

Stereo Review

SEPTEMBER 1987 ● \$2.25

LOUDSPEAKERS

THE STATE OF THE ART
HOW TO BUY SPEAKERS
POWERED SPEAKERS

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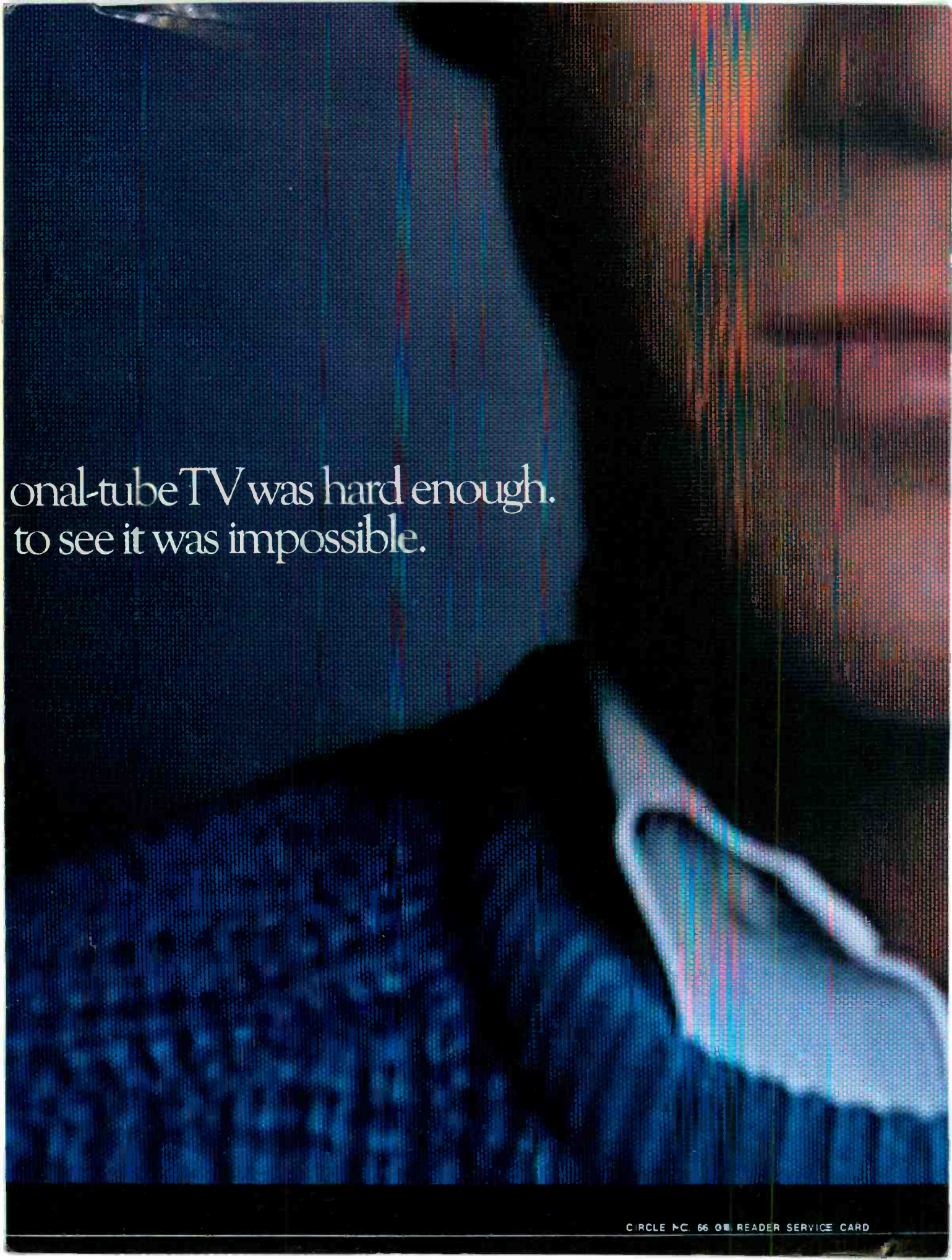
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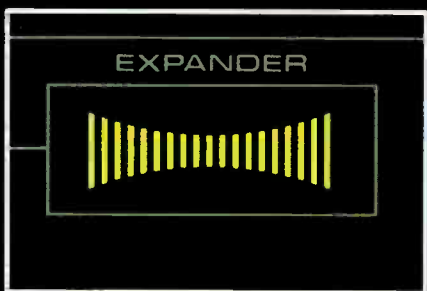


