a commitment built on a self-renewing sense of discovery rather than allowing themselves to fall into a comfortable acceptance of what they were able to accomplish the first time out. They began recording the sonatas for Deutsche Grammophon several

years ago, and neither they nor DG has felt any need to hurry their completion of the cycle, which has proceeded more or less chronologically. The fourth disc, recorded five years ago but issued only now, is clearly the stuff of which legends are made. Its program comprises three of the sonatas Mozart composed in 1781-K. 378, 379, and 380—works that may not be on many short lists of "the best" or "the greatest" but which here are so downright irresistible that such notions become meaningless.

This is musicmaking that takes absolutely nothing for granted, that represents a whole greater than the sum of even the extraordinary parts involved. Barenboim has not given us more beautiful playing, whether in solo works, chamber music, or concertos. Perlman, whose very mastery of his instrument can sometimes tend to make his performances seem a little uneventful, has never seemed more "inside" any music he has played. The mutual commitment of these two exceptional musicians, and the stimulation each draws from the other as well as from the music itself, insure that the beauty is never merely skindeep. DG's production team has responded in kind, with a surpassingly attractive sonic frame. Richard Freed

MOZART: Sonatas for Violin and Piano in B-flat Major (K. 378), G Major (K. 379), and E-flat Major (K. 380). Itzhak Perlman (violin); Daniel Barenboim (piano). DEUTSCHE GRAMMOPHON ® 423 229-2 (52 min).



Daniel Barenboim (left) and Itzhak Perlman

# CARSTEREOS NEED CARSTEREO REVIEW.

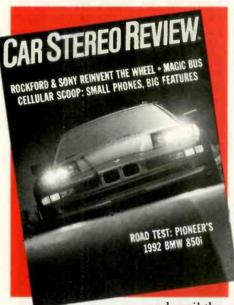
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CAR STEREO REVIEW ...

HE more I listen to the volcanic debut album from the Eric Gales Band, the harder it is for me to believe that guitarist Eric Gales is only sixteen years old. No one I've heard in the twenty-one years since Jimi Hendrix's unfortunate death has coaxed such incredible musical richness out of a guitar. Gales has all the raw power of the master his deep, muscular riffing hits like a natural force—and a lot of his poetry as well, with breathtaking leaps up and down the frets and a quivering, sweet way with feedback. But Gales doesn't seem like a Hendrix clone as much as a well-schooled devotee beginning to explore some ideas of his own. At a time when the rock world seems overstuffed with fast-fingered demigods who toss off arpeggios as if they're being paid by the note, Gales knows what to leave out. He knows how to flow, in magnificent, fiery bursts, but he also knows how to ebb. He's a wizard.

Oh, yes, there are songs in "The Eric Gales Band"; pile-driving hard-

rock treatises on love and the world condition. And there is a band: Eugene Gales (Eric's brother) sings and plays bass, and Hubert Crawford, Jr., plays drums. But Eric Gales takes the music to another level. He doesn't play as much as erupt, using distortion to create a nearly palpable sense of fury and using controlled feedback to leaven the intensity with achingly fluid runs. More than anything else, however, he constantly surprises us; he'll punctuate a blazing solo with long, agonizing arcs of feeling, or switch the timbre of his instrument from warm and thick to super-hot and needlesharp. In High Anxiety, the shifts are so breathtaking that it almost sounds like two different guitarists are playing off each other.

Gales plays so hard that, at first, you worry that his fingers are going to bleed. Then you realize that your sympathy is better directed at his guitar. At sixteen, he's got a lot of time to grow-and a lot of instruments to punish. Remember the name: Gales. As in force of nature. Ron Givens



THE ERIC GALES BAND. The Eric Gales Band (vocals and instrumentals). Resurrection; No One Else; Sign of the Storm; High Anxiety; Fed Up with You; Place and Time/World for Ransom; Nothing to Lose; Give and Take; Changes in Emotion; Piece of My Soul. ELEKTRA ® 61083-2 (43 min), © 61083-4.

# Giulini's Big Beethoven Ninth

N terms of what might be called the "humane-classicist" approach to Beethoven's Ninth Symphony, Carlo Maria Giulini's new Deutsche Grammophon recording is for me among the top half-dozen recorded realizations. He gives the work an unabashedly big-orchestra treatment in a ritual-ceremonial performance whose broad-scale conception recalls Furtwängler to some degree but also shows a good touch of Toscaninian Classical discipline.

The titanic opening movement is stern in pacing and gripping in dynamic power, notably at the climactic recapitulation. The scherzo is no hell-forleather affair but is carefully controlled in tempo to elucidate the polyphonic textures. The slow movement is deeply felt and meditative but, for all its slowness, never merely ruminative. The fanfare climax of the movement, anticipating in its concluding measure the "von Gott!" in the choral finale, is awesome.

The solemnity underlying Giulini's



Carlo Maria Giulini

reading especially comes to the fore in the introductory pages of the finale. The only weak point is the bass recitative, in which Simon Estes is no rival for a Matti Salminen or a Richard Mayr. The chorus, soloists, and orchestra all acquit themselves handsomely otherwise, working wonders in the unusually slow-paced final fugue and the beautifully executed vocal quartet. The recording as such is splendid as far as the orchestra and soloists are concerned but puts the chorus just a shade too far back.

While there are plenty of excellent recordings of the Beethoven Ninth readings to choose from, this new one conveys a genuine sense of occasion.

David Hall

BEETHOVEN: Symphony No. 9, in D Minor, Op. 125 ("Choral"). Julia Varady (soprano); Jard van Nes (mezzo-soprano); Keith Lewis (tenor); Simon Estes (bass); Ernst Senff Choir; Berlin Philharmonic Orchestra, Carlo Maria Giulini cond. DEUTSCHE GRAMMOPHON @ 427 655-2 (76 min).

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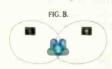


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Recent discs and cassettes reviewed by Robert Ackart, Richard Freed, David Hall, Eric Salzman, and David Patrick Stearns

BARTÓK: Music for Strings, Percussion and Celesta; Divertimento for Strings; The Miraculous Mandarin, Suite. Chicago Symphony Orchestra, Georg Solti cond. LONDON @ 430 352-2 (69 min).

Performance: Thrilling Recording: Ditto

This is a very thrilling recording—a natural for Solti, the Chicagoans, and the CD medium. The showoff piece is the Miraculous Mandarin suite for full orchestra, Bartók's attempt to rival The Rite of Spring and one of his few works built largely on orchestral effect. But the most exciting and fully realized music here is actually the Divertimento. The players, given separate billing as the Chicago Symphony Strings, deserve the spotlight, too; this is a virtuoso performance with tremendous energy and depth. The once-popular Music for Strings, Percussion and Celesta, many times recorded in the LP era, comes off particularly well in the finale, often the weakest-sounding of the four movements but here a resounding (and I mean resounding) capper. Clarity and a huge dynamic range are features of both the performance and the recorded sound.

BEETHOVEN: Symphony No. 9 (see Best of the Month, page 70)

BRAHMS: Violin Concerto in D Major, Op. 77. Nigel Kennedy (violin); London Philharmonic, Klaus Tennstedt cond. EMI @ 54187-2 (46 min), @ 54187-4, @ 54187-1.

Performance: Highly individual Recording: Very good

What could Nigel Kennedy, who has given us such fine performances of the Elgar, Sibelius, and Walton violin concertos, have been aiming at with this disconcertingly elongated reading of the Brahms? Standard running time for the first movement is about 22:30; here it's 26:17. The slow movement runs 11:19,

Explanation of Symbols

- © = Tape cassette
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- D = Compact disc (timings are to the nearest minute)

compared to 9:33 for Oistrakh and Szell. The finale, which Kennedy traverses with stunning verve and virtuosity, is well within normal time parameters at 8:18. I would like to have been a fly on the wall to hear the discussion between Kennedy and conductor Klaus Tennstedt leading to the slow tempos in the first two movements. The adagio does not suffer too much, but the opening allegro (!) becomes decidedly episodic, with no grand line. I find no new insights resulting from the Kennedy-Tennstedt approach, nor do I find Kennedy's use of his own cadenza for the first movement any improvement over the familiar ones by Joachim and Kreisler.

Musical considerations aside, the sonics and balances are first-rate. But even though 46 minutes is unusually long for this concerto, it adds up to pretty short measure for a full CD.

CHOPIN: Scherzos: No. 1, in B Minor, Op. 20; No. 2, in B-flat Minor, Op. 31; No.



Hugh Wolff: elegant Copland

3, in C-sharp Minor, Op. 39; No. 4, in E Major, Op. 54. Etudes: C-sharp Minor, Op. 25, No. 7; A-flat Major, Op. 25, No. 1. Mazurkas: E Minor, Op. 41, No. 2; F Minor, Op. 68, No. 4; C Major, Op. 7, No. 5; C Major, Op. 56, No. 2. Ivan Moravec (piano). DORIAN @ DOR-90140 (57 min).

Performance: Soulful Recording: Quiet, dark

A Romantic piano buff, hearing this from the next room, came running in to ask, "That's a reissue, isn't it? Who is it?"

Of course, Ivan Moravec is nobody's reissue, but he does play like the old Romantic masters-big gulps of music with a scale and sweep whose effect is, paradoxically, extremely intimate. With one exception, this is all 3/4 Chopin—no salon waltzes but a series of lyric and narrative poems that ponder, suffer, sing, and even dance a bit in a flowing three. The recording, made in the unlikely precincts of a Victorian music hall in Troy, New York, enhances the effect with a dark, quiet sound. Moravec's playing is not note-perfect; in fact, he really doesn't deliver the notes (the way those post-Romantic fellows string out the pearls) but rather the phrases, the expressive verses and stanzas. It doesn't shake the rafters, but it does shake the

COPLAND: Music for the Theatre; Three Latin-American Studies; Quiet City; Appalachian Spring. Saint Paul Chamber Orchestra, Hugh Wolff cond. TELDEC 10 2292-46314-2 (76 min), © 2292-46314-4.

