

APRIL 1990 \$2.50

# Stereo Review

INCORPORATING HIGH FIDELITY®

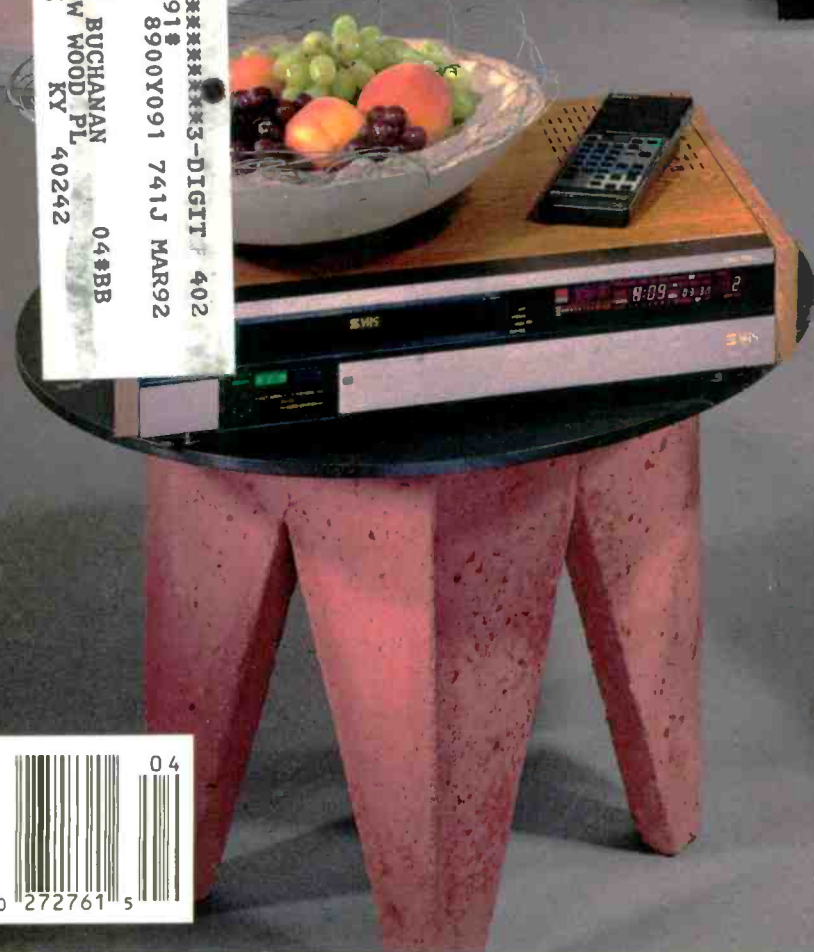
**VIDEO FOR THE NINETIES**

**THREE TOP HI-FI  
VIDEOTAPE RECORDERS**

**HOT NEW PRODUCTS  
FROM THE CONSUMER  
ELECTRONICS SHOW**

**TESTED:  
TECHNICS CD PLAYER,  
AXIOM SPEAKERS,**

... AND MORE



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# A video receiver designed for audiophiles.



Until now, video receivers have overlooked a distinct segment of the Nielsen population.

Those people who listen to TV as well as watch it. Which is why Mitsubishi engineers developed the M-AV1. A video receiver inspired from the philosophy that a soap opera should sound every bit as good as an Italian opera. At the heart of the system is a powerful amplifier with Dolby Surround™ sound. It boasts 125-watts per channel.\* With a generous dose of 25-watts per channel in the rear for surround sound. A time delay of 20 milliseconds has also been encoded into the rear channels to increase depth perception and maintain separation from the front speakers. And with our Dynamic Delay Line, we've expanded the dynamic range of our rear channels by as much as 40 dB over other conventional designs. It also offers four video inputs (two of which are Super-VHS compatible). And comes complete with an award-winning remote that's easy-to-use and capable of controlling all functions via on-screen displays. So you never have to get up from your recliner on our account. But now that you've got a great video receiver, as an audiophile, you might be in the market for an audio receiver. In which case read the other side of the page.



# An audio receiver designed for videophiles.



If like most people you read this ad from left to right, you know by now that the M-AV1 distinguishes itself as a superb video receiver. But what makes the M-AV1 a rare species in the A/V receiver jungle is that it also makes an equally superb audio receiver. For starters, it's so full of technical goodies that it makes the average audio receiver, much less the average A/V receiver, blush. You'll find our dual J-FET preamp provides low-noise and minimum distortion characteristics to the output amplifiers. We've utilized discrete components instead of integrated circuits for the output devices for maximum headroom and separation. Our own Multi-Feedback Servo system faithfully reproduces low frequency music with a minimum of distortion while protecting your loudspeakers from potentially damaging DC signal components. And there's also a remote-operated motorized volume control that provides smooth attenuation while avoiding distortion. Of course, if you decide you're still a hard-core videophile and only care about obtaining a great video receiver, we have a small suggestion. Buy the receiver on the other side of the page.



\*125-watts per channel minimum RMS, both channels driven into 8 ohms from 20Hz - 20kHz with no more than 0.05% total harmonic distortion. For the name of your authorized Mitsubishi dealer, call (800) 527-8888 ext. 145. © 1989 Mitsubishi Electric Sales America, Inc. Dolby Surround is a trademark of Dolby Laboratories Licensing Corp.

 **MITSUBISHI ELECTRONICS**  
TECHNICALLY, ANYTHING IS POSSIBLE™

CIRCLE NO. 22 ON READER SERVICE CARD

# EXPENSIVE SOUNDING SPEAKERS!

Speakers are *the most important part* of your stereo system. It is the speaker that turns amplifier signal into sound and so ultimately determines what you hear. If your speakers do not perform well, your stereo system will simply not sound like music.

The search for musically satisfying speakers, however, can lead to some very expensive products. And if you have already bought those high priced speakers, then you better not listen to Paradigms. But if you haven't, better not miss them. Why? Because from the time they were first introduced, Paradigm's sheer musical ability utterly amazed listeners.... but what caused even more amazement was the *unprecedented low price*.

So go ahead, get expensive sounding speakers.... without the expense. Visit your authorized Paradigm dealer.... *and listen*.

## *The critics agree:*

"... For once we wholeheartedly agree... the Paradigm is most definitely a no-compromise two-way design capable of outperforming systems costing several times as much."

- *Hi Fidelity Magazine*

"... natural, open and clear...excellent depth... lots of hall sound... big, expansive soundstage... well defined... a rare achievement for any loudspeaker, but when the price is taken into account the Paradigm's performance must be considered as nothing short of remarkable."

- *Sound & Vision Magazine*

Sound & Vision



CRITIC'S CHOICE AWARD

# Paradigm®

*music . . . above all.*

In the U.S.: **AudioStream**, MPO Box 2410, Niagara Falls, New York 14302  
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CIRCLE NO. 97 ON READER SERVICE CARD

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Incorporating High Fidelity®

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## MUSIC

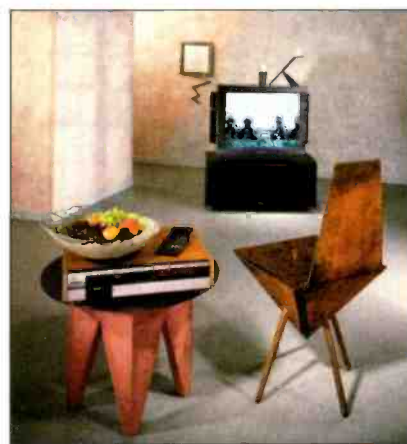
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Cover: Video for the Nineties—The JVC HR-S8000U Super VHS Hi-Fi VCR and, resting on the Axiom AX Sub Centre subwoofer/center-channel speaker, a 27-inch Sony XBR TV set incorporating Sound Retrieval System technology developed by Hughes Electronics. Design by Sue Llewellyn, photo by Hing/Norton; furniture by Clodagh Ross Williams.

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# Anyway you look at it, or listen to it.

## Proton's 600 Series Stands Apart.

Sculpted for dramatic impact, and designed for ease of use, Proton's 600 Series components fit elegantly into any environment. Seldom used controls are concealed, yet revealed at the touch of a button. Cables, hidden by rear panel covers, disappear into the pedestal of this sleek, free-standing unit.

And naturally, the sound is pure Proton. With high performance technologies like Dynamic Power on Demand™ (DPD), the new Schotz II tuner circuitry and the exclusive Aphex® Aural Exciter™, 600 Series components provide absolute clarity and realistic reproduction for incomparable listening pleasure.

The series includes the AM-656 Integrated Amplifier, the AT-670 Tuner, the AV-646 AM/FM Receiver, the AD-630 Auto Reverse Cassette Deck, the AC-620 Compact Disc Player and the matching AB-600 pedestal. Each component can be controlled with the versatile AH-681 remote, which also controls select Proton video products.

Proton's new 600 Series. A rewarding investment for the discerning listener. From every point of view.



For Product Information



Call 1-800-888-8237

For a free brochure and the Proton retailer nearest you,

call (800) 772-0172

In California, (800) 428-1006.

Or write to 5630 Cerritos Ave.,  
Cypress, CA. 90630.

# PROTON®

CLEARLY THE BEST

Aphex and Aural Exciter are trademarks of Aphex Systems Ltd.  
600 Series industrial design—Reinhold Weiss Design, Inc., Chicago  
CIRCLE NO. 93 ON READER SERVICE CARD

by Rebecca Day and  
William Livingstone

## FROM MAD. AVE. TO HELL

Angel Records has launched a successful series of anthologies of operatic arias used in movies and television commercials. Issued on CD and cassette, the collections bear such titles as "The Movies Go to the Opera," "Madison Avenue Goes to the Opera," and "Son of Movies Go to the Opera." The latest in the series, scheduled for release in April, is a collection of arias about the Devil or sung by devils. It is called "Opera Goes to Hell." Due in May is a collection of operatic mad scenes called "Opera Goes Nuts."

## POOLING RESOURCES

Philips has joined a consortium of companies including Thomson Consumer Electronics (RCA), NBC, and the David Sarnoff Research Center to develop a two-step advanced television program for the United States. Plans for the first step call for the companies to bring to market advanced compatible television (ACTV) by 1993. The wide-screen format will have digital sound and a 16:9 aspect ratio (compared with the current ratio of 4:3). The companies say the second step, high-definition TV (HDTV), is at least ten years away.

## PUBLIC TV

The technology of HDTV is already being used to produce programs for broadcast by conventional means. Filmmaker Zbigniew Rybczynski uses HDTV to integrate background footage of such buildings as Chartres Cathedral and the Louvre Museum with live action in a studio. The resulting multilayered images can be seen in "The Orchestra," a collection of music videos on such crossover compositions as Ravel's *Bolero*, Schubert's *Ave Maria*, and Albinoni's *Adagio* to be shown in the Great Performances series on most PBS stations on April 27.

*Austin City Limits* finishes this season on PBS with James McMurtry and Sweethearts of the Rodeo on April 7 and Steve

Wariner and Lorrie Morgan on April 14. The Mormon Tabernacle Choir will present *An Easter Gift of Music* with soprano Kiri Te Kanawa and conductor Julius Rudel on April 13. Check local PBS listings.

## AUDIOPHILE AUDITION

Equipment manufacturers and record companies underwrite production of *Audiophile Audition*, a weekly radio show now broadcast in thirty-two states on National Public Radio and a few commercial stations. The show will celebrate its fifth anniversary of national broadcasts in April. Produced in San Francisco by John Sunier, *Audiophile Audition* is made up primarily of excerpts from outstanding CD's (mostly classical and jazz) on a very wide variety of labels, and it also features equipment news and interviews with musicians, audio manufacturers, and other leaders in acoustics and recordings. For the outlet nearest you check your local public radio affiliate or classical music station or call *Audiophile Audition* at (415) 457-2741.

## MUSIC NOTES

The debut album by Roy Hargrove, the much-heralded nineteen-year-old jazz trumpeter from Dallas, will be in stores on the RCA/Novus label early this month. Later in April the first RCA album by critically acclaimed rock singer/songwriter Marti Jones will be available. . . . Amounts being offered to David Geffen for his record company have reached a rumored \$800 million. . . . Billy Joel has reached approximately 1.25 million junior and senior high-school students with a special history-lesson version of his hit *We Didn't Start the Fire* distributed on audio cassette to some 40,000 teachers by Scholastic Magazines. . . . Broadway show composer and lyricist Stephen Sondheim is currently visiting professor of drama and musical theater at Oxford University. Sondheim, who turns sixty on March 22, will be

honored that day with a two-hour special celebration on National Public Radio hosted by the actress Angela Lansbury. . . . The French-born conductor Catherine Comet has been named music director of the American Symphony Orchestra, based at Carnegie Hall in New York City. She will begin her tenure this fall.

## SPEAKER NEWS

International Jensen has agreed to buy Acoustic Research from Teledyne for a reported \$10 million. . . . Museatex Audio has purchased Highwood Audio, developer of the Sumo Aria flat-panel loudspeaker, and has introduced its first speaker product, the 45-inch-tall flat-panel Melior One (\$2,200 a pair). . . . Philips has entered the speaker market with one model in its Reference Series (\$4,000 a pair) and four models in the Conductor Series (\$200 to \$400 a pair). . . . Memorex has introduced three pairs of indoor/outdoor speakers called WeatherMates (\$100 to \$250 a pair) and the Concept 2 wireless speaker system (\$250). . . . When Audio Fidelity completes its acquisition of the Wharfedale speaker company, it will change its own name to Wharfedale. . . . The \$2,000-a-pair Technics SST-1 Sound Space Twin-Load horn speaker system has been accepted in the permanent design collection of the Museum of Modern Art in New York.



TERRY ALLEN

*The SRS Series*



*"The sound is superbly balanced and totally effortless."* Stereo Review Magazine



# “Matthew Polk’s SRS Speakers Bring You the Ultimate Listening Experience”

“Spectacular... it is quite an experience.” *Stereo Review Magazine*

## The Joy of Owning the Ultimate Dream Speakers

Music lovers who are privileged to own a pair of SRS’s will share in Matthew Polk’s dream every time they sit down and enjoy the spine-tingling excitement of listening to their favorite music. Demonstrating them to admiring friends ultimately increases their pride-of-ownership. “Awesome” is the word most often used to describe the sound of an SRS system. They are capable of playing at live concert levels for long periods of time, with a surprising lack of effort and without producing ear-fatigue.

The bass response can literally move your body any time the music requires it, yet they perfectly reproduce all of the subtle nuances of a string quartet and are just as enjoyable at a low volume level as when played loud. Music and ambience surround the listener in an almost 360-degree panorama of sonic splendor that is, in the words of *High Fidelity* magazine, “Mind-boggling... Astounding... Flabbergasting.” But words alone cannot possibly describe the experience of listening to these ultimate speaker systems, you simply must hear them.

### SRS 1.2 tl

*Two time Audio Video Grand Prix Winner*

The ultimate expression of Polk technology, this limited production flagship model sets the industry standards for imaging, detail, dynamic range, and bass reproduction.

### SRS 2.3 tl

*Audio Video Grand Prix Winner*

This scaled-down version of the SRS 1.2 tl incorporates all of flagship’s design innovations without significantly compromising its awesome performance.

## Polk Audio’s SRS: The Quest for Perfection

The goal of Matthew Polk’s Signature Reference System (SRS) speakers is to bring an unparalleled level of life-like musical reproduction to your home. Perfect musical reproduction, long the dream of every speaker designer, is approached so closely by Matthew Polk’s SRS’s that it will seem as if the musicians are performing right in your listening room. This stunning achievement combines technology and creative insight to bring you a listening experience that you will never forget.

**1. Patented SDA True Stereo Technology** — The first and only speaker systems to maintain full stereo separation all the way from the source to your ears.

SRS speakers seem to disappear as musical images fill your listening room and seem to immerse you in a fully three-dimensional soundfield of startling realism.

**2. Multiple Driver Arrays** — The use of multiple drivers allows each separate element to work less hard and lowers distortion even at live concert levels. Power handling is increased to 1,000 watts per channel, providing a seemingly limitless dynamic range.

**3. Time-Compensated Driver Alignment** — Time-coherent driver placement insures that the entire spectrum of sounds reaches your ears at the same time. The sound is better focused, balanced and less fatiguing.

**4. Wavelength Optimized Line-Source** — Vertical driver arrays focus the sound waves into the room in a way which greatly reduces floor and ceiling reflections. Progressive reduction of the acoustical length of the arrays maintains constant vertical dispersion and eliminates “comb” filtering effects that limit other multiple driver systems. The result is extraordinary clarity and detail, great flexibility in room placement and precise stereo imaging from virtually any place in the room.

**5. Planar 15” subwoofer** — SRS bass performance is breathtaking. The use of small active drivers (eight in the SRS 1.2 tl, six in the SRS 2.3 tl) coupled to a huge sub-bass radiator achieves a bass response that is extraordinarily tight, fast (no boominess), deep and distortion free. In fact, the distortion at 25 Hz is lower than that of many audiophile-quality tube amplifiers.

**6. Bi-amp Capability** — The optional use of separate amplifiers for the high and low frequencies further improves clarity, lowers distortion and increases dynamic range.

**7. Hand-Crafted Limited Production** — The one-at-a-time attention that goes into the production of every Polk SRS speaker system means that your pair will sound and look as good as Matthew Polk’s own.



Matthew Polk with the ultimate expressions of loudspeaker technology: The SRS 1.2 tl and SRS 2.3 tl.

Where to buy Polk Speakers? For your nearest dealer, see page 104.

CIRCLE NO. 90 ON READER SERVICE CARD

**polk audio**  
The Speaker Specialists  
5601 Metro Drive  
Baltimore, Maryland 21215  
(301) 358-3600

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STEREO REVIEW is published by Diamandis Communications Inc., a subsidiary of Hachette Publications, Inc.

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## LETTERS

### CD Prices

In January "Letters," Howard E. Brown complained about the price of compact discs. He states, "... the actual production cost of CD's is around \$3, with the rest going to performers, record companies, producers, agents, ASCAP, BMI, and so forth." By "so forth," does Mr. Brown intend to include the costs of distribution, the salaries of the store employees, and all the taxes that store owners must pay? I doubt it.

If he thinks those silver discs are too expensive, then he should stop buying them.

DANNY ALMAN  
Pittsburgh, PA

Record companies deserve to make a profit just as anybody does who is in business. They must invest millions of dollars on a gamble that a certain record will be bought by enough people to earn them a profit. To me, the convenience of a CD makes it worth twice as much as a vinyl LP, and the sound quality is much better. Besides, it is rare to get a defective CD.

DOUG PARRAN  
Bowie, MD

### Digital TV Sound Now

Digital sound will be one of the benefits of the HDTV [high-definition television] system, *if and when* it ever arrives in the U.S., but television with superb digital stereo sound is available *right now* on a widespread basis. A home satellite receiver equipped with a Videocipher II descrambler will give you digital sound on all subscription channels (currently over forty of them). The sound is usually stereo, sometimes mono, depending on the program material, and the video quality is as sharp as the sound. I think of it as a never-ending series of laser videodiscs.

It is very clear to me: This is *the way* to get the most entertainment value for my money, and it adds yet another digital sound source to my A/V system.

THOMAS R. WILES  
West Fork, AR

### Reba McEntire

The only thing I agree with in Alanna Nash's January review of Reba McEntire's new "Live" album is that "McEntire has the timing and instincts of a cobra." To say, however, that she needs "new advisors" and that her version of *Sweet Dreams* is "wretched" is totally uncalled for.

Reba's career is doing fine. Her manager (now her husband) has done a terrific job, and she is racking up No. 1 hits one right after another. She will be

around for a long time, and her version of *Sweet Dreams* will get a standing ovation every time she sings it.

CHERIE MCCLAMMER  
McCordsville, IN

### Analog to CD

I recently purchased a CD player. On the compact discs are the codes DDD, ADD, and AAD. In order to gain maximal effect from my player, is it worthwhile to purchase only discs that have been recorded digitally? Or is it possible to bring an analog recording up to snuff in digital transfer and make it sound just as good?

MARVIN CHANNING  
Forest Hills, NY

*Music Editor Christie Barter replies: It would be a pity if you limited your CD buying to recordings marked DDD. There is a wealth of material recorded prior to the digital era that you would be denying yourself. Whether these analog recordings have been digitally remastered (ADD) or just transferred to digital disc (AAD), in most cases they sound better on CD than on LP.*

### Caring for Compact Discs

Incredibly, only a small percentage of CD owners are aware that the *underside* of compact discs, not the label side, is the playing side. While this is hinted at in Rebecca Day's "How to Care for CD's" in February, most of your readers may be unwittingly ruining their compact discs by setting them down on rough or corrosive surfaces. Please educate them!

LEWIS M. DAVIS, JR.  
Pittsburgh, PA

*It's not a good idea to put either side of a CD down on a rough or corrosive surface, as a scratch or abrasion on the more vulnerable label side can affect the information layer as much as damage to the clear surface of the playing side.*

### Neil Young

I never thought I'd live to see the day when STEREO REVIEW would give Neil Young a good record review, let alone one of the "Record of the Year Awards" (February issue). Thanks for being realistic and honest enough not to let personal taste interfere with giving credit where it's due.

CRAIG SMALLCOMBE  
Uhrichsville, OH

*Young's "Freedom" got a very favorable review in our pages, from Ron Givens in the January issue (page 121). He called it "a great album, even for Neil Young."*



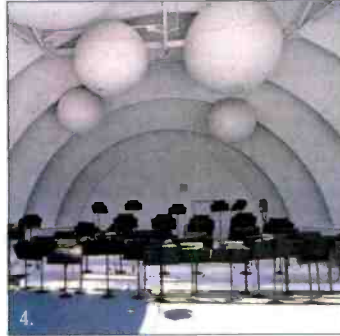
Ralph's house.



Ralph's house.



Ralph's house.



Ralph's house.



Ralph's house.



Ralph's house.



Ralph's house.



Ralph's house.



Ralph's home theater system.



YSTSE10  
Deep bass effects  
channel speaker.\*

Ralph actually lives in a one bedroom condo.

That is, until he starts pressing the buttons on his Yamaha DSP-A700 Digital Soundfield Processor.

Then he starts turning his place into all different kinds of entertainment environments.

How?

Well, a few years ago, our engineers and sound technicians packed

their bags and headed out to sample a variety of entertainment environments all over the world.

Opera houses, stadiums, jazz clubs, concert halls, movie theaters, discos, cathedrals and amphitheaters.

And after several months of testing, recording and eating strange food, they brought home actual acoustic samples of dozens of these types of environments. Digitally recorded them onto a computer disc. And put them all onto one tiny computer chip.

Then they added seven channels of amplification, Dolby® Surround Sound, Dolby Pro Logic and YST technology. And put it all into one component.

All the jet lag and hard work paid off because they came up with one of the most advanced, yet simplest home theater components on the market.

But don't take our word for it. Drop by a Yamaha dealership and press a few buttons yourself. And find out just how big your place can be.

**YAMAHA®**

1. Movie theater. 2. Outdoor stadium. 3. Cathedral. 4. Amphitheater. 5. Indoor stadium. 6. Music hall. 7. Disco. 8. Jazz hall.

\*Our compact YSTSE10 wall/shelf speakers will enhance the performance of your effects channels with deep, powerful bass.

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**IA Iowa City:** Woodburn Sound Service • **Sioux City:** Pflanz Electronics  
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**KS Overland Park:** Audioport Ltd. • **Prairie Village:** Golden Stereo • **Wichita:** Custom Sound  
**KY Louisville:** Musical Images  
**LA Baton Rouge:** Art Colley's Audio Specialties • **New Orleans:** Wilson Audio  
**MA Boston:** Goodwin's • **Braintree:** Nantucket Sound • **Danvers:** Tweeter Etc. • **Framingham:** Natural Sound • **Myanni:** Nantucket Sound • **N. Attleboro:** Audio Concepts • **Northampton:** Sound and Music • **Shrewsbury:** Tweeter Etc.  
**ME Camden:** Harbour Audio Video • **Scarborough:** New England Music  
**MD Baltimore:** Soundscape • **Rockville:** Myer Emco  
**MI Ann Arbor:** Stereo Shoppe • **Dearborn:** Almas Hi Fi • **Farmington Hills:** Almas Hi Fi • **Flint:** Stereo Center • **Lansing:** Stereo Shoppe • **Royal Oak:** Almas Hi Fi • **Saginaw:** Stereo Shoppe • **Stevensville:** Stereo Shoppe  
**MN Minneapolis/St. Paul:** Hi Fi Sound, Sound Center  
**MO St. Louis:** Antech Labs, Flip's Stereo Place  
**MS Starkville:** Ideal Acoustics  
**MT Great Falls:** Rocky Mountain Hi Fi  
**NC Charlotte:** Higher Fidelity • **Morgantown:** Mac's T.V. • **Raleigh:** Audio Advice • **Wilmington:** Atlantic Audio Video  
**NE Omaha:** Custom Electronics  
**NH Nashua:** Tech Hi Fi • **Portsmouth:** State St. Discount  
**NJ Cherry Hill:** Soundworks • **Kinnelon:** Sound City • **Lawrenceville:** Hal's Stereo • **Montclair:** CSA Audio Design • **Paramus:** Leonard Radio • **Princeton:** Woodbridge Stereo • **W. Long Branch:** Woodbridge Stereo • **Woodbridge:** Woodbridge Stereo • **Wyckoff:** Conklin Audio  
**NM Albuquerque:** Hudson's Audio • **Carlsbad:** Beason's • **Santa Fe:** The Candyman  
**NV Las Vegas:** Union Premiums • **Reno:** Audio Alternatives  
**NY Albany:** Altair Audio • **Batavia:** Unicorn Audio • **Boonville:** Adirondack Music • **Lynbrook:** American Audiophile • **Mamaroneck:** Audio Experts • **Merrick:** Performance Audio Video • **Nanuet:** Ear Drum • **New York City:** Leonard Radio, Lyric Hi Fi, Park Place Audio, Stereo Exchange • **Orchard Park:** Stereo Chamber • **Patchogue:** Square Deal Radio • **Queens:** Leonard Radio • **Rochester:** JB Sound • **Southampton:** Charos Custom Sound • **White Plains:** Lyric Hi Fi  
**OH Cincinnati:** Audible Elegance • **Dayton:** Carlin Audio • **Dublin:** Audio Encounters • **Heath:** Threshold Audio • **Toledo:** Jamieson's Stereo • **Warrensville Heights:** Hoffman's Stereo  
**OK Oklahoma City:** Audio Dimensions • **Tulsa:** K-Labs  
**OR Beaverton:** Chelsea Audio • **Corvallis:** Northwest Audio Labs • **Eugene:** England Audio, Oregon Typewriter • **Portland:** Chelsea Audio  
**PA Fairless Hills:** Audiolab • **Pittsburgh:** Better Sound Concepts • **Philadelphia & Suburbs:** David Mann Audio, Sassafras, Soundex • **Shillington:** Phoenix Hi Fi • **York:** Audio Clinic  
**RI Providence:** Stereo Discount Center, **Middleton:** Soundings  
**SC Charleston:** Audio Warehouse • **Columbia:** Sound Advice  
**TN Knoxville:** Lindsay Ward • **Memphis:** Modern Music  
**TX Amarillo:** Sound Systems • **Austin:** High Fidelity • **Dallas:** Preston Trail Audio • **Denton:** Bob Bell Audio Video • **Ft. Worth:** Marvin Electronics • **Houston:** B&M Electronics, Groove Audio Video, Sheffield Audio • **Laredo:** Metex Int'l • **Lubbock:** Sound Wave  
**UT Salt Lake City:** Audition Audio  
**VA Charlottesville:** Preferred Sound • **Falls Church:** Myer Emco • **Richmond:** Audio Systems Ltd. • **Virginia Beach:** Digital Sound • **Warrenton:** Artistic Audio  
**VT Brattleboro:** Scientific Stereo • **Barre:** Drmsby's  
**WA Bellevue:** Home Entertainment • **Olympia:** The Audio Experience • **Seattle:** Definitive Audio  
**WI Eau Claire:** EME Audio • **Green Bay:** Hi Fi Heaven • **Madison:** Specialized Sound • **Milwaukee:** Audio Emporium  
**WV Wheeling:** Sterling Sound

and the editors agreed enough to pick it for one of our annual awards.

### Bass Localization

In January "Audio Q&A," Ian Masters talks about bass localization, or rather the lack of it. While he is correct as far as he goes, he doesn't go far enough. Phase differences (because of the different times it takes for a signal to reach the two ears) are just as important as any of the other factors in determining the position of source material. But the ear is easily fooled by sounds not occurring naturally, such as those from stereo systems.

Mr. Masters's implication that it is a sustained tone that eliminates spatial cues is incomplete. What about a kick drum? While not exactly a transient, it is far from a sustained tone. If the low-frequency portion of a kick drum were panned to one side, the difference would be instantly audible.

CRAIG PATTERSON  
Evergreen, CO

*Ian Masters replies: Phase can be an important factor in sound localization, but only at higher frequencies. There must be a significant variation in what reaches our two ears: Bass wavelengths are so long compared with the 7 inches or so between our ears—about 11 feet for a 100-Hz tone, for example—that such sounds can be regarded as having virtually no phase differences whatever direction they may be coming from.*

*As for a kick drum, we can easily localize such a sound, but that's because it only partly consists of low frequencies. The "tail" of the sound is definitely in the bass region, but the "kick" is made up of high-frequency material whose direction of origin is readily detected. Once our minds have used this transient to place the instrument, we hear its more sustained tail as coming from the same direction. Without the initial cue, however, the drum's position would be almost impossible to locate.*

### Alternate Takes Again

Having read several letters from readers deploring the practice of reissuing LP's on compact discs with "alternate takes" in lieu of "the original versions" of selected songs, I am compelled to add my observations about the Columbia CD of "Chicago's Greatest Hits." It's true that two of the songs (*Does Anybody Really Know What Time It Is?* and *Beginnings*) are different from the versions that appear on the "Greatest Hits" LP, but it's the LP and not the CD that contains "alternate takes." The "Greatest Hits" LP contains the edited-for-airplay/45-rpm single versions, not

those on the LP's where these songs originally appeared.

I believe Columbia has done the honorable thing by restoring these songs to the forms originally intended by the artists. Until the CD reissue came along one could only put up with the hatchet jobs done on these popular songs.

SCOTT C. HOFFMAN  
Dallastown, PA

### CD's and Water

In January "Audio Q&A," reader Jeff Bellante said that he noticed deterioration of the reflective layer of a CD after it was submerged in a fish tank for a couple of weeks. I decided to experiment with an unwanted CD-3, submerging it in ordinary tap water at room temperature, because I, too, am concerned about "CD rot" afflicting my prized collection. I am happy and relieved to report that after more than two weeks, the CD-3 shows no signs of any damage whatever.

GLEN ERICKSON  
Vassar, MI

### Phase Distortion

Lately I have been having a serious problem with listening to music. The problem is phase distortion caused by the distance between the ears, which don't receive sound at the same time. At times this distortion—which is best described as brief echoing or an almost spatial effect with certain instruments—makes listening to music almost unbearable. I tried plugging up one ear; I lost most of the effect but found that I had even greater problems. As you know, the crosstalk between the ears is really atrocious, to say nothing of the strange and unpredictable resonances. Try yawning—you'll get the idea.

I finally found that sticking a 400-millifarad capacitor up my nose—one lead to each nostril—reduced the interference to the point that most CD's are now at least listenable. I have found best results with hand-wound units of pure silver foil, handmade Japanese rice paper, and braided oxygen-free-copper leads. Of course, the problems with resonance in my listening room still require that I position my head precisely for optimal sound. I have been experimenting with various dental and ophthalmic devices for holding the human head in the best listening position—but more on that later.

Obviously, these problems have been with us forever. We probably just didn't notice them until we upgraded our systems. I know I didn't.

JIM ARNETT  
Columbus, OH

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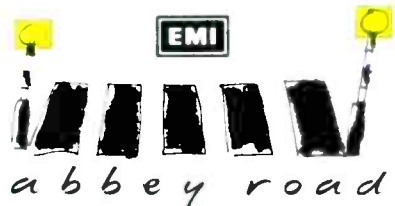
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Stereophile,  
"Recommended Components,"  
Vol. 12 No. 10, Oct.  
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CIRCLE NO. 103 ON READER SERVICE CARD

## NEW PRODUCTS

### MISSION ELECTRONICS

The Model 767 is Mission's flagship loudspeaker system. Each floor-standing, 55-inch-high speaker has two powered woofers, two midrange drivers, and a tweeter, with the tweeter placed in the middle of the panel and the other pairs flanking it above and below. The 8 $\frac{1}{4}$ -inch woofers have die-cast magnesium baskets and mineral-loaded homopolymer cones; the 6 $\frac{3}{4}$ -inch midranges have magnesium baskets but polypropylene cones. The doped-fabric tweeter dome is in a special double chamber that is said to help prevent breakup and reduce distortion at high

input power levels. There are user-adjustable level and contour controls to fine-tune the speaker's sound.

The built-in high-current bass amplifier is rated at 90 watts into 4 ohms. The Model 767 can be wired conventionally, biamplified, or biwired with an external amplifier for the midrange and high-frequency drivers (nominal impedance 8 ohms). Frequency response is rated as 30 to 20,000 Hz, power handling as 200 watts. Price: \$3,999 a pair. Mission Electronics, Dept. SR, 18303 8th Ave., Seattle, WA 98148.

*Circle 120 on reader service card*



### SONY

Designed to be used in small spaces such as dorm rooms or apartments, Sony's MHC-3300CD minicomponent sound system includes a four-times-oversampling CD player, an integrated amplifier with five-band equalizer, an AM/FM digital tuner with thirty presets, a dual autoreverse cassette deck with Dolby B and Dolby C noise reduction, and a pair of three-way bookshelf speakers. The electronic components measure 8 $\frac{7}{8}$  x 15 x 10 $\frac{3}{4}$  inches when they are stacked as shown, and the speakers are 8 $\frac{3}{8}$  x 11 $\frac{7}{8}$  x 8 $\frac{3}{4}$  inches. A remote control is included. Price: \$1,200. Sony Corp. of America, Dept. SR, Sony Dr., Park Ridge, NJ 07656.