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Cover: clockwise from upper right, the Design Acoustics PS-103, Klipsch kg², Polk RTA 11i, dbx Model 50, KEF Model 102, and Infinity Kappa 8.
Design by Sue Llewellyn, photo by Roberto Brosan.

STEREO REVIEW BUYER POLL, SEE PAGE 112
Please fill in if you bought equipment in the past thirty days.
READER SERVICE INFORMATION CARD, FACING PAGE 112
Circle the items you want to know about.



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by Christie Barter and
William Burton

THE DAT DEBATE

Recording artist Stevie Wonder (Tamla/Motown) has stated his opposition to legislation now in Congress that would prevent digital audio tape decks from recording encoded music. "The encoding process has the effect of distorting the music," he said in written testimony. "The integrity of my music will be compromised." The proposed anti-DAT bills are on hold until government agencies evaluate the audible effects of the encoding filter and the financial effects of home taping. In the meantime, record companies are refraining from encoding master recordings.

Speaking at A&M Records' twenty-fifth-anniversary convention in Los Angeles this summer, label artist Joe Jackson told attendees that he unqualifiedly favored the digital audio tape format: "The thought of people borrowing my records from their friends and taping them has never bothered me. My concern is that as many people as possible hear the music." Tower Records president Russ Solomon, another speaker at the convention, backed Jackson's stand on DAT. Solomon also noted plans to expand the giant retail chain into various new overseas markets, perhaps including Moscow.

FREE TAPE WITH CD

Selected CD's on the Pro Arte and ProJazz labels are being packaged with prerecorded cassettes containing the same music. The CD/tape sets carry a suggested list price of \$16.98, making the cassettes virtually "free." According to Intersound, the parent company of Pro Arte and ProJazz, the sets enable purchasers to play the recordings in their car decks or on portable tape machines without having to dub the CD's at home.

"STEAL THIS DISC"

Rykodisc has released a low-priced CD sampler (\$6.98 list) offering "Everything you've always

wanted to hear on Compact Disc but were afraid to buy." Titled "Steal This Disc," the CD offers more than 70 minutes of music in twenty-one tracks by artists ranging from Jimi Hendrix and Mahavishnu John McLaughlin to Richie Havens, Devo, and George Thorogood to Frank Zappa and Doc and Merle Watson. The unusually low price was made possible because the participating artists and their record companies waived royalties on sales of the sampler disc.

TECH NOTES

The first speaker system from high-end turntable manufacturer Sota Industries is the Panorama, priced from \$1,300 to \$1,500 a pair depending on finish. Matching subwoofers are \$1,450 to \$1,750 a pair. . . . Extra-output technology in Ohm's new XO speaker line has been applied to all Ohm Walsh systems, increasing their rated sensitivity to more than 90 dB. . . . New CD accessories from Discwasher include replacement jewel boxes and carrying cases that hold five or ten boxed discs. . . . JVC's Super-VHS full-size camcorder with hi-fi sound should be available in the U.S. this fall. Sharp's S-VHS camcorder and VCR should also be in stores soon.

MUSIC NOTES

Telarc recorded Liza Minnelli at New York's Carnegie Hall during her recent three-week engagement there. . . . When Whitney Houston's new album, "Whitney," entered *Billboard's* album chart at No. 1 this summer, it became the first record by a female artist in pop history to do so. The only other artists to go straight to the top have been Bruce Springsteen, Elton John, and Stevie Wonder. . . . August 31 is the in-store date set for Michael Jackson's first new album since the release of "Thriller" almost five years ago. . . . Club Nouveau's *Lean on Me*, recently certified Gold by the RIAA, was the first Gold single since last year's *On My Own* by Patti LaBelle and Michael McDonald. . . . Prince is reportedly writing and

producing all the songs for Bonnie Raitt's new album. . . . Clarinetist David Shifrin, whose Delos recording of Mozart won a STEREO REVIEW 1986 Record of the Year Award, recently received an Avery Fisher Career Grant of \$10,000, awarded annually to "talented young instrumentalists on the threshold of major careers."