> Performance: Elegant, thoughtful Recording: Stylish, clear

This is a charming collection from the popular-Americana side of Copland's work recorded in mid-America by a German label. Music for the Theatre from the mid-Twenties is the best of his early jazz period. Quiet City is a moody, touching instrumental work for trumpet, English horn, and strings made out of incidental music written for an Irwin Shaw play in the Thirties. Appalachian Spring is, of course, the great 1943 Martha Graham ballet-not the familiar suite but the fulllength ballet in its original, and highly effective, thirteen-instrument scoring. The Latin American Studies constitute a genuine Copland rarity. They reflect Copland's early interest in Latin materials but were, in fact, written rather late in his life. Two movements are from 1959 and one from 1971. Minor Coplandiana certainly, but lively and perfectly authentic in their way.

I would characterize all the performances as elegant rather than energetic or gutsy. It is beauty of motion rather than high energy and drive, thoughtfulness and intensity rather than playfulness and humor, that take center stage here. Copland turning into an old master before our very ears!

DIAMOND: Music for Shakespeare's "Romeo and Juliet"; Psalm; Kaddish for Violoncello and Orchestra; Symphony No. 3. Janos Starker (cello); New York Chamber Symphony (in Romeo music); Seattle Symphony, Gerard Schwarz cond. DELOS @ DE 3103 (73 min).

> Performance: Admirable Recording: First-rate

This second installment in Gerard Schwarz's survey for Delos of the orfrom the Psalm of 1936 to the Kaddish of chestral works of David Diamond ranges

1989. The Third Symphony and Romeo and Juliet (a concert work, by the way, not incidental music for the play) come from the middle 1940's. While Romeo and Juliet has had two previous recordings, all the others here are "firsts."

Psalm—dedicated to André Gide but conceived as a memorial to Oscar Wilde—is a highly dramatic piece reflecting the composer's study with Nadia Boulanger in Paris. The minatory opening tuba solo is followed by an orchestral outburst and a run of motoric gesture music redolent of Roussel.

The Third Symphony has a propulsive opening movement with fleet and fluid polyphonic writing. The slow movement suggests Fauré, and the scherzo is a brilliantly virtuosic study in orchestral textures. The Fauré atmosphere returns in the last movement, a quietly tender elegy with lovely solo passages for first-chair oboe and clarinet.

The five movements of Romeo and Juliet have a touching lyricism that befits a story of young love. The final movement, built on a ground bass, is especially effective. While Kaddish reflects Diamond's movement over the past two decades away from the Neoclassical style toward a more chromatic idiom, it represents even more a harking back to his Jewish roots. A sense of synagogue cantilation is evident in the solo cello line, tellingly played by Janos Starker, and the restrained early pages work toward an impassioned climax.

The performances by the Seattle Symphony and the New York Chamber Symphony are all resplendent, and Delos has provided sonics to match.

D.H.

HAYDN: The Creation. Kathleen Battle (soprano); Gösta Winbergh (tenor); Kurt Moll (bass); Stockholm Radio Chorus; Stockholm Chamber Choir; Berlin Philharmonic Orchestra, James Levine cond. DEUTSCHE GRAMMOPHON ® 427 629-2 two CD's (112 min).

Performance: Outstanding Recording: Vivid

Haydn has not been neglected in this Mozart year. Since January, in addition to numerous recordings of various symphonies and string quartets, there have been no fewer than four new ones of The Creation, bringing the current total to more than a dozen versions. Two or three are sung in English, the rest in German; some are with orchestras of period instruments, most with modern ones. James Levine's German performance, with a trinational team (Swedish tenor and choruses, German basso and orchestra, American soprano and conductor), does not use "original instruments," but it does reflect current scholarship—and it goes straight to the top of the list.

The Berlin Philharmonic responds to Levine not only with its expected brilliance but with a quite unexpected and wholly ingratiating bloom on its collective sound. One senses, and shares, a genuine delight in the marvels of Haydn's score—its numerous touches of wit and humor as well as grandeur and intimacy. The Swedish choruses are excellent, and so, without exception, are the well-matched soloists, who deliver convincing characterizations as well as beautiful singing. The tastefulness, the sense of proportion, and the all-round conviction that illumine this performance add up to something well beyond the norm. The continuo keyboard instrument is a fortepiano played by Frank Maus; it is heard only when it needs to be, effectively underpinning the musicodramatic fabric rather than calling attention to itself. The vivid, full-bodied recording puts all these elements in the very best perspective, and a comprehensive essay by H. C. Robbins Landon sets the seal on what amounts to an outstanding presentation.

MASCAGNI: Cavalleria Rusticana. Agnes Baltsa (mezzo-soprano). Santuzza; Placido Domingo (tenor), Turiddu; Vera Baniewicz (mezzo-soprano), Lucia; Juan Pons (baritone), Alfio; Susanne Mentzer (mezzo-soprano), Lola; Chorus of the Royal Opera House, Covent Garden; Philharmonia Orchestra, Giuseppe Sinopoli cond. DEUTSCHE GRAMMOPHON 429 568-2 (68 min).

Performance: Very satisfying Recording: Opulent

This handsomely recorded performance is possibly Giuseppe Sinopoli's best operatic offering to date. The raw theatricality of the plot and of portions of Mascagni's score lend themselves to the driving intensity that characterizes one aspect of Sinopoli's conducting, and the hauntingly lyrical sections of the piece evoke from him a totally different and equally effective treatment. The Chorus of the Royal Opera House and the Philharmonia Orchestra respond fluently to Sinopoli's sensitive direction.

As Santuzza, Agnes Baltsa uses her limpid mezzo-soprano effectively, in turn spinning out lovely legato lines with beautifully warm, soft tone and rising with passion to moments of musical intensity. She makes an unusually moving Santuzza whose sense of sin and hopeless love are fully communicated to the listener. Placido Domingo has twice before recorded Turiddu; I am happy to report that his voice sounds as youthful today as it did on those other occasions and that his musical characterization of the role is even stronger.

The Mama Lucia of Vera Baniewicz is well delineated and strongly sung. Her

one extended scene, with Santuzza, is a focal point of the opera to which she contributes considerable intensity and suspense. Juan Pons, as Alfio, is attractively brash in his entrance and darkly menacing upon hearing from Santuzza of his wife's infidelity; he uses his supple baritone to vivid dramatic effect throughout. Lola is the least developed role in the opera. Perhaps it suffices that she be only a symbol of physical attraction, but Susanne Mentzer uses every-



Agnes Baltsa: a moving Santuzza

thing there is in the score and libretto to create a credible character. In all, this is an uncommonly gripping recorded performance. Recommended. R.A.

MOZART: Arias. Die Entführung aus dem Serail: Marten aller Arten. Die Zauberflöte: Ach, ich fühl's; O zittre nicht; Der Hölle Rache. Idomeneo: Oh smania! Le Nozze di Figaro: Dove sono; Porgi amor. Don Giovanni: Mi tradì. La Clemenza di Tito: Non più di fiori. Così Fan Tutte: Come scoglio. Cheryl Studer (soprano); Academy of St. Martin in the Fields, Neville Marriner cond. PHILIPS © 426 721-2 (55 min).

Performance: Admirable Recording: Crisp, delicate

This program of unusually demanding music is sung expressively, accurately, and stylishly by Cheryl Studer, who continues her impressive rise in the ranks of contemporary sopranos. Technically she is very strong; my one reservation about her voice is the sometimes slightly steely brilliance that occasionally creeps into the upper register. It is apparent, for instance, in the taxingly difficult "Oh smania!," but there is no hint of it in "O zittre nicht," which is sung (I am tempted to say "tossed off") with breathtaking agility and tonal beauty.

Not content with extraordinary vocalism alone, Studer creates living characters, making of each aria a dramatic vignette. The Countess's sense of defeat culminating in determination ("Dove sono"), Elvira's complexity of conflicting feelings ("Mi tradi"), and Fiordiligi's bigger-than-life "heroics" ("Come scoglio") are just three notable examples of the artist's individualization of the material. Her thoughtful performances are ably supported by Neville Marriner and his fine orchestra. R.A.

MOZART: Piano Concerto No. 22, in E-flat Major (K. 482); Piano Concerto No. 23, in A Major (K. 488). András Schiff (piano); Camerata Academica of the Salzburg Mozarteum, Sandor Végh cond. LONDON © 425 855-2 (63 min).

Performance: Superb Recording: Exemplary

András Schiff and Sandor Végh pursue their unhurried course through the Mozart piano concertos in what continues to be one of the most distinguished such projects since recording began. To report that the standards of the previous installments are maintained in this one may seem faint praise, but those are imposing standards. In these two works-both among the most glorious Mozart left us in instrumental musicthere is once again that enheartening sense of chamber-music intimacy and give-and-take, without in any way delimiting the grandeur that is also part of the essential design (in No. 22 in particular). As always, Schiff's unselfconsciously beautiful tone production is a joy in itself, as is the almost otherworldly level of the wind playing, but the overall satisfaction goes far beyond the sum of the component parts—among which must be counted the exemplary recording quality. Schiff plays his own tasteful cadenza in the first movement of No. 22, his revision of one by his teacher George Malcolm in its finale, and Mozart's own, of course, in No. 23.

MOZART: Requiem (K. 626); Freemason Cantata (K. 623). Jane Bryden (soprano); Mary Westbrook-Geha (mezzo-soprano); William Hite, William Bastian (tenor); William Sharp (baritone); Stephen Richardson (bass-baritone); Boston Early Music Festival Chorus and Orchestra, Andrew Parrott cond. ALIARE/DENON ® 81757 9152-2 (55 min).