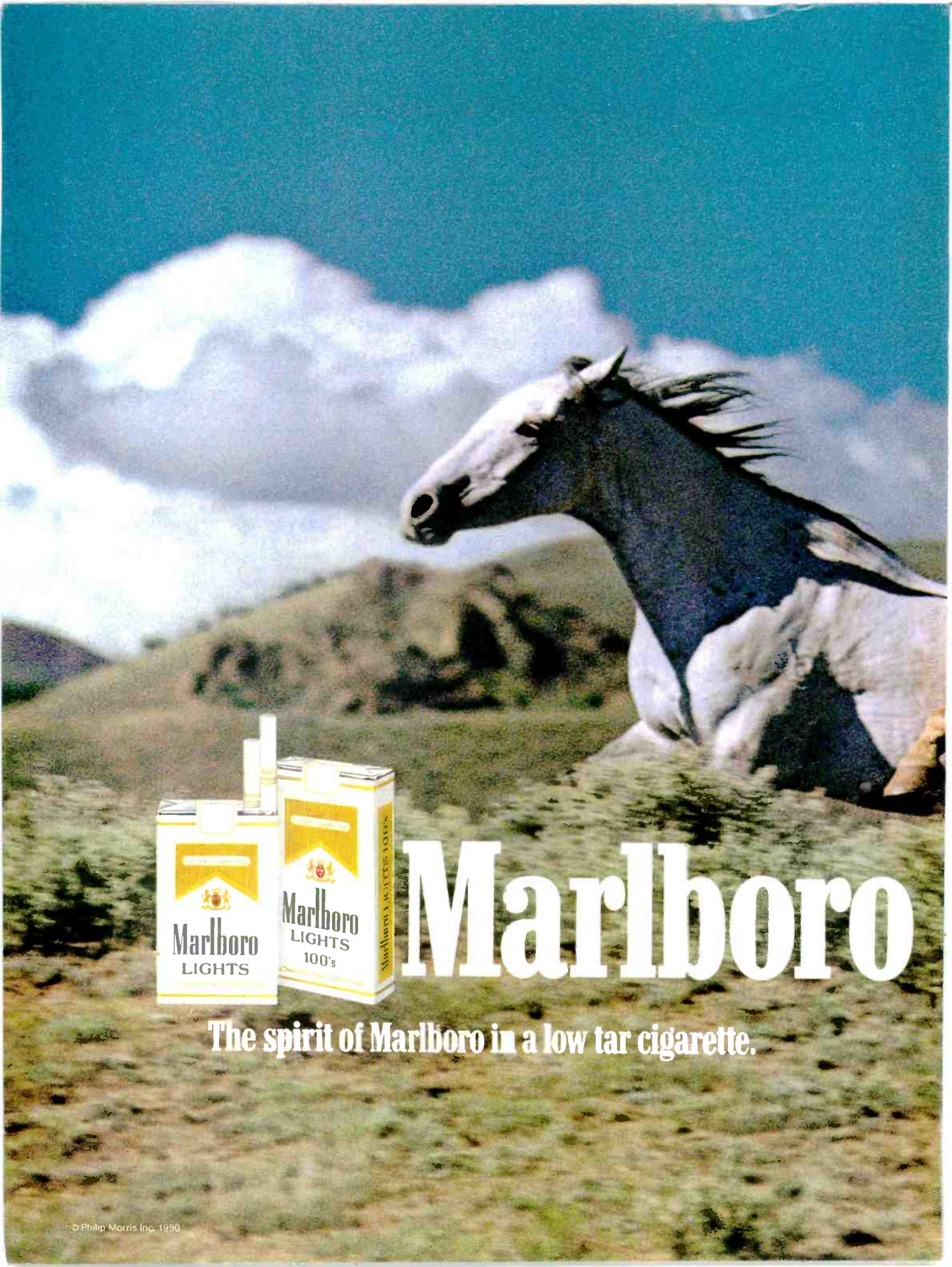
*Circle 121 on reader service card*

### CANTON

The Canton InWall 9 loudspeaker uses a coaxial design to provide the maximum amount of bass in the minimum amount of space. All of the installation work can take place before the drivers are snapped into place. If a driver needs service later, the grille can easily be removed and the driver can be unplugged from the crossover; the crossover can also be removed for servicing. Frequency response is rated as 34 to 22,000 Hz. Package includes the white-finished grilles, chassis, drivers, foam gaskets, and mounting screws and templates for two speakers, plus instructions. The frameless grilles are about 10 $\frac{1}{4}$  inches square and  $\frac{1}{4}$  inch deep; mounting depth is about 3 $\frac{3}{4}$  inches. Price: \$600 a pair; \$30 a pair for a framing kit. Canton North America, Dept. SR, 915 Washington Ave. S, Minneapolis, MN 55415-1245.

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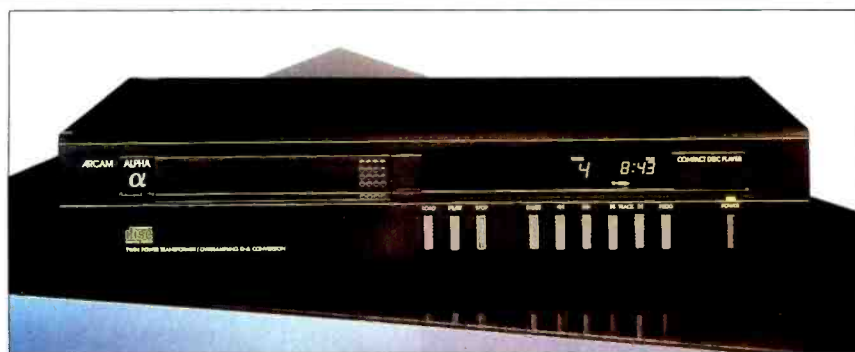


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## NEW PRODUCTS



### ARCAM

Arcam's Alpha compact disc player uses a four-times-oversampling digital filter, dual digital-to-analog (D/A) converters, and a Philips CDM4 single-laser transport system. It has two power transformers, one for the digital electronics, servos, and display and another for the D/A converters and output amplifiers. The transformers are mounted on a fiberglass printed circuit board

with four dedicated, regulated power supplies. A fixed pair of high-level outputs and a self-shorting coaxial digital output are on the back panel. Up to twenty tracks can be programmed, and the player accepts 3-inch discs. Price: \$799. Arcam, distributed by Audio Influx Corp., Dept. SR, P.O. Box 381, Highland Lakes, NJ 07422-0381.

**Circle 123 on reader service card**



### SOUNDCRAFTSMEN

The Soundcraftsmen DX3000-17 preamplifier employs complementary metal-oxide semiconductor (CMOS) switching circuitry at the input/output jacks to provide the most direct signal path. It has CD, phono, tuner, and audio/video inputs as well as two tape loops with dubbing facilities. Frequency contouring is provided by a variable

loudness control, low- and high-frequency filters, and  $\pm 10$ -dB bass and treble controls. The rear panel has three AC outlets, two switched and one unswitched. A rack-mounting kit is available. Price: \$279. Soundcraftsmen, Dept. SR, 2200 S. Ritchey, Santa Ana, CA 92705.

**Circle 124 on reader service card**

### M.A.D.A.C. ENTERPRISE

The Cee Dee Album from M.A.D.A.C. Enterprise holds up to forty discs. The notebook-type folder comes with five pages that hold four discs each, and an additional five pages can be added. Standard vinyl covers are colored black, silver, mauve, blue, or brown; a premium leather cover is also available. Price: \$19.95 for standard cover, \$47.75 for leather; additional pages \$4.60 for five. M.A.D.A.C. Enterprise Ltd., Dept. SR, 1215 S. 13th St., Omaha, NE 68108.

**Circle 125 on reader service card**



### B.I.C. AMERICA

The compact V62 speaker, part of B.I.C. America's Venturi line, is designed for wall mounting or bookshelf placement. The vented two-way system has a  $\frac{3}{4}$ -inch ferrofluid-cooled, soft-dome tweeter and a 6-inch carbon-impregnated polypropylene woofer. The woofer's back waves are channeled through a tapered vent, which is said to increase bass output at no loss in efficiency. Frequency response is rated as 55 to 22,000 Hz. The speakers measure 14 x 8 $\frac{7}{8}$  x 9 $\frac{1}{8}$  inches. Price: \$199 a pair. B.I.C. America, Dept. SR, 895-E Hampshire Rd., P.O. Box 1709, Stow, OH 44224.

**Circle 126 on reader service card**



### OPTRONICS

The Optronics Desktop Stereo is an FM stereo receiver for IBM PC's and compatible computers. The self-contained, half-size card plugs into any standard PC/XT/AT slot and comes with software that lets the user control tuning, preset, volume, balance, treble, bass, and mute functions from the PC keyboard. Headphones or speakers and the antenna connect to the card at the rear of the computer. Ten presets can be programmed, and tuning can be done either with arrow keys or by typing in the desired frequency. Signal strength can be displayed on screen. Price: \$199. Optronics Technology, Dept. SR, P.O. Box 3239, Ashland, OR 97520.

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Skid Row • Youth Gone Wild, Big Guns, I Remember You, etc. Atlantic 01038  
Quincy Jones: Back On The Block • I'll Be Good To You, etc. Qwest 64116  
Mötley Crüe: Dr. Feelgood • Same Old Situation (S.O.S.), etc. Elektra Digital 33928

Richard Marx: Repeat Offender Satisfied, Angelia, etc. EMI 01118

Kiss: Hot In The Shade • Hide Your Love, Silver Spoon, etc. Mercury 53475

Grateful Dead: Built To Last • Foolish Heart, We Can Run, etc. Arista 72230

Madonna: Like A Prayer Title smash, Express Yourself, etc. Sire 01029

Bon Jovi: New Jersey I'll Be There For You, others Mercury 00516

Earl Klugh: Solo Guitar It's Only A Paper Moon, etc. Warner Bros. 63942

Horowitz Plays Liszt RCA 00511

Randy Travis: No Holdin' Back • It's Just A Matter Of Time, etc. Warner Bros. 34766

Tracy Chapman: Crossroads • Freedom Now, Subcity, etc. Elektra 42496

The Judds: River Of Time • One Man Woman, Young Love, etc. RCA 01027

Kylie Minogue: Enjoy Yourself Wouldn't Change A Thing, etc. Geffen 53372

The Duke Ellington Orchestra: Digital Duke • Satin Doll, etc. GRP Digital 63356

John Cougar Mellencamp: Big Daddy Pop Singer, etc. Mercury 80064

Stevie Nicks: The Other Side Of The Mirror • Cry Wolf, etc. Modern 70946

Randy & The Gypsies • Perpetrators, Gigolo, Luv Thang, etc. A&M 54685

Fine Young Cannibals: The Raw And The Cooked • Good Thing, etc. I.R.S. 01068

George Harrison: Best Of Dark Horse 1976-1989 • Cheer Down, etc. Dark Horse 80307

Tom Petty: Full Moon Fever • I Won't Back Down, Free Fallin', etc. MCA 33911

The Traveling Wilburys: Volume One • Harrison, Dylan, Orbison, Petty, Lynne! Warner/Wilbury 00711

Roy Orbison: Mystery Girl • She's A Mystery To Me, Virgin 00842

Melissa Etheridge: Brave And Crazy No Souvenirs, title song, etc. Island 10503

Reba McEntire: Reba Live • Sweet Dreams, Little Rock, more. MCA 44602

Poco: Legacy • RCA 54060

Stairway To Heaven,  
Highway To Hell:  
(Bon Jovi), Mötley Crüe,  
Skid Row, Cinderella,  
more! 44573

Kenny G: Live • Songbird, Don't Make Me Wait For Love, etc. Arista 64505

Dirty Dancing/Original Soundtrack • RCA 82522

J.R. Baker: Everybody's Favorite Synthesizer Newport Classic 44611

Rickie Lee Jones: Flying Cowboys • Satellites, etc. Geffen Digital 94110

Dr. John: In A Sentimental Mood • Makin' Whoopee!, etc. Warner Bros. 42500

Guns N' Roses: Appetite For Destruction • Sweet Child O' Mine, It's So Easy, Nighttrain, etc. Geffen 70348

Belinda Carlisle: Runaway Horses Leave A Light On, etc. MCA 73667

Highway 101: Paint The Town • Who's Lonely Now, etc. Warner Bros. Dig. 14820

Def Leppard: Hysteria • Armageddon II, Animal, Rocket, etc. Mercury 00927

U2: Rattle And Hum • When Love Comes To Town, more. Island 00596

Oceans: Ridin' The Tide • Tag Your It, Dream, etc. Projazz Digital 33577

Erasure: Wild! • Drama!, Blue Savannah, How Many Times?, etc. Sire 82038

Led Zeppelin IV (Runes) • Stairway To Heaven, etc. Atlantic 12014

Jazz CD Sampler • Ella, Armstrong, Getz, Basie, more. PolyGram 73406

Whitesnake: Slip Of The Tongue • Fool For Your Lovin', etc. Geffen 01147

B-52's:  
Cosmic Thing  
14742

Barry Manilow: Live On Broadway In-concert hits. Arista 24805

Maze featuring Frankie Beverly: Silky Soul • Can't Get Over You, etc. Warner Bros. 44397

Elton John: Sleeping With The Past Healing Hands, etc. MCA Digital 10469

Clint Black: Killin' Time • A Better Man, title song, others. RCA 01112

Rush: Presto • Hand Over Fist, Scars, Wapaint, more. Atlantic 64202

Taylor Dayne: Can't Fight Fate • I'll Be Your Shelter, title song, etc. Arista 01114

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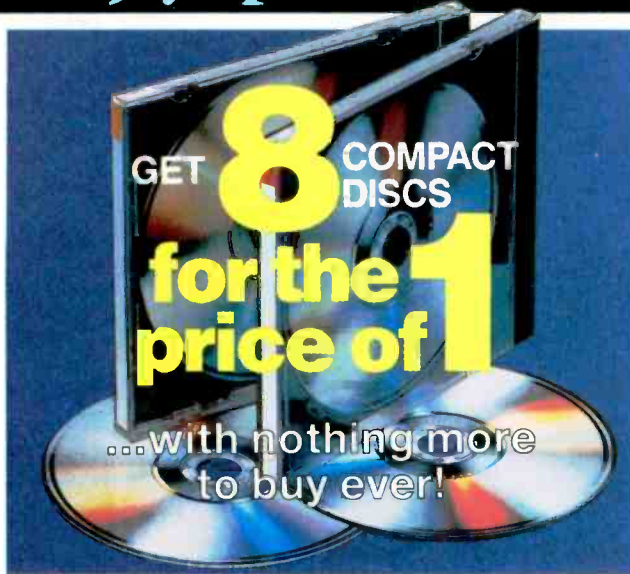


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- Beethoven, Sym. No. 9 (Choral)** • Norrington conducts. Angel Digital 00467
- Enuff Z'Nuff** • New Thing, Fly High Michelle, For Now, etc. Atco 64257
- Tears For Fears: The Seeds Of Love** Title song, others. Fontana 33653
- Anderson, Bruford, Wakeman, Howe** Brother Of Mine, etc. Arista 01115
- Alabama: Southern Star** • Song Of The South, title song, etc. RCA 00914
- Van Halen: OU812** • Feels So Good, Cabo Wabo, etc. Warner Bros. 50913
- Michelle Shocked: Captain Swing** My Little Sister etc. Mercury 43590
- DJ Jazzy Jeff & The Fresh Prince: And In This Corner** • Jive 01020

- Tina Turner: Foreign Affair** • The Best, Steamy Windows, etc. Capitol 32900
- Guns N' Roses: GN'R Lies** • Patience, Reckless Life, etc. Geffen 00805
- Bird: Original Recordings Of Charlie Parker** • The Bird, etc. Verve 01044
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- Reich, Different Trains/Electric Counterpoint** • Pat Metheny/Kronos Quartet perform. Nonesuch 01013

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- Pat Metheny Group: Letter From Home** Every Summer Night, etc. Geffen 50395
- The Creatures: Boomerang** • Siouxsie & Co. Standing There, etc. Capitol 10788
- Great White: Twice Shy** • Once Bitten Twice Shy, etc. Capitol 01100
- The Doobie Brothers: Cycles** • The Doctor, One Chalm, more. Capitol 73187
- ABC: Up** • One Better World, Never More Than Now, North, etc. Mercury 34236
- Talking Heads: Naked** • Blind, (Nothing But) Flowers, etc. Sire/Fly Digital 53810
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- Lee Ritenuor: Color Rit** • Bahia Funk, etc. GRP 53959
- Michael Penn: March** • RCA 83798
- Neil Young: Freedom** • Rockin' In The Free World, more. Reprise Digital 54012
- Crosby Stills, Nash & Young: American Dream** • Atlantic Digital 00714
- Roxette: Look Sharp!** • The Look, Cry, Dressed For Success, etc. EMI 01106
- Whitney Houston: Whitney** • So Emotional, others. Arista 52854
- Happy Anniversary, Charlie Brown!** GRP All-Stars perform. GRP 64278
- Tchaikovsky, 1812 Overture; more.** Solti./Chicago London Digital 25179
- Vangelis: Direct** • The Motion Of Stars, others. Arista 00470
- Ian McCulloch: Candleland** • The Flickering Wall, etc. Sire/Reprise 62220
- David Benoit: Waiting For Spring** Cabin Fever, etc. GRP 54067
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- Chicago: Greatest Hits** ..... 63363
- Fleetwood Mac: Greatest Hits** ..... 00796
- 20 Years Of Jethro Tull** ..... 00817
- Best Of Eric Clapton: Time Pieces** ..... 23385
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## NEW PRODUCTS



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### MITSUBISHI

The M-S8040 is Mitsubishi's first powered subwoofer. It is rated for at least 100 watts rms into 8 ohms from 20 to 120 Hz with less than 1 percent distortion. The driver has a 12-inch high-polymer-laminate speaker cone and a 2-inch voice coil. The crossover point is continuously variable from 60 to 120 Hz. The amplifier includes a heat-sink, and there are both high- and low-level inputs, a volume control, and satellite-speaker connectors. Finished in Mitsubishi's Black Diamond gray, the M-S8040 measures 24 x 19½ x 17 inches. Price: \$800. Mitsubishi Electric Sales America, Dept. SR, P.O. Box 6007, Cypress, CA 90630-0007.

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### MADRIGAL

The Madrigal Proceed CD player was designed to provide superior musical performance, operational simplicity, and high reliability. It uses a Philips CDM1 MkII transport positioned on a tripod mounting, which is said to insure optimal mechanical coupling and stability. It has two master power supplies and eleven distributed power supplies to isolate power fluctuations and noise in each section. It uses an eight-times-oversampling digital filter and two 18-bit digital-to-analog converters. The modular circuit design allows for plug-in upgrades as digital technology evolves. The analog outputs are fully balanced. Dimensions are about 8½ x 9 x 13¼ inches. An infrared remote control is included. Price: \$1,650. Madrigal, Dept. SR, P.O. Box 781, Middletown, CT 06457.

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### PARADIGM

Paradigm's 11se MkII speaker has three drivers configured in a two-way bass-reflex design. Frequency response is rated as 55 to 20,000 Hz ± 2 dB on-axis and 55 to 15,000 Hz ± 2 dB at 30 degrees off-axis. Sensitivity is rated as 93 dB, impedance as 8 ohms nominal, 4 ohms minimum. The two 8¼-inch bass/midrange drivers have mineral-filled copolymer-polypropylene cones damped with a polynorborene surround. The 1-inch tweeter consists of a laminated-textile radiating element with a high-temperature voice coil on an aluminum former. The 1,800-Hz crossover is a third-order electro/acoustic type. The speaker measures 39¾ x 11¾ x 14½ inches. Price: \$870 a pair. Distributed in the U.S. by Audio-Stream, Dept. SR, M.P.O. Box 2410, Niagara Falls, NY 14302.

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Bose® engineers use advanced design systems to bring the benefits of new technologies to the constantly-refined 901® Direct/Reflecting® speaker. The Intergraph InterAct 32 CAD/CAM system (above) at Bose Corporation's Framingham, Massachusetts worldwide headquarters is part of this commitment to "better sound through research."

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Twenty-five years ago Dr. Amar Bose directed a research program at the Massachusetts Institute of Technology on the physical acoustics and psychoacoustics of sound reproduction. The results of this effort provided the theoretical basis for the design of the first Bose 901 Direct/Reflecting® speaker system five years later. Its introduction in 1968 was greeted with the highest critical acclaim ever accorded to a loudspeaker.

**“... I must say that I have never heard a speaker system in my own home which could surpass, or even equal, the Bose 901 for overall “realism” of sound.”**

—Julian Hirsch, *Stereo Review* 1968

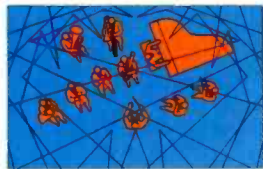
**“There is no doubt that the much-abused and overworked term, ‘breakthrough,’ applies to the Bose 901 system and its bold new concepts.”**

—Bert Whyte, *Audio* 1969

**“Many people swear by these speakers as the ultimate.”**

—*Complete Buyer's Guide to Stereo Hi-Fi Equipment* 1975

But this was just the beginning. Bose research continued to focus on the 901 system, incorporating the latest technology as it was developed. For example, in 1976 two new innovations were brought to the system to dramatically improve its efficiency and power handling. These new technologies—the Acoustic Matrix™ enclosure and the Helical Voice Coil driver—alone represent a significant investment in research and development. As a result of this commitment, the rave reviews continued.



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—*Modern Hi-Fi & Music* 1977

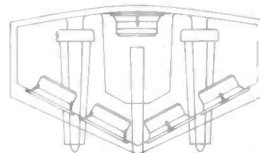
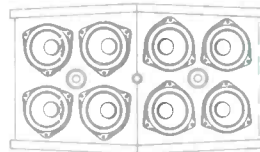
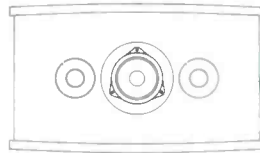
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—Daniel Kumin, *Digital Audio* 1988

We submit that the research and development behind the Bose 901 system make it the most advanced, lifelike sounding speaker you can buy. But you must be the final judge. Ask your dealer to give you an “A-B” demonstration comparing the Bose 901 system to any other speaker, regardless of size or price.



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## THE DEMON ROOM

Where you listen is as important as what you listen to—the seventh in a series on the basics of audio.

BY IAN G. MASTERS

SETTING up a hi-fi system would be a simple matter if we only had to choose equipment that functions well technically. There's no great trick in maintaining a quiet, undistorted, well-balanced audio signal up to the speaker itself, and today the best speakers come very close to producing an accurate acoustic replica of the electrical signal. Once the sound is radiated into a listening room, however, all bets are off. A speaker is only one half of an **acoustical system**; the other is the room itself, and it can have a profound effect on the sound you hear.

A poor speaker—however you might choose to define that—will probably sound terrible wherever you use it, but a good speaker can be made to sound almost as bad unless care is taken to match it to its surroundings. The size and shape of the room, its decoration and furnishings, the location of the speakers and the listening positions, and your own taste and listening practices all affect the overall performance of your system.



### *Filling a Large Box*

The first consideration is the size of the listening room. The larger the volume of air a speaker must excite, the more acoustic output you will require from it to achieve the sound

levels you want. The **liveness** of the room contributes to output requirements as well. Heavy curtains, deep-pile carpets, and overstuffed furniture all absorb sound, particularly at high frequencies. A very **dead** (absorptive) room will require more acoustic output than a live one with hard, nonabsorptive surfaces that reflect sound strongly. In addition, the way you like to listen to music, and the music itself, can contribute to your amplifier power requirements. High volume levels usually demand more power, and the high average levels of rock music place greater demands on a system than other sorts of music.

Producing enough acoustic output for a particular room requires the proper combination of amplifier power and speaker sensitivity, and this should be taken into consideration when you buy your equipment. Deficiencies in either aspect, or both, usually lead to **overdriving** the system—trying to get a higher sound level than the equipment is able to put out—and this can cause severe distortion or even damage.

### *Taming the Bass*

After size and furnishings, one of the most important aspects of a listening room is its shape. In any room, sound reflects off the walls, ceiling, and floor. If the distance between two opposite parallel surfaces is a simple fraction of the wavelength of a particular frequency, notes of that frequency will bounce back and forth in perfect phase—an effect called a **standing wave**. At some points in the room, this note will be reinforced substantially; at others it will cancel out almost entirely. An ideal listening room would have no parallel surfaces—an unusual situation, to say the least—so that such waves would

# THE BASICS

not establish themselves. The worst kind of room is a perfect cube.

Almost all rooms are susceptible to *some* standing waves at low frequencies, but their effects can be minimized by careful placement of the speakers and the listening seat. Moving either of these even a few inches is sometimes enough to cure—or to create—an intolerable sound. The only way to find out what works best is by experimentation, but taking a little time to deal with such problems is well worth the effort.

In particularly difficult cases, the use of a **subwoofer**—a separate speaker that handles only very low frequencies—might be necessary. The range of places you can put the main speakers and still get proper imaging may be fairly limited, and some of these positions may result in standing waves that can't be tamed. Positioning of the bass speakers is much less critical from an imaging point of view, so a subwoofer can be located with only standing waves in mind. The best arrangement is a pair of subwoofers in acoustically dissimilar positions.

## *Upon Reflection*

Bass response is also affected by the proximity of speakers to nearby reflective surfaces. The closer a speaker is to a wall or the floor, the more prominent will be its low-frequency output. Some speakers are designed to take advantage of this effect, but many others are not. Those that are not should be located at least a foot from back and side walls—the distances should be different if possible—and several inches off the floor. Many manufacturers offer stands to raise speakers off the floor, which also places them closer to ear height.

Such positioning considerations affect the sound you achieve at high frequencies as well. A speaker's overall **tonal balance** is a combination of several factors, none of which can be ignored. Not only do we hear sounds directly from the speaker—the **on-axis response**—but we also hear **near-field reflections** from the walls immediately adjacent to the speaker as well as the longer-term **reverberant field** of the listening room itself. All of these sounds combine to determine the

speaker's sonic character in a particular environment, and each type of response is influenced by a different aspect of speaker performance. In any live acoustic situation, therefore, a speaker's off-axis response has a significant effect on its perceived tonal balance.

In a very dead room, the on-axis response would be the dominant



factor, at least for someone sitting in the so-called **stereo seat**, or **sweet spot**, directly in front of both speakers. Typically, however, the on-axis signal combines with the near-field reflections to produce an average, composite response. The walls and other surfaces close to the speakers tend to reflect what is being radiated obliquely at, say, 60 to 75 degrees off-axis. The extent to which these reflections will affect tonal balance is determined by the proximity of the surfaces, their degree of reflectivity, and the speaker's ability to radiate sound off-axis with a spectral balance that approximates the

on-axis response—that is, its **dispersion**.

The sonic balance in a room's reverberant field, and the sound listeners are likely to hear when sitting somewhere other than the sweet spot, is strongly influenced by a speaker's response from about 30 to 45 degrees off-axis. The importance of this output increases the farther from the speakers one sits, and it is accentuated by a live room. But in all cases, it mixes with the on-axis and near-field signals to create an overall balance. Many manufacturers provide instructions on how to take advantage of these effects, and it is wise to check the owner's manual for any speaker you are considering buying to see if any special placement requirements are specified for it.

Finally, you should attend to the location of the primary listening position with regard to the speakers—the sweet spot. The speakers should be far enough apart to provide an adequate stereo spread, and the listening seat should be the same distance from both speakers to facilitate a stable center image. The ideal setup is in the form of an equilateral triangle with the speakers at two of the corners and the listening chair at the third. This is not always possible, so some experimentation may be necessary.

## *The Headphone Alternative*

There are occasions when normal acoustic considerations become irrelevant. The rapid proliferation of portable tape and CD players in recent years has turned what was once a minor member of the hi-fi arsenal into a major one: the **stereo headphone**. In principle, headphones differ only slightly from speakers, using most of the same techniques to turn electrical energy into sound.

The transducers in the majority of headphones are **dynamic**, as they are in most speaker systems, using the same combination of voice coil and diaphragm to create acoustic energy. A small number of **electrostatic** headphones are available; these usually require an external polarizing voltage and take their audio feed from an amplifier's speaker outputs rather than from a conventional headphone jack. A variation on this

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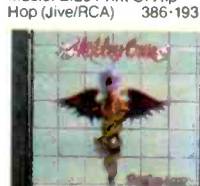
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# T H E B A S I C S

type, called the **electret** headphone, contains a permanently charged plate, making an outside power source unnecessary.

The most obvious difference between speakers and headphones is size. Because headphones are very close to the ears, and tightly coupled to them, practically none of the low-frequency information is lost to the surrounding air, and therefore very little needs to be produced. Consequently, headphone diaphragms can be small without sacrificing bass; in fact, most headphones use single elements to produce the whole audio spectrum, although there are exceptions. By the same token, what happens to the back wave produced by the diaphragm is relatively unimportant, so headphone makers can dispense with the bulky enclosures that make up most of a speaker system's volume.

The manner of coupling a headphone's output to the ear canal varies quite widely. Early phones were **circumaural**: They used foam pads that sealed to the sides of the head, leaving the ears untouched—and therefore undeformed—but surrounded. Most of these had closed backs, both to improve bass coupling and to provide some sound isolation in noisy environments. Many of today's circumaural phones have open backs so that ambient sounds are audible, but the ear still remains untouched.

A later development, and one that is extremely popular for use with today's portable equipment, is the **supra-aural** phone, in which the transducer and the ear are separated by a foam pad that rests directly on the outer ear. These offer little isolation, but improvements in magnet and transducer design now mean that not much bass need be sacrificed when you use supra-aural headphones. The most recent variety of headphone is the **in-ear**, or **earbud**, phone, a tiny device that plugs directly into the ear canal, eliminating the need for a headband.

Useful as they are, both for portable use and for private listening at home, headphones have some distinct sonic characteristics that are often pleasurable but not necessarily faithful to the original sound. With the exception of a few **binaural**

recordings made specifically for headphone listening, practically all the music we buy is produced on the assumption that it will be heard through speakers in a live acoustic environment, where some of the sound from each speaker reaches both ears. The sonic perspective of most recordings is thus engineered



to sound natural in such a setting. With headphones, on the other hand, each ear receives information from one transducer only, and this can cause an exaggerated stereo image, characterized by a wider-than-life sound stage and centered material seeming to be in the middle of the head. In addition, high frequencies roll off naturally in a real room, even over quite short distances, and this sounds normal to most of us. There is no such attenuation over the tiny distance between a headphone's diaphragm and the eardrum, however, which means that phones often have an unnaturally bright sound unless the designer has taken care to correct it. Some designers do, some don't.

In fact, achievement of proper spectral balance in a pair of headphones presents one of the greatest challenges in audio design. Phones

do not behave the way other audio components do: To sound natural, they must have *nonlinear* frequency response. With an amplifier or tape deck, or even a speaker, the flatter the frequency-response curve the more accurate the equipment will sound. But the sound that actually reaches your eardrum is anything but flat. The outer ear is a sophisticated acoustic-modification system that radically alters the sound impinging on it; the spectral balance at the eardrum is thus very irregular. There's no problem in that: Since you hear *all* sounds modified this way, they will sound natural however bumpy the ultimate response curve may be.

The headphone disturbs all this. For one thing, with supra-aural models, the phone physically deforms the outer ear by sitting right on it, changing its acoustic properties. Even with circumaural phones, the diaphragm is acoustically coupled to the air in the ear canal—the sound is, in effect, pumped directly from the diaphragm to the eardrum, bypassing virtually all of the acoustic modifications usually provided by the ear's physical shape. The result is that a truly flat-response headphone—one that would perform perfectly by the standards applied to other audio equipment—would sound terrible.

To achieve good sound from headphones, then, the designer must build into them a frequency response that approximates the modification normally provided by the twists and folds of the ear itself. That is not an easy task, partly because all ears differ slightly and partly because there is no universal agreement on how to measure the influence of the outer ear to discover the modifications that must be made—or on how to measure headphones to see whether they successfully duplicate the ear's effects. As a result, phones have usually been designed and evaluated on a purely subjective basis. Science has made some remarkable strides in this field, however, and the finest headphones can now take their place alongside other top-quality audio components.

*NEXT: The input/output device—what goes on in a tape recorder.*





speaker load, there will be 12 volts across the speaker, which is the voltage of the car's electrical system (the power is 18 watts). If current were increased, power would be as well, but the voltage would have to exceed the car's 12 volts. In view of that, it would appear to be impossible to produce more than 18 watts into 8-ohm speakers, yet it is common to see power ratings of 100 watts or more. What am I overlooking?

TIM PORTZLINE  
Lemoyne, PA

**A** You are assuming that there are no transformers in the system. It is true that "straight" DC power, such as that supplied by a car battery, can't be increased by transformers and so would place a limit on the total power a car amplifier could produce. But a pulsating DC signal behaves like alternating current and can be modified by transformers. High-power autosound amps therefore contain DC-to-DC converters that oscillate the original current in the appropriate fashion. From that point, a car amplifier can be made as powerful as the designer wishes.

## FM Reception

**Q** I have just moved close to an FM station's broadcast tower, and my reception is horrendous. Certain stations appear at more than one frequency, blocking out others. After fiddling with my dipole antenna I am able to get a reasonable mono signal, but stereo is still very distorted. An audio dealer has told me to grin and bear it, as I shouldn't expect decent reception where I live. Is he right?

JEFF SHUNK  
San Francisco, CA

**A** Unfortunately, he may be. But don't give up yet; there are still several things you can do that might help. Your tuner is suffering from massive amounts of "front-end overload," a condition that happens when the signals are so strong that they simply overwhelm the tuner's early circuit stages. The usual symptom is that certain stations pop up all over the dial, and the only real cure is to reduce the amount of signal reaching your antenna inputs.

One way is simply to reduce the size

of the antenna. Often using a piece of wire only a few inches long—or no antenna at all—will cut the input level to a point where the tuner can handle it. This approach does, however, leave you vulnerable to disruptions of other sorts: Simply walking around the room may disturb the signal enough to make it unlistenable. Another technique is to use a very directional antenna, aiming it away from the offending signal to reduce its strength. Some experimentation is necessary for this, and you will probably have to adjust the antenna separately for every station you listen to. If that is still not enough, you could insert an inexpensive signal attenuator between the antenna and the tuner or receiver terminals to cut the signal even further.

If none of these methods work, it may be that the terminals themselves, or the circuitry inside the tuner, are picking up the signal strongly enough to cause the overload. In that case, there's nothing much you can do except, perhaps, try a different tuner. Just be sure that you can return the new tuner if it doesn't work any better. □



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by Ken C. Pohlmann



## METAL TAPE'S COMEBACK

**N**O question, digital audio—the compact disc, digital audio tape, digital signal processing—grabs most of the hi-fi headlines these days. And, with the LP and the 45-rpm single on the endangered-species list, many people figure the days of analog audio are numbered. Reports of its demise, however, have been greatly exaggerated. In fact, analog audio dominates sales in recordings and equipment. According to the Recording Industry Association of America, for example, from January to June 1989, over 211 million cassette recordings were sold, more than twice the number of CD's (97 million).

On the other hand, analog technology suffers from a quality gap. Although many purists might disagree, digital audio is associated with top quality, whereas expectations for analog media are much lower. Perceiving the problem, tape manufacturers have moved to build at least one bridge between analog and digital technology by introducing improved formulations of metal tape. This type of cassette tape stands halfway between conventional tape and the digital recording

tape of tomorrow. Exactly how many tomorrows separate us from popular-priced DAT decks still isn't clear, but even after they become available, there will continue to be a need for high-quality cassette tape. It is this need that has spurred Sony, TDK, Maxell, BASF, That's, and other cassette manufacturers to put renewed emphasis on metal tape.

Metal tape has been around for more than ten years, but it has sold poorly. Apparently, many people just didn't need such high-quality tape or felt the improvement offered by metal tape wasn't worth its higher price. A recording tape need only be as good as its source, and for taping from radio broadcasts or dubbing from other tapes, metal tape is overkill. The proliferation of compact disc players, however, has raised the quality of playback sources, necessitating the use of a high-quality recording tape. Hence the resurgent interest in metal tape.

Metal, or Type IV, tapes differ considerably from ferric (Type I) and chrome (Type II) tapes—ferrichrome (Type III) is extinct—in that instead of an oxide coating, a metal-alloy formulation is used. The metal particles accept a level of magnetization much greater than that possible with ferric or chrome oxides. Metal tapes can be recorded only on decks equipped with a metal record setting, but they can be played back on any deck.

Magnetic-tape engineers haven't let the grass grow under their feet these last ten years. They have worked hard to develop new kinds of metal tape that surpass the performance of earlier formulations while maintaining compatibility with Type IV standards. The trick in recording on tape (as with any storage medium) is to attain a high output level with a low noise floor. To achieve this, some metal tapes use two layers of metal particles, each with its own specific magnetic properties: a top layer for reduced noise and improved high-frequency response and a bottom layer for improved low-frequency and mid-range performance with high output. That adds up to amazing performance from an analog recording medium. For example, Sony's

Metal Master tape is said to have a retentivity (a measure of a tape's ability to store high signal levels) of 3,600 gauss, compared with 1,600 to 2,000 gauss for Type II tape. Metal Master's specified bias noise level is -57.0 dB and its output level +7.0 dB at 315 Hz. The dynamic range at 315 Hz is thus 64 dB. That can't match a CD, but with noise reduction it is fully adequate for most types of music.

But a high-quality tape formulation is only as good as the cassette shell it's housed in. Therefore, metal tapes are usually put in high-tech shells that are designed to decrease vibration-induced modulation noise by damping external vibration and to increase azimuth stability through precise construction. TDK's top-of-the-line MA-XG, for instance, has a five-piece shell, including a dual-layer faceplate (fiber-glass-reinforced plastic for strength and nonrigid plastic to reduce resonance) and a three-sided frame that's held together with ten screws.

Without question, metal tape offers performance well beyond that of conventional tape. But quality always costs a little more. A 90-minute length of MA-XG will set you back \$18. Expensive, yes, but not outrageous. When TDK introduced its first high-fidelity cassette, the SD, in 1968, a 60-minute length sold for \$5, about triple the cost of other tapes on the market. (And five of those 1968 dollars were worth a lot more than five of our 1990 dollars.) The point is that high-quality tape has always been expensive, and today's premium metal tapes are not really out of line.