HOME VIDEO

Frank Zappa has formed a company called Honker Home Video to produce his own full-length features. . . . HBO/Cannon has launched a special Classical Performances promotion to boost sales of its forty opera, concert, and ballet titles on videocassette, each with a suggested list price of \$39.95. . . . The CD Video Group announced that more than 250 CDV titles will be released later this year, mostly containing a single music video of about 5 minutes and up to 20 additional minutes of music. The Philips and Du Pont Optical Company is pressing about fifty titles in Blackburn, England, for PolyGram alone. Pioneer has installed a CDV mastering machine in Japan and is also ready to press the new discs.

ROCK-AND-ROLL ARCHITECT

The internationally respected architect I. M. Pei has been chosen to design the Rock and Roll Hall of Fame and Museum in downtown Cleveland. Architect of the acclaimed east wing of the National Gallery in Washington and the expanded facilities at the Louvre now under construction in Paris, Pei is already working on the new project, to be completed in three or four years' time.



TERRY ALLEN

BEYOND CONVENTIONAL SYSTEM CONTROL



THE ONKYO TX-84 AND RC-AV1 — Capable of operating any manufacturer's audio or video components with a single remote control

Today's audio/video home entertainment systems typically incorporate a variety of audio and video components, all operating with their own separate remote controls.

Introducing.... The ONKYO TX-84 — the first receiver ever offered with a "Universal" Programmable Remote Control that can operate any wireless remote controlled components from any manufacturer. For total control of the TX-84 and everything else in your audio/video system, ONKYO introduces the "Unifier" — Universal Programmable Remote Control. With the RC-AV1, the functions of many brands of infrared remotes can be memorized into one master unit, eliminating inter brand remote incompatibility forever. The RC-AV1 can be easily programmed to operate over 100 functions, with function keys conveniently grouped in three modes — audio, video, and auxiliary. The RC-AV1 "Universal" Remote Control is available for sale separately or included as an option with the TX-84.

Designed for the audio/video enthusiast, the ONKYO TX-84 offers outstanding sonic performance in addition to full A/V capability. The TX-84 delivers 60 watts of FTC rated power per channel into 8 ohms with no more than .04% THD. Features such as low impedance drive capability, discrete output stages, Automatic Precision Reception, and Dynamic Bass Expander make the TX-84 the equal of any comparable audio-only receiver. Its seven inputs (5 audio, 2 video) offer total system versatility, while the Stereo Image Expander and Simulated Stereo can optimize any video or audio soundtrack.

Together, the TX-84 and RC-AV1 can form the heart of your audio/video system. Audition them today at your ONKYO dealer!

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*"It has the ability to make your
previous favorite speaker sound almost second rate"*

Stereo Review Magazine

Matthew Polk's magnificent sounding new 3rd generation SDA 2A incorporates many new advances pioneered in his top-of-the-line Signature Edition SRSs. It achieves stunningly life-like musical reproduction which would be remarkable at any price but is simply extraordinary at \$549. each. Stereo Review said, "listen at your own risk." Once you hear them you'll never be satisfied with anything else!

Polk's Revolutionary True Stereo SDA Breakthrough

The magnificent sounding new SDA 2A incorporates Polk's revolutionary True Stereo SDA technology. This patented, critically acclaimed, Audio Video Grand Prix Award winning breakthrough is the most important fundamental advance in loudspeaker technology since stereo itself. In fact, the design principles embodied in the SDAs make them the world's first and only True Stereo speakers.