Performance: Baroque Recording: Good live job

Mozart's last year (1791) carries a special fascination, no doubt because of the romantic image of the desperately ill genius struggling to finish what he was convinced was his own Requiem Mass. However much this image may be fiction, the music of that year does seem polarized between works of profound feeling and far lighter pieces he tossed off to make money. Finished weeks before his death, the "Freemason" Cantata (set to words by Magic Flute librettist Emanuel Schikaneder) is an occasional piece

written in his simplest style, and it's amazingly forgettable.

The Requiem itself receives quite a distinctive performance here. Conductor Andrew Parrott prefers to put choral works in their liturgical context, which in this case minimizes the theatricality of the Requiem. He scales down its musical gestures and the weight of its textures into something like what we're used to hearing in a Baroque cantata. It's as if he wants us to forget about the death-haunted Mozart and appreciate the piece's Bach-like counterpoint. The result is the most extreme Mozart Requiem available in terms of "authentic" performance practices. Parrott employs a twentyvoice choir, as compared to the twentyeight used by John Eliot Gardiner in his recording on Philips, which remains the best all-purpose recording on historic instruments. Parrott's tempos are often faster than Gardiner's-which are considered in some quarters to be at the outer limits of briskness. Somehow, though, Parrott's performance doesn't seem rushed. Some may find it undernourished and perfunctory, but others may hear the piece with new ears, finding a lightness, a texture, and a lesshistrionic eloquence than we're accustomed to.

MOZART: Three Sonatas for Violin and Piano (see Best of the Month, page 68)

MUSSORGSKY: Khovanshchina, Prelude (orch. Rimsky-Korsakov); Songs and Dances of Death (orch. Shostakovich); Pictures at an Exhibition (orch. Ravel). Sergei Leiferkus (baritone, in songs); Royal Philharmonic Orchestra, Yuri Temirkanov cond. RCA © 60195-2-RC (64 min).

Performance: Colorful
Recording: Bright and spacious

The focus of musical interest here is the 1962 Shostakovich orchestration of the

macabre Songs and Dances of Death and the powerful yet compassionate vocalism of Leningrad-born Sergei Leiferkus. The highly colored, almost cinematically atmospheric orchestration reaches a chilling climax with the concluding song. Field Marshal Death. Full text and translations are regrettably lacking.

The conductor Yuri Temirkanov, whose interpretive style tends toward the freewheeling, finds the song cycle right up his alley. His reading of the lovely Khovanshchina prelude, however, tends toward the splashy side as the music gains in volume and texture. The performance of the Ravel version of Pictures has its moments, particularly from "Catacombs" on, but it lacks the kind of bite and sharp characterization that Giuseppe Sinopoli and the New York Philharmonic offered in their recent Deutsche Grammophon recording. The acoustic of All Saints Church in Tooting, London, is on the bright and reverberant side in the orchestral works, but Walthamstow Town Hall offers an ideal ambience for the songs.

PROKOFIEV: Peter and the Wolf, Op. 67; March in B-flat Major, Op. 99; Classical Symphony, Op. 25. Sting (narrator, in Peter); Chamber Orchestra of Europe, Claudio Abbado cond. Overture on Hebrew Themes, Op. 34b. Stefan Vladar (piano). DEUTSCHE GRAMMOPHON © 429 396-2 (50 min).

Performance: The best Peter Recording: Fresh

I grew up on Peter and the Wolf, and I can say that this is easily the best version of it I have ever heard. Sting—who, by the way, edited the translated text without betraying the original in the slightest—delivers it with no trace of cutesiness, a total lack of a patronizing attitude, and none of the usual "Time for culture, kiddies" tone. The fact that all the voices—Peter, the bird, the cat, the



Claudio Abbado and Sting rehearsing "Peter and the Wolf"

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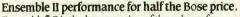
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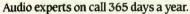
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duck, grandfather—use varieties of working-class English is more than charming; it takes the piece right down to earth where it belongs.

The wonderfully jolly March in B-flat—arranged by someone from the band original—makes a neat little overture, but the Overture on Hebrew Themes (an arrangement by the composer himself from the chamber-orchestra original) seems a little odd in this company. On the other hand, the "Classical" Symphony, with its childlike charm and unforced simplicity, fits right in—especially in this fresh, chamber-size performance, which is lively and full of nuance. Neat, cool, and suitable for children of all ages.

RACHMANINOFF: Songs (see Collections—Dmitri Hvorostovsky)

ROSSINI: Overtures: La Scala di Seta; Il Signor Bruschino; L'Italiana in Algeri; Il Barbiere di Siviglia; La Gazza Ladra; Semiramide; Guillaume Tell. London Classical Players, Roger Norrington cond. EMI © CDC 54091-2 (60 min).

Performance: Adorable Recording: Sparkling

The Italian opera house was, until Verdi's day, the last bastion of Classical style and Classical performance practice. So it is logical for a Classical earlyinstrument ensemble to take on Rossini-all the more since authentic editions from the early manuscripts are now available. The resulting clarity and sparkle are astonishing even to those of us used to the Toscanini tradition of Rossinian high spirits. Curiously, with the exception of the horns, the instruments do not sound all that obviously different from their modern equivalents; as contemporary musicians get more comfortable with old instruments, the physical differences seem to be of less and less significance. Still, there is a lightness and focus to the sound that produces a very different orchestral mass, one eminently suitable to the style of a sophisticated and witty composer like Rossini. It is most noticeable in the big opera seria overtures like Semiramide and William Tell, but it also gives a kind of clarity to the exotic semi-seria overtures like Barber. And it gives the comedy a kick, a sort of "unbearable lightness of being," to quote a modern serio-comic writer. Actually, quite bearable. In fact, ador-

SCHUBERT: Four Impromptus, Op. 90 (D. 899); Four Impromptus, Op. posth. 142 (D. 935). Lambert Orkis (fortepiano). VIRGIN © 91142-2 (63 min), © 91142-4.

Performance: Neat, sensitive Recording: Spacious

Schubert's two delicious sets of impromptus, both written in 1827, are neatly and expressively played here by Lambert Orkis on a piano ("fortepiano" if

you wish) made by Conrad Graf in Vienna in 1826 and recorded in the Gothic Vleeshuis (the House That Wool Built?) in Antwerp, Belgium, where said piano now resides. The instrument has a strong and clear bass as well as a soft, textured whisper of an una corda stop, and it is very responsive to contrast in touch and dynamics. These qualities are perfect for Schubert and sensitively exploited by Orkis. In some ways this music sounds conventionally "better" on a modern grand, but it was clearly conceived for a piano like this one, and Orkis knows how to make the most of it.

SIBELIUS: Symphony No. 4, in A Minor, Op. 63; Symphony No. 5, in E-flat Major, Op. 82. San Francisco Symphony, Herbert Blomstedt cond. LONDON @ 425 858-2 (68 min).

Performance: Rather low voltage Recording: Very good

Herbert Blomstedt has twice recorded the complete symphonies of Denmark's Carl Nielsen, but this appears to be his first try with Nielsen's Finnish contemporary Jean Sibelius. The readings are well conceived, well played, and handsomely recorded, but there is no tensile strength in the phrasing or dynamics to match that of the Nielsen recordings.

Sibelius's uniquely austere and intense Fourth Symphony remains one of the most challenging works in the repertory. The curiously menacing first movement can become heavyhanded. Sustaining the big line in the slow movement and conveying a sense of inevitable continuity in the seemingly capricious, birdcry haunted finale demands exceptional prowess of both the conductor and orchestra (particularly the first-desk players). Vladimir Ashkenazy, Simon Rattle, and Herbert von Karajan all meet the work's demands with notably more success in their recordings.

The Fifth Symphony has its hurdles, too. It's not easy to handle the transition from the moderately paced first half to the faster second half with its headlong conclusion, and keeping the central variation movement from going dead in its tracks is no easier. The shortcomings of this performance are evident in comparisons with those by Jukka-Pekka Saraste, Rattle, and Leonard Bernstein. And Sibelius purists will also object to Blomstedt's use of tubular bells in the finale instead of glockenspiel.

STRAUSS: Till Eulenspiegels Lustige Streiche, Op. 28; Ein Heldenleben, Op. 40. Chicago Symphony Orchestra, Daniel Barenboim cond. ERATO @ 2292-45621-2 (63 min)

Performance: Laid-back Recording: Excellent

As Phillip Huscher points out in his notes for this disc, the music of Richard Strauss has been a prominent thread of continuity throughout the Chicago Symphony's hundred years. Theodore

Thomas, the CSO's founder, conducted the U.S. premières of Till Eulenspiegel and Ein Heldenleben, and Strauss himself was the orchestra's enthusiastic first guest conductor, in 1904. All the conductors who followed Thomas to the Chicago podium were identified with Strauss's music-particularly Georg Solti, who stepped down this year after twenty-two years at the helm, and Fritz Reiner, who preceded him. The two works on this disc, then, were well chosen for one of the CSO's first post-Solti releases, symbolizing history and continuity as Daniel Barenboim takes over to begin the Chicagoans' second century.

The orchestra is glorious, the sound excellent. The performances, though, are a little low in energy. In the bigger work, Ein Heldenleben, Barenboim's Hero seems given more to meditation and philosophizing than to derring-do. The adrenaline doesn't really get pumping in the opening section, though the Adversaries in the succeeding one are incisively characterized. That portion, the love music, and "The Hero's Works of Peace" come off best. The famous battlefield episode is perfunctory; the conclusion misses the intensity needed to lift it from the mundane to the ennobling. Ein Heldenleben was the very first work Reiner recorded in Chicago, back in March 1954; his remains the most vital and compelling performance we are likely to hear, and the recording has astounding richness and brilliance in its CD incarnation (RCA RCD1-5408), which also includes the last of Reiner's three Don Juans, a good deal more fetching than Barenboim's laid-back Till Eulenspiegel.