Still, is metal tape worth its higher price? Should you rush out and buy a case? Which manufacturer's offering should you buy? Those questions are easily answered with a little experiment. Buy several metal cassettes from a variety of manufacturers, make some test recordings from a sonically demanding CD, and compare the results. You'll probably find that one tape matches your recorder's characteristics a little better than the others. You'll probably also find that after trying metal tape, it's hard to go back to oxide. Have fun. □

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David Clark, *Audio Magazine*, Sept. '89

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by Julian Hirsch



## MINIMALIST HI-FI

**H**IGH-FIDELITY electronic components have always been more complex and less simple to operate than contemporary mass-market radios and phonographs. Designed for a higher level of performance, they provide greater control over less-than-ideal program material. For example, the "tone control"—a treble rolloff originally designed to reduce the surface noise of pre-LP recordings—was replaced by separate bass and treble controls that could boost as well as attenuate the output in their respective frequency ranges.

To reduce the audibility of record imperfections further, various low- and high-frequency filters, graphic equalizers, and similar devices found their way into hi-fi systems, usually by incorporation into the heart of the system—a receiver or amplifier. Every one of these features required added controls in the form of knobs, buttons, or switches.

More than a decade ago, four-channel (quadraphonic) sound made its appearance. Four channels of amplification usually required twice as many control knobs as stereo, although sometimes the knobs

were combined to simplify the front panel. There was also added switching for the signal-processing circuits that extracted (more or less) the four original program channels from the two-channel quadraphonic recording. A full-blown quadraphonic receiver was a daunting spectacle for any but the most determined audiophile. Its front panel contained an imposing—often overwhelming—array of knobs and switches. For reasons that had little to do with this situation, quad mercifully faded away in a few years.

The advent of low-cost digital integrated circuits (IC's) sparked another revolution in consumer products (not limited to audio components, by any means). It was now possible to provide many more control features at little or no added cost. Some of them could be useful, but more often their contribution to the product's performance was negligible. The fact that most of these circuits could be controlled by tiny pushbuttons instead of bulky knobs further encouraged designers to add "bells and whistles," seemingly without limit, to their creations.

One result is today's typical "A/V" (audio/video) stereo receiver. I doubt that most owners will ever use more than a fraction of its control capabilities. Many models are sadly deficient in their ergonomic characteristics, and trying to find a particular button among dozens of controls can be a challenge. Nevertheless, our gadget-loving society seems to thrive on complexity.

In audio, however, a counter-movement has been in existence for many years. Generally referred to as "minimalist," it opposes incorporating any features into a product

that do not directly contribute to its primary function, which in this case is the production of the best possible sound quality. The front panel of a minimalist preamplifier, for example, contains only an input selector, a volume control, and possibly a tape recording/monitoring switch. Furthermore, the internal circuitry is kept to a minimum, and presumably the components and construction are of the highest quality. The preamplifier need not (*should* not, some say) control the line power to other components, which can be switched on and off from their own panels.

*I doubt that most owners use more than a fraction of the capabilities of a typical "A/V" receiver, but our gadget-loving society seems to thrive on complexity.*

There are numerous variations on this theme. Possibly the most extreme is the so-called "passive preamplifier," which is not really a preamplifier at all. Eschewing all electronic circuits on the assumption that their unavoidable signal degradation (no matter how minute) is objectionable, these devices are merely unpowered switch boxes containing a volume control that goes between the signal source and the output to the power amplifier. The fact that, unless the signal-source impedance is very low, an essentially unbuffered volume control is almost certain to degrade the high-frequency response does not seem to bother advocates of these devices. As simple as they are, though, passive preamplifiers are not at all inexpensive, usually costing more than many conventional preamplifiers.

I find myself sympathetic to the minimalist school. In my personal listening, I have yet to use a tone control or filter with modern (that is, stereo) program material, and I prefer system components that sound "right" to me without the aid of such devices, which cannot, in any case, adequately correct defi-

### *Tested This Month*

*Technics SL-P370  
Compact Disc Player  
Axiom AX2 Speaker System  
Atlantic Technology  
Pattern Speaker System  
Counterpoint SA-3000  
Preamplifier*

## TECHNICAL TALK

ciencies in speakers or room acoustics. I also choose to listen to recordings that do not require such treatment to make them listenable. Accordingly, most of the features offered in contemporary audio products are of no use to me as a listener and user.

Curiously, of the thousands of products I have tested, I can recall only one minimalist (in an operational sense) preamplifier—the Counterpoint SA-3000, reviewed in this issue. Without getting involved in the question of sonic differences between components, I can say that I found the Counterpoint preamp a thoroughly satisfying product to use. Being emancipated from the usual search over a black panel filled with black buttons was a rare pleasure. Whatever special sound characteristics might have resulted from its hybrid (tube/transistor) circuits were, for me, overshadowed by its tactile and visual qualities.

Unfortunately, the “less is more” philosophy of product design has its price. Virtually without exception, minimalist amplifiers are more expensive—usually *much* more expensive—than good conventional mass-produced products. I imagine that this is owing in good measure

to their very limited production runs, which eliminate the economies of large-scale manufacture. Another factor is their use of expensive, presumably high-quality components. I have no quarrel with this, especially if long life and reliability are the result, although I am totally unconvinced of the reality of the sonic differences that some claim

*The “minimalist” movement in audio opposes putting any features into a product that do not directly contribute toward production of the best possible sound.*

exist among passive electronic components, wire, and the like.

I suppose, too, that a simple, minimalist front panel might reduce a product’s appeal to a mass market that equates complexity with quality and low price with a lack of it. What a pity! It would be wonderful to see affordable preamplifiers with only three or four controls, but I don’t plan to hold my breath until that happy day arrives. □



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## TECHNICS SL-P370 COMPACT DISC PLAYER

*Julian Hirsch, Hirsch-Houck Laboratories*

**N**OT long after the introduction of the CD player—more than six years ago—it became evident that it was impractical to perform a completely accurate translation of a CD's 16-bit encoded digital signal into analog form with a 16-bit digital-to-analog (D/A) converter. Theoretically, a 16-bit converter would suffice, but a truly accurate converter chip would require such extremely tight tolerances for its internal resistance values that its price would have been prohibitive.

Fortunately, even the less-than-ideal 16-bit converters used in most CD players are capable of outperforming the finest analog equipment in respect to noise level and most audible distortions. The usual result of conversion errors in these devices is increased distortion at very low signal levels, typically less than -70 dB relative to maximum recording level. Although such levels are normally inaudible under actual listening conditions, the potential

exists, under special conditions and for very keen-eared and critical listeners, for low-level nonlinearities to mar the near-perfection of the digital recording/playback system.

Until now, the usual approach to the problem has been to use 18- or 20-bit D/A converters in the CD player. With the lowest signal level on a disc (represented by the sixteenth, or least significant, bit) far above the least significant bits of the converter, it is theoretically possible to obtain linear reproduction of every part of a recording. Since this approach is more costly than a basic 16-bit system, it is found largely in expensive CD players. Nevertheless, it is not unusual to find measurable nonlinearities at the lowest signal levels even with these premium-priced converters.

In recent months, we have been hearing about a new "1-bit" conversion system that completely eliminates the problem of low-level nonlinearity. Developed independently in Europe by Philips and in Japan jointly by Matsushita, the parent

company of Technics, and NTT (Nippon Telegraph and Telephone), two basic variants of the 1-bit system are now reaching the marketplace. Although the two versions differ in their details, each employs an oversampling process that eventually transforms the 16-bit digital signal from a CD into a train of pulses equivalent to the original analog signal. In the Matsushita system, the signal is effectively sampled at 33.8688 MHz (768 times the original 44.1-kHz rate!), emerging from the process as a pulse-width-modulated (PWM) stream of uniform-amplitude pulses, hence the "1-bit" designation.

Although the actual implementation of this process is much more complex than the above description implies, the result is simply a train of pulses that can be smoothed to an exact replica of the original analog waveform by means of a low-pass filter that removes its ultrasonic components. The resulting audio signal is free of "zero-crossing distortion," and its linearity is maintained over the full amplitude range. The noise content of the very wide-band pulse signal is relatively high, however, requiring a "noise shaping" process to reduce the noise energy in the audible band (below 20,000 Hz) by shifting it to higher (inaudible) frequencies.

## TEST REPORTS

Matsushita refers to its system by the somewhat strained acronym MASH, standing for multistage noise shaping. While 1-bit conversion has appeared in a couple of CD players from other companies, Matsushita has just begun to include MASH in Technics players for the U.S. market. The SL-P370 is the first of these we have had the opportunity to test.

Although the Technics SL-P370 is remarkably inexpensive, it offers a wide complement of convenience features, including programmability for as many as twenty tracks in any order, fast scan and track skipping in both directions, repeat of the entire disc or programmed sequence, and direct access to any numbered track from the front panel or the wireless remote control (which also duplicates almost all other front-panel functions). Taping features include an Auto Cue function, which cues up the following track when the current track is finished and automatically switches the player to pause, and Synchro-Edit, which automatically separates the tracks on a disc into groups that can be dubbed most efficiently onto the sides of a C-46, C-60, or C-90

cassette. There is also a headphone jack with volume control.

The display window is simple yet complete. At start-up it shows the total number of tracks and total playing time of the disc. During play it shows the current track number and its elapsed time as well as the current mode (play, pause, or stop). A row of small numbers along the bottom of the window shows how many tracks are on the disc and which ones have been played already. A TIME MODE button changes the display to show elapsed time on the disc and remaining time on the track or disc.

The rear apron contains only the audio output jacks and the Synchro-Edit jack, which sends control signals to a compatible Technics cassette deck during dubbing. The SL-P370 measures 17 inches wide, 10 $\frac{3}{8}$  inches deep, and 3 $\frac{3}{8}$  inches high, and it weighs 7 $\frac{3}{4}$  pounds. Price: \$219.95. Technics, Dept. SR, One Panasonic Way, Secaucus, NJ 07094.

### Lab Tests

Although we had no instruction manual (the test sample was an early unit shipped to us before deliver-

ies to the U.S. market began), we had no problems in using the player since most of its functions and controls are either conventional or self-explanatory.

The output from a 0-dB test signal was 2.31 volts. The open-circuit headphone output was 5 volts at the clipping point, falling to 3.5 volts into 600 ohms and 1.75 volts into 100 ohms. Although the available volume was very good into medium-impedance headphones, the front-panel control could easily be advanced to the point of severe clipping distortion (beyond its 2 o'clock setting). For undistorted playback, we found, the volume should always be set below its midpoint (12 o'clock).

The frequency response was ruler-flat up to 4,000 Hz, rolling off above 10,000 Hz to -0.6 dB at 20,000 Hz. Channel levels were matched within 0.1 dB. The interchannel phase shift varied from -0.2 degree at low frequencies to -0.9 degree at 20,000 Hz. The 0-dB total harmonic distortion (THD) plus noise was 0.0032 percent from 100 to 1,000 Hz, rising to 0.01 percent at 20 and 15,000 Hz. At a fixed 1,000-Hz frequency, the distortion was 0.0024 percent from -30 to -60 dB, climbing slightly to 0.0032 percent at 0 dB.

Spectral analysis of the low-level signal showed two unusual features. First, the linearity of the signals from -70 to -90 dB was superb, as we would have expected from the use of MASH circuitry. The amplitude error was a mere -0.5 dB at -70 and -80 dB, +0.3 dB at -90 dB. Second, the power-line-hum components in the audio outputs of the player were extremely low: The 60-Hz component was at a -125-dB level, and higher-frequency harmonics were undetectable. A full-range noise-spectrum analysis showed that the noise energy (in approximately one-third-octave bands) was at a constant -130 dB up to 500 Hz, rising slowly to -118 dB at 20,000 Hz.

The channel separation, slightly different for the two channels, was 108 to 118 dB at 100 Hz, 96 to 98 dB at 1,000 Hz, and 70 to 73 dB at 20,000 Hz. The maximum deemphasis frequency-response error was about 0.7 dB at 5,000 Hz, falling

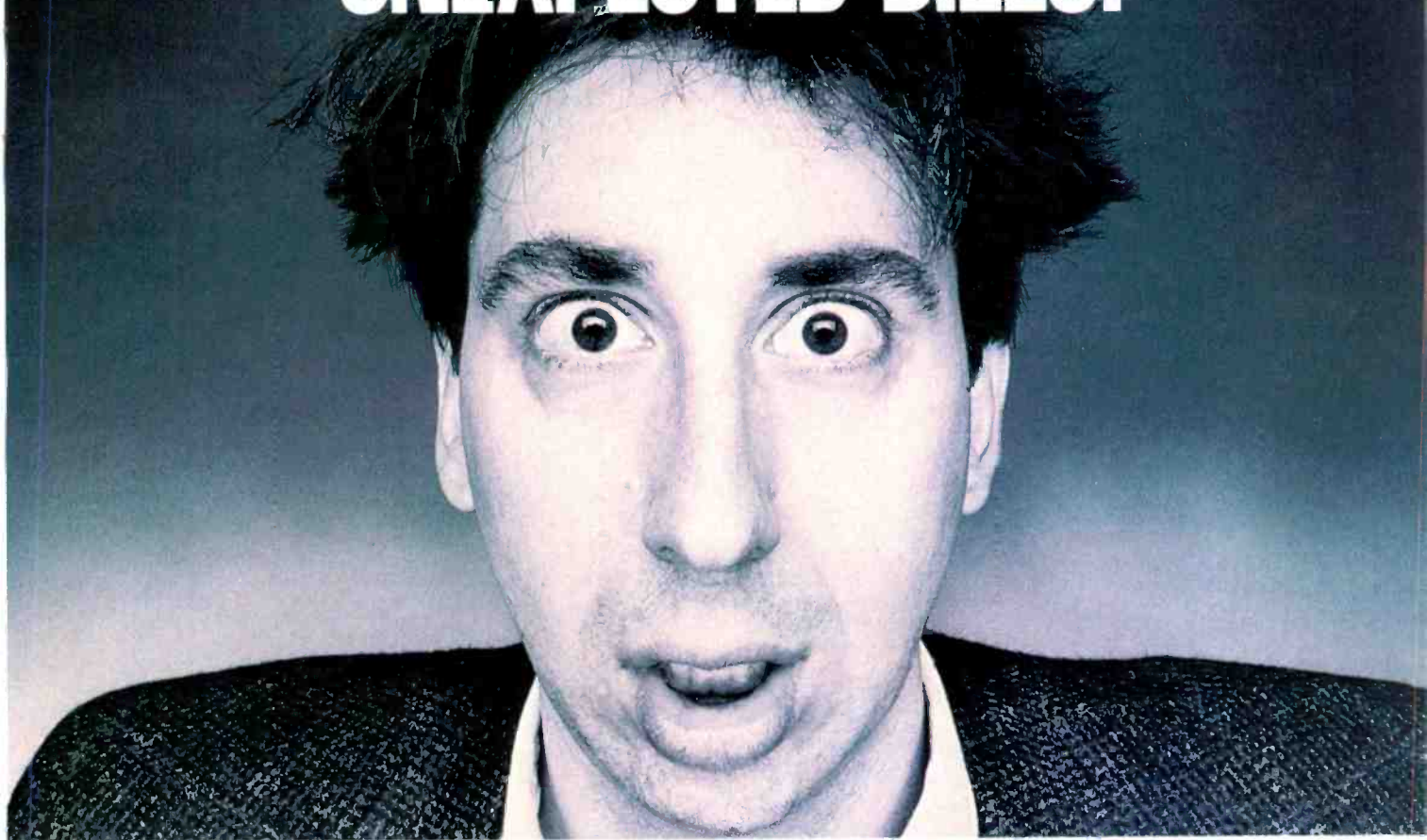
### FEATURES

- MASH 1-bit D/A converters
- Direct track access
- Programmable to play as many as twenty tracks in any order
- Repeat of entire disc or programmed sequence
- Track skipping and fast scan (with audible output) in both directions
- Plays CD-3's without adaptor
- Display of current track number and elapsed time in track, switchable to show elapsed time on disc and remaining time on track or disc
- Auto-Cue to pause playback at exact starting point of next track
- Synchro-Edit for automatic dubbing on compatible cassette deck; selects tracks to fit most efficiently on both sides of tape
- Front-panel headphone jack with volume control
- Infrared remote control duplicates front-panel controls

### LABORATORY MEASUREMENTS

- Maximum output level:** 2.31 volts
- Total harmonic distortion at 1,000 Hz:** 0.01% at 0 dB, 0.0024% from -30 to -60 dB
- Signal-to-noise ratio (A-weighted):** 110.4 dB with emphasis, 108.2 dB without emphasis
- Channel separation:** 108 to 118 dB at 100 Hz, 70 to 73 dB at 20,000 Hz
- Maximum interchannel phase shift:** 0.9 degree
- Frequency response:** +0.05, -0.6 dB from 7 to 20,000 Hz
- Low-level linearity error:** -0.5 dB at -70 dB, -0.5 dB at -80 dB, +0.3 dB at -90 dB
- Cueing time:** 1.5 seconds
- Cueing accuracy:** A
- Impact resistance:** top and sides, A
- Defect tracking:** tracked 2,000-micrometer defects on Pierre Verany #2 test disc

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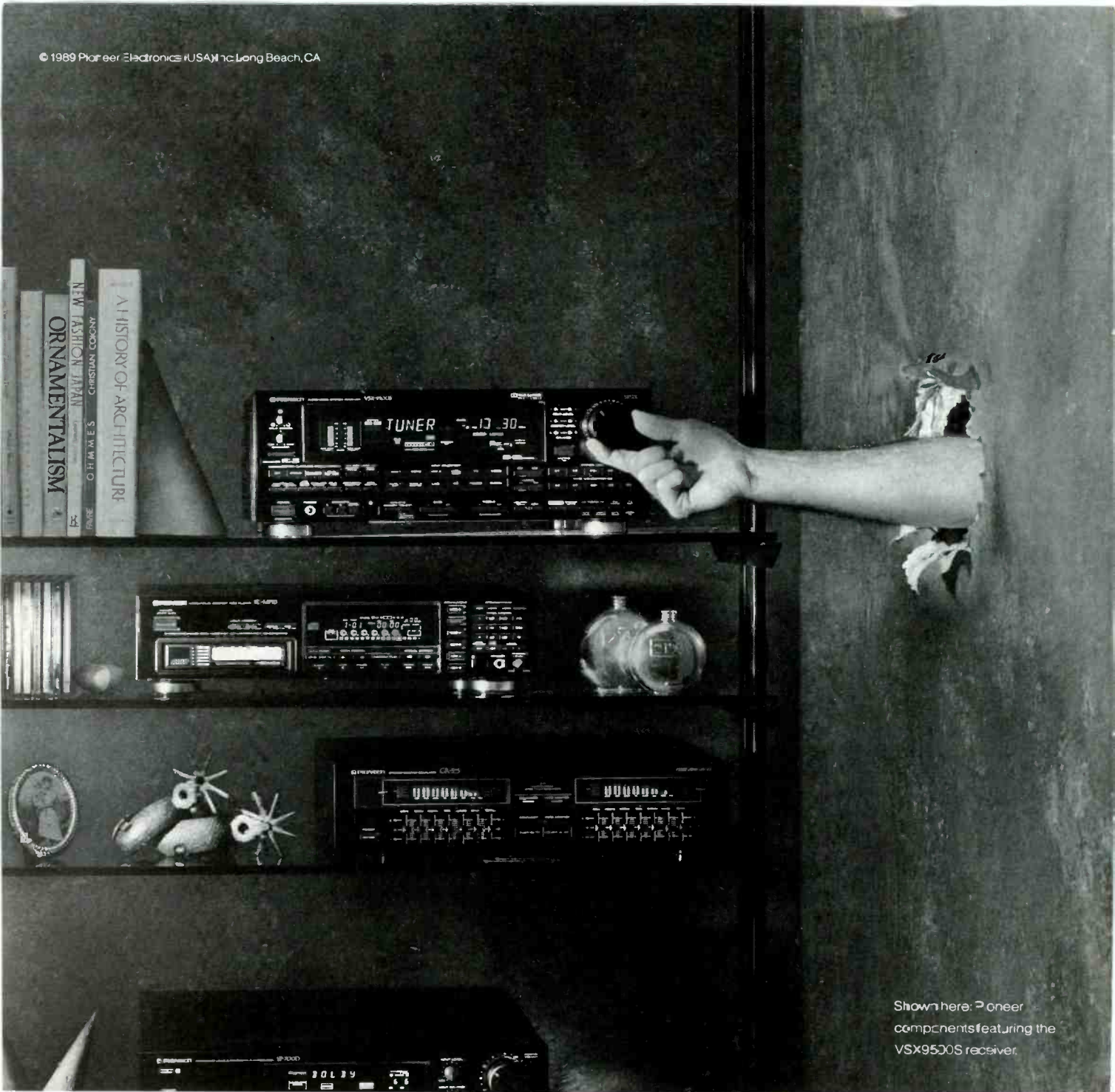
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## TEST REPORTS

to about 0.1 dB at 1,000 and 16,000 Hz. The dynamic range (EIAJ) was 102 dB, with a quantization-noise level of -92 dB. Wideband noise (A-weighted) was -110.4 dB with emphasis and -108.2 dB without emphasis. The frequency (speed) error was -0.0022 percent.

The laser transport slewed rapidly to a selected track, taking only 1.5 seconds to go from Track 1 to Track 15 of the Philips TS4 test disc. The error correction was very good, allowing only a single "tick" on the 2,000-micrometer defect band of the Pierre Verany #2 test disc. Despite its obviously light construction, the SL-P370 was remarkably resistant to impact. A fairly hard slap or blow on the top or side was required to cause audible mistracking or noise bursts.

### Comments

During a visit to the Technics factory in Osaka a few months ago, I heard a convincing demonstration of low-level D/A converter distortion and of its inaudibility through a MASH-equipped player. Such a demonstration is not easy to duplicate in a normal listening setup—for one thing, you must play back at an unreasonably high gain setting, and I am unwilling to risk my speakers or ears by doing so—but I was left with no doubt that a MASH-equipped player is essentially free of low-level nonlinearities.

Nevertheless, it was impressive to see how nearly ideal the very low-price SL-P370 was in that respect. Until now, players that could even come close to its caliber of performance were rare at *any* price! I had expected that MASH technology would have its impact in inexpensive products eventually, but hardly this soon.

Be that as it may, the SL-P370 is obviously a first-rate product, as nearly "state of the art" as any I know of, and surely one of the top values in home CD players. Even though it is unlikely that most people could actually hear the benefits of MASH under *real-world* listening conditions, this player has so many other virtues that one might almost consider the MASH system to be a bonus.

**Circle 140 on reader service card**



## AXIOM AX2 SPEAKER SYSTEM

*Julian Hirsch, Hirsch-Houck Laboratories*

**T**HE Canadian-made Axiom AX2 Reference Monitor is a two-way floor-standing speaker system measuring 24 inches high, 10 inches wide, and 9 inches deep. It weighs approximately 25 pounds. The cabinet is attractively finished on all sides (our test sample was covered in a blond birch veneer), and its black cloth grille is easily removable.

The AX2's 8-inch woofer operates in a vented enclosure, with the vent on the rear of the cabinet. High frequencies (above an unspecified crossover frequency) are radiated by a 1-inch soft-dome tweeter. There are no external level adjustments, but the back panel has two pairs of binding posts (their  $\frac{3}{4}$ -inch spacing is compatible with dual banana plugs) and a toggle switch. In its up position, the switch disconnects the tweeter from the main speaker inputs and makes it available at the second pair of terminals for biam-

plified operation. The crossover network's high-pass filter protects the tweeter against damage from low-frequency inputs in the biamplified mode.

According to Axiom, the AX2's woofer is designed to handle a wide dynamic range without "bottoming" or distorting. The damping material in the enclosure is said to be optimally placed to eliminate internal standing waves, and the front edge of the cabinet has a 45-degree bevel to eliminate diffraction.

The AX2's rated frequency response is 40 to 22,000 Hz  $\pm 2$  dB, and its sensitivity is rated as 89 dB sound-pressure level (SPL) in an anechoic environment. Minimum impedance is specified as 6 ohms. Amplifiers capable of delivering from 15 to 250 watts per channel are recommended for use with the AX2. Price: \$559 a pair. Axiom Audio, Dept. SR, Box 82, Highway 60, Dwight, Ontario P0A 1H0.

## TEST REPORTS

### Lab Tests

For listening and most of our measurements, we mounted the Axiom speakers on 7-inch stands so that the tweeters would be closer to ear level. They were about 2 feet in front of a wall and 7 feet apart. The averaged room response of the two speakers, despite the bumps and dips typical of room-boundary effects, was unusually uniform, vary-

*There was a refreshing lack of coloration in the sound of the Axiom AX2, and it delivered a surprisingly deep and clean lower register when called on to do so.*

ing only about  $\pm 5$  dB from 50 to 20,000 Hz. The close-miked woofer response, combined with the response measured at the rear port, was within  $\pm 2$  dB from 20 to 400 Hz. Above that frequency the close-miked measurement is no longer valid, since the wavelength of the sound becomes comparable to the dimensions of the driver.

The low-frequency portion of the bass curve was also somewhat misleading. The port radiation was dominant below about 60 Hz, giving the appearance of a nearly uniform output down to 20 Hz. Actually, the fundamental acoustic output is too low in the bottom octave to be useful, and the effective lower limit of the speaker's response was about 40 Hz—still very creditable for a small box with an 8-inch woofer.

Splicing the woofer response to the averaged room-response curve resulted in a composite frequency response flat within  $\pm 4$  dB from 40 to 20,000 Hz. The tweeter's horizontal directivity was excellent up to about 7,000 Hz, although the response 45 degrees off-axis dropped off rapidly above 8,000 Hz. Group-delay variation was less than 0.2 millisecond in the tweeter's operating range from 3,000 to 20,000 Hz.

Sensitivity was 90 dB SPL at 1 meter with a 2.83-volt input of pink noise. The woofer distortion at that level was 4 percent at 40 Hz,

decreasing to 0.9 percent at 90 Hz and varying between 0.3 and 0.65 percent from 100 to 1,000 Hz. The system's impedance reached a minimum of 4 ohms at 170 Hz, with other dips to 5 ohms at 30 Hz and 6 ohms from 5,000 to 9,000 Hz. The highest readings were 24 ohms at 65 Hz and 21 ohms at 1,500 Hz.

Pulse power tests confirmed the exceptional power-handling ability of the Axiom woofer. At 100 Hz, the onset of sharp overload sounds coincided with the amplifier's clipping, at 1,100 watts into the speaker's 5.5-ohm impedance. At higher frequencies (1,000 and 10,000 Hz), the amplifier clipped before any obvious distortion appeared in the speaker's acoustic output.

### Comments

Despite the proliferation of similar-looking small speakers from numerous manufacturers, there are very real differences among them. The Axiom AX2 is an excellent illustration. It sounded astonishingly the way its response curves and other test data indicated it would. There was a refreshing lack of coloration in its sound, and while it did

not emphasize the upper bass, it delivered a surprisingly deep and clean lower register when called on to do so. Although the highs were never shrill, the sound had a crispness and an airy quality that resulted from the flatness of its response up to and beyond the limits of human hearing.

Those qualities are not found in many higher-priced speakers and are still rarer in or near the price range of the AX2. Obviously, they were not achieved by an exotic design or expensive construction techniques, and most certainly not by accident.

A bonus is the speaker's very attractive appearance, with or without its grille in place. The two-page instruction "manual" tells the user everything he needs to know to install and use the speakers effectively. I was especially impressed by the way the AX2 lived up to the claims made for it, including its excellent sound stage and high power-handling ability in the low frequencies. Altogether, the Axiom AX2 is a very good value in today's well-filled speaker market.

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# COUNTERPOINT SA-3000 PREAMPLIFIER

*Julian Hirsch, Hirsch-Houck Laboratories*

**T**HE Counterpoint SA-3000 is a hybrid preamplifier combining solid-state and vacuum-tube circuitry. Its power transformer is a separate unit that's always active when plugged into a live electrical outlet. In the preamplifier's standby mode (equivalent to the off setting of a conventional amplifier), the tube heaters are lit from a 6-volt DC supply and all solid-state circuits are energized from their  $\pm 6$ -volt and  $\pm 15$ -volt supplies. Switching from standby to ready turns on the heater voltage of the 6CA4 rectifier, and the 240-volt power supply energizes the vacuum-tube stages.

Although no schematic diagram of the SA-3000's circuits is provided in its comprehensive manual, a technical description of its circuit layout indicates that, in general, each stage consists of one or more FET's (field-effect transistors) and a triode (one-half of a 6DJ8 tube).

Buffer stages are used between each triode stage and the following load to isolate the amplifier sections from low-impedance circuits that could affect their frequency response or distortion characteristics. Counterpoint says that the SA-3000's active stages were designed to reduce normal measurable distortion levels by at least one order of magnitude without using feedback to "preserve the desirable sound quality of vacuum tubes."

Most of the SA-3000's performance specifications are typical of today's high-quality preamplifiers. The line-level inputs have an impedance of 20,000 ohms (unselected outputs are shunted with 100 ohms to minimize noise pickup and crosstalk from unused inputs), and the phono inputs have a 47,000-ohm impedance. The moving-coil (MC) load resistance can be reduced as desired by inserting appropriate shunt resistors into clips on the cir-

cuit board. The rated maximum level of the line-output stage is 24 volts peak to peak (8.5 volts rms) with 1 percent distortion from 20 to 20,000 Hz. The power-supply regulator has so much reserve control range that the preamplifier is rated for operation from power sources of 88 to 133 volts at 50 or 60 Hz. Its standby power consumption is 35 watts, increasing to 50 watts in the operating mode.

The SA-3000 is a handsome component. It has a satin-silver front panel and side plates, with rounded front edges and corners, and a black top. Like most "high-end" preamplifiers, the SA-3000 has no tone controls or filters. A large knob at the left of the panel selects the input (phono, CD, tuner, video, Tape 2, or AUX); a similar knob at the right end is the volume control. A rotary monitor switch selects either the source or Tape 1 playback signal for listening, and nearby is a center-detented balance control. A miniature toggle switch selects mono or stereo mode, and two other switches serve as ready/standby and operate/mute selectors.

The preamplifier's operating status is indicated by a colored LED at the top center of the panel. In stand-



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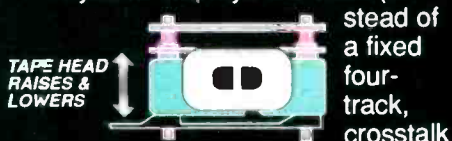
RX-738 LCD DISPLAY



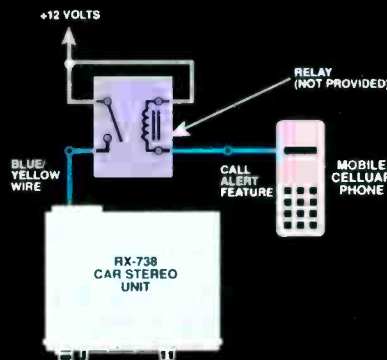
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## TEST REPORTS

by mode it glows red. When the switch is moved to ready, the light turns yellow and blinks on and off for about 60 seconds while the circuits stabilize. It then remains on steadily, in yellow if mute is selected, green otherwise.

All the signal jacks on the rear apron are gold-plated. There are two pairs of main output jacks (for driving two amplifiers) and two sets of tape-recording outputs. Although the SA-3000 has separate inputs for MM and MC phono cartridges, the single phono-preamplifier section must be set for one type or the other with internal switches after removing the top cover (held in place by seventeen screws). Shorting plugs are inserted in the unused phono-input jacks.

The Counterpoint SA-3000 measures 19 inches wide, 12 $\frac{3}{8}$  inches deep, and 4 $\frac{1}{2}$  inches high, and it weighs 22 pounds. Price: \$1,895. Counterpoint, Dept. SR, 2610 Commerce Dr., Vista, CA 92083.

### Lab Tests

The Counterpoint SA-3000 had an input sensitivity, for a 0.5-volt output, of 31.5 millivolts (mV) through a high-level input and 1.7 mV through the MM phono input. The respective A-weighted noise levels were -87.5 and -73.2 dB, referred to 0.5 volt. The phono stage overloaded at 300 mV at 1,000 Hz

and 125 mV at 20 Hz. At 20,000 Hz the overload level was a rather low 42 mV, at which point the waveform collapsed and varied erratically for a couple of seconds. Although the output eventually stabilized and did not show waveform distortion until a much higher level was reached, we consider the first obvious departure from linearity to be the actual overload point. The phono-input impedance was 47,000 ohms in parallel with a very low 25-picofarad (pF) capacitance.

The output clipped at about 8 volts rms. Total harmonic distortion (THD) was only 0.003 percent at 0.5 volt output, increasing to 0.008 percent at 1 volt and 0.025 percent at 3 volts. Frequency response through a line input (CD) was  $\pm 0.05$  dB from 10 to 20,000 Hz, falling to -0.2 dB at 50,000 Hz. The RIAA phono-equalization error was  $\pm 0.2$  dB from 10 to 20,000 Hz.

Phase shift from input to output varied between +2.5 and -5.5 degrees from 20 to 20,000 Hz, and there was a polarity reversal from the CD input to the main output (contrary to the implication of the specifications in the manual). A spectrum analysis of the preamplifier's noise output showed readings in the range of 3 to 15 microvolts between 75 and 20,000 Hz, corresponding to -104 to -90 dB referred to 0.5 volt. At 60 Hz there was

a 60-microvolt hum component (-78 dB relative to 0.5 volt).

### Comments

The quality of the Counterpoint SA-3000's construction was apparent at first glance—an impression that was reinforced when we handled the controls and removed the top cover to examine its interior. (Every owner will get the same opportunity, since it is necessary to remove the cover to install the tubes and to set the phono preamplifier for the preferred cartridge type.) All of the controls operated with silky smoothness and a positive feel. Top-quality parts are used (ceramic-wafer rotary switches for input selection, for example), and the single large circuit board is a thing of beauty, with virtually no visible wiring. The absence of the usual jungle of cables and wires snaking about the interior was striking.

Actually, this kind of construction is what one should expect from any product priced in the range of the SA-3000 (which is roughly in the middle of the Counterpoint line). We cannot judge a component's reliability during the brief period of a test program, but we would expect this preamplifier to be as rugged and lasting as a consumer electronic product can be.

The operation of the SA-3000 fit the same pattern of quality. There were no turn-on, turn-off, or switching transients and, for all practical purposes, no crosstalk.

What about sound? Well, I make no secret of the fact that (to me) all good preamplifiers sound pretty much alike. In an A/B comparison with a good but much less expensive preamplifier, playing the same CD with matched levels, I heard no difference. That came as no surprise to me, nor should it to any reader. There is more to appreciating fine audio components than what impinges on the eardrums. I have no doubt that anyone who invests in the SA-3000 and pairs it with a good power amplifier and good speakers will not be disappointed. It fairly oozes a sense of quality, and nothing about its sound or feel conflicts with that impression. It is a component I would be proud to own.