Why do Polk SDAs always sound better than conventional speakers? When conventional loudspeakers are used to reproduce stereo both speakers are heard by both ears causing a form of acoustic distortion called interaural crosstalk which cuts down stereo separation, obscures detail and interferes with the proper reproduction and perception of imaging, and spaciousness. Polk SDAs are designed to eliminate interaural crosstalk so that each speaker is only heard by the one correct ear (i.e. left channel/left ear, right channel/right ear), like headphones. The result is dramatically improved stereo separation, detail and three-dimensional imaging. In order to accomplish this each SDA incorporates a separate set of drivers which radiates a special dimensional (difference) signal which cancels the undesirable interaural crosstalk coming from the wrong speaker to the wrong ear. High Fidelity called the results "Mind Boggling".

The Most Extraordinary Value in High End Audio Today

The new SDA 2As, like all the current SDAs, incorporate the latest 3rd generation SDA technology developed for Matthew Polk's Signature Edition SRS and SRS-2 including **1:** full complement sub-bass drive for deeper, fuller, tighter and more dynamic bass response; **2:** phase coherent time-compensated driver alignment for better focus, lower-coloration smoother, clearer, more coherent midrange and improved front-to-back depth and; **3:** bandwidth-optimized dimensional signal for smoother high-end and even better soundstage and image. The new SDA 2A is the finest sounding and most technologically advanced speaker ever produced at its extraordinarily modest price. It sounds dramatically better than speakers from other manufacturers that cost 4 times as much and more and is, at \$549 ea., truly the speaker of your dreams at a price you can afford.

"Breathtaking...a new world of hi fi listening."

Stereo Buyers Guide

The spectacular sonic benefits of SDA technology are dramatic and easily heard by virtually anyone. Reviewers, critical listeners and novices alike are overwhelmed by the magnitude of the sonic improvement achieved by Polk's SDA technology. Stereo Review said, "These speakers *always* sounded different from conventional speakers — and, in our view, better — as a result of their SDA design."

All Polk's SDAs, including the new 2As produce a huge lifelike three dimensional sonic image which will amaze you. You will hear for the first time instruments, ambience and subtle musical nuances which are present on your recordings but masked by the interaural crosstalk distortion produced by conventional speakers. Stereo Review said, "Spectacular...literally a new dimension in the sound...the result is

always better than would be achieved by conventional speakers". High Fidelity said, "Mind Boggling...Astounding... Flabbergasting...we have yet to hear any stereo program that doesn't benefit". With SDAs every instrument, vocalist

"Mindboggling, Astounding, Flabbergasting"

High Fidelity Magazine

and sound becomes distinct, tangible and alive; allowing you to experience the spine tingling excitement, majesty and pleasure of live music in your own home.

Other Superb Sounding Polks From \$85. to \$1495. each

No matter what your budget is there is a superb sounding Polk speaker perfect for you. Polk's incredible sounding/affordably priced Monitor Series loudspeakers utilize the same basic components as the SDAs and begin as low as \$85. each. The breathtaking sonic benefits of Matthew Polk's revolutionary True Stereo SDA technology are available in 5 SDA models priced from \$395. to \$1495 ea.

"You owe it to yourself to audition them"

High Fidelity

The experts agree: Polk speakers sound better. Use the reader's service card or write to us for more information. Better yet, visit your nearest Polk dealer today. Your ears will thank you.

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SPEAKING MY PIECE

by Louise Boundas



Luxuries and Bargains

BACK in the Sixties, I was like a lot of other young people working in New York, then and now: poor. But I also had a distinct disadvantage when it came to balancing my budget. I worked across the street from what was then the city's largest record store. Who could go into Sam Goody without buying at least one record? Not me. And who could pass the store without going into it? Not me.

That was when you paid about \$4.99 for a stereo LP, although you could do better if you waited for sales and shopped from the cut-out bins. You could also eat lunch for about a dollar and a half, including tip. So if you skipped lunch for the next four days

Then there was the equipment. Just the basics—a turntable, a receiver or an integrated amplifier, and a pair of speakers—could set you back over a month's salary after taxes. If you were lucky, you already had the equipment. You'd bought it with the money you earned during the summer while you were still in school or maybe with graduation checks. But if, like me, you were making about \$120 a week and paying \$120 a month rent, you had to skip lunch and walk to work for a long time if you wanted to replace your cartridge or your speakers.

Even a new stylus took some planning. Twenty years ago today, hi-fi was a luxury.