TCHAIKOVSKY: Songs (see Collections-Dmitri Hvorostovsky)

WAGNER: Siegfried Idyll. Members of the Toronto Symphony Orchestra. Glenn Gould cond. WAGNER (trans. Gould): Die Meistersinger, Prelude; Götterdämmerung, Dawn and Siegfried's Rhine Journey; Siegfried Idyll. Glenn Gould (piano). SONY CLASSICAL ® SK 46279 (71 min), © ST 46279.

Performance: Curious Recording: Close focus

This chamber version of the Siegfried Idyll, Glenn Gould's one and only recording as conductor, was taped just a few months before his sudden death on the eve of his fiftieth birthday, in October 1982, and never previously released. The piano transcriptions all date from 1973 and were originally issued on a Columbia L.P.

Standard performance time for the Siegfried Idyll ranges from 15 to 18 minutes. Gould takes 23:31 for his piano transcription and 24:28 for the chamber version, which seems more of a rumination on Wagner's delicate masterwork than a convincing realization, despite some wonderful wind playing in the final pages. Only in the middle section is there

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an approximation of normal tempo. The orchestra recording is on the close-up side, with wide lateral imaging.

The Meistersinger and Götterdämmerung transcriptions are tours de force, giving the polyphonic writing a startling clarity and brilliance, occasionally with the help of overdubbing. It strikes me that control is the name of the game throughout. Whether it all amounts to a valid musical experience is a matter of taste.

D.H.

# Collections

ALFRED BRENDEL: Theme and Variations, Vol. I. Mozart: Variations on a Minuet by Duport (K. 573). Mendelssohn: Variations Sérieuses, Op. 54. Liszt: Variations on "Weinen, Klagen, Sorgen, Zagen." Brahms: Theme and Variations from String Sextet, Op. 18. Alfred Brendel (piano). PHILIPS © 426 272-2 (50 min).

Performance: Stimulating Recording: Excellent

In his own notes for what appears to be the start of a series of collections of works in variation form, Alfred Brendel observes that "Variations can relate to their themes in a variety of ways." There can be a "psychological dependence" as well as relationships based on technique and form, he says, and the four works on this disc "share the feature that they are motivated by the character of their themes." The character Brendel finds in the respective themes is perhaps not what most listeners would expect: the intellectual vitality of the Mozart rather than its easy charm, the substance of the Liszt rather than its virtuoso gestures, the credible passion of the Mendelssohn rather than its mere urbanity, and, in the Brahms, a thorough transposition from one idiom to another, a stunning example of how a born composer of variations could use the device to create and sustain an effect of deepest intimacy.

Whatever the rationale for it, this is an imaginative program, superbly realized. Perhaps juxtaposing these pieces in such stimulating performances does make them add up to a bit more than the sum of their remarkable parts, but the listening is just as rewarding if you take them one at a time. Excellent sound, too. R.F.

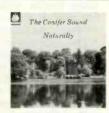
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John Mauceri cond. PHILIPS © 432 109-2 (76 min), © 432 109-4.

Performance: Auspicious Recording: Bright and clean

This first recording by the newly organized Hollywood Bowl Orchestra (separate for the first time from the Bowl's long-time mainstay, the Los Angeles Philharmonic) bodes well for the future of orchestral pops on records—something that has been uncertain since Arthur Fiedler's death more than a decade

ago. John Mauceri conducts his new ensemble with more crisp-lined verve and bounce than John Williams has been showing lately in his Boston Pops recordings.

The debut program, naturally enough, leans heavily (but not completely) on movie themes. It neatly balances some Hollywood chestnuts by Max Steiner (Gone with the Wind) and Erich Korngold (The Adventures of Robin Hood) with newer scores by John Barry (Dances with Wolves) and Michael Gore

(Defending Your Life). There are also some too-long-neglected gems from Leonard Bernstein's On the Waterfront, Franz Waxman's A Place in the Sun, and Alfred Newman's How to Marry a Millionaire (which principally reutilizes Newman's earlier theme for Street Scene, unmentioned in Mauceri's own somewhat scattershot liner notes). An extended suite from The Wizard of Oz combines several of Harold Arlen's familiar themes with Herbert Stothart's fine original underscoring in a first recording since the original soundtrack.

The inclusion of pieces by two great composers who were long-time Hollywood residents (even though they had little to do with the movie industry) is understandable in the case of Schoenberg's minor but appropriate Fanfare for a Bowl Concert (1945). But I don't see why Mauceri and his producers settled for two overplayed excerpts from Stravinsky's Firebird when they might have more appropriately given us the themes he wrote in the Forties for The Song of Bernadette and The Commandos Strike at Dawn, which he later worked into his Four Norwegian Moods and Symphony in Three Movements. The only other nonmovie piece, Prokofiev's haunting The Southern Night from his opera Semyon Kotko, is ideal for a pops concert and well played. If Mauceri and the new Hollywood Bowl Orchestra can maintain the impressive standard set by most of this album, pops lovers have real cause to cheer. Roy Hemming

DMITRI HVOROSTOVSKY: Russian Romances—Songs of Tchaikovsky and Rachmaninoff. Dmitri Hvorostovsky (baritone); Oleg Boshniakovich (piano). PHILIPS © 432 119-2 (52 min).

Performance: Eloquent Recording: Clear, good balance

I understand that Philips has further recordings scheduled for Dmitri Hvorostovsky and look forward eagerly to them. His voice is of unusual richness and color, produced with seeming effortlessness, and admirably focused. The eighteen songs here, divided equally between the two composers, offer a recital of interestingly contrasted melody and mood. The technically commendable recording achieves good balance between the voice and the sensitively wrought accompaniments of the pianist Oleg Boshniakovich.

Hvorostovsky sings with unaffected sincerity; there is no artiness in his delivery. You feel his belief in these songs and his desire to communicate their meaning. His beguiling youthfulness is apparent not only in the freshness of his voice but also in his approach to the songs. Among my favorites are I Threw Open the Window and None but the Lonely Heart of Tchaikovsky (who would believe that the latter could be sung with a freshness making it sound wholly new?) and Let Me Not Hear You Sing and Christ Is Risen of Rachmaninoff.



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# GOING ON RECORD

by William Livingstone



# Divas of My Youth

DANCER friend of mine once told me that whenever she performed a classical role she was competing not so much with her contemporaries as with the ghosts of ballerinas that middle-aged dance critics had fallen in love with when they were young. It's the same with opera singers and music critics. I haven't completely figured out the enormous power that female performers exert on young men, but I suspect it's hormonal.

In any case, I felt it strongly in my youth and gave my heart to Maria Callas and several other powerful divas. I remain loyal to the memory of those singers today, but as I totter through middle age I try not to bore younger vocal fans with my recollections of performances that thrilled me to the marrow back in the 1950's and 1960's. After all, singers of that period were well documented on recordings that have been transferred to CD, and people today can judge Callas and her contemporaries for themselves.

Among her contemporaries on the

Angel label were Elis-Schwarzkopf and Victoria de los Angeles. Angel's reissues of those dazzling artists not only serve to introduce them to new audiences, but also give those of us who heard them live an opportunity to reassess their work. Were Callas, Schwarzkopf, and De los Angeles so great? Were they worth getting so excited about?

I think they were. Each of these three had a voice with a unique, instantly recognizable timbre. Not just great singers, they were great interpreters, and each had a different temperament and personality.

Victoria de los Angeles, a Spanish soprano whom I first heard at the University of Puerto Rico in the late

1940's, could produce some of the most beautiful sounds I've ever heard come from a human throat. She radiated charm and femininity, and in Massenet's Manon at the old Metropolitan Opera in the early 1950's she could make audiences forget that Manon is really not a very nice girl. Her recording of Manon with a French cast and orchestra conducted by Pierre Monteux is among Angel's finest CD reissues. De los Angeles was also an incomparable recitalist. A multilingual CD compilation, "On Wings of Song," demonstrates her mastery of the art song and her joy in singing.

Elisabeth Schwarzkopf was a different kind of artist. A very beautiful woman, she was as calculated, artificial, and glamorous as Marlene Dietrich, and her singing was often too mannered for some tastes, but she had a great career in the recital hall as well as in the opera house. The range of her artistry is well displayed in a five-CD set issued by EMI/Angel last December in honor of her seventy-fifth birthday. It contains a variety of lieder,

operetta excerpts, and opera arias. Schwarzkopf's favorite role was that of the Marschallin in Strauss's *Der Rosenkavalier*, and her authoritative interpretation of it is preserved on Angel CD's in a performance conducted by Herbert von Karajan.

I was privileged to hear Maria Callas at every stage of her international career, beginning in Mexico in 1951. Fortunately, I don't have to convey in words the mystery of her rather strange vocal quality, her musicality, or her unparalleled genius for combining musical tone and color with the meaning of words. It's all there in her recordings of Norma, Lucia, Tosca, Ballo in Maschera, and other operas.

John Ardoin has updated his guide to her recordings, *The Callas Legacy* (Scribner's, \$14.95), to include CD reissues, and it is due in stores on September 23. In a foreword to the new edition, the playwright Terrence McNally writes: "Callas speaks to us when she sings. She tells us her secrets—her pains, her joys—and we tell her ours right back. 'I have felt such despair, such happiness,' Callas confesses. 'So have I, so have I!' we answer. It is ourselves we recognize in Violetta or Norma or Lucia when we listen to Callas sing them."

I think you will experience this uncanny ability to communicate feeling in the latest EMI/Angel Callas CD reissues—Cherubini's Medea conducted by Tullio Serafin (formerly available on Mercury LP's), a live performance of La Traviata with her great colleagues the tenor Giuseppe di Stefano and the conductor Carlo Maria Giulini and one of Lucia di Lammermoor with Di Stefano and Karajan. The Lucia is an especially important phonographic document.