**Circle 142 on reader service card**

### FEATURES

- Hybrid FET/vacuum-tube amplifier stages
- Interstage buffers to reduce effect of varying load impedance
- Regulated low-voltage power supplies constantly energized
- No overall feedback
- Separate power transformer for minimum hum
- Inputs for six high-level sources
- Phono preamplifier internally switched for MM or MC cartridge; MC terminating resistance user-adjustable
- Connections for two tape decks with monitoring from one
- Gold-plated signal jacks
- Can use 50- or 60-Hz AC power at 88 to 133 volts

### LABORATORY MEASUREMENTS

**Output level at clipping:** 8 volts

**Sensitivity (for 0.5-volt output):**

CD, 31.5 mV; phono (MM), 1.7 mV

**A-weighted noise (referred to a 0.5-volt output):** CD, -87.5 dB; phono (MM), -73.2 dB

**1,000-Hz distortion (THD):** 0.025% at 3 volts

**Phono-input overload (20 to 20,000 Hz, MM):** 300 mV at 1,000 Hz, 125 mV at 20 Hz, 42 mV at 20,000 Hz (see text)

**Phono-input impedance:** 47,000 ohms in parallel with 25 pF

**RIAA equalization error:**  $\pm 0.2$  dB from 20 to 20,000 Hz

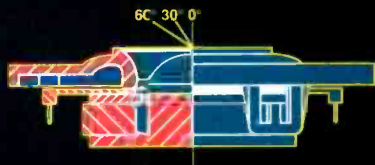
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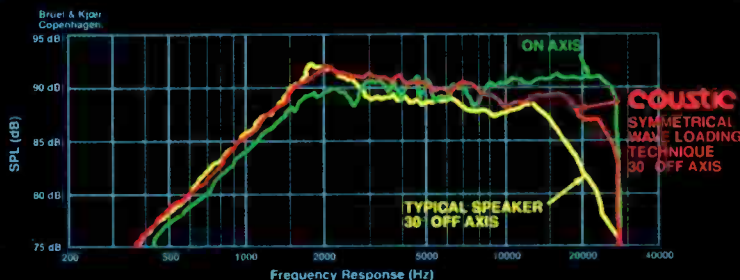
SUBWOOFERS: HT-610, HT-615, HT-608, HT-612



MID WOOFERS: HT-604, HT-606, HT-608, HT-605

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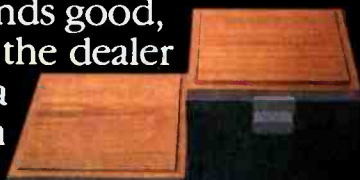
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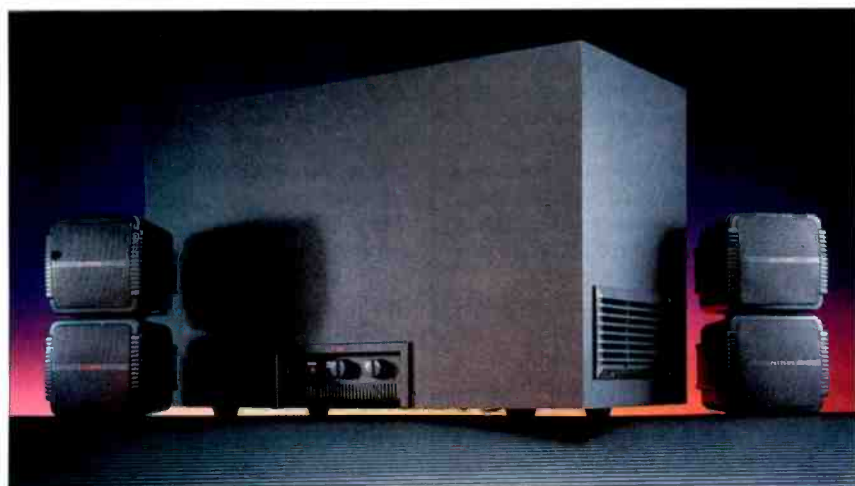
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Also ask for a detailed explanation of 3D Bit Stream, or write: Harman Kardon, Engineering Dept., 240 Crossways Park West, Woodbury, NY 11797.

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### ATLANTIC TECHNOLOGY PATTERN SPEAKER SYSTEM

*Julian Hirsch, Hirsch-Houck Laboratories*

**T**HE Pattern three-piece system from Atlantic Technology may resemble other three-piece systems superficially, but it is actually different from others we have seen in that it is a *powered* system. Its bass module contains a separate 15-watt amplifier for each of the two satellites and a 30-watt amplifier for the bass drivers. In addition, the characteristics of the electronics and the speakers have been coordinated to make driver damage from excessive input levels virtually impossible.

Each "controlled dispersion" Pattern satellite consists of two black cubes joined together with a pivot that allows one cube to be rotated a full 360 degrees relative to the other. The combination measures about 4 inches square and 7¼ inches high and weighs a mere 3 pounds. The magnetically shielded satellites can be placed close to a TV receiver or video monitor without affecting its performance. Each cube contains a 3½-inch cone driver that handles the frequency range above approximately 200 Hz.

The bass module is relatively large compared with those of other three-piece systems. A black box measuring 19 inches long, 12½ inches high, and 8⅝ inches deep, it

weighs a hefty 29 pounds. Within it are two 6½-inch drivers. The sealed enclosure behind both drivers occupies slightly more than half the interior of the box. The downward-facing cones radiate into the remaining volume, which opens to the exterior through 6½ x 2-inch grilles on either end of the box.

The system's interconnections are made from the bottom of the bass module, which is raised about ¾ inch from the floor on rubber feet. The Pattern has an unusual input system whose electronic mixing gives it unique flexibility. The three pairs of RCA-type line-input jacks can be assigned to as many different program sources, such as a phono preamplifier, tuner, cassette deck, or CD player. An input cable is also furnished for connection to a mini phone jack on a portable. Any source that is turned on is heard through the system. To change input sources, the user switches one off and turns the other on; if more than one is active, their outputs mix and are heard simultaneously. By varying their volume controls in opposite directions, you can smoothly fade between two programs.

In addition to the line inputs, the Pattern has spring-loaded clips to receive wires from the speaker out-

puts of an amplifier or receiver. The speaker input automatically attenuates the incoming signals to a level compatible with the requirements of the Pattern system.

Recessed into the side of the box are a master volume control and a bass level control as well as a red LED to indicate that the system is plugged into an energized AC outlet (a rocker switch on the underside of the box switches its power on or off). The Pattern system consumes only 2 watts of power in the standby mode (a maximum of 120 watts at full power output) and is meant to be permanently energized. Its amplifiers switch on automatically when a signal appears at any one of the inputs. The master volume control is used to set a comfortable maximum volume when the main system volume is at its usual setting. The bass level knob varies the low-bass level relative to the overall volume and is also normally a "set and forget" adjustment.

The connections from the bass module to the satellites are made with polarized plugs to eliminate a possible source of phasing errors. Of course, it is still necessary to observe polarity when connecting the Pattern system to an amplifier's speaker outputs (since the Pattern has common grounds in its inputs, the source amplifier cannot have a bridged configuration).

Atlantic Technology suggests several approaches to adjusting the satellites' directivity to suit listening conditions. By design, the satellites do not have a particularly broad horizontal dispersion, and the two drivers in each further restrict their vertical directivity. These characteristics are desirable to minimize the influence of room-boundary reflections on the direct sound from the speakers, which can be aimed as required for the most effective stereo performance. The cubes can even be aimed in opposite directions to provide bipolar radiation, a desirable characteristic for side speakers in a surround-sound installation.

As with most three-piece systems, the placement of the bass module of the Atlantic Technology Pattern is relatively noncritical. In general, it should not be forward of the line between the satellite speakers, and

## TEST REPORTS

its low-bass performance will vary with its relationship to the room boundaries.

The Pattern has another unique feature that may not be immediately obvious, although it contributes in good measure to its total performance. The bass amplifier includes a "dynamic equalizer" that permits high volume levels without damaging the speakers or generating unpleasant distortion. The circuit is, in effect, an automatic loudness control that enhances the low-bass output at low volume levels and reduces it when the program level increases. A matching excursion-limiting feature prevents the woofers from being overdriven by strong bass peaks. The satellites' power-handling capacity has been matched to that of their driving amplifiers, preventing burnout of their small voice coils by careless use.

Price: \$499, including connecting cables. Atlantic Technology, Dept. SR, 575 University Ave., Norwood, MA 02062.

### Lab Tests

Testing self-powered speakers requires some modification of our standard procedures. We drove the Atlantic Technology Pattern from a high-quality preamplifier using the bass-level setting we had found suitable during our preceding listening tests. Room-response measurements were made with the bass module first in the corner, where we preferred it for listening, and then midway between the satellites, which produced a smoother room curve. The satellites were placed on 26-inch stands about 2 feet in front of the wall, facing straight ahead.

First of all, using the maximum setting of the master volume control, we measured the input needed to produce a 90-dB sound-pressure level (SPL) 1 meter from a satellite with a pink-noise test signal. Only 55 millivolts (mV) was required, indicating that the system is compatible with any source.

The room response, averaged for both left and right speakers, was unusually flat. The ripples caused by room reflections were present, but when the curve was combined with the close-miked bass response the result was a response flat within

$\pm 3$  dB from 50 to 20,000 Hz. Quasi-anechoic FFT response measurements showed approximately the same range of variation, with the maximum output occurring at about 10,000 Hz. The close-miked bass response (with the microphone next to one of the grilles on the bass module) was flat within  $\pm 2$  dB from 50 to 200 Hz, falling off at 12 dB per octave at lower frequencies.

The horizontal dispersion of a satellite was relatively restricted. The response curves measured on-axis and 45 degrees off the forward axis began to diverge above 3,000 or 4,000 Hz, and they differed by 12 to 15 dB or more above 8,000 Hz. The group delay varied by about 0.3 millisecond overall between 2,000 and 20,000 Hz.

With a 55-millivolt input (equivalent to a 90-dB SPL), the bass distortion was 4.5 percent at 30 Hz, falling to between 1 and 2 percent from 36 to 90 Hz and to less than 1 percent from 90 to 200 Hz. At 100 Hz, the distortion was around 1 percent from 30 to 80 mV input (84 to 93 dB SPL), and it rose to 3.5 percent at 300 mV (105 dB SPL).

We plotted the system's frequency response at several input levels from 10 mV to 1 volt (75 dB to 115 dB SPL). The bass output was greatest, relative to the higher frequencies, with the lowest inputs and decreased by about 5 dB as the drive level was increased. Although 5 dB is a rather modest change in the context of loudness compensation, it is considerable from the standpoint of loudspeaker protection, reducing the relative power drive level in the bass by almost half as the signal increases.

Our high-power pulse tests also demonstrated the system's dynamic equalization. At 100 Hz, the output of a single-cycle burst began to sound slightly hard, and its waveform became flat-sided but did not clip, with a 375-mV input (about 107 dB SPL). Below that level it sounded quite clean, and even above it there was never the rasping sound typical of a cone reaching its suspension limits. The satellite's output began to distort at 620 mV with a 1,000-Hz input, and it showed a slight waveform distortion at 10,000 Hz with 340 mV.

### Comments

Hearing the Atlantic Technology Pattern was one of the most unexpected experiences I have enjoyed in some time. As regular readers know, I have long been a proponent of three-piece speaker systems. They can provide exceptional sound quality in limited space and with minimum visibility, and they usually offer outstanding value.

The Atlantic Technology Pattern should not be judged merely as a small, compact speaker system, although it certainly is one, nor as just a low-price system, although it is hard to imagine a pair of conventional bi-amplified speakers of this quality and their amplifiers selling for anywhere near \$500. I have had plenty of opportunity to compare the Pattern side by side with my favorite conventional speakers, and it stands up very well against the best of them.

By that I do not mean that it sounds *better* than they do with all source material, though sometimes it *does* sound better. In general it sounds like a really good conventional system, with an easy, smooth quality that actually surpasses some of them. As I write this, I am listening to the Pattern playing the Telarc CD of Beethoven's *Missa Solemnis*, and there is no way anyone would believe that the sound is coming from those tiny satellites without going up to one of them and putting an ear to its grille. Common sense tells us that the sound must be coming from those big speakers next to the Pattern satellites. So much for common sense.

Yes, I have found some material that definitely sounds better on my regular speakers, but they cost three to five times as much as the Pattern. And that does not include perhaps a thousand dollars worth of amplifiers. Perhaps some other speakers, driven by a few hundred watts, can be played a bit louder (although I wouldn't want to be in the same room with them at the time), but the fact remains that the Pattern is an exceptional bargain. Listen for yourself, if you don't believe me—and you shouldn't accept such statements at face value from *anyone*.

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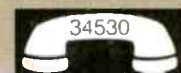
**SE120 MOSFET Amplifier.** Featuring 60 watts per channel of MOSFET output power. This conservatively rated power amplifier is based upon the heralded DH 120 circuitry. Utilizing a novel drive circuit which is extraordinarily linear, it achieves ultra-low distortion without the use of high negative feedback. The result is: Ruggedness. Linearity. High speed. And the "tube-like" characteristics of smoother sound with less distortion.

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WHEN 70,837 manufacturers, distributors, retailers, and journalists gathered at the Las Vegas Convention Center in January for the Winter

Consumer Electronics Show, they got an exciting glimpse of what the world will be hearing and watching from the early Nineties until the turn of the century.

It looks like digital audio tape recorders will finally make it to the general U.S. market this year if Sony, Technics, JVC, and Denon stick to plans announced at the show. Analog tape decks, however, are putting up a strong resistance with Dolby S noise-reduction circuitry, and Harman Kardon, Denon, and Teac all showed prototypes of Dolby S-equipped machines that are expected to arrive in stores later this year. Pioneer, which demonstrated a Dolby S prototype to the press but did not disclose marketing plans, also showed a six-tape cassette changer that's designed to work with its six-disc CD changers.

In the multiplay-disc category, Sansui unveiled a six-plus-one CD changer/receiver, and NEC and Panasonic introduced their first combination laserdisc/CD players. Pioneer also showcased three combi-players that double as *karaoke* (sing-along) machines.

Home theater systems were on display from Vidikron, Mitsubishi, Sharp, and Harman Electronics, among others, while Yamaha, Denon, Marantz, and Onkyo showed surround-sound amplifiers and receivers equipped with Dolby Pro Logic circuitry. Grundig displayed a hi-fi VCR with swinging-needle audio recording meters and a 20-inch stereo TV designed by Porsche. Sony added sound to its Mavica still-video camera, and Toshiba said it was incorporating a DAT storage option in its IC Card camera system, due in the U.S. in the second half of the year.

It's clear that the Nineties will be digital, and digital signal processing was the big autosound news at the show. Eclipse showed its new \$1,000 standalone processor, and Pioneer, Technics, and Sanyo demonstrated prototypes that should be in stores by fall. The car is also becoming Control Central with products like Pioneer's GEX-M900TV—which combines an AM/FM tuner, a multi-CD controller, a TV tuner, and a video-game control-

ler—and the Philips CarVision 4-inch LCD TV.

As usual, there was a host of firsts: Allison Acoustics introduced its first autosound product, the Cruise-Master series of two- and three-way speakers. Altec Lansing exhibited its first in-wall speakers and subwoofer. Koss demonstrated its first subwoofer. Delco provided circuitry for a home audio product, the Hafler SE 130 receiver. Aiwa showed its first line of audio/video receivers. Memorex announced its first home audio speaker and surround-sound products. Monster Cable ventured into recordings for the first time with its

**New  
products  
from the  
Consumer  
Electronics  
Show**

# CES SHOW STOPPERS

Monster Musician line of audiophile CD's. And Terk Technologies expanded beyond antennas with the Leapfrog, a wireless multiroom speaker/amplifier system.

Peeks into the future of audio/video were provided by Philips with its CD-interactive technology; by That's, which demonstrated recordable CD's using Kenwood and Sony equipment and its own discs; and, as at last summer's show, by Barco and Fosgate with their magnificent high-definition TV (HDTV) presentation. We're well on our way to the twenty-first century.

The following pages show the products available today or in the coming months that caught our ears and eyes in Las Vegas.

**by  
Rebecca Day**



**P**ioneer has introduced a cassette changer with a capacity of six tapes. The CT-M6R (\$450) includes Dolby B and Dolby C noise reduction and Dolby HX Pro. It can play selections from any of the loaded cassettes as well as all six tapes consecutively. A "CD-Synchro" function allows it to be coordinated for dubbing with a compatible Pioneer CD player.



**T**he KEF Model 105/3 uses the company's Uni-Q driver, in which the tweeter is located at the apex of the upper-midrange driver. The two drivers are said to behave as a single coherent point source of sound. Frequency response of the system is rated as 49 to 20,000 Hz  $\pm$  2.5 db and its sensitivity as 93 db. The cabinet, finished in black-ash or walnut veneer, measures 43½ x 11 x 16 inches. Price: \$3,500 a pair.

**Y**amaha's DSP-A700 Digital Sound Field Processor (\$1,099) is a complete seven-channel amplifier and surround-sound processor. It's designed to be used with Yamaha's AVS-700 source selector (not shown, \$299) and effects speakers like these YST-SE10's (\$79 each).



**B**laupunkt's TravelPilot car navigation system uses CD-ROM's to store maps and directories, which come up on a CRT display. Select a destination from the directory, and the screen displays the best routes to it. The system sells in West Germany for about \$3,800 and is due here later this year.



**S**ony's DTC-75ES digital audio tape deck capped off an impressive assembly-line demonstration of the company's digital audio technology from live recording to playback. Sony also launched a line of prerecorded DAT's on the Sony Classical label, with ten titles in the first release. Both the recorder and the tapes will be available by mid-year, but no prices were given.



**W**ho needs auto scan when you could have the Technics CQ-1D90 ID Logic cassette receiver (top, \$799)? Instruct it to tune in a rock or jazz program, for example, and it will find the strongest local station in the selected format wherever you are in the U.S.

**A**nd now you can turn your car into a stadium, a cathedral, a jazz club, or just about any other acoustical environment you can dream up with the Eclipse EQS-1000 digital sound processor (\$1,000). It even has a built-in 10-watt amplifier for a center channel.



**T**he AKG K 1000 headphone system (\$895) uses soft leather temple pads that angle the transducers away from the ears instead of conventional ear cushions, which the company says can interfere with the sound. The phones connect to the speaker terminals of an amplifier.

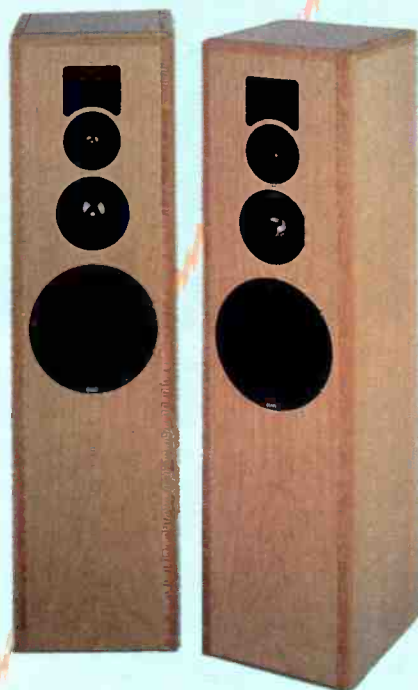
**A**tlantic Technology's Pattern Surround Home Theater (\$1,199) includes two pairs of shielded satellite speakers, a center dialogue speaker, a remote-controlled Dolby Pro Logic decoder, and a powered bass module with five channels of amplification.



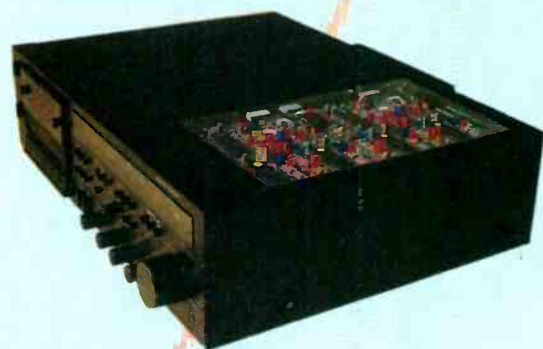


**T**he SharpVision 100-inch projection TV system (top, \$5,200) uses a liquid-crystal projector capable of more than 300 lines of horizontal resolution, while Mitsubishi's VS-12001 (bottom) is a 120-inch rear-projection system that uses a 6 x 8-foot flush-mounted screen and has both composite and S-video inputs as well as RGB terminals for use with high-end video and computer sources. Price is \$20,000.

**M**B Quart's newest speaker, called Pure, is a three-way system that uses a woofer loading technique said to combine the best qualities of bass-reflex and acoustic-suspension enclosures. Frequency response is rated as 28 to 32,000 Hz and sensitivity as 88 dB. The cabinet measures 44 x 12 x 14 inches, and the speaker weighs 82 pounds. Standard finishes are oak, walnut, and white or black matte. Price: \$3,000 a pair.



**H**arman Kardon showed a prototype Dolby S-equipped cassette recorder using the chassis of its CD 491 deck. Depending on availability of Dolby S circuits, plans are for the new decks to be available by this fall.



**F**ive separate amplifiers and Dolby Pro Logic are featured in Onkyo's new TX-SV90 surround-sound receiver (\$1,100). It also has hall and matrix surround modes, and a step-adjustable digital delay lets users modify the sound to suit a particular listening room.



# V I D E O FOR THE NINETIES



**T**HE last fifteen years in home video have been the most exciting since the introduction of color television. Technology highlights include the VCR, the videodisc, the camcorder, projection television, and stereo sound for TV. Whirlwind change and rapid evolution of formats and equipment design have been the norm. And, standing now on the threshold of a new decade, there seems little reason to expect anything except more innovation. The next ten years hold the promise of such delights as high-definition television (HDTV), digital video recording, flat-panel video displays, and more.

But swift, relentless technological advance can bring befuddlement as well as progress. The dread of instant obsolescence may hang darkly over every purchase, and keeping up with the buzzwords can start to seem like a full-time job (as indeed it is for some of us). With that in mind, now is perhaps a good time to take stock of where we stand in home video and of where we might reasonably expect to find ourselves in a few years.

## VCR's

In VCR's, the 1980's brought the decline of Beta, the ascendancy of VHS, and the emergence of 8mm. All three VCR formats enjoyed the

addition of optional high-fidelity stereo sound: Beta Hi-Fi and VHS Hi-Fi, which are audio-frequency-modulation (AFM) systems; a modest digital system for 8mm; and, most recently, a stereo AFM system for 8mm, developed by Canon, that is compatible with the format's standard mono AFM audio in much the same way that stereo FM radio broadcasts are compatible with mono FM receivers. All of these systems are capable of very good performance, though none of them matches the quality available from CD or digital audio tape. In January, VHS's inventor, JVC, announced a system for recording stereo digital audio together with VHS video. The company's description of that system is reminiscent of the DAT format, but apparently it will not be available for another year or two.

Other developments have led to improved video reproduction. The first small steps in this direction were Super

Beta, which increased the bandwidth of the luminance signal to provide a more detailed image, and VHS HQ, which used a number of techniques to sharpen edge definition. Super Beta's more aggressive approach yielded a much more obvious improvement (VHS HQ's effect being rather hard to detect in most cases) but at the expense of creating re-

A look at where  
we stand in  
video and where  
we're headed in  
the coming decade

by Michael Riggs

ILLUSTRATION BY MARTI SHORIE



*NEC's first laserdisc player is the LD-2000 (\$1,399). It is said to provide up to 425 lines of resolution and uses 16-bit D/A converters and a four-times-over-sampling digital filter.*



*Canon's A1 Mark II Hi-Band 8mm camcorder (\$2,299) features autofocus, seven shutter speeds, a 10:1 zoom lens, and a low-light capability of 4 lux. It also has a wireless remote control and stereo hi-fi sound.*



*The HR-S8000U (\$1,599) from JVC is an S-VHS deck with VHS Hi-Fi sound, four video heads, digital special effects, MTS decoder, a flying erase head, and an index-search system.*



cordings that could not be played back on conventional Beta decks.

Nonetheless, the VHS camp eventually saw the necessity of taking the bull by the horns and introduced Super VHS, or S-VHS, which comfortably outpaced Super Beta in its resolution-boosting extension of luminance bandwidth. Soon afterward, Extended Definition (ED) Beta leapfrogged S-VHS, but the difference was, practically speaking, small, and by then Beta was nearly dead in the market anyway.

The most recent of the enhanced-resolution formats is Hi8, a wide-bandwidth version of 8mm that makes it the most improved of all the formats. Whereas standard 8mm recordings typically are both softer and noisier than standard VHS recordings, Hi8 stands up well to S-VHS on both counts. As with S-VHS and ED Beta, special tape is required and recordings made in the high-performance mode cannot be played back on standard decks.

Today's VCR's also tend to be much more convenient to operate than those of the past. Common features on high-end models include flying erase heads for seamless edits, real-time tape counters, index-marking schemes for fast cueing to a desired scene, a set of front-panel audio and video inputs for easy access, on-screen programming, and various special effects.

Despite the work that has gone into improving the various VCR formats, they still are incapable of video reproduction equal to that of laserdiscs or clean, well-received broadcasts. Although luminance resolution is now good, color resolution remains low—no better than it was in the first Beta and VHS machines and well under what one can get from a broadcast or laserdisc. And video noise, which appears as "snow" or a mottled quality in expanses of color, is quite high, forcing the use of aggressive noise-reduction systems that create other visible, if more subtle, problems. Continuing improvements to analog video-recording systems undoubtedly will chip away at these limitations, but by the turn of the century a more radical solution might be at hand: VCR's that record video signals digitally. Such machines could rival current professional digital video recorders.





## Camcorders

Sony probably did not sell many of its original Betamovie camcorders, but the idea took firm root. Today, camcorders are the fastest-growing segment of the video market. Surprisingly, bulky full-size VHS units remain the most popular models in the United States, perhaps because they use exactly the same cassettes as VHS VCR's, greatly simplifying playback. But the much smaller and lighter VHS-C and, especially, 8mm models are rapidly gaining ground.

The VHS-C system uses a compact VHS cassette, small enough to fit in the palm of your hand, to record 20 or 30 minutes of video in standard-play (SP) mode, 60 or 90 minutes in extended-play (EP) mode. Playback is from the camcorder or, via an adaptor, a VHS VCR. Although the adaptor system works, it is somewhat clumsy and can damage the tape if you're not careful. JVC and Panasonic have shown prototypes of VCR's that accept both standard VHS and VHS-C cassettes directly, but these machines are not yet for sale.

In this regard, the 8mm format enjoys some advantage, having been designed from the ground up with camcorders in mind. Although 8mm cassettes are smaller than VHS-C cassettes, they can record for as long as 2 hours in the standard-play (SP) mode or 4 hours in the long-play (LP) mode. And the 8mm cassette shell is the best of any of the formats, providing excellent tape protection. The main drawbacks are that 8mm cassettes can't be played in VHS VCR's and that 8mm VCR's are rare. For this reason, virtually all 8mm camcorders operate as playback decks as well as recorders.

Camcorders come in nearly as many performance flavors as tabletop VCR's: VHS, S-VHS, VHS-C, S-VHS-C, 8mm, and Hi8. Stereo sound recording is available for all of these camcorder formats except standard VHS-C, but it is uncommon. One reason is that often it is technically difficult to fit the necessary parts into a camcorder, but lack of demand may play a role as well. Probably most buyers see stereo as beneficial only for music, not realizing how much more natural it

sounds for all types of recording and the degree to which it can improve speech intelligibility when a number of people are talking at once.

A VHS-C or 8mm camcorder is a marvel of miniaturization, yet manufacturers pack them with an astonishing array of features. In a high-end unit, weighing all of perhaps 4 pounds, it is not unusual to find a flying erase head for smooth edits, autofocus and autoexposure, power zoom, backlight compensation, fade in and fade out, date and titling functions, high-speed shutter options for capturing fast action, and more. Consumers are gradually swinging to the compact camcorder formats, and in the future we can expect a continuation of the trend to smaller camcorders that offer high performance, flexibility, automation, and ease of operation.

## Videodisc Players

Although laser videodisc players were introduced a decade ago, they have until recently led an obscure existence. Pioneer singlehandedly kept the format alive for most of that period, until it began to gain wider attention and the support of other manufacturers. Perhaps the biggest thing the system had going against it was its inability to record, which put it at a disadvantage relative to VCR's, but as video monitors have become bigger and better, the shortcomings of the existing videocassette formats have become increasingly evident. For playback of prerecorded material, such as movies, the significantly higher audio and video quality available from the laserdisc format makes it a very appealing alternative.

The other thing that has helped laserdiscs along has been the introduction of combi-players, which play laserdiscs, CD's, and CD-V's (usually CD's containing 20 minutes of digital audio plus a 5-minute music video). A combi-player is ideal for an audio/video system and gives laserdisc playback capability for little more than you would pay for a good dedicated CD player.

Laserdiscs come in two basic varieties: CAV (constant angular velocity) and CLV (constant linear velocity). A CAV disc holds one video frame per track, which makes still-frame easy and enables cueing by

frame number. But because a CAV disc can hold only 30 minutes per side, CLV discs, which provide double the capacity by putting more information on tracks near the edge than on tracks near the center, are far more common. For example, most movies will fit onto two sides of a single CLV laserdisc. There is no way to cue by frame number on a CLV disc, but some players can do still-frame using digital memory.

Over the years, laserdisc players have become more compact and more tolerant of disc flaws. And the discs themselves have improved in both video and audio quality. The video has gotten better mostly through improvements in manufacturing. The audio (stereo from the beginning) has undergone a couple of major format enhancements, however. First was the addition of CX noise reduction to the analog AFM track that is on all laserdiscs. More recently came a separate CD-compatible digital audio soundtrack that can be decoded by most current players. From there it was just a short step to combi-players.

The future looks bright for laserdiscs. Nearly everything released on videocassette also comes out on disc, and as more outlets start carrying laserdiscs, they are becoming easier to find locally. Like all audio and video equipment, laserdisc players are continually evolving. Some recent models will even play both sides of a disc automatically, eliminating the need for the viewer to get up and turn the disc over.

## Monitors

The two most important events in the recent history of video monitors were the introduction of the original Advent Videobeam projection television set in the middle Seventies and the marketing of high-performance component direct-view monitors by Sony (Profeel) and Proton in the early Eighties. These sets changed people's ideas about what television can be.

The emphasis on performance is apparent in nearly every television set made today that isn't designed to sell solely on the basis of a low price. Most obvious is the resolution race, in which manufacturers compete for the highest horizontal luminance resolution specification.



*Sony's KV-27FX10 (\$4,000) is a 27-inch improved-definition TV (DTV) set with a non-interlaced scanning system and digital frame memory. It also features a built-in Dolby Surround decoder.*

*The 40-inch SD-P403 (\$2,800) from Pioneer is a rear-projection TV with four regular and two S-video inputs, four audio inputs, and a resolution rating of 650 lines.*



Resolution is important, but because of limitations built into the television broadcast system itself, the pursuit of ever higher numbers eventually becomes pointless. Broadcast television of the variety used in North America, Japan, and some other parts of the world—known as NTSC for the U.S. National Television Standards Committee that established the system—is constrained to approximately 330 lines of horizontal resolution. Although the finest VCR's can approach or perhaps slightly exceed that limit, and laserdiscs can do a little better still, the most you will get from any source is 360 to 400 lines at the very best. Consequently, there is no real need for monitors capable of more than about 400 lines of horizontal resolution.

Fortunately, resolution has not been the sole beneficiary of our raised video consciousness. Among other things, manufacturers have been reducing overscan to minimize the amount of the broadcast picture that is cropped off by the display, improving focus and geometric accuracy at the edges and corners of the screen, and, in some cases, increasing the range of colors that can be accurately reproduced (especially greens and certain reds that most monitors give an inappropriately orange cast). At the same time, they have added features necessary for convenient operation of a sophisticated video or audio/video system, such as multiple, switchable RF inputs for antenna and cable connections, direct audio and video inputs and outputs with switching for multiple sources, and, most recently, S-video inputs (see box on facing page). Cable compatibility, MTS (multichannel television sound) tuners and dual speakers for stereo sound, and remote control have become standard even in medium-price sets.

The major trend of the last decade was bigger pictures, and that is continuing. Although the original two-piece front-projection sets from Advent and Kloss Video met with only limited success, the market thrived on the one-piece rear projectors that followed. Manufacturers have now largely eliminated the brightness and viewing-angle problems that plagued early models and now are working hard at improving image



quality and making their rear-projection monitors both larger and sleeker. At the same time, two-piece systems seem to be enjoying a mild resurgence among those seeking extremely large pictures, in the 6- to 10-foot range. The rear-projector sets are under assault from below, as well, as the maximum size of direct-view monitors with conventional picture tubes creeps steadily upward. Sets with 27-inch tubes are now commonplace. Most manufacturers have at least one 31-inch model, and a few are up to 35 inches—as big as some small rear-projection screens.

But as screens become larger, the shortcomings of current television systems become increasingly obvious. The picture starts to look grainy at normal viewing distances, and the scanning-line structure becomes visible. These problems have led some manufacturers to develop

IDTV (improved-definition television) systems that use microprocessors and digital memory to scan a full 525-line video *frame*, instead of a single 262.5-line *field*, every sixtieth of a second. On still pictures, this noninterlaced scanning yields a distinctly smoother image with greater apparent vertical resolution, but getting those benefits in scenes containing significant motion is difficult. Poorly designed IDTV systems (and there are some) can cause blurring of objects in motion, jaggedness, or other unpleasant artifacts.

We can expect IDTV development to continue, resulting in improvements to all of the current systems, but the great hope for the future is high-definition television, or HDTV. This will involve a transition to an entirely new broadcasting system capable of much higher resolution, cleaner video reproduction, superior color, and stereo digital au-

dio. Probably the greatest benefit of HDTV, however, will be its wider aspect ratio: approximately five units of screen width for every three of height as opposed to the 4:3 ratio of current television. The wider image is a better match to the human visual field, with the result that everything on screen will look more natural and lifelike. Movie buffs should be especially pleased, since HDTV will enable wide-screen films to be displayed with a minimum of the alterations now required to fit them into the width of a standard television screen.

Unfortunately, technical and political obstacles insure that HDTV is at least five years away in this country—and probably more like ten. And when it does finally become a reality, there is no guarantee that it will succeed. In other words, HDTV is something to look forward to, *not* something to wait for. □

## ▶ Making the S Connection ▶

**T**HE introduction of Super VHS brought with it a new type of multipin video connector, called S-video or Y/C. Although the connector itself was a good idea that has since spread to ED Beta and Hi8 decks, its debut in tandem with S-VHS may not have been, since it has led to some serious misconceptions. Most important among these is the completely erroneous notion that VCR's equipped with S connectors cannot be used except with similarly equipped monitors. In fact, all VCR's with S connectors also have the usual complement of composite-video and RF inputs and outputs and will perform very nearly as well with those as they will with the S-video inputs and outputs.

The other important misunderstanding is in the idea that the performance improvements associated with S-VHS are somehow tied to the S-video connectors. Actually, S-VHS's single benefit—higher resolution—has only to do with the bandwidth of the signal recorded on the tape, which the S connector doesn't affect at all. The single benefit of the S connector, on the other hand, is equally applicable to all consumer VCR formats, "super" or otherwise.

To understand that benefit, we have to know a little about how a VCR works. When color was added to television, it was done by putting the

necessary information on a subcarrier plopped into the high-frequency end of the black-and-white signal. Black-and-white receivers ignore this chrominance (C) subchannel, but color sets extract the information it carries and use it together with the luminance (Y) information in the baseband signal to control the intensities of the beams from the three electron guns (for the red, green, and blue primary colors) in the picture tube. Performing this separation is not easy, however, and it almost inevitably results in either a loss of resolution or the creation of small, distracting artifacts, such as the "crawling dots" that you may notice from time to time creeping along sharp transitions between areas of color.

Professional videotape recorders and laserdiscs record the composite video signal (luminance plus chrominance) directly, but when home VCR's were developed they lacked the bandwidth needed to do this without losing the high frequencies where the color subchannel resided. So, to save the color, all of the home video-recording systems use what is known as a "color-under" format. The color information is separated from the luminance signal and transposed down to a range of frequencies below those used for recording the luminance. This degrades the resolution somewhat, but it's better than going without color.

When a videocassette is played back,

the VCR normally recombines the chrominance and luminance information into a composite-video signal that then goes to the monitor via a direct-video connection or gets modulated onto an RF carrier with the audio and sent to the monitor via its tuner's antenna terminals. Either way, the monitor has to reseparate the chrominance and luminance portions of the video signal. All an S-video connector does is to short-circuit this process, keeping the luminance and chrominance portions of the signal separate so that they don't have to be combined and pulled apart again. In most cases, this will yield a slightly clearer picture, but the benefit is likely to be marginal, at best, unless the recorded chrominance and luminance signals have always been separate, never tangled together in a composite-video signal. Camcorder recordings fall into this category, but that's about all.


So why do some laserdisc players, which start with a composite-video signal, have S-video outputs? To prevent consumers from thinking that they lack a performance feature available on S-VHS and Hi8 VCR's. The only way a separate Y/C output can do any good on a laserdisc player is if its color-separation circuitry happens to be better than that in your monitor, which is possible but not very likely. —M.R.