Things have changed since then. The Bureau of Labor Statistics Consumer Price Index for all goods and services in the U.S. has gone from 100 in 1967, the CPI base year, to over 330 in 1987. A tuna sandwich and a Coke at the coffee shop down the block will run you around \$5 by the time you've left a tip, and a New York City subway token has gone from two thin dimes to a dollar. You may make \$350 a week, but you're probably paying close to a third of it in rent. Although it is more expensive to live in New York than in other cities, people across the country find themselves in comparable situations.

If you're building a record library, though, you don't have to skip lunch but a couple of times to put aside enough to buy a cassette, an LP, or even a "midline" compact disc. For, while the total U.S. cost of living has more than tripled, the cost of a record album has merely doubled. And there are still the cut-out bins. So if you can't resist stopping into Tower Records or J&R on your way home, it's not going to affect your diet quite as much as it used to.

You've got even more of an advantage if you're in the market for audio equipment. According to the Electronic Industries Association, at the end of 1986, when the total U.S. Consumer Price Index had risen steadily to 328.4 from that 1967 base of 100, the index for sound equipment was only 102.3.

Of course, prices have gone up slightly in 1987 because the value of the dollar has declined in international trade, but you can still get a basic stereo system, even with a CD player instead of a turntable, for very little more than you would have had to pay in 1967. You can expect better sound from a 1987 system, too, and if you do decide on a CD player you won't have to budget for a new stylus next year. You could use that \$30 to buy a couple of CD's—or three CD's if the prices keep going down. You don't have to skip nearly as many lunches to replace your speakers, either.

Today, hi-fi is a bargain. □

Stereo Review

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The front fascias are gracefully angled, so controls fall readily to hand. Behind a hinged panel, infrequently-used controls are ready when you need them, out of sight when you don't.

AR has reexamined the factors that

really matter to sound quality. That's why AR amplifiers produce high current output for outstanding dynamic headroom. Four-times oversampling gives the AR Compact Disc player absolute phase linearity. And AR's unified remote control adds a final touch of elegance.

No one serious about stereo would buy equipment without listening. Now it's no longer necessary to buy without looking.

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We speak from experience.

LETTERS

Copycode

As a filter-design engineer and stereo-ophile, I feel it is my duty to make the audio community aware of the impact that the CBS Records Copycode "notch" filter will have on all recorded music. It is obvious that a 250-Hz slice taken out of everything the recording industry will produce will be audible, but what is not obvious to most people is the effect on sounds *not* removed by the notch. A law of physics requires an increased time delay of any sounds near the notch. Because the character of any sound is a function of all of the many harmonics and overtones and their timing, the notch filter proposed for the Copycode process will even distort sounds that contain *no* overtones that would be removed by the notch!

AL KLAPPENBERGER
Salisbury, MD

At a recent meeting of the Audio Engineering Society, David Stebbings, the director of recording research for CBS Records, told us that the Copycode notch would be at 3,838 Hz. When he was asked what the width of the notch would be, Stebbings refused to answer. At a

demonstration in London in early May, however, he spoke of a notch 112 Hz wide at the -3-dB points, which is much narrower than the 250 Hz CBS had previously mentioned.

The copy-protection scheme proposed by CBS Records is like "protecting" the Mona Lisa from thieves by cutting a hole in the middle of the painting. Moreover, any copy-protection scheme that prevents legitimate copying for the purchaser's personal use is wrong. And preventing the introduction of a new technology (DAT, in this case) is not a proper function of government. The proper governmental role in this conflict is enforcement of the existing copyright laws against the pirates.

STEPHEN G. PERKINS
Seattle, WA

On June 2, NBC Nightly News aired a report about Copycoding, including a demonstration of music with and without encoding. The difference was clearly audible and musically offensive even within the limitations of the television medium. Direct from a CD through a good audio system, the effect can only be more noticeable. You know how a

grand piano sounds different from a child's toy piano? Well, not any more it doesn't.

ROBERT ROWTON
Albuquerque, NM

I wouldn't buy a receiver with a 5 to 20,000 Hz +0, -90 dB frequency response. I won't buy a notched CD for the same reason. When I first heard the sound of a CD, I thought it was too good to be true. That may yet prove to be the case.