I'm not so loyal to sopranos I fell in love with when young that I can't enjoy today's Dawn Upshaw, Kathleen Battle, or Jessye Norman. In Don Giovanni at the Met last season the young American soprano Cheryl Studer sang the best Donna Anna I have ever heard. And I was thrilled at the New York recital debut of the Italian mezzo Cecilia Bartoli. My heart beat faster, and my blood pressure rose. She made me feel like a young man again. I suppose it's something hormonal.

hoto of Mana Callas as Violetta in La Traviata by Erto Piccagliani, Milan, from John Ardoin and Gerald Fitzgerald's Callas (Hott, Rinehart and Winston, 1974).

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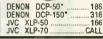
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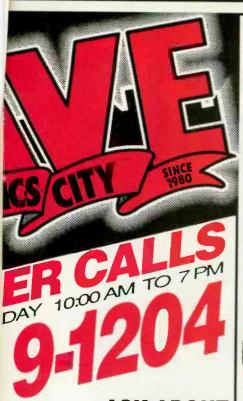
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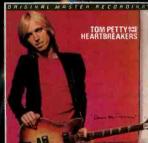
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# Popular Music

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

MARC COHN. Marc Cohn (vocals, acoustic guitar, piano); James Taylor (harmony vocals); other musicians. Walking in Memphis; Ghost Train; Silver Thunderbird; Dig Down Deep; Walk on Water; Miles Away; Saving the Best for Last; and four others. ATLANTIC © 82178-2 (46 min). © 82178-4.

Performance: Stylish Recording: Very good

In Walking in Memphis, the first song in Marc Cohn's impressive urban-folk album, Cohn recounts his spooky visit to the land of the Delta blues, where he walked on air above Beale Street, followed the ghosts of Elvis and W. C. Handy, and shadow-boxed with a gospel-minded piano player named Muriel. "Tell me, are you a Christian child?" Muriel asked after Cohn belted out a song from his heart. Came the Jewish boy's honest reply, "Ma'am, I am tonight."

With just this one album, Cohn stands head and shoulders above most of his competition among the new poetic, acoustic singer-songwriters. Cerebral yet tuneful, he can be as accessible as the r-&-b number 29 Ways, which takes the opposite tack from Paul Simon's classic song 50 Ways to Leave Your Lover. Indeed, Cohn's got all these paths to make it to his baby's door: "I got one in the basement/Two down the hall/And when the going gets tough/I got a hole in the wall."

Cohn's real forte, though, is revealing the larger picture—and asking the bigger questions—behind the seemingly innocuous events of everyday life. Walk on Water, for example, starts out with a pair of lovers strolling around an ocean sound but quickly changes into an examination of religious faith. And Saving the Best for Last details the writer's ride in a New York City cab where the Oriental driver "started talking about heaven/ Like it was real."

Predictably, Cohn is concerned with

Explanation of Symbols

© = Tape cassette

El record

© = Compact disc (timings are to the nearest minute) romance, too, but even though he has the bravery to admit he's a male who dreams of a wedding, he's more concerned with philosophical unions and marriages of the soul. Ghost Train may or may not be about a mother who died young, leaving a baby with a bottle "filled with lightning and rain." Silver Thunderbird is an enchanting memoir of a father who took a daily spin in his heavenly auto, even if "it looked just like the Batmobile." And Strangers in a Car uses the same metaphor to draw a darker portrait of love and life.

Cohn's album has a little more instrumental fleshing out than a lot of others by the current crop of acoustic musicians, the writer himself sketching out big, moody chords on the piano or guitar, with such instruments as French horn and mandolin taking care of the finer points of embellishment. Acting as coproducer with Ben Wisch, Cohn was careful to put enough space between the musicians and his ravaged voice, a kind of Tom Waits via Joe Cocker rasp. There are times when he evokes other musicians, such as Bruce Hornsby (in Dig Down Deep), but for the most part he just borrows here and there to make his highly personal music fit the times. Cohn should know, though, that universal truths need never fear rejection. Looks like he'll have a long career in which to figure that out.

NATALIE COLE: Unforgettable. Natalie Cole (vocals); instrumental accompaniment. The Very Thought of You; Paper Moon; Route 66; Mona Lisa: L-O-V-E; This Can't Be Love; Smile; Lush Life; and fifteen others. ELEKTRA © 61049-2 (73 min), © 61049-4.

Performance: Timeless Recording: Very good

It took more than a little courage for Natalie Cole to make this recording of songs associated with her famous father; he would be a tough act for any offspring to follow. By the time he died of lung cancer in 1965 at the age of forty-five, Nat "King" Cole had become an international superstar, crossing over into the musical mainstream as no other African-American artist had before him. A gifted jazz pianist who was considered an heir to Earl Hines in his early days, Nat Cole was a master of musical time and space. a quality that carried over into his singing. Even when he shifted to the commercial fare that accounted for his greatest hits, he retained the same superb sense of phrasing, dramatizing the lyrics with immaculate articulation and coloring them with his inimitable black-velvet voice.

Wisely, Natalie Cole has not attempted to duplicate her father's interpretations of these songs. She has sought a middle ground between her own genre of

high-quality contemporary pop and her father's sophisticated jazz-based stylings and sweetly romantic lyric readings. Her performances are consistently appealing, with traces of the swinging quality essential to numbers like Paper Moon and Orange Colored Sky. She even dares a bit of spicy scatting in Ellington's buoyant Don't Get Around Much Anymore. She also tastefully reinterprets some of the golden ballads in her father's repertory. She's particularly effective, even moving, in the pensive opener, The Very Thought of You, and in Smile (which Charlie Chaplin wrote for Cole and personally delivered). On the other hand, it seems odd to hear anyone else, and especially a woman, singing some of these selections, so closely identified are they with Nat "King" Cole's stylings and the unique texture of his voice.

Much of the album's success is due to the arrangers who have recast these

Cole: tasteful tribute

songs in up-to-date settings that retain some of the flavor of the originals. Johnny Mandel, Michel LeGrand, Bill Holman, Ralph Burns, Andre Fischer, and Marty Paich are veterans who can handle everything from a small jazz combo to big-band and full-orchestra arrangements—and who also know when to keep it simple.

But the biggest attention grabber here is the technological marvel that concludes the album, a duet between Natalie and her father in *Unforgettable*. It's the sort of tribute Nat Cole might have wanted, for in making this album Natalie Cole has reaffirmed the timelessness of her father's art and helped introduce a new audience to one of the great masters of American music.





The Innocence Mission: daydream believers

ALICE COOPER: Hey Stoopid. Alice Cooper (vocals); vocal and instrumental accompaniment. Hey Stoopid; Love's a Loaded Gun; Snakebite; Burning Our Bed; Dangerous Tonight; and six others. EPIC @ EK 46786 (56 min), @ OET 46786.

> Performance: Rote Recording: Okay

Alice Cooper may have paved the way for much of what we now call heavy metal, but that was two decades ago. The in-vour-face theatricality and naughty-but-nasty attitudes that made Cooper a hero for today's hard-rock heavies-such as guitarists Slash, Steve Vai, and Joe Satriani, who appear as guest artists in this album-seem pretty tame now. Besides the cultural shifts that have left Cooper behind, at fortyfive he seems a little old to be recycling the basic hot-to-trot attitudes of hard rockers toward women. When Cooper sang "I'm eighteen and I like it," it was believable even though he was then twenty-one. Now, despite the bluster of this album, the middle-aged Alice doesn't really sound as if he likes it much any more.

ARETHA FRANKLIN: What You See Is What You Sweat. Aretha Franklin (vocals); vocal and instrumental accompaniment. Everyday People; Ever Changing Times; What You See Is What You Sweat; Doctor's Orders; You Can't Take Me for Granted; What Did You Give; and four others. ARISTA @ ARCD-8628 (44 min), © AC-8628.

> Performance: Some choice moments Recording: Very good

Despite some poor-quality material, this new recording offers some of the best singing we've heard from Aretha Franklin in years. And although it reflects the styles of a variety of producers, it's less of a cluttered hodgepodge than her last few releases.

The set blasts off with an incendiary resurrection of Sly Stone's classic Everyday People (which is also reprised at the end). This Sixties goodie has always had an irresistible charm, and it makes a perfect vehicle for Franklin, who invests it with the same surging energy that marked her last big hit, Freeway of Love. Elsewhere, she transforms the inspirational I Have a Dream (from Les Miserables) into a gospel anthem with a searingly dramatic reading, then turns playfully romantic in a duet with Luther Vandross in his Doctor's Orders. And her own pieces, You Can't Take Me for Granted and What Did You Give, demonstrate once again that Franklin is a talented composer in her own right.

While a few of the songs here should never have been recorded—including the title song, which makes no sense at all, and Mary Goes Round, a noisy dudthe album as a whole is a step in the right direction for the Queen of Soul.

THE ERIC GALES BAND (see Best of the Month, page 70)

JOHN GORKA: Jack's Crows. John Gorka (vocals, acoustic guitars); Shawn Colvin, Lucy Kaplansky, David Wilcox (background vocals); Darol Anger (baritone violin); other musicians. Silence; Treasure Islands; Jack's Crows; Houses in the Fields; The Mercy of the Wheels; Good; Semper Fi; and six others. HIGH STREET @ 72902 10309-2 (50 min), 72902 10309-4.

> Performance: Intense Recording: Very good

John Gorka's name seems to come up whenever the idea of breakthrough singer-songwriters gets bandied about, and with more than a little reason. His work has the proper brooding quality, the sensitive poet's turn of phrase, the richness of detail, the interior reflection, the quick stab of humor, and the right mix of songs about love and "important subjects," such as his tough working-class neighborhood in Bethlehem, Pennsylvania. What this neo-folkie doesn't have, however, is a strong sense of melody or an awareness of when he's repeating himself-there are two songs here about that neighborhood, for example.