# 3 TOP HI-FI VCR'S

Comparison tests: Just how good are the new Super-VHS VCR's?



**M**AKE no mistake about it: Super VHS (or S-VHS for short) marks an enormous improvement over standard VHS. It is almost as big an improvement in video quality as VHS Hi-Fi was in audio quality. (All S-VHS VCR's, including those reviewed here, incorporate VHS Hi-Fi.) For the first time, you can have VHS recordings that are *really* sharp. In fact, they are so sharp that to appreciate them fully you need a good monitor—preferably (but not necessarily) one with an s-video input. You also need special tape, for although every S-VHS VCR records and plays back garden-variety VHS tape, it won't do so in the S-VHS mode, and its performance with conventional tape may not be distinguishable from that of a standard VCR.

To find out just how good this new breed of VCR really is, STEREO REVIEW sent me three high-end S-VHS recorders to test at Diversified Science Laboratories: the JVC HR-S6600U (\$1,499), the Mitsubishi HS-U71 (\$1,299), and the Panasonic PV-S4990 (\$1,599). As befits their status at or near the top of each company's line, all have MTS-stereo, cable-compatible tuners and VHS Hi-Fi for high-quality audio recording. Each deck records at the two "outer" VHS speeds: SP, for 2-hour

recording on an ST-120 cassette, and EP (or SLP as Panasonic prefers to call it), for 6-hour recording on the same length of tape. None of the three records at the intermediate (LP) speed.

All are fitted with s-video input and output connectors as well as with standard composite-video pin jacks and have a switch to select between the two alternatives. Each detects the presence of an S-VHS cassette when it is inserted and automatically switches into that mode whenever possible. You can override the VCR's choice on the JVC and Panasonic models (not on the Mitsubishi), but it's hard to see why anyone would want to record standard VHS on a relatively costly S-VHS tape.

All have wireless remote controls, and the Panasonic and Mitsubishi come with "learning" remotes that can be programmed to operate other remote-controllable components. All three have automatic tracking circuitry (called by various names) that can usually be overridden by manual controls if necessary. All three fully load the tape around the head drum when a cassette is inserted so as to respond to commands faster and to provide certain scanning features available only when the tape is in contact with the head drum. And all three decks are

BY EDWARD J. FOSTER  
Diversified Science Laboratories



JVC HR-S6600U (\$1,499)

**T**HE JVC HR-S6600U offers all the features you'd expect in a topflight S-VHS VCR and a number you might not. JVC appears to have placed great emphasis on the HR-S6600U's editing ability—not a bad idea at all considering that in the S-VHS format you start with enough resolution to sacrifice a bit to the dubbing process and still have an eminently viewable picture.

The jog-dial/shuttle-ring combination on the front panel and on the wireless remote control enables you to zero in on the edit points while flying erase heads on the recording drum replace information in as seamless a way as possible. The audio and video (S-video and pin-jack) input connectors on the back panel are replicated in their entirety on the front, behind a flip-down door, so it becomes a simple matter to connect a friend's VCR or your own camcorder temporarily for dubbing or editing. The REMOTE-PAUSE jacks on the front and rear are designed to accept a "pre-roll" command from a compatible JVC deck for synchronized editing. The SWAP terminal on the back enables the HR-S6600U to be operated from the controls of JVC's top-of-the-line VCR, the HR-S10000U, to facilitate editing even further. If you don't have an HR-S10000U (or another JVC VCR with a SWAP output), you may still be able to control two JVC recorders simultaneously from the HR-S6600U's remote via the so-called Duet Editing mode. The HR-S6600U also sports an EDIT switch that (presumably) reduces the video playback equalization for better copies.

The jog dial and shuttle ring do more than facilitate editing. In the play mode, the jog dial advances or backs up the picture at whatever speed you twirl it. The shuttle ring provides variable-speed search, up to eleven times normal with an SP tape and up to thirty-one times normal with an EP

tape. It also provides five-speed slow motion. Backing up the jog/shuttle system are the more typical special-effects modes—high-speed forward and reverse search, double-speed forward and reverse search, double-speed playback, and still-frame—provided by the fast-forward, rewind, PLAY/X2, and PAUSE/STILL buttons. To find the program you desire, there's VHS Index Search, Intro Search (to play the beginning of each program), RealTime Search, and a RealTime Go-To feature that advances the tape by a given number of minutes.

The HR-S6600U's remote unit is rather imposing, partially because of its jog dial and shuttle ring, partially because of its built-in LCD readout. The LCD enables you to program the remote control without the VCR's being on and then download a complete set of instructions to the HR-S6600U at the touch of a button. The remote control even has an internal clock that lets you set the VCR's clock off-line and download the current time.

The remote control has twenty program memories that are independent of the VCR's fourteen-day/eight-event memory. Thus, you can store more commands in the remote unit than the VCR can accept at one time and select the subgroup you wish to transmit. In addition, the VCR features a 24-hour timer that enables you to record any program in the current day merely by entering the start time and the recording time. It also has the now-common "instant timer recording" feature, which lets you set automatic turnoff of a program currently being recorded. Besides the remote's LCD screen and the VCR's front-panel display, there's a full set of on-screen menus. Although the remote lacks learning capabilities, it does provide power, volume, channel selection, and mode switching for some JVC TV's and—a rarity—even enables you to eject a tape from your seat.

programmable for unattended time-shift recording.

So much for their similarities; I was more impressed by their differences. And differ they do, not only in features (see the individual descriptions on these pages) but in performance on our test bench.

## Lab Tests

We limited video recording tests to the S-VHS mode, the reason you would buy one of these decks in the first place, and audio recording tests to the VHS Hi-Fi system, the only mode STEREO REVIEW readers would want to use, given a choice. (You cannot rerecord VHS Hi-Fi soundtracks without erasing the video information as well, so if you must use the audio dubbing feature of these VCR's, you're stuck with the narrow bandwidth, limited dynamic range, and often atrocious flutter of "normal" recording.)

All of the recording measurements were made using an ST-120 cassette. Video recording measurements were made using the composite input and output terminals, as these are the ones you're most likely to have on an existing monitor. The S-video connections can yield slight improvements in picture quality under some circumstances, but their use would not have significantly affected any of our measurements. Most of the audio measurements were made with the recording-level controls set at their detents (if any) or for unity-gain transfer—that is, the same output level as the input level that was recorded, which usually corresponded to the center of the control range. We also checked the audio and video frequency responses of the tuner sections as well as their output levels.

Because the 4.5-MHz audio sub-carrier in an NTSC broadcast (the standard for North America, Japan, and some other parts of the world) is just a few hundred kilohertz above the top of the video signal, TV tuners normally roll off their video response very sharply near that frequency to prevent interference. The tuners in these VCR's were no exception, with steeply attenuated response at 4.2 MHz in every case. All were reasonably flat up to the 3.58-MHz "color-burst" frequency, however. Applying the standard "eighty times the bandwidth in megahertz" rule of thumb yields horizontal-resolution figures of approximately 300 lines for the tuners, which is

quite good. Indeed, the JVC tuner's video response was down only  $\frac{3}{4}$  dB at 3.58 MHz, which places it in the forefront of all the video tuners I've tested in this respect.

Luminance (brightness) and chrominance (color-saturation) levels were close enough to the mark on all three tuners for the automatic recording-level circuitry in the VCR's to correct for whatever small discrepancies did exist. Those who appreciate perfection for perfection's sake will note the exactly correct luminance level of the JVC entry and the equally accurate chroma level delivered by the Panasonic. Median chroma phase (hue) error was pretty much the same, and quite acceptable, on all three tuners. Their audio frequency responses were about as good as you can expect from a TV tuner but hardly stellar by high-fidelity FM standards. Bass response was essentially flat down to about 50 Hz, but the top end rolled off by 3 dB at frequencies ranging from 11 kHz on the JVC to 13.5 kHz on the Mitsubishi, the audio-bandwidth winner.

But a wide video recording bandwidth is the reason for using S-VHS, and here we found greater differences among the three VCR's. At the standard 2-hour speed, it would be difficult to distinguish between the JVC and Panasonic models. Each handled the full NTSC bandwidth with response down only  $3\frac{1}{2}$  dB at the upper limit of the video band. The JVC did produce a trifle flatter response at 3.58 MHz, which would seem to give it the edge in the SP resolution derby, and it was the only VCR to record and reproduce a full-bandwidth NTSC signal in the 6-hour mode with response at the top down by no more than 6 dB. The Panasonic was close ( $-4\frac{3}{4}$  dB at 3.58 MHz and  $-7\frac{3}{4}$  dB at 4.2 MHz), but JVC takes the crown. Both of these VCR's have sharpness controls (Panasonic calls it a "picture" control) to modify video response. These controls became effective above 1.5 MHz, with their maximum range at 3 MHz and above. The JVC's control provided a bit more range than the Panasonic's (especially on the boost side).

Balancing the JVC's slight advantage in resolution were the Panasonic's essentially perfect scores in every other video measurement: luminance level, gray-scale linearity, chrominance level and phase accuracy, differential gain (variation in



### MITSUBISHI HS-U71 (\$1,299)

**O**f the three VCR's reviewed here, the Mitsubishi HS-U71 is the least imposing, which can be a virtue. This is a VCR you can get comfortable with quickly, yet it offers most of the features you are likely to use regularly.

All of the front-panel controls except those for the transport lie behind two pull-down doors that flank the display. On the right, below the transport controls, are a video input selector, which chooses between the S-video and composite-video inputs; microphone and headphone jacks; and a headphone volume control. On the left, below the cassette slot, are the main controls, including the audio recording-level sliders, an audio monitor switch (stereo, left-only, right-only, or non-hi-fi mode), and an input selector that chooses among two antenna inputs and the direct audio/video line inputs. The two antenna inputs work in conjunction with a loop-through terminal so that you can hook in a pay-TV descrambler and select it on the second antenna input, or you could use one of the inputs for cable and the other for an antenna.

Also behind the left door are video and audio dubbing buttons, a timer reset, a switch to disable the on-screen display, index-search controls, OTR (one-touch recording) start-time and record-time buttons, TV channel-scan buttons, and other buttons to dim the display, choose the recording speed, toggle between video and TV, engage the program timer, and engage the automatic tracking system. On a subpanel with the recording-level sliders are a still-frame adjustment, a switch that determines which of the remote control's two command sets the VCR responds to, another switch to calibrate the tape-remaining indicator for T-160 cassettes, and an S-DETAIL switch that you are supposed to flip on when using the S-video output connection.

The HS-U71's wireless remote con-

trol can operate as many as four components. The choices are marked TV, audio, VCR-A, and VCR-B. It is factory set to handle most Mitsubishi VCR's, TV's, and audio/video receivers, and if you don't have an all-Mitsubishi system, you can "teach" it the command sets for other equipment. Either way, you're in good shape to control most, if not all, of your A/V components from the same handset. If you choose to program the remote's buttons for functions different from those already indicated, you can write the new headings on an overlay card and slip it into the unit's faceplate.

Mitsubishi's one-touch recording system works in two different ways. Pressing the record-time button starts recording immediately (if the VCR is not already recording) and sets the recording duration in 15-minute increments to a maximum of 4 hours. Pressing the start-time button, on the other hand, gives you access to a simple one-event/24-hour programmer. Each press advances the start time by 15 minutes. When that's set, you use the record-time button to program the duration of recording. The HS-U71 also has an eight-event/four-week programming system with a 30-minute memory back-up in case of power failure. The system enables you to program recording during a particular time period every week or the same time period every day of the week (Monday through Friday) as a single event.

For editing, the HS-U71 has a "pre-roll" feature compatible with other Mitsubishi VCR's, and for finding a program you wish to edit (or view) there's VHS Index Search, Index Repeat, and Skip Search (which plays a 5-second sample at each index mark). Special effects include still-frame and frame-by-frame advance, slow-motion playback from one-fifth to one-thirtieth of normal speed, and dual-speed search in either direction.



### PANASONIC PV-S4990 (\$1,599)

If it's features you want, the Panasonic PV-S4990 is in a class by itself. It has a jog-dial/shuttle-ring search system and flying erase head, like the JVC; a programmable remote control, like the Mitsubishi (although it's not nearly as versatile, controlling only five functions of one other source); and a host of other features. Considering the number of features on the PV-S4990, many users might appreciate a more detailed manual, but perhaps Panasonic felt that fifty-four pages was scary enough.

The front-panel jog dial and shuttle ring are not duplicated on the remote unit, but many of the other special-effects and multispeed controls are. A Synchro Edit jack on the back of the deck facilitates editing from compatible Panasonic camcorders and VCR's. The remote control lets you adjust slow motion from one-fifth to one-sixtieth of normal speed; there's also fixed half-speed slow motion, a double-speed play mode, still-frame and frame advance, and high-speed search in either direction. Except for slow motion, most of these functions can be operated from the front panel as well as from the remote unit, and if you have to, you can use the jog/shuttle combination for slow motion, though less conveniently.

The digital special effects are accessible only from the remote control. These include a variable-speed strobe, which gives you full-screen displays of a series of still-frames of whatever you're watching; variable-speed multistrobe, which divides the screen into four, nine, or sixteen sections and fills them, round-robin fashion, with successive strobed frames; and a mode button that determines the number of divisions on the screen in multistrobe. The strobe features can be used for either a tape or broadcast. In fact, by pressing CHANNEL SEARCH, you can pop up still frames from the next four, nine, or sixteen channels in memory.

A subset of this feature is picture-in-picture (PIP), a VCR's ability to display

a picture from a tape on the full screen along with a miniature corner picture from the currently tuned TV broadcast. On the PV-S4990, you can also show a picture from an external source, such as a second TV tuner, on the main screen with the picture from the VCR's tuner tucked into the corner. The zoom function magnifies a selected portion of the screen by a factor of four, and topping it all off is a function that stores a still-frame in digital memory so that you can call it up to the screen at will.

In addition to controls for the digital special effects, the PV-S4990's remote unit sports the usual complement of premium VCR features, including ways to add or delete channels from the channel memory, check the eight-event/one-month timer, call up the OTR (one-touch recording) feature, operate the main transport controls, and so forth. An unusual, but sometimes handy, function is a volume control that adjusts the audio level at an auxiliary set of output jacks.

The PV-S4990 is equipped with a bar-code reader to aid in programming and in titling your own tapes. Someday, printed television guides may carry bar coding to indicate the day of the week, channel number, and starting and ending times of each program. Until then, you can use the templates Panasonic provides, which give you all the necessary codes. All you need do to program the VCR is to scan the appropriate bars with the supplied pencil-like bar-code reader and tap a button to transmit the stored instructions. Very impressive, but until the whole ball of wax is printed in a program guide, I, for one, will stick with a numeric keypad, which is a lot easier to use than the template system. On the other hand, the titling capabilities of the PV-S4990's bar-code reader are intriguing. With just your trusty template and wand, you can compose your text and have it appear as white letters superimposed over the current scene or on a blue background.

color saturation with changes in scene brightness), and differential phase (variation in hue with changes in scene brightness). Not that the JVC machine's performance can be faulted in these respects: It was excellent across the board and paled only in comparison with that of the Panasonic, whose uniformly zero-error results were a first in my experience. Although we did not measure chroma noise, we did notice slightly more on the Panasonic than on the other two units.

In this exalted company, the Mitsubishi HS-U71 shone somewhat less brightly. Although its luminance and chrominance levels were reasonably accurate (about the same as the JVC's) and its chroma differential gain and phase were negligible, its average chroma phase error was off to a greater extent than on the others, and its gray-scale linearity also came in third. Possibly of more significance is the Mitsubishi's comparatively limited (by S-VHS standards) video bandwidth. By our stringent -6-dB bandwidth criterion, the HS-U71 was the only one of the three VCR's that failed to handle full NTSC resolution at SP speed. It didn't miss by much, however, and I doubt that you'd ever notice the difference recording broadcast or cable TV. Nevertheless, if we must make distinctions, here is one. Resolution at the 6-hour speed was notably worse, with the video response passing through the -6-dB point at just above 3 MHz, implying a resolution of about 250 lines for EP recording. The HS-U71 also was the only VCR of the three that lacked a sharpness control.

In VHS Hi-Fi recording, all three decks performed well, but I doff my hat to the Mitsubishi. It had the best signal-to-noise ratio (81 dB), the greatest dynamic range (99 dB from the noise floor to the level at which midrange distortion reached 3 percent), and the lowest bass and midrange distortion. Its frequency response (20 to 20,000 Hz  $\pm 0.5$  dB) tied with the Panasonic's for first place, although JVC's tolerance of  $\pm 1$  dB over the same range is nothing to sneeze at, and there were no signs of mistracking in the noise-reduction system—a virtue shared by all three of these hi-fi VCR's. Like its counterparts, the Mitsubishi exhibited wow-and-flutter of less than  $\pm 0.01$  percent, and its almost 78 dB of channel separation was well beyond the point of diminishing re-



turns. The Panasonic's separation was a trifle higher at 81 dB, the JVC's measurably (though not audibly) worse at 48 dB.

### Conclusions

From the audio measurements, there would seem to be no compelling reason to choose one of these VCR's over the others. My preference for the Mitsubishi as an audio recorder rests mainly on practical considerations. Although its recording-level sliders and metering system would be adjudged tiny and touchy if they were on an audio cassette deck, they are *far* superior to the minuscule, closely spaced, rotary recording-level and balance controls on the other two VCR's. At least Mitsubishi has provided detents to suggest the proper setting for broadcast recording, and you can adjust the controls without tweezers!

Although the Panasonic VCR's audio performance was on a par with that of the Mitsubishi, its controls were notably the poorest—extremely touchy around the center region, where they would most often be set. Matters were not helped by Panasonic's level indicators—six segments made to look like eighteen by tripling the number of bars—which were so crude and “bouncy” (there's no peak hold) that I found them virtually useless. It's frustrating to see the excellent audio performance of which these machines are capable compromised by inferior controls and metering.

Otherwise, however, all of these VCR's were quite capable machines with an array of features and functions that should keep even the most demanding user happy. Not surprisingly, the most expensive of the three, the Panasonic, had the largest feature complement and the lowest-priced, the Mitsubishi, the smallest. But the Mitsubishi's biggest omissions—no jog dial or flying erase head—are at least partially offset by its exceptionally quick and agile transport mechanism and superior audio controls. The JVC's transport was distinguished by its unusually quiet operation.

Despite the previously noted differences in measured video performance, picture quality from these three S-VHS VCR's was so similar that one would be hard put to choose between them on that basis alone. It was, however, substantially better than that available from any conventional recorder. □

## LABORATORY MEASUREMENTS

### VHS HI-FI AUDIO

	JVC	MITSUBISHI	PANASONIC
<b>Frequency response</b> (20 to 20,000 Hz)	± 1 dB	+0, -1 dB	+0, -1 dB
<b>Signal-to-noise ratio</b> (A-weighted)	80 dB	81 dB	78 dB
<b>Distortion at indicated -10 dB</b> (50 to 10,000 Hz)	≤0.28%	≤0.84%	≤0.77%
<b>Indicator reading at 3% distortion</b>	off scale	off scale	off scale
<b>Channel separation</b> (at 315 Hz)	48 dB	78 dB	81 dB
<b>Flutter</b> (ANSI weighted peak)	<0.01%	<0.01%	<0.01%
<b>Line input for indicated 0 dB</b>			
Record-level control at maximum	135 mV	87 mV	110 mV
Record-level control centered	420 mV	390 mV	860 mV
<b>Line output for indicated 0 dB</b>	0.42 volt	0.47 volt	0.45 volt

### S-VHS VIDEO

	JVC	MITSUBISHI	PANASONIC
<b>Frequency response</b> (SP/EP)			
at 3.0 MHz	+1/+0.5 dB	-1.8/-5.8 dB	+1.3/-2 dB
at 3.58 MHz	+0.5/-0.5 dB	-3.5/-9.8 dB	-1.3/-4.8 dB
at 4.2 MHz	-3.5/-6 dB	-7.3/-15.5 dB	-3.5/-7.8 dB
<b>Luminance level</b> (SP)	5% high	5% low	standard
<b>Chroma level</b> (SP)	≈ 1 dB low	≈ 1.3 dB low	standard
<b>Gray-scale nonlinearity</b> (SP)	≈ 11%	≈ 16%	none
<b>Median chroma phase error</b> (SP)	0°	+6°	0°
<b>Chroma differential gain</b> (SP)	none	none	none
<b>Chroma differential phase</b> (SP)	≈ ± 0°	≈ ± 2°	≈ ± 0°

### TV TUNER

	JVC	MITSUBISHI	PANASONIC
<b>Audio frequency response</b> (-3 dB)	27 to 11,000 Hz	22 to 13,500 Hz	25 to 11,500 Hz
<b>Maximum audio output level</b>	1.47 volts	2.22 volts	2.51 volts
<b>Video frequency response</b>			
at 3.0 MHz	+0.8 dB	flat	-2.3 dB
at 3.58 MHz	-0.8 dB	-3 dB	-4 dB
at 4.2 MHz	-14 dB	-16 dB	-16.3 dB
<b>Luminance level</b>	12% high	7% high	standard
<b>Chroma level</b>	standard	≈ 1 dB low	≈ 0.5 dB low
<b>Median chroma phase error</b>	+6°	+4°	+5°

# SYSTEMS

Design diplomacy in Washington



by Rebecca Day





**D**HIRU Thadani and his wife, Terry Schum, have very different morning listening tastes: She likes to tune in to National Public Radio news, and he prefers music. It became a problem because Schum would crank up the living-room stereo system to hear the news in the bathroom, so when the couple moved to their refurbished Washington, D.C., townhouse, Thadani, an architect, drew up plans for a system just for the bathroom.

Since his design philosophy centers around assimilating out-of-context elements into a room, it seemed only natural for Thadani to put a car stereo head unit in the base of a wooden medicine cabinet. Aided by the bathroom wall's 6-inch depth, he installed an Alpine Model 7163 cassette receiver in a frame "as you would in a dashboard." He powered it with a transformer built in behind the wall and integrated its power switch with those for the lights, fan, and heat lamp. A 12-volt battery on a shelf in the closet behind the wall sustains the receiver's preset memories and clock display. A pair of 7 x 4½ x 4½-inch Lafayette Pip Speak speakers (circa 1979),

with aluminum enclosures, are in the bulkhead above the shower.

The couple's primary music system, in the living room, consists of an Axi/Holman preamplifier, a Hafler DH-220 power amplifier, which Thadani made from a kit, a dbx Model 3BX Series Two expander, a Nakamichi OMS-7 CD player, a Denon DP-60L turntable and Model 301 cartridge, a Nakamichi 680ZX cassette deck, a Carver TX-11 FM tuner, an Audio Pro B2-50 subwoofer (it also serves as a plant stand), and a pair of Dahlquist DQ10 speakers. Thadani made the 12-gauge Monster Cable speaker wire invisible by running it through grommets in the floor to the basement.

In keeping with his out-of-context design code, Thadani uses industrial-type chrome shelving from Inter Meiro Industries in Wilkes-Barre, Pennsylvania, to hold audio equipment, records, and CD's. He placed ¼-inch glass panels on each shelf to prevent anything from slipping through the cracks. Behind each speaker he installed floor lights to create a silhouette effect. The focal point of the room, he said, is the pair of antique chairs for the times he and his wife want to listen to the same programs. □



# YO-YO MA

by Herbert Kupferberg



“Never lose your idealism, the passion you have for music.”

**Y**O-YO MA has been playing the cello for thirty of his thirty-four years. He started by practicing on an upended viola mounted upon a pin and has gone on to become one of the most accomplished, popular, and exciting soloists in the musical world. Enthusiasm has always been one of his hallmarks, and he's lost none of it now that he's a seasoned veteran, throwing himself into the music with the same exuberance he showed when he was the new kid on the block.

He's even conquered that bugaboo of all cellists—the limited solo repertory for the instrument.

“Repertory isn't a problem at all,” he argued when we spoke recently in New York. “I'm far from having played it all. If you don't let yourself be confined by taking the attitude, ‘I'm a soloist, and all I play is solo,’ the repertory is immense—chamber music, sonatas, commissions of new works. In Chinese Yo-Yo Ma means ‘friendly horse,’ and I guess the name carries over into my musical life. I like to work with other people.”

Ma's record catalog bears him out, for it includes joint efforts with a variety of artists ranging from his long-time partner, the pianist Emanuel Ax, to the jazz pianist Claude Bolling. An exclusive CBS Records artist, Ma has recorded virtually all the standard concertos, the complete Bach suites and Beethoven sonatas, modern works like concertos of Barber, Shostakovich, and Kabalevsky, and an album of “Japanese Melodies.” Most recent of all is “Anything Goes,” an album of Cole Porter tunes with Stéphane Grappelli, the eighty-two-year-old jazz violinist, and a record with Ax of the Richard Strauss and Benjamin Britten cello sonatas.

“I've always loved listening to Grappelli's records,” Ma said by way of explaining his latest offbeat excursion. “I heard him play at the Blue Note in Greenwich Village. Then at a Carnegie Hall concert we

tried something together. So we thought, why not do more? I don't claim to be a jazz musician, but I just love what he does. It's great to see a close-up of a man in his eighties who's so musically alive. I'd like to be half as awake as he is when I'm half his age.”

Ma not only enjoys undertaking new musical adventures; he also likes to re-explore repertory staples. It's hardly an exaggeration to say that he never plays anything the same way twice. “Sometimes, listening to myself on records, I can hear what I was going through at age twenty or twenty-five,” he said, “and I think, if I only knew then what I know now! My performances have changed quite a lot—at least I hope so. It really is an endless development.”

“For example, Manny Ax and I both feel we played the Beethoven sonatas last summer at Tanglewood better than we ever had before. Roger Norrington of the London Classical Players was up there, so we asked him for his viewpoint on the sonatas.

“Norrington said, ‘I don't know them that well, but I'd be glad to listen to you guys.’ So he did, and gave us his ideas. We don't necessarily play them his way, but we got a lot of information we didn't have before. What he pointed out was the way Beethoven's music reflected the influence of dances of his day. There was lots of dancing then—at the court, in the streets, in polite society. So this influenced Beethoven's tempos—an adagio can't be so slow that there isn't a lift in it.

“**E**VENTUALLY we'd love to record the Beethoven sonatas over again. We'd do it better than we did five years ago. But the point is that we learn by talking to other musicians — Leon Fleisher, Isaac Stern, Kurt Sanderling. Every time you talk to someone, you get a kernel of truth.”

Yo-Yo Ma gleaned his first musical kernels from his parents, who

had emigrated from China as young people to pursue musical studies in Paris, where they met and married. They started Ma's older sister, Yeou-Cheng Ma, on the violin (which she eventually gave up to become a pediatrician). Yo-Yo, all of four years old, wanted “something bigger” and asked for a cello. That was when his father affixed an end-pin to a viola and let the boy begin with that, sitting on a stack of five telephone books. Soon after, he advanced to a cello of one-eighth normal size.

Yo-Yo's talents were recognized early. By the time he was five he knew the Bach cello suites by heart; at six he played one of them at his first public recital, at the University of Paris. The following year the family moved to New York.

**Y**O-YO'S career as a child prodigy blossomed quickly in America, and he began studies with Leonard Rose and Janos Scholz. He first gained national prominence at the age of eight, when Leonard Bernstein invited him to appear on national television on the *American Pageant of the Arts*, a fund-raising show for what was to become the Kennedy Center in Washington. His high-school diploma, which he acquired at fifteen, was from the Professional Children's School in New York.

But the educational institution that has probably affected Ma most is Harvard University, where he says he was able to go beyond the insular world of the conservatory. “Going there was part of finding out whether I could do anything else but play the cello,” he said, adding with a grin, “I found I can't.” At Harvard he also found his wife, Jill Hornor, a German-literature instructor. They have been married since 1978, have two children, Nicholas, six, and Emily, four, and live in a suburban house near Boston.

Ma acknowledges cheerfully that being a father has changed his life.

“I'm playing fewer dates, about

90 a year rather than the 125 or so that I used to," he said. "I'm trying to travel less, being away from home twelve to fourteen days at a time at the most. It's hard on a wife, to be a single parent most of the time. Life becomes more complex when you have a family; you become aware of your mortality."

Asked whether his children are musical, Ma responded, "I think *all* children are musical. They bounce around and move when they hear rhythms. Nicholas has started the piano, but that's just part of his general education. He really likes it, but at the moment we're not planning any career for him. Often the children of professional musicians undergo an adverse reaction. Musicians lead such a hard life, requiring so much focus and discipline. You can't push children into it. On the other hand, you can't let the pendulum swing too far the other way if there's talent. You can be tugged one way and then the other."

**M**A said that teaching is a "passion" for him. He does a great deal of it summers at Tanglewood, and he regularly gives master classes at universities and conservatories. "When you yourself put musical ideas into words, it crystallizes them for you," he explained. "It's easy to get burned out in this profession unless you are actively involved intellectually and emotionally. You have to know not only what you're doing but why you're doing it."

Right now Yo-Yo Ma is trying to expand his commissioning program. He hopes for pieces from Leon Kirchner, Ezra Laderman, David Diamond, and Stephen Albert. In addition, William Bolcom is working on a new piece for the Ax-Ma Duo—probably the world's shortest-named ensemble, although the Kim-Ax-Ma Trio (with violinist Young Uck Kim) isn't far behind. Ma would like to add some of this new music to his future record releases, too. "Modern music is now much more accessible than it used to be," he observed. "I hope people get excited when a composer writes a new piece."

Ma has nearly forty CD's enumerated in the latest Schwann *Artist Issue*—one of the longest lists



"My performances  
have changed quite  
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endless development."

among cellists. He's somewhat ambivalent about CD's himself. "I'm not an audiophile in the sense of being an equipment person," he said. "I love the convenience of CD's, and the sound is certainly clearer. But it's too bad you can't buy the older records, too. It's almost like feeling you can't buy books, which would be terrible."

For many years Ma played a Go-friller cello dating from 1722. Five years ago, though, he obtained the Stradivarius "Davidoff," previously owned by Jacqueline du Pré, and that is the instrument he now uses.

"I practice as I go along," he said, "which can sometimes mean twenty minutes and sometimes hours and hours. There are three components to practicing. One is to stay healthy, stay fit. Two is rehearsing to find

common goals with your colleagues. Three is mental—studying scores, looking at music, practice you can do away from the instrument."

Ma also said he "makes up pieces" in his mind. "But that's not really composing," he added quickly. The closest he has come to composing are several cadenzas and some transcriptions he has made for cello such as that of Paganini's Violin Caprice No. 24, which is among the pieces included in a comprehensive CBS two-CD set called "Portrait of Yo-Yo Ma."

**A**s a still-young musician himself, Ma is troubled by the cutbacks of arts programs in many schools. "The arts are always the first thing to go," he said. "That's the biggest problem we have in developing musicians and listeners. I'm very aware of our aging audiences. That's why I appear on programs like *Sesame Street* and *Mister Rogers' Neighborhood*. At Tanglewood we recently made some TV shows aimed at young listeners. They're supposed to be shown this spring on the BBC in England and the Arts & Entertainment cable channel here."

For young cellists, and young musicians in general who are still learning their art, Yo-Yo Ma has this advice: "Never lose your idealism, the passion you have for music. It's easy to get cynical, bogged down. You have to keep track of the big picture and the little picture. Practicing can be frustrating—you have to look at the details. But you have to keep your eye on the big picture, which is that you keep improving."

"It's important to find the point of the music—what does it say? You have to be within a piece of music, and then things become really exciting. You have to open yourself up to the audience. Without communication there's no reason to be performing. What people call my exuberance comes from wanting to share what I've gained from a piece with my listeners. I hope I'll always do that." □

*Herbert Kupferberg, a senior editor of Parade, is the author of The Book of Classical Music Lists, recently published in paperback by Penguin Books.*

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## BEST RECORDINGS OF THE MONTH

*Stereo Review's critics choose the outstanding current releases*

### THEY MIGHT BE GIANTS: "FLOOD"

IT is by now almost a cliché to describe John Flansburgh and John Linnell—the well-mannered young postmodernists who go by the name of They Might Be Giants—with kiss-of-death epithets like “brainy” and “too smart for the room,” but there’s really no other way to deal with these guys. The fact is, you don’t listen to them because they’re the conscience of the Western World or because they’re particularly glamorous or danceable. You listen to them because they’re smart, funny, inventive, and literate—all of which they are, in spades, in “Flood,” their latest collection of recorded musings (and their first on a major label).

The odd thing about this duo, however, is that despite TMBG’s obviously high SAT scores and encyclopedic memories, there’s also a most becoming childlike playfulness at the heart of their work. The obvious comparison, which gets even more obvious than usual in “Flood,” is to the acid-period Brian Wilson. And this time out it’s not just the instrumentation (the by-now trademark mélange of futuristic and toy instruments) and Sixties-whimsical lyrics that make you wonder if you’re hearing a deliberately contempo version of “Pet Sounds.” In a song like *Birdhouse in Your Soul*, the chord changes and structural tricks are so eerily reminiscent of the head Beach Boy at his most visionary that you almost believe this is homage rather than unconscious evocation.

Of course, Brian Wilson never had a lyric writer with the sensibility of TMBG, so most of the rest of “Flood” can’t be mistaken for the work of a naïve genius with a brain fried on formerly fashionable chemicals. Flansburgh and Linnell are most definitely coming from a dif-

ferent place—a world, for better or worse, bounded on all sides by TV, après-Reagan Era confusion, and the general detritus of popular culture. As a result, the songs in this album, ranging in idiom from demented polkas to fake sitcom themes to just about everything else imaginable in between, have a sort of refracted *Through the Looking Glass* quality about them. Even when you think you know what they’re getting at, they still, perhaps deliberately, resist interpretation.

On the other hand, as you might expect, there are also times when the jokes are a little too obvious (*Minimum Wage*, which takes off on *Love, American Style* soundtrack schlock) and the cleverness is rather undergraduate. For my money, however, at its best TMBG’s music is some of the most original and interesting pop being made these days. And while their latest album doesn’t break new ground, it still makes the bulk of what you hear on the radio sound retarded.

“Flood” may be a little insular, and a bigger backbeat occasionally would not have hurt, but since people who wear their brains on their sleeves are in such short supply these days, I’m not prepared to carp. Moreover, the sound, especially on CD, is so gorgeously transpar-

ent and realistic that it might be holographic. In other words, get this one, and fast. *Steve Simels*

**THEY MIGHT BE GIANTS: *Flood*.** John Flansburgh, John Linnell (vocals and instrumentals); Arto Lindsay (guitar); other musicians. *Theme from Flood; Birdhouse in Your Soul; Lucky Ball & Chain; Istanbul (Not Constantinople); Dead; Your Racist Friend; Particle Man; Twisting; We Want a Rock; Someone Keeps Moving My Chair; Hearing Aid; Minimum Wage; Letterbox; Whistling in the Dark; Hot Cha; Women & Men; Sapphire Bullets of Pure Love; They Might Be Giants; Road Movie to Berlin.* ELEKTRA ◆ 60907-1, © 60907-4, © 60907-2 (44 min).

### MIKHAIL RUDY'S LISZT RECITAL

RECORD collectors have been accustomed for decades to “encyclopedic” presentations, which in the case of Vivaldi means sets of concertos by the dozen, as originally published under collective headings and opus numbers, and in the case of Liszt the complete *Années de pèlerinage* or complete Hungarian Rhapsodies or at the very least the complete *Valses oubliées*. The Liszt

*Flansburgh and Linnell: playful Giants*



## BEST RECORDINGS OF THE MONTH



Rudy: poetic Liszt

program on Mikhail Rudy's new Angel disc includes a few nods in that direction, but it is put together much more like an actual recital would be than recordings generally are nowadays, in terms of both variety and playing time. The playing time, in fact, takes full advantage of the CD's possibilities, but more to the point than how generously the disc is filled is that it offers an hour and a quarter of Liszt that can be happily taken in at a single sitting because it is so utterly refreshing from start to finish.