PAUL ZUKAS
Niantic, CT

Mid-Price CD's

Several labels are releasing lines of "mid-price" CD's, which immediately raises the question: What is it about the "mid-price" CD's that allows their sale at a lower price? Normally, one assumes that a lower price means that the materials or manufacturing technology are lower in cost. If this assumption is correct, then the mid-price CD's must be inferior in some way to the more expensive "standard" CD's.

FRED KORR
Los Angeles, CA



LETTERS

There is absolutely no difference in the materials or technology used to turn out a mid-price CD as opposed to a full-price disc. There is often some difference in the packaging, however: a cardboard "wallet" may be used instead of a "jewel box," and the inserted annotation may be minimal. Also, the musical contents of lower-price CD's are in most cases reissued recordings that have already recouped their original production costs from LP and tape versions. Royalties on these older recordings are generally lower too, further reducing costs and allowing the CD version to be sold for less. But the audio quality will rarely be substandard; in most cases, recordings reissued on CD sound better than ever.

Fleetwood Mac

Contrary to the July review by Steve Simels, Fleetwood Mac's "Tango in the Night" proves that Stevie Nicks's interests would be best served as a solo artist. Her songwriting talents have proved to be as good as those of any other female artist, and she has written most of Fleetwood Mac's biggest hits. I wasn't impressed with "Tango" in the least. For Stevie Nicks, returning to

Fleetwood Mac is a big step down the ladder.

THOMAS M. FEASTER
Fishertown, PA

Steve Simels's review in July of Fleetwood Mac's "Tango in the Night" is right on the money.

JOHN SCOTT
New York, NY

Basic Mozart

Richard Freed is to be complemented on an impossible task for "Mozart: The Basic Repertoire on Compact Disc" in July. Mozart is the basic repertoire.

JAMES P. MANNION
Palo Cedro, CA

Shopping Strategies

Charles Curtis's "Strategies for Equipment Shopping" in the May issue again reminded me of how far the majority of audio retailers need to go in the area of professionalism. After ten years on the sales floor in both specialty and so-called "supermarket" audio stores, I've learned that I am in the "people" business. I am here to serve

the needs of my customer; my customer has not come in to wait on me.

Why is it necessary for the consumer, as Mr. Curtis put it, to "earn my respect"? Why should you hire a baby sitter just to shop for speakers?

Several times Mr. Curtis suggests that you remind him to ask you questions about your room acoustics and the way you use your system or to check an owner's manual about compatibility. How does Mr. Curtis earn his money?

Is it really true that the sales team in his store will give up on you if you have not made a purchase after the second visit? My best long-term relationships have stemmed from numerous no-buy visits before a decision was made.

On the subject of profit margin, Mr. Curtis may have a point. I certainly would not pay list price if I had to do as much work as Mr. Curtis requires of me. You purchase two things at any retail store: the item you are shopping for and the salesperson's expertise and service. If both meet your expectations, then the profit figures quoted in the article may not be out of line. If not, then any price paid will be too high.

JOHN RAMSAY
Cleveland, OH

PERFECT MARRIAGE

New SA-XG is TDK's exclusive SA-X formulation—the world's quietest tape—technomomiously joined together with TDK's most sophisticated mechanism ever—the RS-II.

Our unique 3-layer RS-II mechanism is specifically designed to suppress the generation of modulation noise. A precision die-cast alloy frame and molded tape guide block are sandwiched between two transparent precision-molded shell halves made of a special hard plastic, which also incorporate 4 precisely machined metal guide pins. The RS-II's rigidity of construction, accuracy of fit and superior thermal resistance assure unerring tape travel, optimum tape-to-head contact and reduced modulation noise. The result is virtually true-to-source sound quality.

So whether you choose the outstanding SA-XG, or SA-X, with its new vibration-dampening Dual Layer Mechanism (DLM), you can be assured of one thing: An everlasting high bias honeymoon—till decibels do you part.



TDK THE ART OF PERFORMANCE.