Accompanied by his acoustic guitar, the harmony vocals of Shawn Colvin and others, spare sketches of electric and acoustic bass, and the occasional additional instrument, Gorka lends his sonorous baritone to a number of memorable word portraits and indelible images, including Houses in the Fields, a paean to rural America and the farmers who've been forced to sell their land to pay off the loans. He's also effective in The Mercy of the Wheels, in which he yearns to ride a train back in time to visit his long-dead father, to show him a photo of his girl friend and to let him know his life has turned out fine, and in Semper Fi, yet another morosely nostalgic song about his dad, which recounts how the wounded Marine received a blanket from Eleanor Roosevelt.

All this is fine and good, and more than a little moving at times. But where's the relief? Gorka almost never relaxes his intensity. And there's only one tune, Good, a list of everything he's good at, that lifts the mood or boosts the rhythm to midtempo.

Better in short spurts than in long visits, Gorka could be sensationally good with some fine-tuning, such as injecting a bit more life into his production. Meanwhile, he's worth checking out as a much-acclaimed voice in the Nineties urban-folk revival.

THE INNOCENCE MISSION: Umbrella. The Innocence Mission (vocals and instrumentals). And Hiding Away; Sorry and Glad Together; Umbrella; Every Hour Here; Evensong; Now in This Hush; Beginning the World; and five others. A&M @ 75021 5362-2 (45 min), @ 75021 5362-4.

Performance: Mercurial Recording: Good

To appreciate "Umbrella" fully takes some patience. It won't attack you all at once; rather, it will seduce you over several listenings. You may fall under its spell, entering a hypnotic daydream of sounds and syllables, but you might just as easily be bored by its tendency to meander without highs or lows. The Innocence Mission's music falls somewhere between the languid folk/New Age meditations of 10,000 Maniacs and the dreamlike impressionism of Cocteau Twins. It's not as interesting or original as the work of either of those bands, but it does conjure up some intriguing atmospheres. Karen Peris's trancelike, le-



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gato singing, the pianistic guitars, and the muted pulsing of the rhythm section combine in a mesmeric stream of consciousness in Sorry and Glad Together, And Hiding Away, and Flags. The group comes from a rural part of Pennsylvania, and it seems rooted in the good earth and able to translate that bond into music. There's also some elliptical self-analysis, with Peris revealing much about herself in a few words in the exquisite Beginning the World: "Always the same underdog stance under the same happysad sky, eternally crying, 'Am I still shy?" "Walt Whitman and Sylvia Plath would be proud.

JOE JACKSON: Laughter & Lust. Joe Jackson (vocals, keyboards); other musicians. Obvious Song; Goin' Downtown; Stranger Than Fiction; Oh Well; Jamie G.; Hit Single; and seven others. VIRGIN © 2-91628 (52 min), © 4-91628.

Performance: Solid Recording Very good

"Laughter & Lust," the title of Joe Jackson's new album, seems like a joke on himself, a poke at his obsessive need to comment on the follies of life and the inevitability of passion. The title works both literally and ironically, and so does the album. Jackson can be deeply, unashamedly romantic, as in the goo-ily direct Jamie G., but at his best he examines love with a little perspective. It's All Too Much looks at the way a soured affair can make life seem impossible: "It's all too much for me to bear/What kind of shampoo suits my hair/It's all too much to struggle thru/Especially without you."

Some of the melodies here sound familiar, and a few of the lyrics are a little sloppy, but of the thirteen songs in the album, six are terrific and none a real clinker. In "Laughter & Lust" Joe Jackson delivers quantity and quality. R.G.

GLADYS KNIGHT: Good Woman. Gladys Knight (vocals); Dionne Warwick, Patti LaBelle (vocals, in Superwoman); other musicians. Men; Meet Me in the Middle; This Is Love; Where Would I Be; Superwoman; Give Me a Chance; Mr. Love; and four others. MCA 

MCAD-10329 (54 min), 

MCAC-10329.

Peformance: Sensational trio track Recording: Good

Gladys Knight is such an extraordinary singer that the Pips have been merely incidental to her success, and this new solo outing lets her assert her individuality more than she can in the group. This is particularly the case in the several songs she co-wrote for the album. Since Knight places more emphasis on lyrics than melody, the better original songs contain a little story or message, such as the title track, *Good Woman*, a tribute to the old-fashioned marital values of her parents. But it is unlikely that Knight's writing talents will ever compete with her singing, and by far the best selections

here were written by others. Among the most satisfying are the slow or midtempo items like *This Is Love* and *Where Would I Be*, which emphasize Knight's dramatic vocals instead of pedestrian dance rhythms. The highlight of the set, however, and the reason why many will buy it, is the trio of Patti LaBelle, Dionne Warwick, and Knight in *Superwoman*. Trading off the verses, they unite for some dazzling vocal effects in the choruses. This number is so sensational that Knight can be forgiven for releasing an album with few other moments that reach that level.

KIRSTY MacCOLL: Electric Landlady. Kirsty MacColl (vocals, guitar, autoharp, keyboards); vocal and instrumental accompaniment. Walking Down Madison; All I Ever Wanted; Children of the Revolution; Halloween; My Affair; Lying Down; and six others. CHARISMA © 91688-2 (52 min), © 91688-4.

Performance: Across the board Recording: Very good

The daughter of Scottish folk artist Ewan MacColl (The First Time Ever I Saw Your Face), Kirsty MacColl is full of surprises. In this album, titled with a tip of the hat to the famed Jimi Hendrix record, MacColl moves with ease among jazz, country, samba, salsa, and traditional pop rhythm numbers, mindful that her lyrics mean something—about ecological reform, about the hopelessness of New York's street people—instead of just being fodder for the beat.

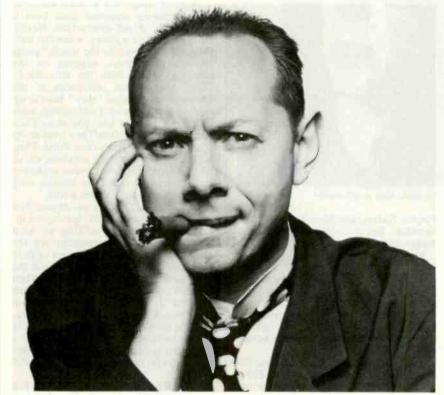
For these reasons—plus her enchant-

ing soft soprano and liberal use of humor-MacColl never fails to hold one's interest. Certain aspects of her style take a bit of getting used to, however, namely her use of the country-music idiom (He Never Mentioned Love, Maybe It's Imaginary) mostly to convey humor and her frequent choice of "happy" rhythms to undercut the seriousness of her lyrics. The rhythmic clash is particularly noticeable in Children of the Revolution, where accounts of murder and warfare chug along to a mindless beat, and All I Ever Wanted, where a harmonica dances to the story of a neglected wife who drinks herself into a stupor.

No matter what stylistic quirks Mac-Coll displays, she wins you over with the wry, autobiographical The One and Only, in which she admits, "Sometimes your life isn't going too well/Sometimes it reads like a postcard from hell/. Maybe I'll always be the one and only girl for me." Yet nothing else here touches the power of the album's opener, Walking Down Madison. With a jazzy beat throbbing under layers of percussion, guitar, and synthesizers, the song captures all of New York City's anxiety and ambiguity, driven home by a rap by Aniff Cousins portraying the conscience of the city.

Like many British artists, MacColl isn't afraid to match up seemingly disparate instruments in one song—mandolin and ocarina and Southern American sounds, for example. It's that kind of instrumental freedom, combined with a free-ranging creativity, that makes her more than a casual player.

A.N.



Jackson: cynical romantic

DUOTO: BATBIY ANDERSONAMINE

TAJ MAHAL: Like Never Before. Taj Mahal (vocals, guitar, harmonica, piano); vocal and instrumental accompaniment. Don't Call Us; River of Love; Scattered; Every Wind (In the River); Blues with a Feeling; Squat That Rabbit; Cakewalk into Town; and four others. PRIVATE MUSIC © 2081-2-P (47 min), © 2081-4-P.

Performance: Wonderful Recording: Very good

Taj Mahal, that irrepressible eclectic, stands up to all the forces that would dare to lock popular music into tight little airless boxes. Disdaining time and trends, he reaches into far corners and dusty closets of the collective memory to create music that titillates, amuses, intrigues, and ultimately satisfies. Though he performs with regularity all over the world, this is his first new album in five years. A host of admiring colleagues joined him for this handsomely produced and musically excellent recording, including Daryl Hall and John Oates, the



Ocasek: this year's model

Pointer Sisters, and Mac (Dr. John) Rebennack. But it is Mahal himself who makes this set so special.

Moving from rock to reggae to the blues, and mixing them all together whenever he feels like it, Mahal has drawn from some of his best past tunes as well as new material. Playing an assortment of instruments and singing in a rasping voice, he serves up his folklike fare with the sort of earthy sincerity that makes it all ring true.

Every selection here is a musical adventure, from the Delta funk of *Every Wind (In the River)* to the ominous reggae-laced lines of *Scattered* and the

weirdly experimental Squat That Rabbit. But I, for one, like Taj Mahal best when he digs into the blues, as in Little Walter's Blues with a Feeling and a rousing romp called Big Legged Mamas Are Back in Style. This is the kind of music that will sound just as good next year, or next decade, as it will next week.

RIC OCASEK: Fireball Zone. Ric Ocasek (guitars, keyboards, vocals); other musicians. Rockaway; Touch Down Easy; Come Back; The Way You Look Tonight; Over and Over; Flowers of Evil; They Tried; and five others. REPRISE © 26552-2 (55 min), © 26552-4.

Performance: Moody and intriguing Recording: Excellent

During a decade together, the Cars made hooky radio pop spiked with an undercurrent of tension. On his own, Ric Ocasek, the disbanded group's leader, plays up the tension, but if anything he's more listenable than ever in "Fireball Zone" because there's nothing insincere or contrived about his pop instincts. The album has a lot going for it: Ocasek's terse bullets of lyrics are like urban haiku; there's excitement and immediacy in the music, thanks both to Nile Rodgers's sparkling production and to a more animated performance by Ocasek than has previously been caught on record; the sound is so vivid and dynamic you can almost chomp down on it; and the songs are varied and full-blooded, each a scene in a kind of loose, theaterof-the-absurd musical about good and evil set against a backdrop of urban decadence.