The disc's contents are not only varied, but they are set forth in the most effective sequence. It begins with *Les Jeux d'eau à la villa d'Este*, from Volume III of the *Années*, in a coruscating statement that gives stunning notice that there is to be nothing earthbound in this recital, and it ends with the transcription of the *Liebestod* from the end of Wagner's *Tristan und Isolde*—a realization of sheer, unlabored glory, rising to a climax as remarkable for the clarity of line and delicacy of detail maintained throughout as for the incredible intensity produced in the most straightforward sweep, without a single gratuitous emphasis or spurious gesture. Along the way are the first two of the four *Valses oubliées*, all three of the *Petrarch Sonnets* from the second *Année*, the two concert etudes (*Waldesrauschen* and *Gnomenreigen*),

the three *Liebesträume*, and the transcription of Liszt's own song *Die Lorelei*.

As the choice of repertory may suggest, and the performances themselves grandly confirm, Rudy is not a barnstormer but a poet. His response to the two etudes is as otherworldly as his realization of the bigger works that open and close the program. The *Petrarch Sonnets* and the *Liebesträume* ring true with the sort of simple dignity that Liszt surely intended but which is still too seldom granted him. Rudy judges the emotional or dramatic level of each work dead-on and lets it unfold in the most direct manner. The whole wonderful recital advances the thought that the most effective interpreter is the musician who has the intellectual and technical equipment required, a reliable heart, and the good sense to avoid getting in the music's way.

The recording itself, made in Paris last May at that shrine of great sessions, the Église Notre-Dame du Liban, is demonstration-class. The sound is that of a real piano—and a superbly maintained one—in ideal focus for maximum enjoyment of the subtle dynamic shadings and exceptional tone production so unselfconsciously put at the service of the music. *Richard Freed*

**LISZT:** *Les Jeux d'eau à la villa d'Este; Valses oubliées Nos. 1 and 2; Sonetti di Petrarca; Études de concert; Liebesträume; Die Lorelei.* **WAGNER/LISZT:** *Isoldens Liebestod.* Mikhail Rudy (piano). EMI/ANGEL © CDC 49842 (74 min).

### PETER HIMMELMAN'S PASSION

**T**HE word "synesthesia" refers to a heightened state of perception in which one "sees" sound and "hears" color. The album "Synesthesia" is a powerful, brooding, and colorful work, a tour de force that establishes Peter Himmelman as an artist capable of synesthetic sorcery on a very high plane of inspiration.

Among the most talented (and underappreciated) songwriters in America, Himmelman has assembled a set of sharply observed songs that teem with musical vigor and unbound passion. It doesn't feel odd at all to mention him in the same breath as Bob Dylan, Roger McGuinn, and T-Bone Burnett, all of whom spring to mind when I hear "Synesthesia."

A fertile imagination and the assured musicianship of Himmelman and his four-man band allow "Synesthesia" to swing from bluesy, shambling rock to arrangements tinged with jazz and reggae accents. What's most important is that the music and lyrics are bound in an organic, emotional nexus that allows them to work together as songs.

The overwhelming sense of the world that emerges is one of confusion bordering on disillusionment, most succinctly summed up in *A Million Sides*: "Opinions are fallin' like rain/A million sides, the whole world's in spin, I'm gettin' dizzy again." Romance is depicted as a battle zone in *Tug of War*, *Surrender*, and *The Sweetest Revenge*. But in the midst of the maelstrom, solace and strength are derived from an almost maternalistic deity in the prayerful *Beneath Your Watching Eyes*, which closes the album on a note of benediction.

The emotional range of "Synesthesia" is extraordinary, and the music is by turns tough and tender. At his most naked and confessional,

Himmelman: emotional candor



## BEST RECORDINGS OF THE MONTH

Himmelman unburdens himself of several of the most genuinely morose songs I've ever encountered. *Brother Joel* is a eulogy for a friend and booster in the music business who died tragically young. *Name* alludes to a reservoir of private pain close to overrunning its banks, and in *Speaking Mouth* he wonders aloud whether the travails in life are suffered to any purpose; in both of these songs, stark, carefully struck notes on the piano set a mournful mood.

Emotional candor on this scale is uncommon in popular music, where "Don't worry, be happy" is allowed to pass for philosophy. Rare, too, is the level of musical acuity to be found in "Synesthesia." Peter Himmelman is a major talent, and "Synesthesia" is his "Blood on the Tracks." *Parke Puterbaugh*

**PETER HIMMELMAN: *Synesthesia*.** Peter Himmelman (vocals, guitar, keyboards, harmonica, percussion); vocal and instrumental accompaniment. *Synesthesia*; *245 Days*; *Difficult to Touch*; *Tug of War*; *A Million Sides*; *Name*; *Surrender*; *Dirty Reasons*; *Babylon*; *The Sweetest Revenge*; *I Wouldn't Mind*; *Speaking Mouth*; *Brother Joel*; *Second Chance*; *Beneath Your Watching Eyes*. ISLAND 91248-1, © 91248-4, © 91248-2 (61 min).

### BERNSTEIN'S SHOSTAKOVICH

LEONARD BERNSTEIN'S current Mahler cycle for Deutsche Grammophon uses three different orchestras, and apparently his Shostakovich cycle on the same label is to be a multi-orchestra project as well. Having recorded Nos. 6 and 9 with the Vienna Philharmonic, he chose Nos. 1 and 7 for his first recordings ever with the Chicago Symphony Orchestra. Released in a two-disc set, they are as striking for the orchestral virtuosity as for the intensity of Bernstein's reconsidered interpretations.

It was Bernstein who probably did the most to "rehabilitate" Shostakovich's Seventh Symphony in the West, some twenty years after

its celebrated U.S. première under Toscanini and long after it had been written off as a topical work of no lasting value beyond its fleeting significance as a chronicle of the early days of the "Great Patriotic War." He presented the Seventh early in the New York Philharmonic's first season at Lincoln Center, in the fall of 1962, and he recorded it then (that version is available now on a CBS CD). The Chicago recording, made during concerts in June 1988, runs about 10 minutes longer than the earlier one; one cannot describe it simply as "slower," however, but must acknowledge it as being more powerful, touching deeper levels.

With the benefit of more than a quarter-century's further thought and all the revelations of the composer's inner impulse in respect to this and other major works, Bernstein's new reading is invested with a somewhat different sort of intensity than his first one, suggesting a greater sense of *weight*, instead of being carried on sheer extrovert drive. In his hands this weightiness does not lead to inertia, but it does call for broader pacing to span the great arch of the symphonic drama as he now perceives it.

The orchestra's playing reflects the same level of conviction and is simply beyond praise. The effect of moving on different planes in the "invasion" portion of the first movement, the string tone at the end of that movement and throughout the third, the dynamic shadings in the more "inward" sections, the way the various motifs are brought together at the work's end—such things cannot be described or explained in terms of technique or

brilliance alone; they are achievable only through total commitment.

The accompanying First Symphony sounds a little larger than life here, more consonant perhaps with what we know now of Shostakovich in his fifties and sixties than the brash originality of the eighteen-year-old who created this music as a graduation piece. Gennady Rozhdestvensky is incomparably convincing in this work, on Melodiya, but Bernstein's intensity and the Chicago Symphony Orchestra's beautiful playing may persuade you that you need a second version. DG's live recording of both symphonies is first-rate, preserving all the vividness of the concert event within a sonic frame of superb richness and detail—and sparing us the applause, which could only lessen the impact of the music.

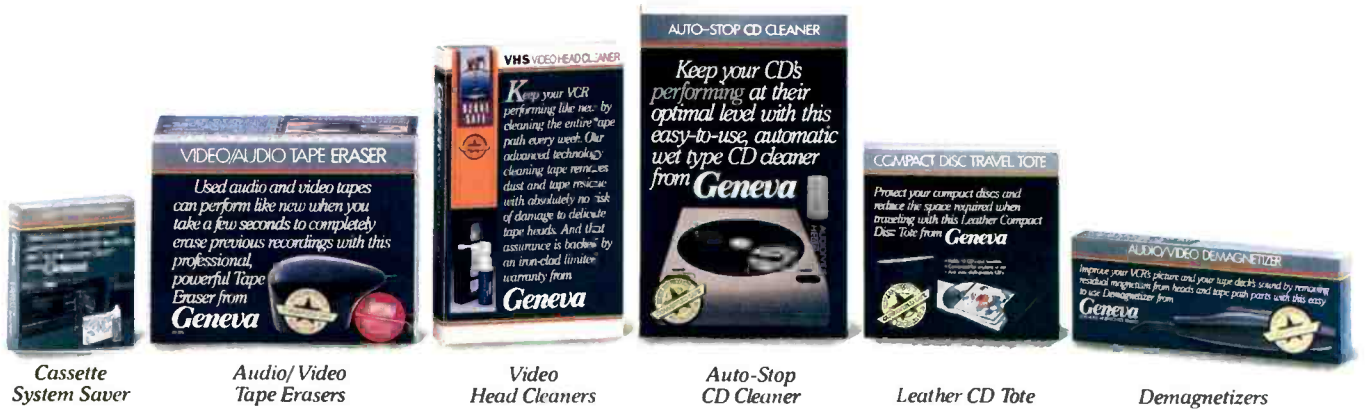
Bernstein's commitment to this music, as in so many other instances, renders comparison more or less beside the point. Among his several achievements on behalf of both symphonies in the new set is the demonstration that they are works of such stature that they can sustain—and, indeed, must inevitably inspire—a variety of interpretations that are not so much in conflict as equally valid for illuminating different facets of the music. And no one else so far has illuminated quite so many as Bernstein.

*Richard Freed*

**SHOSTAKOVICH: *Symphony No. 1, in F Major, Op. 10; Symphony No. 7, in C Major, Op. 60 ("Leningrad")*.** Chicago Symphony Orchestra, Leonard Bernstein cond. DEUTSCHE GRAMMOPHON © 427 632-2 two CD's (120 min).

*Bernstein: touching deeper levels*





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**ERIC CLAPTON: *Journeyman*.** Eric Clapton (vocals, guitar); vocal and instrumental accompaniment. *Pretending; Anything for Your Love; Bad Love; Running on Faith; Hard Times; Hound Dog*; and six others. REPRISÉ 26074-1, © 26074-4, © 26074-2 (57 min).

Performance: *Refer to title*  
Recording: *Varies*

It's strange that a musician once revered as a god by adoring disciples would describe himself as a journeyman, but if the guitar strap fits, wear it. Eric Clapton must identify with the positive aspects of the word—perseverance and a workmanlike approach to a chosen craft—to adopt so modest a profile. He obviously doesn't mean to imply that his music is boring, just that he inhabits it without ego, content to be one of the players.

"Journeyman" cooks at a slow simmer, without explosive high points or, conversely, mediocre lows. It is a distinct improvement over his previous two records, both co-produced by Phil Collins, forsaking ill-advised stabs at contemporary popcraft for a more honest, rootsy approach. The only drawback is the uneven material, the perennial bugaboo of a talented musician who is not himself a consistently gifted or prolific songwriter. In that respect, "Journeyman" resembles meat loaf, falling somewhere between filet mignon and canine chow.

Five of the tunes are by Jerry Williams, who writes in a slow-burning, Southern-style soul groove that lends itself to modern trappings. *Anything for Your Love* smolders with authority as Clapton inserts cobra-quick fills around the song's solid chassis. *Running on Faith* is Williams's best contribution, and it spotlights some tasty playing from Clapton, whose strings sizzle and sing.

It should be noted that Clapton's other instrument, his voice, has mellowed and matured, taking on a honeyed hus-



## GIPSY KINGS

**W**HAT Los Lobos have done for their Chicano heritage, the Gipsy Kings are doing for their own rich culture.

Heirs to the fiery flamenco style of southern France, the Kings are no strangers to the nomadic life of the Gypsy caravan. In their new Elektra album, "Mosaïque," the music is hot-blooded and passionate, featuring the finely meshed interplay of six guitars. They deviate from tradition by forsaking castanets for a more modern-sounding trap set and deploying synthesizers for textural underpinning. But the music is in all other respects authentic and unretouched, from the Spanish-language vocals to the lightning-quick flamenco guitars.

Language is no barrier when it comes to grasping the intense emotionality of this music. Groups like the Gipsy Kings are doing much to break down the English-language bias of popular music, a welcome development in a world

where barriers of all kinds are coming down. "Mosaïque" is as explosive and dynamic as any contemporary rock album. It's also as timeless as Django Reinhardt's jazz-flamenco fusion and as warm and romantic as the glow of a campfire. An exciting, full-bodied version of *Volare* provides a familiar touchstone—and in the Gipsy Kings' hands it positively leaps to life—but the eleven originals in "Mosaïque" offer something accessible to all who approach it with open ears: a zeal and a passion for living that transcend all tongues.

*Parke Puterbaugh*

**GIPSY KINGS: *Mosaïque*.** Gipsy Kings (vocals and instrumentals); instrumental accompaniment. *Caminando por la calle; Viento del arena; El camino; Mosaïque; Serana; Liberté; Volare; Trista pena; Niña Morena; Passion; Soy; Vamos a bailar*. ELEKTRA 60892-1, © 60892-4, © 60892-2 (50 min).

kiness that enhances even so-so material with its muted passion. Clapton himself wrote (to be accurate, co-wrote) only two tunes, one of which, *Bad Love*, is propelled by a lively lick that puts one in mind of his brokenhearted masterpiece, *Layla*. The other Clapton original, *Old Love*, finds him dueling lightly with fellow blues guitarist Robert Cray. I found myself wishing more sparks flew from their sabers, but they meet again in the album's closer, a loose and

swinging version of Bo Diddley's *Before You Accuse Me*.

If there's anything confusing about "Journeyman," it's that the older material, such as covers of Ray Charles's *Hard Times* and Lieber and Stoller's *Hound Dog*, doesn't mix well with the originals, since they employ radically different production approaches. On the whole, the burbling synthesizers and drum programs confound and undermine Clapton's and producer Russ Ti-

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telman's inclination toward the blues. "Journeyman" doesn't quite cohere or excite like the best of Clapton's oeuvre, yet it's a solid enough piece of work that puts him in sight of the right road. *P.P.*

**DESERT ROSE BAND: *Pages of Life.*** Desert Rose Band (vocals and instrumentals). *Story of Love; Start All Over Again; Missing You; Just a Memory; God's Plan;* and six others. MCA MCA-42332, © MCAC-42332, © MCAD-42332 (40 min).

Performance: *Weak*

Recording: *Good*

Chris Hillman was a member of both the Byrds and the Flying Burrito Brothers during the formation of country-rock, and for the past several years he has fronted the Desert Rose Band with a host of California country-rock veterans. With that kind of background, he would seem to be one of contemporary country music's brightest lights. But "Pages of Life," like the other Desert Rose efforts, never quite gets off the ground.

As a member of the Byrds and Burrito Brothers, Hillman mainly sang harmony, taking the occasional lead vocal and writing a song or two along the way. He is clearly miscast as a lead vocalist and principal songwriter, since his light tenor proves weak on emotive delivery, and his songs lack the melodic, lyrical, and dramatic spark to carry a whole album. Old fans of his earlier groups will enjoy the occasional Sixties instrumental and thematic strains, primarily in *Start All Over Again*. But neither those effects nor Herb Pedersen's tender lament, *Our Baby's Gone*, save "Pages of Life" from mediocrity. *A.N.*

**EILEEN FARRELL: *Sings Harold Arlen.*** Eileen Farrell (vocals); Loonis McGlohon (piano); Joe Wilder (flugelhorn, trumpet); other musicians. *Let's Fall in Love; Out of This World; I Wonder What Became of Me; I've Got the World on a String; Like a Straw in the Wind; Down with Love;* and eight others. REFERENCE ① RR-30, © RR-30CS, © RR-30CD (48 min).

Performance: *Bull's-eye*

Recording: *Very good*

**EILEEN FARRELL: *Sings Rodgers & Hart.*** Eileen Farrell (vocals); Loonis McGlohon (piano); Joe Wilder (flugelhorn, trumpet); other musicians. *I Could Write a Book; I Wish I Were in Love Again; Wait Till You See Him; I Didn't Know What Time It Was; Love Me Tonight; Nobody's Heart;* and eight others. REFERENCE ① RR-32, © RR-32CS, © RR-32CD (42 min).

Performance: *Mostly fine*

Recording: *Very good*

At heart, Eileen Farrell has always been a chanteuse. Even in the prime years of her concert and operatic career, she seemed to enjoy herself most when she

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was mixing pop songs with arias on her radio shows or making outright pop records with Luther Henderson. Now, several decades later, with quite a few younger divas actively caught up in crossover recordings, Farrell has come out of retirement to show that she can still do it better than any of them.

The Harold Arlen album is a real winner. The songs she's chosen include some of Arlen's best-known standards and such choice rarities as the unpublished *Like a Straw in the Wind* (from 1940, not the 1930's as the liner notes say) and *Little Drops of Rain*, which Judy Garland introduced in the 1961 cartoon feature *Gay Purr-ee* and which Farrell beautifully combines with Garland's classic *Over the Rainbow*. You can't get away with just crooning an Arlen ballad the way you can those of some other top songwriters—and Farrell's voice has the earthiness and richness so many of the songs cry out for. She also has a natural feeling for the bluesiness that marks Arlen's best songs. Only once (at the end of *When the Sun Comes Out*) does she miscalculate and inject an operatic flourish. Otherwise, she reins in her big voice nimbly, letting it out only where it counts in terms of the lyrics. And she's in fine shape vocally throughout, happily minus the wobble and most of the raspiness that have marred a few of her recent (and rare) TV appearances.

The Rodgers and Hart set gets off to a disappointing start with plodding and squarish versions of *I Could Write a Book* and *I Wish I Were in Love Again*. But then Farrell begins to set things right with a marvelously languid and dreamy *Wait Till You See Him* and a refreshingly jaunty *I Didn't Know What Time It Was*. She's at her best with the incomparable ballads—and manages the rare feat of sounding heartsore while avoiding the self-pitying excesses inherent in Hart's lyrics for such songs as *Nobody's Heart*, *It Never Entered My Mind*, and *Little Girl Blue*.

In both recordings, Loonis McGlohon's straightforward, small-combo arrangements never steal the spotlight or mess around cutely with either Arlen's or Rodgers's beautifully crafted melodic lines. *R.H.*

**TIMMY GATLING: *Help***. Timmy Gatling (vocals); vocal and instrumental accompaniment. *Cheatin'; Help; Rock Me Good; So for Real; All the Way; and five others*. TOMMY BOY/WARNER BROS. TBLP 26000, © TBC 26000, © TBCD 26000 (50 min).

Performance: *Very limited*  
Recording: *Satisfactory*

There are a few flashes of talent in Timmy Gatling's album, but you wait a long time for them. Most of the material here reflects an adolescent approach to love and sex, but it is not set forth with enough musicianship or musicality to sustain interest. The best track is *The*

*Sweat Drops*, an evocation of intense lust at first sight, set to a sensually undulating riff. But the rest is mostly unimaginative dance fare. *P.G.*

**THE GEORGIA SATELLITES: *In the Land of Salvation and Sin***. The Georgia Satellites (vocals and instrumentals); vocal and instrumental accompaniment. *I Dunno; Bottle o' Tears; All Over but the Cryin'; Shake That Thing; Six Years Gone; Games People Play; and eight others*. ELEKTRA 60087-1, © 60087-4, © 60087-2 (57 min).

Performance: *Derivative*  
Recording: *Good*

"In the Land of Salvation and Sin" is a "hats off" kind of record—hats off to the Rolling Stones, hats off to Rod Stewart and the Faces, hats off to Little Feat. The Georgia Satellites are four of the most enthusiastic fans of rootsy, ramshackle rock-and-roll you'll ever find, but in this third album they've lost their own identity beneath all the well-intentioned love they display for their influences. *Shake That Thing*, for instance, is a greasy plate of ribs straight out of Little Feat's soul kitchen, and *Another Chance* sets a Rod and the Faces-style *Mandolin Wind* to blowing. *Bring Down the Hammer* could pass for one of those sloppy, Keith-sung Stones rockers. When the Satellites aren't paying tribute, they rock rather facelessly (pardon the pun). While the band has always had strong ties to basic rock, they've never sounded as blatantly derivative as they do here. In the beginning, their music boasted the power of a vision shared; now, it bears the weight of a vision borrowed. *P.P.*

**PETER HIMMELMAN: *Synesthesia***  
(see Best of the Month, page 76)

**STACY LATTISAW: *What You Need***. Stacy Lattisaw (vocals); vocal and instrumental accompaniment. *What You Need; Dance for You; You Touched the Woman in Me; R U Man Enough; Guilty (Lock Me Up); and three others*. MOTTOWN MOT-6280, © MOTC-6280, © MOTD-6280 (48 min).

Performance: *Good, but...*  
Recording: *Satisfactory*

Unlike some one-record child wonders, Stacy Lattisaw has proved that she has real staying power. She continues to pursue a solid course with this latest album. The lyrics of the songs she's chosen allow her to assume a more womanly stance than previously, and she sings them with the full-bodied assurance of one wise beyond her years. Unfortunately, the first half of "What You Need" consists of fairly trite dance tunes, and few of the other songs are up to her highest standard. The one real gem, *Where Do We Go from Here*, is not only a fine composition, but it gives Lattisaw the opportunity to recall her gospel roots, singing with all the power



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MILLER & KREISEL  
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and passion associated with that style. She is also exceptionally appealing in the ballad *Tender Love*, and though these two tracks do not add up to a memorable album, they are enough to make it worth a listen. *P.G.*

**SHIRLEY LEWIS: *Passion*.** Shirley Lewis (vocals); vocal and instrumental accompaniment. *Realistic; Love Somebody; Boy Meets Girl; Passion in the Heart; You Can't Hide*; and five others. A&M SP-5270, © CS-5270, © CD-5270 (48 min).

Performance: *Inauspicious*  
Recording: *Good*

A British-born former back-up singer, Shirley Lewis is making a bid for recognition with this new record of hard-edged dance tunes. The problem is that most of them are so thin musically that only the heavy beat stands out, and that beat is the same old pedestrian one we've been hearing for years, with no attempt at innovation or interesting instrumentals to lift it above the banal. Shirley Lewis, the sister of Linda Lewis, who enjoyed some popularity back in the Seventies, has a reasonably appealing voice, but that alone is hardly enough to compensate for the mediocrity that prevails here. *P.G.*

**RUSH: *Presto*.** Rush (vocals and instrumentals); vocal and instrumental accompaniment. *Show Don't Tell; Chain Lightning; The Pass; War Paint;*

*Stacy Lattisaw: staying power*



*Scars; Presto*; and five others. ATLANTIC 82040-1, © 82040-4, © 82040-2 (52 min).

Performance: *Ambitious*  
Recording: *Fair*

Rush improves incrementally with each album, bucking to become Canada's answer to Pink Floyd by virtue of the accomplished surrealism and the increasing reach and range of its music. The tempos are more varied than ever, and the arrangements are generally more ambitious than cumbersome—witness the dexterous athleticism of *The Pass* or the genuinely catchy *Superconductor*. There are overtones of science fiction in these meditations on technology, media, and the modern world. Geddy Lee is singing in a listenable middle range, the lyrics are thoughtful, even literate, and the band embraces high-tech hardware without being overtaken by it. "Presto" is proof that progressive rock is alive and well and in capable hands. *P.P.*

**DOUG SAHM: *Juke Box Music*.** Doug Sahn (vocals, guitar, piano); vocal and instrumental accompaniment. *I Won't Cry; Money over Love; Crazy Baby; You're Mine Tonight; I've Got Eyes for You; Hey Little Girl; It Hurts to Love Someone*; and five others. ANTONE'S ANT 0008, © ANT 0008 (from Antone's Records, 2928 Guadalupe, Austin, TX 78705).

Performance: *The right stuff*  
Recording: *Warm and full*

Saints be praised—Doug Sahn is back on an American label. Sahn, a Texas blues belter and one-man musical melting pot, has a faithful following abroad and deserves a big one here at home, too. Rock trivia fans will know that he was responsible for two big hits in the Sixties, *She's About a Mover* and *Mendocino*, as leader of the Sir Douglas Quintet. Yet over the past twenty years Sahn has made nearly that many albums, most of which have not been heard far beyond the confines of his devoted following. It's high time the U.S. once again got hip to this national treasure.

True to its title, "Juke Box Music" harks back to a simpler era when a tune stood on its own merits and the public would vote its approval at the local tavern or roadhouse with dimes and quarters. It's a solid program of bluesy rock-and-roll set to a Texas shuffle beat and fleshed out with sweet, stinging guitar fills, solid horn charts, and bar after bar of piano triplets. Sahn's voice is a joy to hear; he's a natural-sounding singer with a broad repertory of vocal stylings, all of them soulful.

With the band pumping behind him, Sahn settles into a swinging groove, linking bluesy shuffles, sweet street-corner soul, and jumpy rockabilly as if they were born from the same musical womb (which they were). It's the sort of

stuff that will never go out of fashion as long as people want to kick back and relax to some cool, rockin' tunes by musicians who play it like they live it, with real feeling. Instead of dropping bucks on the latest haircut act hogging the charts, give Doug Sahn a chance; I guarantee that listening to his "Juke Box Music" will leave you feeling positively *righteous*. *P.P.*

**DAVE SAMUELS: *Ten Degrees North*.** Dave Samuels (vibes, marimba, xylophone, baliphone); other musicians. *White Nile; Ten Degrees North; Real World; Para Pastorius; Rendezvous*; and five others. MCA MCA-6328, © MCAC-6328, © MCAD-6328 (46 min).

Performance: *Tentative*  
Recording: *Fine*

Dave Samuels has obviously been paying attention to the international pop scene. You can hear Caribbean and African influences all through this album. You can also sense a lack of spontaneity in many of these tracks, as if the musicians weren't sure of themselves or each other. Samuels may have a spare, modest way of soloing, but that doesn't explain the awkward transitions to and from solos. A number of the tunes fade out on improvisations, just as the music seems to be gaining momentum. There is a quiet beauty to some of the melodies in "Ten Degrees North," but they don't seem to go anywhere. *R.G.*

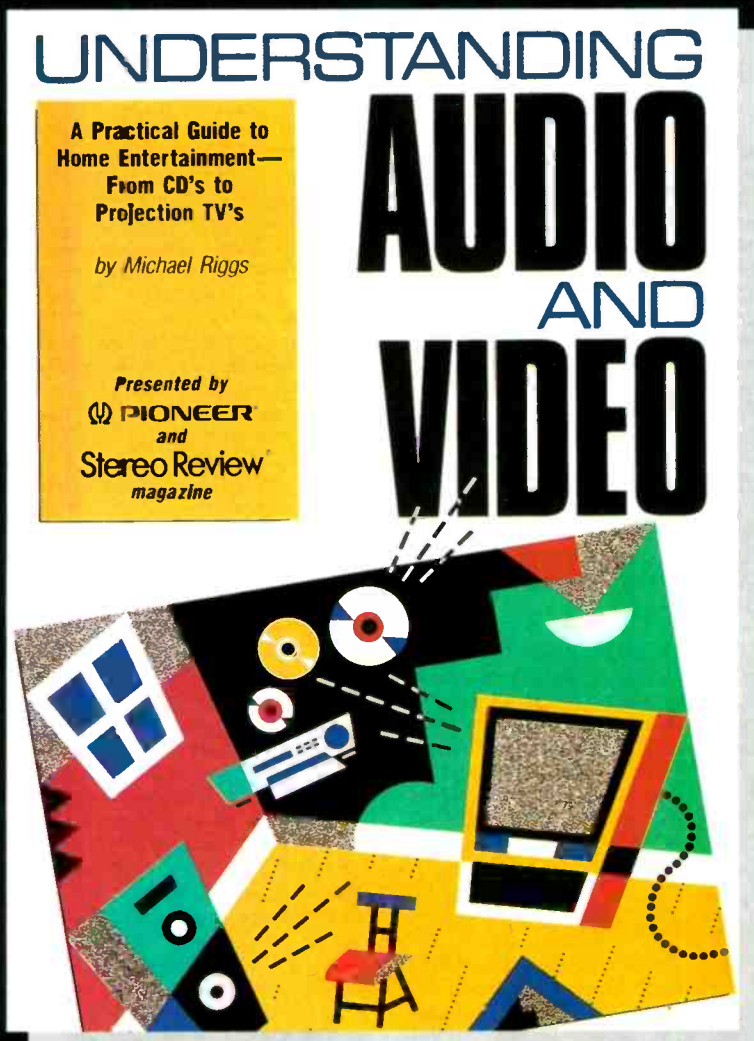
**JOE SATRIANI: *Flying in a Blue Dream*.** Joe Satriani (guitar, vocals); instrumental accompaniment. *Flying in a Blue Dream; The Mystical Potato Head Groove Thing; Can't Slow Down; Headless; Strange; I Believe; One Big Rush; Big Bad Moon; The Feeling*; and nine others. RELATIVITY 88561-1015-1, © 88561-1015-4, © 88561-1015-2 (62 min).

Performance: *Strong guitar*  
Recording: *Good*

Joe Satriani makes a demonstration record for rock guitarists every time he enters the studio. Like his previous album, "Surfing with the Alien," "Flying in a Blue Dream" is a textbook of inspiration for guitar students—both those who pluck actual strings and those who only play air. Satriani can muscle his way through a searing arpeggio or gallop through thundering bass riffs. Blistering, stratospheric complexities and sweet, ringing simplicities seem to attract him equally. Rock, funk, blues, folk—you name it and Satriani can play it. So what if this sounds like a catalog of techniques instead of a well-focused style? Satriani carries it all off with convincing aplomb. Unfortunately, the same cannot be said of his debut vocal attempts in this album: his vocal cords don't have the same range as his fingers. Fortunately, he doesn't sing that much in "Flying in a Blue Dream," so guitar

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# Play Bacardi



fans won't be too distracted from the essential truths they're seeking. *R.G.*

**SOUTHERN PACIFIC: *County Line.*** Southern Pacific (vocals and instrumentals); vocal and instrumental accompaniment. *Any Way the Wind Blows; I Can't Complain; Beyond Love; Time's Up; Memphis Queen; Side Saddle;* and six others. WARNER BROS. 25895-1, © 25895-4, © 25895-2 (38 min).

Performance: *Searching*  
Recording: *Very good*

When Southern Pacific made its debut in the mid-Eighties, the California country-rock band scored high marks both for the rough-hewn, spirited delivery of lead singer Tim Goodman and for its fresh, inventive sound—a collage of thick vocal harmonies laid onto rock-oriented guitars and keyboards and a high-octane honky-tonk that gave the old-style rockabilly a swift kick in the derrière.

When Goodman, who also contributed considerably to the songwriting, left the group, his replacement was David Jenkins, who brought his ornery and strident good-ol'-boy vocals to the band's overall sound. Now Jenkins, too, has departed, and the remaining members of Southern Pacific—John McFee, Keith Knudsen, Kurt Howell, and Stu Cook—are struggling to hold onto their audience and their musical identity.

In "County Line," its latest album, the band delivers a handful of respect-

able, hook-laden tunes and at least one real kicker, *Time's Up*. A duet featuring the long-silent Carlene Carter, it also offers a lyric of quintessential country thought, one that blends both automobiles and lust: "Treat me like a brand new Cadillac/If you're gonna love me don't hold back."

After that, however, things deteriorate rather quickly, McFee and company dipping into the oldies bin for *Mary Lou, G.T.O.*, and an abysmal bebop version of Del Shannon's *I Go to Pieces*. While the picking remains near state of the art, the lead vocals by McFee and Howell have nothing special to recommend them. In the end, this once-brilliant band seems splintered beyond redemption, a casualty of creative differences and a dearth of really first-rate material. *A.N.*

**MARTY STUART: *Hillbilly Rock.*** Marty Stuart (vocals, guitars, mandolin); Richard Bennett (guitars); Leland Sklar (bass); vocal and instrumental accompaniment. *Hillbilly Rock; Western Girls; Don't Leave Her Lonely Too Long; The Coal Mine Blues; The Wild One;* and five others. MCA MCA-42312, © MCAC-42312, © MCAD-42312 (33 min).

Performance: *The real thing, but...*  
Recording: *Splendid*

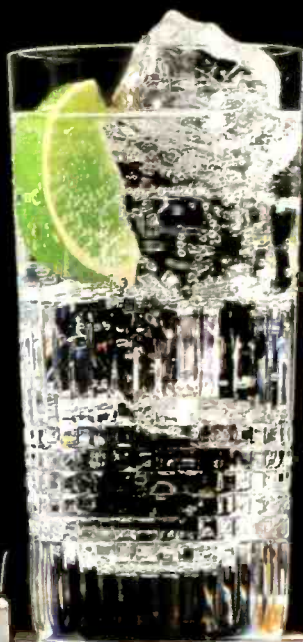
As the liner notes point out, Marty Stuart is the real deal, and he's got the history. At thirteen, the Mississippi guitarist/mandolin picker began serving

his hillbilly apprenticeship with bluegrass legend Lester Flatt, later moving on to a six-year touring stint with Johnny Cash. In 1982 he recorded his first solo album, the acoustic "Busy Bee Cafe," a half-vocal, half-instrumental album for Sugar Hill that boasted stellar guests Doc and Merle Watson, Earl Scruggs, Jerry Douglas, and Johnny Cash and garnered excellent reviews as a true performer's showcase.

As the years wore on, however, Stuart never quite fulfilled his promise of solo stardom. His work on the CBS label correctly fused his passion with bluegrass and rockabilly, presenting a stripped-down sound and a lean-and-hungry attitude, yet Stuart continued to be best known for his contributions to other projects, such as the all-star album "The Highwayman."

The problem, as "Hillbilly Rock," his MCA debut, makes clear, is that Stuart still thinks of himself as a sideman. He has spent most of his career playing painstakingly clean and scalpel-sharp instrumentals, devoid of pretension and chock-full of heart. But he is simply not yet capable of pulling off a compelling solo album as a singer/songwriter, no matter how beautifully it is dressed and appointed. If Stuart now has his *sound* down—a sound he calls not rockabilly but "hillbilly music with a thump"—his songs are largely shallow (*Western Girls*) and unmemorable (*When the Sun Goes Down*). His voice is also too soft and undistinguished to carry his inspired choice of covers, and his fiery

for me.



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instrumentals show up all too infrequently, particularly for an album produced by such inventive musicians as Richard Bennett and Tony Brown.

In the end, then, Marty Stuart, like the immensely talented Vince Gill, has yet to discover how to be his own man and how to put himself across with contagious, thriving vitality. When he does, the world will likely answer. *A.N.*

**JAMES "J.T." TAYLOR:** *Master of the Game*. James "J.T." Taylor (vocals); instrumental accompaniment. *Sister Rosa*; *8 Days a Week*; *The House That Jack Built*; *Bring Back the Night*; *Master of the Game*; and five others. MCA MCA-6347, © MCAC-6347, © MCAD-6347 (44 min).

Performance: *Scintillating*  
Recording: *Very good*

If James "J.T." Taylor's voice sounds familiar to you, it's probably because you've heard him as lead singer for Kool & the Gang, one of the most successful pop-soul groups of the Eighties. Like so many other lead singers, he has struck out on his own, and on the basis of this debut set his prospects look quite good. Taylor has the sort of voice, strength in performance, and charisma that should enable him to establish his own musical identity without a hitch.

From the opening moments of the first selection, Taylor firmly establishes that this is *his* set, not one by Kool & the Gang, for while he keeps the emphasis on quality pop fused with r-&-b, he

favors a more propulsive beat, often with Latin shadings. He strikes out aggressively over a battery of percussion, driving his songs home with whip-like insistence. The effect is stunning, particularly since he maintains this energy level over most of the record. The songs also have a kind of hard edge, especially *Sister Rosa*, about spiritualistic chicanery, *The House That Jack Built*, and *Kiss My Face*. Taylor is also effective in softer moods, as in *Romanca*, but he's at his best when he pushes his songs home. *P.G.*

**TECHNOTRONIC:** *Pump Up the Jam*. Technotronic (vocals and instrumentals). *Pump Up the Jam*; *Get Up! (Before the Night Is Over)*; *Tough*; *Take It Slow*; *Come On*; and five others. SBK/CAPITOL K1-93422, © K4-93422, © K2-93422 (43 min).