CES

SHOW STOPPERS

Amazing components using new technologies such as CDV, S-VHS, and DAT were demonstrated at the Summer Consumer Electronics Show in June. Manufacturers also displayed new models of more conventional components to audio/video dealers at the big trade show in Chicago. Marantz was the first to announce a DAT deck for America, the DT84; the company began taking orders in June for fall delivery. Many "prototype" DAT decks were shown by Sony, Onkyo, and

others. But the analog cassette deck is still going strong: new high-performance models were shown by Aiwa, Teac, Technics, and others.

Compact Disc Video combines the audio quality of CD's with the video abilities of LaserVision. A flashy audio/video extravaganza mounted by the CDV Group—a large association of hardware manufacturers and recording companies pledged to the new format— attracted big crowds.

Super-VHS machines from JVC, Sharp, and others can produce better pictures than standard VHS VCR's, but only when they are loaded with the new S-VHS tape. Blank S-VHS cassettes were shown by Scotch, Maxell, Fuji, and JVC.

Other noteworthy products included advanced-technology CD players from Cambridge Audio and Meitner. And Onkyo's TX-SV7M, a true audio/video receiver, can decode MTS television broadcasts as well as receive FM and AM radio.

Neither the noisy convention center nor the cramped demo rooms had perfect acoustics, but new speakers from a/d/s/, Mirage, Robertson, Boston Acoustics, Snell, and others were very impressive. For more information about these and other new components, check "New Products" and test reports in upcoming issues. Then see your local dealer for your own consumer electronics show.

BY WILLIAM BURTON



With a tweeter and a mid-range driver in the top cabinet and two woofers in the pedestal, B&W's Concept 90 CM2 speakers have a rated system frequency response of 48 to 20,000 Hz \pm 1.5 dB. Both enclosures use B&W's low-resonance Matrix construction. List price is \$1,650 a pair.



Live recordings made with the Marantz DT84 digital audio tape deck may have broader frequency response—with higher highs—than compact discs. Subcodes allow quick access to any selection. The deck is scheduled for U.S. sale in October at a suggested price of \$1,995.



Altec Lansing's Model 55 two-way acoustic-suspension speakers can be used indoors or outdoors. Price: \$250 a pair.



The first solid-state compact disc player from California Audio Labs, the CD-3, uses "Wave-shaping" digital circuits to reduce odd-order harmonics and other distortions for improved sound at low signal levels. The remote-controlled CD-3 is priced at \$995.

Polk's first SDA (Stereo Dimension Array) speaker system for the car includes front speakers, rear speakers, and a control box (center) with crossover and sub-bass drive. SDA technology eliminates interaural crosstalk for more precise imaging and a broader sound stage. In stores late this year, SDA car systems will be priced from \$500 to \$700.





◀ NEC's M-50 mono power amplifier is perfect for surround-sound or sub-woofer systems that need adjustable crossover networks. The M-50's high and low filters each have five settings. The 50-watt amplifier is priced at \$375.

JVC's HR-S7000U is the first VCR with the new Super-VHS picture-improvement system. Shifting the brightness frequencies up and separating them from the color signals improves resolution to over 400 lines. Price is \$1,200.



◀ Less than \$2,000 a pair, dbx's Model 50 speakers are designed for flat frequency response, 34 to 20,000 Hz \pm 2.5 dB, and a realistic sound stage from any listening position.



Special equalization modules customize Blaupunkt's PSA autosound system for the acoustics of "almost every car made." The PSA 108 four-channel amp (20 watts per channel) is \$169.95; the EQ module (right) is \$39.95.



▶ Soundstream's first home audio components include (top to bottom) the T-1 AM/FM tuner (\$450), the C-1 preamplifier (with universal remote control, \$1,250), and the 200-watt-per-channel DA-1 power amplifier (\$795).