In many songs here Ocasek seems to be summoning someone back from a dark chasm of self-destruction. Nearly all of them have a jittery, wayward feel, the kind suggested by the words "going through commotion, slipping on the stepping stone" from the title track. There are oblique references to the harms an unspecified "they" have done to the person Ocasek's addressing, such as, "They tried to tear you away/They tried to lie in your face/They tried to tip you off sweetly" from They Tried. Then he tosses a disarmingly idealistic curve in All We Need Is Love, whose anthemic strains actually recall the Beatles song with which it nearly shares a title.

Thankfully, there are no dirges. The songs surge purposefully, leaving an incandescent glow as striking as neon script. Particularly noteworthy are The Way You Look Tonight, Flowers of Evil, and Keep That Dream, which recall the brief period a decade or so back when New Wave and urban dance rhythms collided in records like Blondie's Call Me. Ocasek manages to impart an electrifying aural sorcery to his tales of the urban demimonde in "Fireball Zone," a consistently engaging album from a former Car who hasn't run out of gas. P.P.

RAY PARKER, JR.: I Love You Like You Are. Ray Parker, Jr. (vocals and instru-

mentals); other musicians. She Needs to Get Some; Ain't Gone Go for That; I Love You Like You Are; No Matter What Happens; Love Is So Strange; Girl I Saw You; Til I Met You; and five others. MCA ® MCAD-10327 (55 min), © MCAC-10327.

Performance: Repetitious Recording: Good

Though there is less to Ray Parker, Jr., than meets the eye, he does have a knack for coming up with catchy little licks that appeal to the mass market. His latest effort is a concept album addressed to a female object of affection. As usual, Parker has composed all the music and plays most of the instruments. At times he stretches himself a bit in developing his musical ideas, coming across as a sort of lightweight Marvin Gaye, but for the most part the sheer repetition is numbing. Strictly for fans. P.G.

TOM PETTY AND THE HEART-BREAKERS: Into the Great Wide Open. Tom Petty and the Heartbreakers (vocals and instrumentals); other musicians. Learning to Fly; Kings Highway; Into the Great Wide Open; The Dark of the Sun; All or Nothin'; and six others. MCA ® MCAD-10317 (44 min), © MCAC-10317.

Performance: Easy listening Recording: Very good

Listening to Tom Petty is a nice, relaxing experience-and I mean that as a compliment. He writes catchy, pleasant songs with an undercurrent of sadness and despair, then performs them like an old storyteller sitting in a chair rocking and spinning a tale. But not really rocking at all. The tunes in "Into the Great Wide Open" flow effortlessly, taking their own sweet, chimy time. This is Petty's first album back with his longtime band, the Heartbreakers, following his hugely successful solo release, "Full Moon Fever." The difference between Petty alone and Petty in a group is not great. Like the unfeverish "Fever," the not-so-wide-open "Wide Open" resembles the work of Petty's other band, the Traveling Wilburys. It's no wonder that Petty fits in so well with his elders in that group—he's really at home making music like an older guy. Tom Petty has definitely been Wilburied.

The laid-back pleasures of "Into the Great Wide Open" are many. The sweet riff that is the spine of Learning to Fly blends perfectly with the what-me-wor-ry attitude of the lyrics: "So I've started out for God knows where/I guess I'll find out when I get there." The title cut is a sly commentary on every budding rocker's dream, telling the story of a "rebel without a clue" who moves to Hollywood, becomes a rock star, and eases into the superficial world of show biz. Petty tells the story in such an offhand, matter-of-fact way that it seems both natural and surreal. The lyrics here, and in the other tunes, offer tiny insights, quiet mysteries, mild pronouncements

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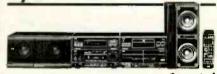
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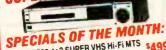
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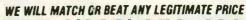
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-and Petty delivers them with restraint. The performances by the Heartbreakers are equally low-key, interrupting the basic tunes only for quick but evocative solos by lead guitarist Mike Campbell. This keeps the focus on the songs, which take on a cumulative resonance. "Into the Great Wide Open" is fun the first time around and gets better with each listening.

BONNIE RAITT: Luck of the Draw (see Best of the Month, page 66)

CLAUDIA SCHMIDT: Essential Tension. Claudia Schmidt (vocals, guitar, dulcimer); other musicians. Racer; Black Crow; Coming Clear; New Beltane Boogie; Gotta Get Down (to Get Up); Persephone's Song; Right from the Start; Visitor on Solstice Eve; and four others. RED HOUSE ® RHR CD 38 (46 min), © RHR C 38.

Performance: Rewarding Recording: Very good

Claudia Schmidt has been around a while, although she's known mostly to fans of independent labels, listeners to quirky radio shows, and appreciators of nongeneric "thoughtful" music. "Essential Tension" is ample proof that she deserves a larger audience.

Armed with a big, muscular voice that can soar or drop into a reedy alto, Schmidt sometimes moves her clear tonality toward the disparate, impassioned sounds of Diane Schuur, Holly Near, or Joni Mitchell. And yet she sounds mainly like herself, a vocal force field embracing a variety of topics here, particularly ecology (Black Crow), Third World despair (Visitor on Solstice Eve), and knotted romance (Anniversary).

Her sound nicely fleshed out here compared with her early days, Schmidt operates now from a jazz-cabaret-pop instrumental base, and she's generous enough to let her musicians-particularly keyboardist Don Stille, bassists Jay Young and Gordy Johnson, and sax and clarinet player Kathy Jensen-flourish as the co-stars of her album. Sometimes they play all-out, as in the humorous, big-band-like Invitation to the Weep. More often they provide sophisticated and feathery dressing for Schmidt's introspective, hard-truth lyrics. Even without Steve Barnett's jazzy charts for Black Crow and Invitation to the Weep, much of the material has a "Prairie Home Companion" feel to it. It's offbeat and inventive, both melodically and lyrically, even if the tales her songs tell don't always resolve comfortably or logically. All in all, Schmidt demands a lot of her listeners, but she ultimately rewards you with the goose-bumpy pride and experience of having survived a winding and intricate journey to the hidden chambers of the heart. A.N.

VAN HALEN: For Unlawful Carnal Knowledge. Sammy Hagar (vocals); Edward Van Halen (guitars, keyboards,



Van Halen: leers from the locker room

vocals); Michael Anthony (bass, vocals); Alex Van Halen (drums, percussion, vocals). Poundcake; Judgement Day; Spanked; Runaround; Pleasure Dome; In 'n' Out; and five others. WARNER BROS. @ 26594-2 (52 min), @

> Performance: Tedious Recording: Thick as syrup

Take the first letters of Van Halen's latest album title and you've spelled out-wow!-a dirty word. Probably dozens of twelve-year-olds are snickering over it right now in mall record stores from coast to coast. That little bit of locker-room humor, however, says more about the paucity of ideas of these aimless middle-aged metal vets than any critical analysis could do. Without realizing it, they've reviewed themselves, saying, in effect, "We have nothing to say." Or play. Sure, Edward Van Halen uses his amazing facility on guitar to create pterodactyl howls and to hammer on with typically blinding speed, but it's all as pointless as a decorative paint job on a plywood outhouse. Although the compressed, Godzilla-like lurching of Poundcake and the uptempo rocking out of Runaround are good, hard fun, the rest of the album proves that guitar pyrotechnics alone are not enough.

# azz

TERENCE BLANCHARD. Terence Blanchard (trumpet); Branford Marsalis, Sam Newsome (tenor saxophone); Bruce Barth (piano); Rodney Whitaker (bass); Jeff Watts, Troy Davis (drums). Motherless Child; Wandering Wonder; Tomorrow's Just a Luxury; Goodbye; Au Privave; and four others. COLUMBIA 10 CK 47354-2 (57 min), @ FCT 47354-4.

Performance: Torrid Recording: Very good

Terence Blanchard's bristling trumpet work has attracted a steadily increasing following among jazz fans for ten years now, and he keeps getting better. The

last blast from the young trumpeter was his work in Spike Lee's superficial glimpse at the jazz world, Mo' Better Blues, a film whose shortcomings Blanchard's music overcame. Before that there were excellent albums with saxophonist Donald Harrison. Now, after taking some time off to rethink his direction, Blanchard is back with his most inspired album to date. No wonder he calls it simply "Terence Blanchard," a title one might expect to find only on a debut release—it's a rebirth of sorts.

Blanchard is one of the most gifted of the crop of young players who came north in the wake of Wynton Marsalis's success, and this album of quartet and quintet performances (plus a brief unaccompanied trumpet solo) approaches the intensity of Miles Davis (before he diluted his artistry) and the fervor of Roy Eldridge. Tenor saxophonist Branford Marsalis, who appears on three particularly potent tracks, shares with Blanchard an urgency that makes their collaboration quite compelling. Sam Newsome plays tenor in the other three quintet selections, giving them a somewhat different but no less satisfying character. My favorite is I'm Getting Sentimental over You, the old Tommy Dorsey theme. which Blanchard and Newsome have effectively accelerated. If you like meaty, inspired jazz, don't pass this up.

THE CLAYTON-HAMILTON JAZZ ORCHESTRA: Heart and Soul. Jeff Clayton (flute, soprano, alto, and tenor saxophones); Jeff Hamilton (drums); other musicians. Soupbone; Easy Money; Heart and Soul; Come Sunday: Take the "A" Train; and four others. CAPRI 10 74028-2 (53 min), © 74028-4.