Performance: *Dance drill*  
Recording: *Good*

In the technological world of dance music, form follows function out onto the dance floor, where they do the wild thing all night long. Technotronic does it to perfection: inciting, nay, ordering dance-club denizens to shake their Spandex-clad posteriors in a ritualistic frenzy, providing martial beats and a steady stream of commands from not one but several disco drill instructors. Given the fact that people obey and even seem to derive pleasure from spending evenings in bondage to an inflexible, machine-generated beat,

there's not much to say about "Pump Up the Jam" except that it gets the job done.

So let us praise this particular machine (of European design, naturally) for dependability and sound engineering. The beat is as precise as an atomic clock, never deviating by even a nanosecond. The album comes with directions that are unambiguous and easy to follow, such as, "There's the dance floor/Get on it/This beat is technotronic" or "Get your bootie on the floor tonight/Make my day." Finally, it's selling lots of copies, which means it must be good. (At least that's what people who write letters to the editor always argue when a popular record has been maligned by critics.) All right, I'm convinced. By all objective standards, "Pump Up the Jam" is an outstanding record. *P.P.*

**THEY MIGHT BE GIANTS:** *Flood* (see *Best of the Month*, page 75)

**MARSHA THORNTON.** Marsha Thornton (vocals); vocal and instrumental accompaniment. *Deep Water*; *A Bottle of Wine and Patsy Cline*; *The Other Shoe*; *Jealous Heart*; *Wasn't It You*; *Climb the Walls*; and four others. MCA © MCAC-42319, © MCAD-42319 (30 min).

Performance: *Still learning*  
Recording: *Good*

Owen Bradley, the legendary producer behind almost all of MCA's major



## RANDY & THE GYPSYS

**R**ANDY JACKSON, the little brother who joined the family group when Jermaine left in the mid-Seventies, has stepped out on his own with a vocal/instrumental group that could come to rank with the best of them. It's called the Gypsies because the members camped out in Jackson's house after he summoned them from various parts of the country to form his new band. The evidence indicates that he chose well, although the dominant force in the impressive debut album by Randy & the Gypsies is Randy Jackson himself.

There can be no doubt that he had extraordinary advantages growing up in the shadow of the original Jackson Five, but he apparently has abundant talent of his own. An all-round musician who plays several instruments, sings, and composes, he wrote all the songs here and produced most of them too. They

are tuneful and imaginatively shaped, announcing their quality from the first notes. From the sweet harmonies of *The Love We Almost Had* to the brash insistence of *Gigolo*, there is nothing here that doesn't bear up under repeated listening, and several tracks, such as the duet *Luv Thang* and the rakish *You Got a Lady*, smell like hits. All of the perfectly crafted selections reflect the spirit and thrust of contemporary urban music while avoiding the clichés. Debuts don't come any better than this.

Phyl Garland

**RANDY & THE GYPSYS.** Randy & the Gypsies (vocals and instrumentals). *Perpetrators; Luv Thang; Love You Honey; You Got a Lady; The Love We Almost Had; Gigolo; I Can't Wait; I Need You; Not Because of Me.* A&M SP-5191, © CS-5191, © CD-5191 (52 min).

female artists of decades past—Brenda Lee, Loretta Lynn, and Patsy Cline—has stepped out of retirement a time or two in recent years to produce albums featuring women of extraordinary talent, most notably k.d. lang's "Shadowland." Lynn and lang were especially touched by Cline's work (lang has publicly said she believes she's Cline's reincarnation), and now here's Bradley's latest protégée, Marsha Thornton, who also draws on the Cline mystique, both in her overall approach and in her recording of the unabashedly calculated *A Bottle of Wine and Patsy Cline*.

The production here is vintage Bradley—old-style, twangy pedal-steel guitar and Floyd Cramer-style piano alternating with lush, romantic strings, sturdy male background voices, a pop sentimentality in the ballads, and engineering that eschews the "up-close and personal" approach in favor of a comfortable setback. But despite a collection of better-than-average honky-tonk ballads, and novelty tunes, Thornton, whose voice harbors qualities of a lesser Tanya Tucker, Brenda Lee, Donna Fargo, or Tammy Wynette, is no first-rate talent. And she certainly hasn't Cline's

vocal richness, her control, her maturity, or her ability to turn even mediocre songs into affecting emotional essays.

All the same, Bradley has showcased Thornton in a most appealing way. If you don't expect another legendary country diva, it goes down rather nicely. Thornton may not be a name for the history books, but she's no Marie Osmond, either.

A.N.

**KATIE WEBSTER:** *Two-Fisted Mama!* Katie Webster (vocals, piano, organ): instrumental accompaniment. *Two-Fisted Mama; Stood Up Again; Red Negligee; C. Q. Boogie; Never Let Me Go; Love Deluxe;* and five others. ALLIGATOR AL-4777, © AL-4777-CS, © ALCD-4777 (50 min).

Performance: *Rolling*  
Recording: *Impeccable*

After several years away from the music scene, singer-keyboardist Katie Webster released a splendid album of boogie-woogie in 1987 called "The Swamp Boogie Queen." She subsequently earned a W. C. Handy award for Best Instrumentalist thanks to that album and her irrepressible live performances. Now she's recorded another set of bold tunes in "Two-Fisted Mama!" Webster can rock the house at both ends of the keyboard—pounding out delirious patterns with her left hand while producing a shower of notes with her right. As a vocalist, she is a blues shouter. Often crude, more often sly, she knows what she's singing about. And her singing will make you jump for joy.

R.G.

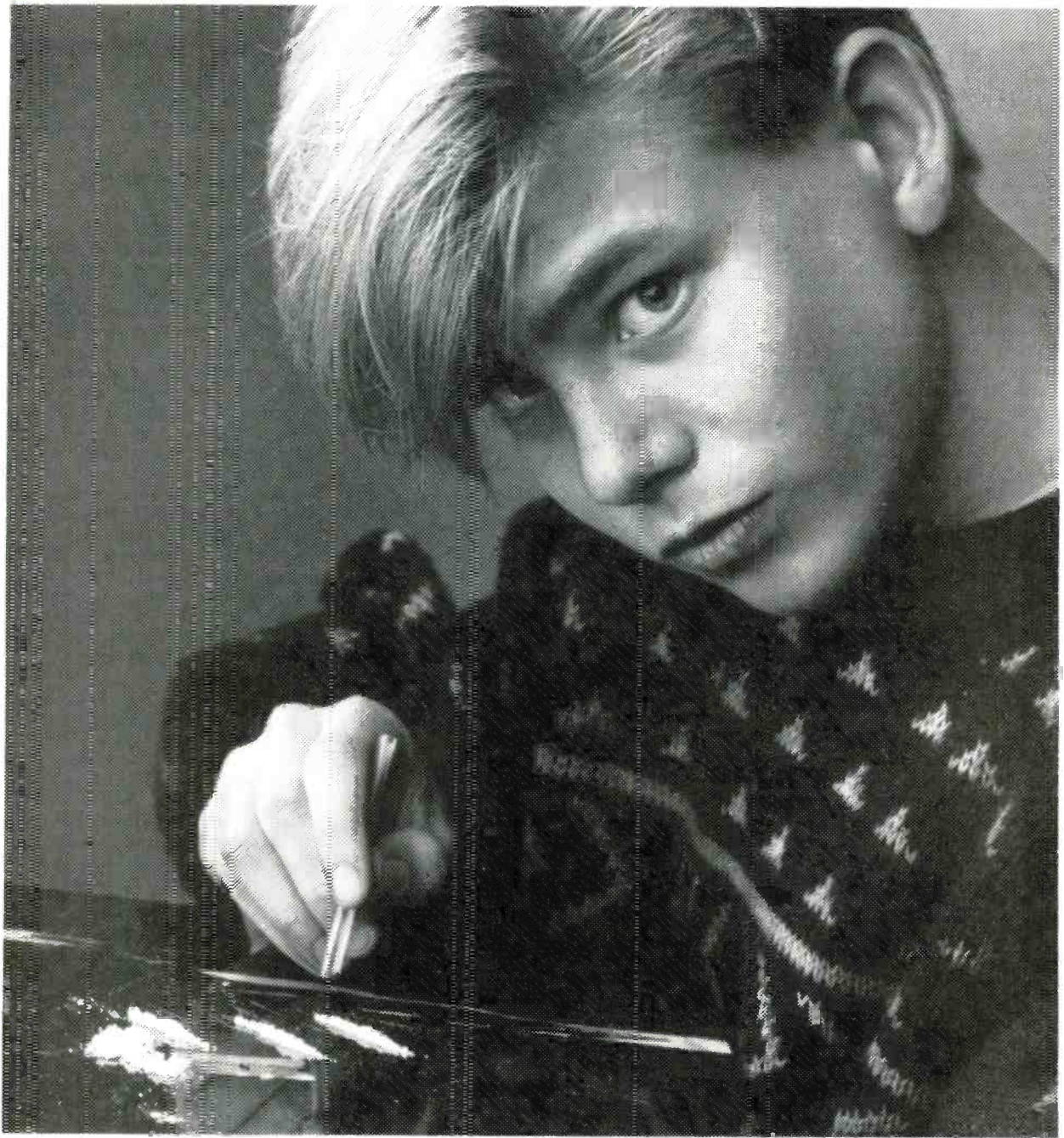
**WHITESNAKE:** *Slip of the Tongue.* Whitesnake (vocals and instrumentals): vocal and instrumental accompaniment. *Slip of the Tongue; Cheap an' Nasty; Fool for Your Loving; Now You're Gone; Kittens Got Claws;* and five others. GEFEN GHS-24249, © MSG-24249, © 24249-2 (47 min).

Performance: *Cheap*  
Recording: *Irritating*

Whitesnake is as soullessly profit-oriented as any corporate partnership, targeting a broad demographic with market-tested stabs at several of rock's lowest common denominators. "Slip of the Tongue" has "lite metal" and romantic power ballads for girls who'd like to dance barefoot in singer David Coverdale's curls. And it has rip-roaring heavy-metal road races for guys who dream of hitting harmonics at the speed of sound like guitarists Steve Vai and Adrian Vandenberg. At the heart of it, though, the album is bereft of emotion, and Whitesnake's virtuosity is overwhelmed by a cynical pandering to an audience half the band's age. Really now, is this any way for grown men to make a living?

P.P.

**HANK WILLIAMS, JR.:** *Lone Wolf.* Hank Williams, Jr. (vocals): vocal and instrumental accompaniment. *Good*



## **IT USED TO BE, AT 13, LITTLE BOYS BECAME INTERESTED IN LITTLE GIRLS.**

Boys and girls used to use straws to sip sodas at the drug store.

Now they cut the straws in half and use them to snort drugs deep into their nostrils.

Times have changed. Our children need our help.

We need to talk with our children. And talk. And talk.

This way, we'll learn what they think about drugs. What they know about them. What they don't know.

Then, once we understand their perspective, we'll be in a better position to offer our own. Then we'll be able to

talk about the dangers of various drugs. And about what our children can do to avoid them.

It takes courage to talk to them like this. And to do it effectively, it takes homework—like reading articles, attending meetings and talking to other parents. Otherwise, our children won't see us as informed sources. And they'll get their answers elsewhere.

As a parent, you can get answers to your own questions by contacting your local agency on drug abuse.

# JAZZ

*Friends, Good Whiskey, Good Lovin'; U.S.A. Today; Hot to Trot; Big Mamou; I Mean I Love You; Man to Man; Almost Persuaded;* and three others. WARNER BROS. 26090-1, © 26090-4, © 26090-2 (33 min).

Performance: *Full-scale*  
Recording: *Very good*

A concert by Hank Williams, Jr., is more often than not divided into two equal parts: the disciplined half, during which Bocephus concentrates on a tightly knit performance, and the undisciplined half, when both his musicianship and his pacing slip dramatically.

"Lone Wolf," Williams's newest studio release, happily resembles the first section of his concerts, when his personality is as big as all Montana, his pacing is fast but impeccably controlled, and his program is cohesive and deft. It opens with *Good Friends Good Whiskey Good Lovin'*, a working man's ethic that weds the trademark Fifties musical style of his father with the kind of contemporary lyrics that routinely feed the bankable Hank Junior mystique. From there he segues into a sharp-edged flag-waver, *U.S.A. Today*, an entertaining stab at Dixieland jazz (*Hot to Trot*), an energetic revival of *Big Mamou* (with Jimmy C. Newman and Jo-El Sonnier on board for Cajun authenticity), and an irresistible hell-raising love song, *I Mean I Love You*.

The second half is likewise varied, with a hard-driving, Southern boogie fantasy, *Man to Man*, about a heavenly meeting between Junior and Senior ("the man who used to moan the blues"), a big-voiced and big-spirited remake of Junior's own *Stoned at the Jukebox*, a civilized and restrained version of *Ain't Nobody's Business*, and, along with an overly melodramatic title song (the album's one immature indulgence), a wonderfully inventive cover of *Almost Persuaded*.

In the last, a fresh, rock-blues arrangement of a quintessential honky-tonk lament, Williams demonstrates the essence of his personal musical synthesis, teaming a *Lovesick Blues* yodel with blaring horns, heavy drumbeat, and a screaming electric-guitar blues solo by Sammy Hagar. The fact that this *Almost Persuaded* seems unrecognizable as the song David Houston drove to the top of the charts in 1966 is a testament both to Junior's experimental nature in rounding out the melody and to his ability to see that pain and temptation are endemic to any musical form.

Best of all, "Lone Wolf" brings Hank Junior's talents into line more successfully than any of his other recent albums. It finds him, and probably his rowdy friends of old, growing up at last. If this is the sound of a man nearly at the top of his form, it is also the sound of a man who knows how to enjoy it. "Lone Wolf" is, in the end, a very good time. And the mood is a contagious one at that.

A.N.



Ruth Brown: *spicy mix*

**RUTH BROWN: *Blues on Broadway***

Ruth Brown (vocals); Bobby Forrester (piano, Hammond organ); Spanky Davis (trumpet); Britt Woodman (trombone); Rodney Jones (guitar, banjo); Grady Tate (drums); other musicians. *Nobody Knows You When You're Down and Out; Good Morning Heartache; If I Can't Sell It, I'll Keep Sittin' on It;* and four others. FANTASY ● F-9662, © FC-9662, © FCD-9662-2 (48 min).

Performance: *The one and only*  
Recording: *Satisfactory*

For those who can remember the days when Ruth Brown was the queen of rhythm-and-blues, her return to recording should bring great joy, but those who can't are also in for a treat. In "Blues on Broadway," her second album in two years, Brown adds spice to a vintage bluesy mix by serving up the saucy humor that helped win her a 1989 Tony award for her performance in the Broadway hit *Black and Blue*. Along with a handful of choice standards, she sings three of the songs she sang in the show, *'Tain't Nobody's Biz-ness If I Do*, *St. Louis Blues* (highlighted by the pungent trumpet of Spanky Davis and the imaginative banjo work of Rodney Jones), and the showstopping *If I Can't Sell It, I'll Keep Sittin' on It*. The session is enhanced by the cohesiveness of Brown's work with the band that usually backs her, led by organist and pianist Bobby Forrester, along with some other veteran jazz musicians in the *Black and Blue* company. All in all, a most satisfactory set.

P.G.

**AHMAD JAMAL: *Pittsburgh***. Ahmad Jamal (piano); instrumental accompaniment. *Pittsburgh; Bellows; Mellow-*

*drama; Foolish Ways; Divertimento; Cycles; Fly Away; Apple Avenue.* ATLANTIC ● 82029-1, © 82029-4, © 82029-2 (53 min).

Performance: *Ornate*  
Recording: *Good*

Pianist Ahmad Jamal's new album is named after his home town, Pittsburgh, but its appeal should reach right into middle America. This is lush music that falls somewhere between lounge jazz and the *Warsaw Concerto*, but it also contains more substantial elements. Jamal has always been a pop pianist with strong jazz pretensions, and if he ever aspired to aim his style at a loftier level, his hit *Poinciana* probably steered him in the direction he has taken ever since. Here he gets closest to jazz in Jimmy Heath's *Mellowdrama*; elsewhere he gets somewhat carried away with Liberace-like embellishments. The rhythm support, by bassist James Cammack and drummer David Bowler, is solid, and Richard Evans's orchestrations provide all the right punctuation. A highly marketable set that the over-forty crowd will easily embrace.

C.A.

**MEL LEWIS: *The Lost Art***. Mel Lewis (drums); Jim Powell (flugelhorn); John Mosca (trombone); Dick Oatts, Gary Smulyan (saxophones); Kenny Werner (piano); Dennis Irwin (bass). *Hello; Voyager; Bulgaria; Native American; Allanjuneally; 'Til There Was You/In My Solitude/My Ideal;* and five others. MUSICMASTERS ● CIJD 20222, © CIJD 40222, © CIJD 60222 (64 min).

Performance: *Formidable*  
Recording: *Excellent*

In recent years, we came to think of Mel Lewis as a big-band drummer, mostly because of his success as co-leader of the Thad Jones-Mel Lewis Orchestra but also because he was so good at it. This sextet album shows how well the late drummer also fit into a group environment, even one that occasionally reached slightly beyond bop stylistically. Surrounding himself with young, up-and-coming musicians here, he sandwiched nine superb group performances of tunes written by his sidemen between two brief drum solos, *Hello* and *Good-bye*. The result is a good hour of varied jazz excursions containing all the elements that separate jazz from any other kind of music. Saxophonist Dick Oatts continues to impress me, but on this release it is Kenny Werner who shines the brightest, both as pianist and composer. Oatts and Werner ought to get together more often.

C.A.

**RAMSEY LEWIS AND BILLY TAYLOR: *We Meet Again***. Ramsey Lewis, Billy Taylor (piano). *I'm Just a Lucky So and So; Django; Cookin' at the Con-*



*tinental; Somewhere Soon; We Meet Again; Quiet Now; Soul Sister; Waltz for Debby; Nigerian Marketplace.* CBS FM 44941, © FMT 44941, © MK 44941 (56 min).

Performance: *Splendid*  
Recording: *Quite good*

Ramsey Lewis's duets with Billy Taylor in "We Meet Again" are well balanced and should appeal to a broad range of tastes. Indeed, while these two pianists continue to pursue individual careers, they seem well on their way to establishing themselves as a team, and their first album together offers a diverse program of compositions by Taylor and fellow pianists John Lewis, Bill Evans, Horace Silver, Denny Zeitlin, Chick Corea, Duke Ellington, and Oscar Peterson. It all clicks into place, from the opening track, a four-fisted rendition of Duke's *I'm Just a Lucky So and So*, to the beautiful finish, Peterson's *Nigerian Marketplace*. C.A.

**JEAN-PIERRE LLABADOR:** *French Guitar Connection*. Jean-Pierre Llabador (guitar); other musicians. *Géraldine; Passing By; Candles and Beads; The Green Plant; Suzanne; Lady Medea; Breathing*; and eleven others. BREAKTHRU © OXY6-2 (70 min). Dis-

tributed by Oxymoron, 9532 Quaker-town Ave., Chatsworth, CA 91311.

Performance: *Fractious fingering*  
Recording: *Quite good*

Jean-Pierre Llabador's "French Guitar Connection" is his first compact disc, derived in part from two LP's of his, "Coincidences" (1984) and "Brussels" (1986). In this collection of eighteen tracks Llabador plays with three different trios comprising piano, bass, and drums, though the disc's packaging and printed insert information fail to indicate which musicians sit in on which tracks. The music is more revealing, however, showing Llabador to be a technically skillful, imaginative improviser who avoids the clichés that trap so many of today's guitarists. There are tracks on which the guitar's echo is distractingly high—reaching peaks of reverberation favored by lesser artists who use it to veil their shortcomings—but most of the album offers solid jazz fare. I don't know what Llabador is doing now (the notes suggest that he's a session musician living in the South of France), but his talent certainly calls for wider, more suitable exposure. C.A.

**THELONIOUS MONK:** *Straight No Chaser*. Thelonious Monk (piano); Ray

Copeland (trumpet); Jimmy Cleveland (trombone); John Coltrane, Charlie Rouse, or Johnny Griffin (tenor saxophone); Phil Woods (alto saxophone); other musicians. *Straight No Chaser; Pannonica; Trinkle, Tinkle; Ugly Beauty (Rehearsal); Ugly Beauty; Evidence*; and five others. COLUMBIA SC 45358, © SCT 45358, © CK 45358 (48 min).

Performance: *Milking Monk*  
Recording: *Varies*

This is not, in the usual sense, a soundtrack album of *Straight No Chaser*, the documentary film on Thelonious Monk, but rather, as producer Orrin Keepnews puts it, an "adaptation of the motion picture." Except for an opening narration, a rehearsal dispute between Monk and producer Theo Macero, and brief comments by saxophonist Charlie Rouse, Thelonious Monk, Jr., and the Baroness Nica de Koenigswarter, this is an album of music performed by Monk between 1956 and 1968. Unfortunately, they are not all complete performances; there are fade-outs and spoken interruptions, and the quality varies from somewhat thin early-television mono to studio stereo. The music is Monk's, of course, but there is better Monk to be had. I recommend this release only to serious Monk collectors. C.A.

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*Discs and tapes reviewed by Robert Ackart, Richard Freed, David Hall, Stoddard Lincoln, Eric Salzman, and David Patrick Stearns*

**BACH: *Brandenburg Concertos Nos. 1-6 (BWV 1046-1051); Overture in B-flat Major (BWV 194); Concerto in C Minor (BWV 1029)***. Taverner Players, Andrew Parrott cond. EMI/ANGEL © CDCB-49806 two CD's (109 min).

Performance: *Bravo!*  
Recording: *Excellent*

These vigorous performances on early instruments of Bach's *Brandenburg Concertos* are among the finest yet. Andrew Parrott and his Taverner Players are sensitive to the complex sonorities of Bach's varied instrumentation, and the recording captures a satisfying balance of the musical forces involved.

In the First Concerto, the hunting calls in the first movement are clearly heard without obscuring the strings and oboes, and in the slow movement the canon between piccolo violino and oboe is equally voiced. The fierce problems of balancing the concertino of flute, oboe, violin, and trumpet in the Second Concerto too are easily solved without sacrificing any of the brilliance of the solo playing. The exciting string playing in the Third Concerto certainly shows off the talents of Parrott's ensemble, and the tempos are well chosen, as they are throughout the set. My only cavil concerns the treatment of the two chords between the fast movements of the Third Concerto: The much-needed moment of repose is swallowed up by an aggressive cadenza.

The filler pieces are welcome novelties: The so-called Overture in B-flat Major, drawn from Bach's Cantata No. 194, is a handsome piece in the French manner, with a pompous opening flourish and a fugal close. The Concerto in C Minor is an arrangement by Duncan Druce of the Sonata in G Minor for viola da gamba and harpsichord concertante, which has a concerto-like structure and comes off very well in this form. If you're not already glutted with a surfeit of *Brandenburgs*, this new set is well worth your attention. *S.L.*

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**BERLIOZ: *Harold in Italy, Op. 16***. Yuri Bashmet (viola); Frankfurt Radio Symphony Orchestra, Eliahu Inbal cond. DENON © CO-73207 (40 min).

Performance: *Superb soloist*  
Recording: *Very good*

The prime interest of this particular recording of Berlioz's autobiographical symphony with viola obbligato is the recording debut outside Russia of the Soviet violist Yuri Bashmet. In his characterization of the composer's Byronic hero, Bashmet reveals himself to be an artist of exceptional gifts. His tone is one of sensual duskiness, but it is also capable of a coloristic variety that more than makes up for Berlioz's decision to eschew virtuoso showmanship in favor of mood painting and haunting lyrical expression.

Would that Eliahu Inbal had brought to the orchestral role the qualities of characterization associated with, say, Colin Davis or Beecham. We get a generally decent run-through of the music, although it's disconcerting to hear the second-movement Pilgrims' March taken at a jog-trot pace. The lyrical aspects are nicely handled, but I miss from the Frankfurt players the element of alert excitement so essential to Berlioz in his dramatic aspect—most notably in the Brigands' Orgy finale. The recording, if not exactly spectacular, is satisfying enough, but at only forty minutes of playing time, Denon has given us pretty short measure. *D.H.*

**BRAHMS: *Piano Concerto No. 1, in D Minor, Op. 15***. Andrés Schiff (piano); Vienna Philharmonic Orchestra, Georg Solti cond. ***Variations on a Theme of Schumann for Piano Four-Hands, Op. 23***. Andrés Schiff, Georg Solti (piano). LONDON © 425 110-4, © 425 110-2 (66 min).

Performance: *Full-blooded*  
Recording: *Sumptuous*

Andrés Schiff is more frequently associated with the eighteenth-century repertory than with Brahms, but in his new recording of that composer's youthful blockbuster, the First Piano Concerto, he shows he can handle fiery passage-work and thunderous chords in the finest Brahmsian fashion yet be meltingly tender in the poignant slow movement. A major plus for this new London recording, of course, is the commanding presence of Georg Solti as conductor. He leads the Vienna Philharmonic in a full-blooded performance, beginning right away with a ferocious orchestral attack in the stormy introduction that paves the way for the piano's entrance.

The recording was made in Vienna's Konzerthaus, whose acoustic surround

I find rather kinder than the Musikverein, and the sound is gorgeous overall. My only reservations about the performance or sound are that I wished for more volatility in the Gypsy-flavored finale and occasionally for more of a singing quality in the piano, the lack of which I suspect has more to do with the instrument than with Schiff's playing.



*Pianist Andrés Schiff*

The concerto is accompanied by a Brahms rarity, the four-hands *Variations on a Theme of Schumann, Op. 23* (not to be confused with the Op. 9 set for solo piano), in which Schiff's partner is Solti. The piece is appealing in its way and achieves real depth in the dark-hued fourth variation, but it is no match for Brahms's more familiar variations on themes by Handel (Op. 24) and Paganini (Op. 35). The piano sound, however, is more luminous than in the concerto recording. *D.H.*

**BRUCKNER: *Symphony No. 9, in D Minor***. Vienna Philharmonic Orchestra, Carlo Maria Giulini cond. DEUTSCHE GRAMMOPHON © 427 345-2 (69 min).

Performance: *Broad and intense*  
Recording: *Splendid*

The expansive quality that Carlo Maria Giulini and the Vienna Philharmonic bring to this live recording of Bruckner's Ninth Symphony is reflected in the more than ten minutes of playing time added to that of the recent tough-



Augustin Dumay: hearty Mozart

BERTHELDT/EMI DAVID MARCONI

fibred version by Christoph von Dohnányi and the Cleveland Orchestra. The difference invalidates neither reading, for Bruckner's valedictory masterpiece is so vast in its dimensions and so multifaceted in detail that it can stand up under a number of varied approaches.

Giulini's performance has both measured pacing and ample intensity in the apocalyptic opening movement. There is a special element of relentlessness in the outer sections of the scherzo that stands in sharpest contrast to the fleet middle section, and the opening pages of the great adagio (Bruckner did not live to complete a fourth movement) here convey not so much a passionate yearning as a world-weary sigh. But as the music passes through its three mighty climaxes, the last titanic eruption of dissonance accumulates such shattering power, in Giulini's hands, that the final pages, with their evocation of earlier works, provide a particularly moving catharsis. The overall effectiveness of the performance is enhanced not only by the magnificent response of the Vienna Philharmonic players but also by the contribution of the Deutsche Grammophon production team, which has here achieved one of the finest live concert recordings yet made in Vienna's Musikverein. *D.H.*

**LISZT: Piano Music** (see Best of the Month, page 75)

**MOZART: Violin Concerto No. 4, in D Major (K. 218); Violin Concerto No. 5, in A Major (K. 219); Rondo in B-flat Major (K. 269).** Augustin Dumay (vio-

lin); Sinfonia Varsovia, Emmanuel Krivine cond. EMI/ANGEL. © CDC 49891 (61 min).

Performance: *Radiant*  
Recording: *Big and bright*

Augustin Dumay is playing these two concertos on his current American tour with Emmanuel Krivine and the Polish Chamber Orchestra (as the Sinfonia Varsovia is being billed in the U.S.). If their live performances are as attractive as these recorded ones, their audiences are sure to want this disc as a souvenir. Dumay is described in his EMI bio as being a "disciple of the violinist Arthur Grumiaux" and is said to play a Strad once owned by Kreisler. It is not at all farfetched to find certain likenesses to both of those great artists in his playing here. There is a good deal of the radiance and geniality Kreisler brought to his own two recordings of the D Major, as well as the silky tone, technical security, and overall elegance that distinguished Grumiaux's Mozart.

Dumay's tone, in fact, is not merely silky but often downright buttery in its richness, and it is *big*. His whole approach has a hearty, robust quality that in no way counteracts its elegance, and the orchestra, which Krivine has on its toes at all times, plays with an animation and precision to match Dumay's own, while the bright, perhaps just slightly overreverberant recording makes the most of the aforementioned radiance. It must be said, though, that the two slow movements are very romanticized, the one in K. 218, surprisingly, more than the big adagio in K. 219. But overall, Dumay's performances of the two concertos are richly enjoyable, and his presentation of the Rondo in B-flat Major, which Mozart composed as an alternative finale for his concerto in that key (K. 207), is enchanting. *R.F.*

**ROSSINI: *Il barbiere di Siviglia*.** Leo Nucci (baritone). Figaro: Cecilia Bartoli (mezzo-soprano). Rosina; William Matteuzzi (tenor). Almaviva; Enrico Fissore (bass-baritone), Bartolo; Paata Burchuladze (bass). Basilio; others. Orchestra and Chorus of Teatro Comunale di Bologna, Giuseppe Patané cond. LONDON © 425 520-4 three cassettes, © 425 520-2 three CD's (160 min).

Performance: *Satisfying*  
Recording: *Fine*

In the booklet accompanying this new recording of Rossini's *Barber of Seville*, the late conductor Giuseppe Patané cites certain elements in his performance that set it apart from others. He neglects to mention his welcome inclusion of passages of recitative that are ordinarily omitted, or to elaborate on why his conducting of the opening sinfonia—which never was the overture to the opera—is rather pallid compared with the farce that follows it, or why he permits the tenor two unwritten and

rather unmusical high notes at the conclusion of Almaviva's arias in the first scene. But if Patané's observations about "tradition" seem to have little bearing on the present, technically laudable recording, his careful, musical, nicely proportioned reading of the score is certainly a worthy one.

Leo Nucci, an important if variable artist, here gives one of his best recorded performances—vocally sure and buoyant, distinguished by remarkable diction in the fast sections and by his total identification with the title role. As Rosina, Cecilia Bartoli sings with a warm mezzo-soprano that easily encompasses Rossini's enchanting vocal lacework and discloses the heroine's pert sense of fun. William Matteuzzi, as Almaviva, sings well but would have benefited from a bit more fluidity in the early coloratura sections. In the second scene of Act I, however, as in the ensuing Act II Lesson Scene, he warms considerably, both vocally and dramatically, to the ebullient carryings-on.

Enrico Fissore as Bartolo nearly walks off with the whole performance. His "*A un dottore della mia sorte*" is amusingly pompous and very well sung, and from this point forward his encounters with Rosina, Almaviva, and Figaro are highlights of the recording. Paata Burchuladze commences Basilio's "*La calunnia*" as if it belonged to another music master. Wagner's Hans Sachs, but the aria moves along with accelerating tempo and ends, as Rossini intended, with real *élan*. Gloria Banditelli and Michele Pertussi acquit themselves commendably as Berta and Fiorello, respectively, although I wonder why the latter's arietta in the opening scene is taken at a near snail's pace—perhaps to create an aura of mystery.

The chorus and orchestra of the Teatro Comunale di Bologna sing and play well under Patané; the orchestra, particularly, deals with Rossini's delicate and complex orchestral configurations precisely and expressively. I regret that no biographical material on the artists is included; all but Nucci and Burchuladze are virtually unknown in this country.

Overall, among the newer crop of *Barber* recordings, I prefer Neville Marriner's on Philips, which is somewhat crisper and frothier than Patané's and has superior lead performances. Thomas Allen, Marriner's Figaro, has more "ping" in his voice than Nucci; the Rosina, Agnes Baltsa, sings with more vocal "velvet" and even greater fluidity than Bartoli; and Francisco Araiza's tenor is very stylish in the role of Count Almaviva. *R.A.*

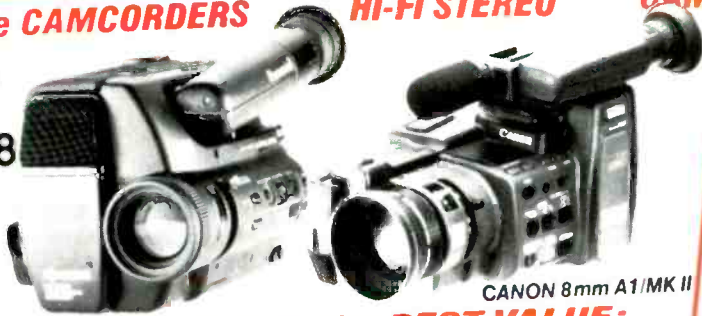
**SCHUBERT: Piano Sonata in G Major (D. 894); Piano Sonata in C Major (D. 840).** Alfred Brendel (piano). PHILIPS © 422 340-4, © 422 340-2 (64 min).

**SCHUBERT: Impromptus, Op. 90 (D. 899) and Op. 142 (D. 935).** Alfred Bren-

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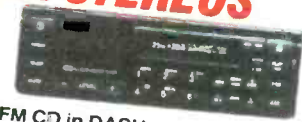
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## "THE LOVE FOR THREE ORANGES"



Conductor Kent Nagano

UNTIL now, the very few recordings of Prokofiev's wonderfully satirical yet intermittently poignant fantasy-opera *The Love for Three Oranges* have been sung in Russian—which is certainly in order, since Prokofiev wrote the libretto in that language, basing it on his friend Vsevolod Meyerhold's 1914 adaptation of the comedy created in 1761 by the Italian writer Carlo Gozzi. The première, however, given in Chicago in December 1921, was sung in French, and that should be more than enough to justify recording it in that language, as Virgin Classics has done. The language may give this recorded performance a certain advantage in terms of general accessibility and perhaps in making the humor a little less heavy; it has an enormous advantage already in being a by-product of what must have been a superb stage production by the Lyons Opera, conducted by that company's new American music director, Kent Nagano, and with an almost entirely French cast that one simply cannot imagine being bettered.

And listeners to whom *The Love for Three Oranges* means nothing more than the famous March, or even the entire little suite Prokofiev drew from the opera, could hardly ask for a happier discovery than this energetic, pungent, broad-thrusting comedy. Meyerhold, fascinated by the style and techniques of the *commedia dell'arte*, was not reluctant to jump into Gozzi's already colorful world with several characters of his own devising—little groups of Eccentrics, Jesters, Extras, Comedians, Romantics—who comment on the preposterous drama as well as take part in it. Far from overloading the piece, these additions gave it a very

distinctive sort of vitality that must have been especially appealing to Prokofiev and, in a sense, enabled him to make the play his own.

That the opera should be known outside the theater by an orchestral suite (or portions of it) is understandable enough when we consider that there is not a single vocal number in the entire four acts that lends itself to being excerpted like a conventional aria or chorus. We need not call the work a "symphonic drama" to acknowledge that the orchestra and the singers are co-participants in a continuous dramatic sequence. The action flies by without a single wasted breath or gratuitous gesture in this stunning performance, which benefits grandly from the Gallic character imparted by both the choice of text and the marvelously characterful singing.

The cast includes Gabriel Bacquier and Jules Bastin as well as others who may be less familiar but are no less distinguished. In the leads, Jean-Luc Viala and Georges Gautier, as the Prince and Truffaldino, respectively, are magnificently convincing singing actors, achieving complete characterizations through a subtle regard for the changing emotional state of their roles as well as splendidly reliable vocal equipment. Michèle Lagrange, as Fata Morgana, manages to be imperious and menacing even during her comic pratfall, and Catherine Dubosc is bright and endearing as the Princess Ninette. But every role is well served, and Nagano not only has the orchestra playing at its very best but paces the work in a way that never allows vivacity to spill over into breathlessness. He allows for a moment of warmth and tenderness here and there without breaking the momentum or counteracting the overall character of the work. The whole production is a triumph of wit and musical sense, and Virgin has done its part handsomely, with first-rate sound and documentation. The lengthy booklet includes a number of cartoons by Plantu as well as comprehensive background material and the full text with translations (English and German). *Richard Freed*

**PROKOFIEV:** *The Love for Three Oranges, Op. 33.* Jean-Luc Viala (tenor), the Prince; Georges Gautier (tenor), Truffaldino; Michèle Lagrange (soprano), Fata Morgana; Catherine Dubosc (soprano), Ninette; Didier Henry (baritone), Pantalón; Gregory Reinhart (bass), Tchelio; Gabriel Bacquier (bass), the King of Clubs; Jules Bastin (bass), the Cook; others. Chorus and Orchestra of the Lyons Opera, Kent Nagano cond. VIRGIN © VCD 91084-2 two CD's (102 min).

del (piano). PHILIPS © 422 437-4, © 422 437-2 (70 min).

Performances: *Winning*  
Recordings: *Exceptional*

These are not reissues but the fifth and sixth releases in Alfred Brendel's new survey of Schubert's piano music, and both present the pianist at his most winning. The two sonatas are coupled here as they were on his 1972 LP (also Philips), but the new performances are a bit different, somewhat more expansive than before, with at least marginally slower tempos throughout both works. This time he takes the big first-movement repeat in the G Major; there is a greater sense of intimacy and tenderness in the trio of the famous menuetto and a more engaging freedom in the final movement. The second of the two completed movements of the unfinished C Major Sonata is conspicuously slower here than in the earlier recording, though by no means heavier. (Brendel plays only those two movements, unlike Sviatoslav Richter, who includes the unfinished minuet and finale in his Philips recording.)

Brendel is now represented by no fewer than three recordings of the two sets of impromptus on CD. His earlier one for Philips has circulated at full price and is now at mid-price, and his still earlier one for Vox was recently reissued in a Pantheon Twin set. Again the new recording has a barely perceptible broadening of tempo, a greater sense of freedom and spontaneity. The dramatic middle section of Op. 90, No. 2, in E-flat Major, is less heavily accented than before, the succeeding G-flat is spun out as if in a single hushed breath, and the A-flat is positively winged. The big variation piece—No. 3, in B-flat—is a marvel of spontaneity here, as if improvised on the spot, and the concluding F Minor is a fiery little Hungarian dance-fantasy, quite beyond what even Brendel had found in the piece before. Both of the new discs are exceptionally well recorded: the piano sound itself is more attractive, I think, than that in any of Brendel's other recordings. *R.F.*

**SHOSTAKOVICH:** *Symphonies Nos. 1 and 7* (see *Best of the Month*, page 77)

**TCHAIKOVSKY:** *Piano Trio in A Minor, Op. 50.* **SHOSTAKOVICH:** *Piano Trio No. 1, in C Minor, Op. 8.* Chung Trio. EMI/ANGEL © CDC 49865 (60 min).

Performance: *Con amore*  
Recording: *Excellent*

Kyung-Wha Chung has been a famous violinist for more than twenty years. Her brother, Myung-Wh n, is a well-known conductor (currently working his way through an impressive series of Carl Nielsen recordings for Bis) who has also been active as a pianist. Their sister, Myung-Wha, first drew attention to





herself as a cellist when she became the youngest musician ever to win the National Competition in Korea. The Chungs have performed as a trio when their respective schedules have permitted but have only now begun to record together; this disc and another of Dvořák piano trios on London are their initial releases. While the Dvořák hasn't yet come my way, this Russian program is mostly very appealing.

First off, the Tchaikovsky trio is uncut; many performances omit one or two variations in the long second movement or cut the third, *Variation finale coda*, in half. Second, the first of Shostakovich's two trios is a very welcome novelty. While his splendid Trio in E Minor, Op. 67, has taken its well-deserved place in the repertory, the early C Minor Trio, in a single movement, remained unpublished and unknown until six years after the composer's death. This new recording of it by the Chungs has a good deal of forward momentum and a great sense of alertness.

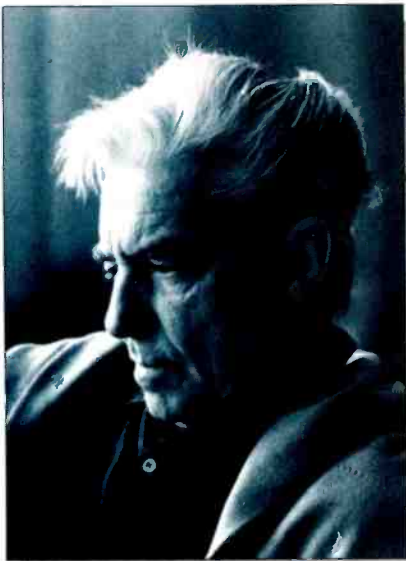
The same qualities serve the Tchaikovsky trio especially well. It is a curiously constructed work, and one subject to rambling, but here the unstrained thrust that vivifies the "little" Shostakovich trio brings a compelling sweep to this big work while at the same time actually heightening the intimacy that is the essence of so many of its sections. This is intimacy in a very "live" sense, and it comes across in the recording in large part because of the willingness of each of the Chungs to modify her or his strong individual personality in the interests of the particular balance or blend called for by the music. What one misses, though, are the brilliance and lightness of touch on the part of the pianist needed to make his important part sparkle. Myung-Whun Chung has a fine musical impulse, but he is a little prosaic and heavy-handed in what should be the utterly charming, Chopinesque mazurka variation (No. 10).

The recording itself is exemplary, focused just close enough without putting the listener right up among the music stands. (I might have wished for indexing in the Rachmaninoff variations and more background annotation on the Shostakovich.) R.F.

**VERDI: *Un ballo in maschera*.** Plácido Domingo (tenor), Gustavo III; Leo Nucci (baritone), Renato; Josephine Barstow (soprano), Amelia; Florence Quivar (contralto), Ulrica; Sumi Jo (soprano), Oscar; others. Chorus of the Vienna State Opera; Vienna Philharmonic Orchestra, Herbert von Karajan cond. DEUTSCHE GRAMMOPHON © 427 635-4 two cassettes. © 427 635-2 two CD's (135 min).

Performance: *Moving*  
Recording: *Excellent*

This recorded performance of *Un ballo in maschera*, conceived against the background of Gustavus III's Swedish



*Herbert von Karajan: valedictory*

court as Verdi originally intended, is exceptionally moving for several reasons. First, it was Herbert von Karajan's last opera recording, made in Vienna during January and February 1989 with the same cast that he was to have led at the Salzburg Festival in July (he died on July 16).

Second, Karajan took a very personal approach to this score. While many of his performances have been highly idiosyncratic, all were conceived and prepared with great attention to detail. In this case, his pacing is relaxed, which was an increasingly noticeable feature of his later recordings: the rhythms, when emphasized, are sharply punctuated, as in the almost angry accompaniment to "*Dunque l'onta di tutti sol una*" in Act III. In lesser hands, the taking of such liberties might well destroy musical and dramatic tensions: with Karajan, these tensions tend to be increased.

And that leads to the third reason for the special effectiveness of the performance: the fairly palpable sense you get that every element—the music and the drama, the contributions of the soloists and chorus, the orchestral playing—is under the control of an enlightened and penetrating mind. It may be a long time before another conductor will again convey such a sense of *completeness* in his performances.

Plácido Domingo's singing here, as in his recent recording of *Tannhäuser*, is free, fresh, and soaring—in sum, glorious. Moreover, his characterization of Gustavo is thoroughly convincing. Leo Nucci, as Renato, sings impressively and tellingly conveys his character's change from close friendship with the king to vengeful jealousy of him. As Oscar, the Korean soprano Sumi Jo sings accurately, buoyantly, and with youthful sprightliness.

As Ulrica, Florence Quivar is full-throated and dramatically strong. Kara-

jan's slow tempo for her opening aria does not serve her well, but those following it are well turned and powerful. Josephine Barstow's Amelia is appealing, well and carefully sung, yet somehow not totally integrated with the rest of the ensemble, and her voice is sometimes tight in the upper register. The chorus sings with unusual verve, and the Vienna Philharmonic plays with heart, tonal opulence, and dedication in this finely engineered recording. In all, it makes a fitting farewell for Karajan, a brilliant and passionate musician. R.A.

**VIVALDI: *Six Concertos for Flute and Strings* (RV 436, 108, 427, 438, 440, and 429).** James Galway (flute); I Solisti Veneti, Claudio Scimone cond. RCA © 7928-4-RC, © 7928-2-RC (57 min).

Performance: *Excellent*  
Recording: *Excellent*

**VIVALDI: *Six Concertos for Flute and Strings, Op. 10* (RV 433, 439, 428, 435, 434, and 437).** Lisa Beznosiuk (flute); the English Concert, Trevor Pinnock cond. DEUTSCHE GRAMMOPHON ARCHIV © 423 702-2 (50 min).

Performance: *Excellent*  
Recording: *Excellent*

In the early, "ricky-tick" days of the Baroque revival, Vivaldi's flute concertos were tossed off with meaningless brilliance, fit only to be overheard in art-theater lobbies as one sipped espresso before seeing a foreign flick. Things have changed, however, and both James Galway and Lisa Beznosiuk treat them as the serious works they are—imaginative and sensitive expressions by a master of instrumental writing. Beznosiuk and the English Concert offer the popular Op. 10 set, which Galway has previously recorded, while Galway's album presents less familiar concertos, including one he arranged himself from a recorder concerto (RV 108) and another (RV 438) that the composer apparently recycled from a violin concerto (RV 414).

Less significant than the soloists' different styles of playing is the difference in expressive qualities between modern and Baroque flutes. Galway's modern instrument is admittedly more brilliant. Beznosiuk's historic flute more dulcet in tone, almost laid-back. But a Baroque flute has qualities that simply cannot be imitated by a modern one: It gurgles and coos and produces all sorts of little swells and decays that Vivaldi expected and used to expressive effect in depicting things like night (RV 439, *La notte*), a cardinal (RV 428, *Il gardellino*), or a storm at sea (RV 433, *La tempesta di mare*).

Both recordings are excellent, and no works are duplicated, but there's no doubt that the Archiv set is closer to what Vivaldi intended. S.L.

**WAGNER/LISZT: *Isoldens Liebestod*** (see Best of the Month, page 75)



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APRIL

**WALTON: *Belshazzar's Feast; Coronation Te Deum; Gloria.*** Ameral Gunson (contralto); Neil Mackie (tenor); Gwynne Howell (baritone); Stephen Roberts (bass); John Scott (organ); Bach Choir; Philharmonia Orchestra, David Willcocks cond. CHANDOS © CHAN 8760 (62 min).

Performance: *Vigorous*  
Recording: *Grand*

William Walton established himself as a major figure in twentieth-century British music in 1931 with *Belshazzar's Feast*, which was fresh and modern but also clearly within the great British oratorio tradition. He returned to the scene, so to speak, of his early triumph a few times later in his career, notably with a big, hokey *Te Deum*, commissioned for the coronation of Queen Elizabeth in 1953, and a serious and quite heartfelt festival *Gloria* in 1961. From a purely musical point of view, the *Gloria* is probably the best of the three, but the dramatic chiaroscuro of the *Feast* is still impressive. The performances here, under David Willcocks's direction, are fat and brassy in the English choral-festival style. I suspect the music would benefit from a leaner, more contemporary approach, but this one is, no doubt, authentic. *E.S.*

### COLLECTIONS

**JOSÉ CARRERAS: *In Recital.*** Songs by Bellini, Tosti, Falla, Nacho, Puccini, others. José Carreras (tenor); Lorenzo Bavaj (piano). LEGATO © LCD-156-1 (78 min).

Performance: *Disappointing*  
Recording: *Poor*

**JOSÉ CARRERAS: *Sings Zarzuela.*** Songs from zarzuelas by Vives, Serrano, Moreno Torroba, Guridi, others. José Carreras (tenor); English Chamber Orchestra, Antonio Ros-Marbá cond. KOCH INTERNATIONAL © 321 948 (42 min).

Performance: *Infectious*  
Recording: *Fine*

All profit from sales of "José Carreras in Recital" are to be donated to the Fred Hutchinson Center in Seattle, Washington, where Carreras was treated for leukemia a while back, and this handsomely generous gesture is to be applauded. Not so his performance, recorded live at the Seattle Opera House on May 4, 1989, on the occasion of his return to the U.S. and to that city. The Legato Classics recording is fraught with mechanical noises and deafening ovations for every selection, no matter how slight, and since little effort seems to have been expended on various technical aspects, it does a disservice to the Spanish tenor. There are twenty-five songs by fifteen composers in this abundantly filled album, and Carreras sings many of them with taste and sincerity. But there is also some vocal forcing and a lack of musical discipline that mir-

rors, or is mirrored by, the indiscriminating enthusiasm of his audience. Nevertheless, that he is again well and singing is cause for good cheer.

In the studio-recorded Koch album Carreras is very much on target. The songs are all drawn from zarzuelas, written by some of that Spanish theatrical art form's leading exponents, and they are thus all, vis-à-vis the artist, native material. His renditions are freely felt, perceptive, and delightfully exuberant, and they are admirably supported by conductor Antonio Ros-Marbá and the English Chamber Orchestra, which takes to the Spanish idiom like an eager duck to water. *R.A.*

**JOSÉ VAN DAM: *Mémoires françaises.*** Berlioz: *Les Nuits d'été.* Ibert: *Chansons de "Don Quichotte."* Fauré: *Clair de lune, Op. 46, No. 2; Les Berceaux, Op. 23, No. 1; En prière.* Poulenc: *Chansons gaillardes.* Ropartz: *Quatre poèmes d'après l'Intermezzo de Henri Heine.* José Van Dam (baritone); Jean-Philippe Collard (piano). EMI/ANGEL © CDC 49288 (77 min).

Performance: *Memorable*  
Recording: *Fine*

Although José Van Dam is a prolific recording artist in the opera repertory, he is underrepresented as a song recitalist. This album, offering a cross section of French art song from Berlioz in the 1840's through Ibert and Poulenc in the 1920's and 1930's, consolidates Van Dam's reputation as one of the finest interpreters of this material. He is unfailingly passionate, intelligent, and articulate, as well as surprisingly versatile, easily encompassing both the understated lyricism of the Fauré songs and the unabashed rowdiness of the Poulenc. He's also remarkably listenable: His singing is seamless, effortless, well integrated, and, most of all, straightforward. Part of the credit here must go to Van Dam's accompanist, Jean-Philippe Collard, who works so many little miracles in playing Berlioz's less-than-masterly piano accompaniment in *Les Nuits d'été* that you hardly miss the more familiar orchestral version of the cycle.

The disc is also attractively programmed, with such little-known items as Ibert's *Don Quichotte* songs, written for the same film project that inspired Ravel's better-known cycle. While Ibert's songs don't have nearly the character of Ravel's, they have engaging texts and bits of Spanish flavor in the piano music. The real find, though, is the cycle by Guy Ropartz, a turn-of-the-century exercise in late-Romantic exoticism and Gallic Wagnerism. Collard makes much of the accompaniment's luxurious sonorities, which Van Dam rides bouyantly with the composer's expressive, chromatic vocal lines. For those who love the French art song, these pieces alone are worth the price of the recording. *D.P.S.*

## CLASSICS ON BUDGET CD'S

by William Livingstone

**W**HEN I began building my classical record collection in the early years of the LP era, I was still in school, and the cost of full-price new recordings seemed high. Like others with limited means, I relied a lot on budget lines for solid (if not always stellar) performances of the basic repertoire.

It didn't seem reckless to gamble a mere \$1.98 on a Vox or Westminster LP. Some were duds I didn't want to play a second time, but others gave me years of musical pleasure. After all, the budget labels launched such then-little-known artists as the pianists Alfred Brendel and Alicia de Larrocha.

I am happy to see that history is repeating itself in the CD era. Full-price new releases still cost from \$14 to \$18, but some budget CD lines offer good value for much lower prices. Delta Music's LaserLight series, for example, consists almost entirely of performances by a variety of European soloists and ensembles, and they offer at least an hour of music for only \$3.99 each. I can recommend several of the ones I've heard.

In terms of the amount of good music per dollar, the greatest CD bargain now on the market may well be LaserLight 15 525. It contains Mozart's Violin Concertos Nos. 3, 4, and 5, sensitively and beautifully played by the young German violinist Christian Altenberger with the Deutsche Bachsolisten conducted by Helmut Winshermann. The sound is very good, and the performance is excellent. The disc has a playing time of 75 minutes!

Another good buy is LaserLight 15 825, which contains Beethoven's Fifth and Sixth Symphonies performed, respectively, by the Berlin Symphony under Kurt Sanderling and the Dresden Philharmonic under Herbert Kegel. Both conductors lead authoritative, committed performances. The Fifth is a live per-

formance before a quiet audience; the Sixth, a studio recording, has slightly better sound. Playing time: a generous 74 minutes.

I also enjoyed recordings by the young Hungarian pianist Jenő Jando, especially his recital of Schubert Impromptus and *Moments Musicaux* (LasterLight 15 609). He gives a spirited performance of Tchaikovsky's Piano Concerto No. 1 with the Budapest Philharmonic under András Ligeti (LaserLight 15 516), which is coupled with a creditable rendition of Tchaikovsky's Violin Concerto by Emma Verhey and the conductor Árpád Joó.

In addition to their midprice CD's intended to sell for \$9 or \$10 each, the major record companies have also launched classical budget lines, such as Angel's Laser Series, CBS Odyssey, and Erato's Bonsai Collection, which most stores sell for \$6.99. Typically they offer an hour or more of music in digitally remastered analog recordings from the 1960's or 1970's, often by very famous artists. The sound varies widely in quality, but some of the performances are truly stellar.

BMG Classics has reissued John Browning's elegant, patrician interpretation of the Chopin Études (RCA Victrola 60131), originally recorded in 1968. Successful digital remastering has produced remarkably good sound.

Going back to the mid-1950's, MCA Classics has released a two-CD package of Alicia de Larrocha's idiomatic performances of music by Granados, Esplá, and Rodrigo (MCAD2-9824). The sound is only mono, but it's quite listenable.

The noted Beethoven interpreter Karl Böhm conducts the Vienna Philharmonic in a strong performance of the composer's Ninth Symphony on Deutsche Grammophon Musikfest (427 196-2). The recording from 1970 includes plenty of bass and variety of tone color, but some listeners will want to use their tone controls to reduce an overall brightness.

I found a more neutral and pleasing sound quality on a Deutsche Grammophon Privilege album of French music (427 213-2). Besides Ravel's *Boléro* and *La Valse*, well played by the Boston Symphony

under Seiji Ozawa, it includes works by Debussy conducted by Carlo Maria Giulini and Michael Tilson Thomas. It struck me as such a good buy that I checked similar compilations for comparison.

Ernest Ansermet conducts a sinuous *Boléro* with the Orchestre de la Suisse Romande on London Weekend Classics (417 691-2) along with Ravel's *Rapsodie Espagnole*, Chabrier's *España*, and Falla's *El Amor Brujo*. On Philips Concert Classics (426 070-2) Igor Markevitch gives



Violinist Christian Altenberger

pointed, dramatic readings of *Boléro*, *España*, and a group of popular Russian works. A wonderful Gallic flavor pervades the Erato collection (ECD 55044) in which Alain Lombard conducts the Strasbourg Philharmonic in *Boléro*. Also included are works by Dukas, Lalo, and Saint-Saëns performed by other French orchestras and conductors. They are all so good that I couldn't pick just one to recommend. Beginning collectors are lucky to have so much to choose from.

Since stores maintain spotty inventories of budget CD's, if you ever see one that interests you, grab it. You may never see it again, and you can afford to take risks. Considering the drop in the buying power of the dollar over the last three decades, today's budget CD's cost far less than the \$1.98 LP's that poor students were buying from the bargain bins back in the 1950's. □



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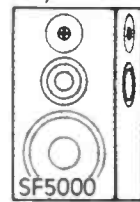
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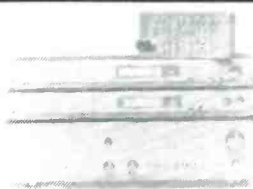


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by *Christie Barter*  
& *Steve Simels*

**S**AXOPHONIST **Frank Morgan**, once Charlie Parker's heir apparent, instead fell prey to drug addiction and wound up spending considerable time in prison. When he was released in 1985 he was immediately signed by Contemporary Records, for which he's made a half-dozen recordings that have effec-



*Morgan: top bopper*

**Rolling Stones** have just come up with one of the most impressive video retrospectives we've ever seen. "25 x 5: The Continuing Adventures of the Rolling Stones" (CBS Music Video) is a 2-hour, 10-minute collection of interviews with the band intercut with performance footage ranging through its entire history, from live TV versions of *You Better Move On* (1964) to the recent video *Rock and a Hard Place*. Also glimpsed in this veritable feast for fans are blues greats **Howlin' Wolf** and **Muddy Waters**, plus all sorts of other goodies including previously unreleased excerpts from the legendary *Rock and Roll Circus* TV special and revealing glimpses of **Mick Jagger** and **Keith Richards** during their well-publicized spat. An essential package. □

**H**EADING the May release of some twenty-five titles from Erato, the French label now being distributed by the newly established Elektra International Classics division of Warner Communications, is a new recording of Mussorgsky's *Boris Godounov*. The title role is sung by the Italian bass **Ruggero Raimondi**, who came to Wash-



*Raimondi as Boris Godounov*

ington, D.C., with the rest of the cast some three years ago to record the opera with the National Symphony under **Mstislav Rostropovich**. The conductor's wife, soprano **Galina Vishnevskaya**, sings the role of Marina.

Erato Films, meanwhile, has produced a film version of *Boris* with virtually the same cast and musical forces. Directed by Andrzej Zulawski, it has been shown to critical acclaim in France and should find its way here either as a home video or a theatrical feature—or both. □

*Richards and Jagger: continuing adventures*



ISLAND RECORDS

tively established him as one of jazz's leading bop performers. His new album on the Antilles label, "Mood Indigo," was at press time well into the Top 10 on *Billboard's* jazz chart. And he was scheduled to be profiled on a Jane Pauley NBC-TV special airing on March 13.

The special includes footage from a concert by Morgan last Christmas at Sing Sing penitentiary in Ossining, New York, where he performed for the inmates. *Billboard* quoted him at the time as saying, "I want my music to reach people, especially the people who need to be reached. . . . to let them know that anyone can improve themselves, can live differently." □

**T**HEY'RE not getting older, they're getting better. Well, maybe they're just getting richer. But however you slice it, the newly revitalized

**L**AST month we reported on **Zubin Mehta's** recording activity abroad, so here are some projects he's got lined up with his home orchestra, the New York Philharmonic: Mahler's Fifth Symphony, Holst's *The Planets*, Sibelius's Second Symphony, Stravinsky's *The Rite of Spring*, and a Gershwin collection including *Rhapsody in Blue* and excerpts from *Porgy and Bess*. All are set for release on Teldec, the German label now distributed by Elektra International Classics. □

**O**N the basis of his performances in the films *River's Edge* and *Back to the Future*, as well as some eccentric behavior in two episodes of *Late Night with David Letterman*, **Crispin Glover** has garnered a well-deserved reputation as one of the more, er, interesting young actors around. So perhaps it shouldn't be surprising that his first record album, "The Big Problem ≠ the Solution. The Solution = Let It Be," on Restless, is a fairly strange piece of work. A collection of spoken monologues, including excerpts from the actor's book *Rat Catching* along with covers of songs associated with Nancy Sinatra (!) and Charles Manson (!!), the album resulted from a chance meeting.

"Mark Mothersbaugh of Devo took me to a party," Glover told us, "where I met Barnes and Barnes [the comedy and music team featuring

GEORGES PIERRE/ERATO

ALAN DAVIDSON/LONDON FEATURES



former *Lost in Space* child star Billy Mumy]. They said they wanted to make a record with me, and after a while I realized they were serious." Two years and several creative disagreements later, the result has been unleashed on unsuspecting record buyers throughout America, but Glover is not keen to repeat the experience. "It was creatively satisfying," he said, "and I'm never going to say never, but right now I'm thinking mostly about acting." □

**A**rleen Augér is without question one of the busiest recording artists around, and coincidences are bound to happen. London Records has scheduled for spring release a recording of Mozart's *Great C Minor Mass* in which the American soprano is fea-



Soprano Arleen Augér

gin Classics. She's also just finished recording Haydn's *The Creation* for EMI with Simon Rattle conducting. Another completed recording, set for release this fall on L'Oiseau-Lyre, is a *Don Giovanni*, derived from a Drottningholm (Sweden) Court Theatre production, in which Augér sings the role of Donna Anna. □

**A**FTER elevating the Pledge of Allegiance to a national issue and electing George Bush, most mortals would rest on their laurels. But not Lee Atwater, the guitar-slinging chairman of the Republican National Committee. No, Atwater is actually making a record album. It had to happen, we suppose, what with guest shots with the David Letterman show band and appearances with the Prez at the country's very first blues inaugural, although when we talked to the bad boy of American politics last year he pooh-poohed the idea. "I am not," he said with uncharacteristic modesty, "a transcending musical talent."

In any case, the album, called "Red, Hot and Blue," should be out by the time you read this, and its r-&-b guest-artist list is truly stellar, with appearances by Isaac Hayes (*Shaft*), B.B. King, Chuck Jackson (*Any Day Now*), Sam Moore (of Sam and Dave fame), Carla Thomas (of Otis Redding fame), and Billy Preston (of Ray Charles, Bea-

bles, and Rolling Stones fame). We don't know how Atwater's album sounds but we do know what label it's on: Curb Records, run by former Reagan confidant and California lieutenant governor Mike Curb. □

**F**ANS of folk-pop megastars Paul Simon and Art Garfunkel have much to be jubilant about these days. For starters, the duo, who haven't worked together since their 1981 reunion concert in Central Park (available on CBS/Fox), have just been inducted into the Rock and Roll Hall of Fame alongside such other worthies as Hank Ballard, the Who, and the Kinks. More to the point, their old record label (CBS) is finally releasing digitally remastered versions of all their original studio al-

bled Water," all sonically refurbished by Simon and Garfunkel's long-time engineer and collaborator, Roy Haller. The set, available on three CD's, also includes complete lyrics to all the songs, in case you don't already know them by heart. □

**G**RACENOTES. Irrepressible Southern postpunkers the Coolies, who kicked up a lot of dust a while back with an album of Eighties-style interpretations of Sixties and Seventies songs by Paul Simon and Paul Anka, have now taken on another venerable target. Their "Doug: A Rock Opera" (DB records) is a dead-on, extremely funny Rutles-like parody of the recently re-formed Who. . . . Billy Idol recently had a serious motorcycle accident in



Glover: record debut

tured under the direction of Christopher Hogwood. And she's due in Munich this month to record the very same work for Deutsche Grammophon under Leonard Bernstein's direction. Filling out the DG disc when it's released will be Mozart's popular motet for soprano and orchestra, *Exsultate, jubilate*.

Next month Augér lands in London to record Monteverdi's opera *L'incoronazione di Poppea*, with Richard Hickox conducting, and an album of Schubert songs, both for Vir-



Guitar-slingers Bush and Atwater

bums. The package, appropriately enough entitled "Collected Works," includes "Wednesday Morning, 3 A.M.," "Sounds of Silence," "Parsley, Sage, Rosemary and Thyme," "Bookends," and, of course, "Bridge over Trou-

Los Angeles—ironically, just after he had finished work on "A Charmed Life," his new album. Idol was expected to recover in time to begin work on the long-awaited film biography of Jim Morrison being directed by Oliver Stone. . . . Another long-awaited rock bio-pic, on Jackie Wilson, should be under way by fall now that Wilson's widow and Warner Bros. have finally agreed on a script. . . . Oddest covers of the year so far: Edie Brickell and New Bohemians' takes on *Walk on the Wild Side* (Lou Reed) and *A Hard Rain's Gonna Fall* (Bob Dylan), as heard, respectively, in the films *Flashback* and *Born on the Fourth of July*. □

Simon and Garfunkel



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by Ralph Hodges



## ANTENNA AHOY

**N**OTHING is better for FM reception than a sophisticated, properly oriented antenna. And usually nothing is harder to set up than such an antenna. Certainly homeowners are at liberty to put on their roofs anything their local zoning boards and neighbors will permit. But home buying and owning power is on the wane in the land. For those who have spent too much money on hi-fi, a home may be out of reach. A high-rise, multi-unit dwelling is often dictated.

I can still remember the whey-faced puzzlement on a former landlord's face when I proposed putting a snazzy Channel Master log-periodic antenna with rotator on his roof. After he recovered his balance, he pointed out that the building already had a "community" antenna. Well, yes, it did, but it was intended for TV and had an FM trap. Furthermore, it was pointed permanently at the area's biggest tower, and its directivity characteristic would have strongly discriminated against the small, outlying stations that interested me more. But the landlord was unconvinced.

My only recourse—and it is the same for most apartment dwellers—was the familiar rabbit-ears,

which is really no better than the T-shaped length of twin-lead wire many manufacturers pack into their tuner cartons, except that it is more conveniently rotated for aiming. Fortunately, rabbit-ears (more formally called a half-wave dipole) can be aimed, although with little precision. If you stood in front of the antenna and lined up your arms with its arms, you'd be looking straight through one of the lobe-shaped zones of greatest sensitivity. If you had eyes on the back of your head, they'd be looking through the other. Your arms would be pointing in the directions from which incoming signals are most likely to be rejected. These lobes and nulls offer the rabbit-ears user at least some chance of aiming at a desired signal and ignoring some undesired ones. A simple dipole is far from ideally selective in this regard, however, and one of the arms is always hitting the wall before the proper degree of rotation is achieved anyway.

This latter problem was addressed a while back by B.I.C.'s now-defunct Beam Box, an enclosed chassis containing multiple antenna arms at different angles, any two of which could be lashed together via a front-panel switch to create a dipole of approximately correct orientation. Unfortunately, a box of practical dimensions meant resorting to quarter-wave dipoles, and the gain of the device suffered (I'd like to say "the sensitivity suffered," but long-standing professional usage has me outgunned). Recently, Terk Technologies has attacked the gain problem with super-low-noise active electronics, but the directivity of its products does not seem much better than that of a simple dipole.

Is a significant improvement in directivity possible? It may be, as it turns out, but probably not with just one antenna small and wieldy enough for indoor use. Blaupunkt has just begun talking about an antenna system employing four physically separate elements in a "phased-array" configuration. The company intends the concept for automotive applications, where it has unique advantages. But that shouldn't keep the enterprising from usurping it for improved reception in the home.

Most of the phased array's history lies in the sending rather than the receiving sector. Here's how it works for transmission. Consider two broadcast antennas, an appreciable fraction of a wavelength apart, sending identical signals. At a remote point *equidistant* from both, the signals are directly additive and strength is at a maximum. But let that point be somewhat off the two-antenna axis and destructive phase interference begins to occur. At a certain angle off-axis, the two signals arrive out of phase and a null appears. In other words, such an antenna array is powerfully directional. Also, by progressively altering the phase of one antenna signal relative to the other, maxima and nulls can be panned around at will. The array is *electronically* aimable.

As an antenna behaves in a broadcast mode, so does it often behave in reception. Make the two antennas receivers and the remote point a transmitter, and the sum of the signals from the two antennas will be at a maximum for an on-axis point, less or zero for off-axis conditions. Shift the phase of the signal from *one* of the antennas before adding it to the other and you shift the axis of the array.

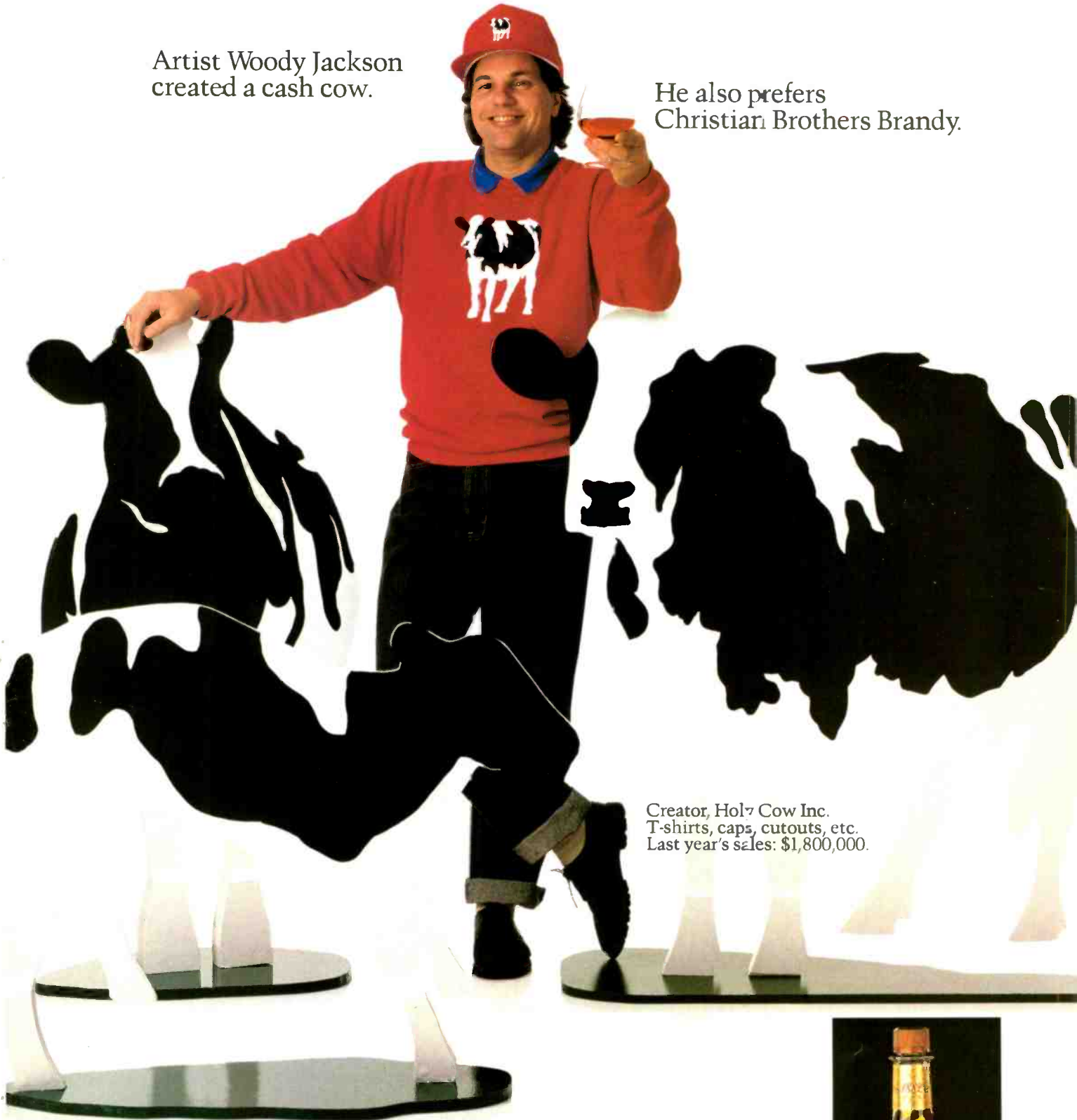
Blaupunkt proposes an antenna at each of a car's four corners, mounted behind the (plastic) bumpers. What the antennas pick up goes to a processor unit that continuously adjusts relative phases to achieve a maximum when the signals are summed. Almost by definition, what that maximum means is that the system has picked out the best version of the desired signal available and homed in on it by purely electronic means. This is wonderful for the car; every time it takes a turn, the antenna re-aims. And since the ultimate signal is the sum of those from four antennas, gain should be good to excellent.

Now let's go home. Here are four strip antennas, each perhaps 15 inches long, attached to the wall without any great concern for precise placement and hidden by pictures. All aiming is done by an electronic control box, and directivity is excellent.

Sound good? Indeed. I wonder who will try it first. □

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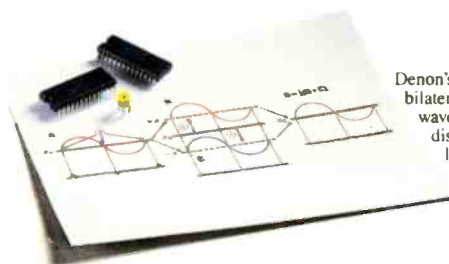


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