Performance: Polished big band Recording: Excellent

Bassist/composer/arranger John Clayton, Jr. wrote the chart for the Arista label's fastest-selling single, Whitney Houston's overly hyped act at Super Bowl XXV. But making sense out of that vocal obstacle course we call our national anthem is not his only accomplishment. Far more meaningful is the big band he co-leads with his brother, saxo-

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phonist Jeff Clayton, and former Woody Herman drummer Jeff Hamilton. "Heart and Soul" is the band's second album, a nine-track set consisting mostly of burnished Basie-like arrangements, almost half of which are John Clayton originals. In Take the "A" Train, featuring Jeff Clayton's alto sax, the Duke's uptown train has never moved so slowly, but the snail-like tempo is quite effective. That radical slow-down aside, this is not innovative music; it lacks the sophistication and creative complexity of Toshiko Akiyoshi's or Gil Evans's work, and it is accessible to a fault. Still, it has a certain freshness, the driving, sprightly arrangements follow a comfortable logic, and the band is as smooth as ice.

SONNY SHARROCK: Ask the Ages. Sonny Sharrock (guitar); Pharoah Sanders (saxophones); Elvin Jones (drums): Charnett Moffett (bass). Promises Kept; Who Does She Hope to Be?: Little Rock: As We Used to Sing; Many Mansions; Once Upon a Time. AXIOM @ 422-848 957-2 (45 min), © 422-848 957-4.

> Performance: Powerful Recording: Good

SONNY SHARROCK AND NICKY SKOPELITIS: Faith Moves. Sonny Sharrock (guitar); Nicky Skopelitis (guitars. bass, baglama, saz, coral sitar, tar). Who Are You; Becoming; Mescalito; Venus; In the Flesh; Sacrifice; First of Equals; and two others. CMP @ CD 52 (38 min).

Performance: Thoughtful Recording: Good

Sonny Sharrock's two new albums show the extraordinary range of his guitar talents. "Ask the Ages" takes Sharrock back to his avant-garde jazz past, reuniting him with his former boss, saxophonist Pharoah Sanders, in music that shows the liberating influence of John Coltrane on both men. Aided by one of Coltrane's most prominent drummers, Elvin Jones, and the young bass phenom Charnett Moffett, Sharrock and Sanders play aggressive, sometimes harsh music that moves quickly from beautiful, unsentimental melodies to controlled, almost mathematical solos to raw, keening freefor-alls. For the most part, Sharrock uses a crisp tone with just a slight nasty edge, although when the music heats up, he often bursts into a strumming frenzy.

The same aural duality-sweet, pealing notes versus massive swirls of sound-can be found in Sharrock's album of duos with Nicky Skopelitis, although the range of the performances is somewhat limited. Nearly all of the tracks in "Faith Moves" are improvisational. Sharrock begins with a basic phrase and then plays with it-exquisitely taking it apart and putting it back together in different ways-before he loses musical interest. What he does is sublime, but the structure of the performances is a bit repetitive. Because Skopelitis provides subtle exotic support, "Faith Moves" seems more contemplative than "Ask the Ages," but it's just as fascinating.

TOUGH YOUNG TENORS: Alone Together. James Carter, Todd Williams, Herb Harris, Tim Warfield, Jr., Walter Blanding, Jr. (tenor saxophone); Marcus Roberts (piano); Reginald Veal (bass); Ben Riley (drums). Jim Dog; Just You, Just Me; Stevie; Chelsea Bridge; The Eternal Triangle; Blues on the Corner; and five others. ANTILLES @ 422-848 767-2 (65 min), © 422-848 767-4.

Performance: In the grand tradition Recording: Excellent

Ever since Coleman Hawkins poured it into the jazz mold, the tenor saxophone has been a major jazz voice. Producer Billy Banks has assembled five young tenors for "Alone Together," an aptly named album that gives them a chance to demonstrate their talent, alone as well as together. Only the final selection, Sonny Stitt's The Eternal Triangle, features all five tenors, the other ten tracks being solos or duets.

It is a duet by Walter Blanding, Jr. and James Carter that starts things off. The tune, Jim Dog, follows a familiar formula, a series of solos sandwiched between a simple riff, but this is a meaty sandwich in which both tenors show a remarkable affinity for the tradition they uphold. Blanding has gained valuable big-band experience with Cab Calloway and the Count Basie Orchestra, but this set marks his recording debut; his tempered tenor contrasts nicely with the pungent, Ammonesque sound of Carter, a twentytwo-year-old player from Detroit. Carter goes it alone in Billy Strayhorn's Chelsea Bridge, adding some interesting embellishments in an approach that maintains a touch of Ben Webster's tenderness but is not as well oiled. Blanding's solo effort, Thelonious Monk's Ask Me Now, is a more polished ballad reading that clearly shows the depth of this young man's talent.

At twenty-three, Todd Williams already has a fine track record as a member of Wynton Marsalis's group; to hear him garnish Just You, Just Me is to understand why. Williams hits another groove in Stevie, Duke Ellington's tribute to his nephew, Stephen James. Williams delivers a half-dozen punchy, Trane-ish choruses and is joined by Tim Warfield, Jr., for the closing ensemble. Warfield comes front and center to perform with splendid vigor and imagination in Hank Mobley's The Break Through, and he shares honors with Herb Harris in a laid-back version of the spiritual Calvary. Harris also teams up with Carter for the album's title track and, accompanied only by Roberts's piano, gives a sensitive solo reading of You Go to My Head.

There is something for every mood in this 65-minute album. From easy start to rousing finish, it demonstrates that even if jazz does not take another radical turn, it has a promising life ahead. C.A.

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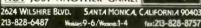
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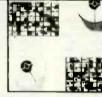
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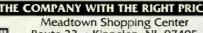
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# The CBS CD-1 Test Disc

HE CD-1 standard CD test disc. conceived under the auspices of the now-defunct CBS Technology Center, was designed by a committee composed largely of engineers, equipment reviewers, and audio writers. Committees can be hazardous to scientific endeavors, but this one seems to have done its work well, with a good comprehension of its mission. With more than 71 minutes of playing time available, there was room on the disc both for the usual test tones recommended by the Electronic Industries Association and for some optional test tracks.

Where appropriate, the test frequencies employed are numerically prime relative to the CD format's 44.1kHz sampling rate. This avoids any simple mathematical relationship between test frequencies and sampling frequencies, thereby exercising the maximum number of level values available from the digital-to-analog converter under test instead of causing just a few values to repeat for every waveform cycle. Track timings and index points are elegantly worked out, and the risk of suddenly jumping from -100 to 0 dB is small because of good organization and sequencing.

All of the test tones on the CD-1 are computer-generated, and they are said to be very clean. Determining just how clean they are was one objective of measurements I recently performed on two CD players. Another objective

by Ralph Hodges

was to shed some light on why the players appeared to sound somewhat different to me, at least with certain recordings.

Player A is a spanking-new machine with proprietary 1-bit processing technology. Player B is a second- to thirdgeneration 16-bit veteran with many hours of service and some (relatively minor) repair work on it. Both players are, or were when purchased, at the top of their respective manufacturers' lines.

Signal-to-noise ratio (S/N) came first. In an unweighted measurement, player B came in at 92 dB and player A at 98 dB. The latter figure is right at the theoretical limit of the CD medium. The frequency response of player A measured dead flat up to 4,000 Hz and then shelved downward about 0.1 dB at 8,000 Hz and above. Player B began to trough at about 2,000 Hz, reaching -0.3 dB at 8,000 Hz and then rising again to the reference level at about 16,000 Hz. Player B's response curve was reminiscent of the response "saddle" exhibited by most phono cartridges. Small though the irregularity is, it spans three important octaves. and controlled listening tests have shown that such aberrations are audible, although not necessarily recognizable for what they are.

The CD-1 includes comprehensive tests for converter linearity, including undithered signals descending in steps from 0 to -90 dB and dithered tones from -70 to -100 dB. The -100-dB tone is theoretically below the resolving power of a 16-bit linear system, but the disc shows that, if properly dithered, such a tone can be recovered.

In the undithered linearity tests, the performance of player A was strong throughout, but player B was a bit ragged from the start, although its errors were not alarming until the noise floor was approached. With the dithered tones, player B improved in linearity and player A remained basically the same (there was not much room for improvement) until the lowest levels were reached. There, an interesting swap of position took place, with player B erring by 10.8 dB at -100 dB and player A by 11.8 dB, even though it had a full 6 dB more of S/N to work with.

I made harmonic and intermodula-

tion distortion measurements just for the fun of it, my analyzers being primitive by today's standards. But here another shock was in store. The noise difference between the two players was generally evident, yet the test instruments' readings were so close to their rated residuals as to make them both astounding and, probably, fictional. One thing seems clear, however: In terms of distortion, the combination of the CD-1 test disc and a good CD player is better than any audio generator I've used.

From Old Colony Sound Lab (P.O. Box 243, Peterborough, NH 03458), the CBS CD-1 costs \$45 plus \$2 shipping and handling, which is not a lot to pay for a lot of precision. Since many of the twenty-one tests can be performed with nothing more than an AC voltmeter, you can easily take your lab into the store when you're shopping for a new player and test out the merchandise on the spot.

Which finally brings us to the question of how useful the CD-1 can be in pointing up audible player differences. As I try to correlate what I measured with what I hear from players A and B. I look askance at some of the linearity errors, but I rather think that frequency response is the principal culprit not necessarily the frequency response referred to above, however.

The CD-1 makes it easy to check the response of de-emphasis circuits. While player B's circuitry is hardly ideal, player A gets considerably further out of whack, and at frequencies such as 4,000 Hz. This you will hear. I've asked, and nobody is sure how many CD's exist that were made with pre-emphasis (which a player's deemphasis circuit is automatically switched in to cancel). Its use is optional for a disc's producer. Estimates are that many earlier discs have it and that only a few being made right now do, but its use is on the rise again as more material recorded on DAT turns up for transfer to CD.

I cannot tell for certain without measuring inside a player, but I'm sure I have acquired many pre-emphasized CD's over the years, and I may acquire many more in the future. Therefore, I would not buy a CD player without accurate de-emphasis. The CD-1 assures that I won't.

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