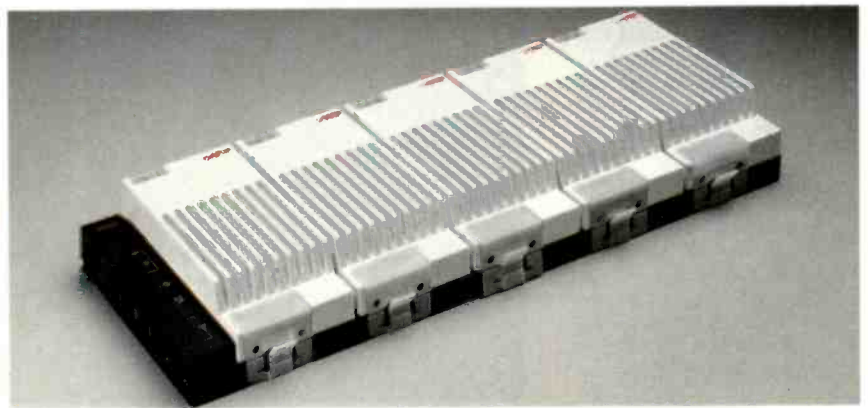


▶ Completely wireless, Koss's battery-powered JCK/5000 Kordlesspeaker system (\$350) receives audio signals by infrared light.



▶ Unwanted vibrations in Ariston's Q Deck turntable are converted into heat by viscoelastic damping material in the base. The belt-drive semiautomatic is \$260 without cartridge.

▶ Canton's modular autosound system is built on a Mainframe base that holds up to five Canton mono power amplifiers. Each 50-watt amp can be set for one of three crossover frequencies. The MF-5 Mainframe is \$250, and each M50-VB amp is \$200.





◀ Sony's TA-377ESD preamplifier includes a digital-to-analog converter that can handle digital inputs from CD players (44.1-kHz sampling rate), DAT decks (48 kHz), and satellite broadcasts (32 kHz). It also has three video inputs, including S-Video for S-VHS and ED Beta, and a universal remote control. Price: \$1,100.

▶ Spurred by the approach of DAT, analog cassette decks are reaching a pinnacle of performance. The three-head Technics MS-B905 has Dolby B, Dolby C, and dbx noise reduction, Dolby HX Pro headroom extension, dual capstans, music search, repeat, and two DC motors. Suggested retail price is \$600.



▶ Compact discs, CDV's (with 5-minute music videos and 20 more minutes of music), 8-inch LaserDiscs, and even 12-inch LaserDiscs with entire movies can all be played on Pioneer's CLD-1010 combination machine. Suggested retail price is \$800, including remote control.

▶ Flip open the a/d/s/ R4 receiver's remote control (not shown), and you can choose from up to thirty preset radio stations, switch four sources, and do much more. The receiver's large LED display shows the station or source you selected. When not in use, the receiver's secondary control panel (at lower left) tilts into the unit and disappears. Rated at 65 watts per channel, the R4 is priced at \$1,100.



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by Ian G. Masters



European Open-Reel

Q A friend recently gave me an ancient Revox F36 open-reel recorder, and I am hoping to incorporate it into my system. The power plug is European style with round pins and "10A/250V" marked on it, although there is a five-position voltage selector on the unit. Is there anything I can do to make this machine usable here?

DAVID T. RIEDEL
Providence, RI

A The presence of a voltage selector means that you will probably have no problem using your recorder on this side of the ocean: simply set the selector to 110 volts. The European power systems use a different line frequency—50 Hz instead of 60 Hz—but Revox machines incorporated a servo speed control even back then, if memory serves, so our 60-Hz power should pose no problems. Also, look at the recorder's registration plate on its rear and see if it says "50 Hz" or "50-60 Hz." If you do find that the unit runs slow, it should be a relatively simple matter for Revox to fix it, although you will have to send it to one of the company's authorized service facilities.

As for the plug, the 10A/250V marking simply shows its maximum rating. There are adaptors for such plugs, but they are very hard to find (most such adaptors allow you to use American equipment overseas, but not the other way around). Your simplest bet is to remove the plug and replace it with a North American one.

Dust

Q I recently purchased a new receiver, and I am concerned about the dust that is very evident in my apartment. Should I cover the unit with a cloth, or am I worrying needlessly?

JIM SINGER
Sterling Heights, MI

A Most electronic components are relatively immune to dust, but they can be unforgiving if allowed to overheat, so restricting air flow by covering your receiver with a cloth—or anything else—could damage it.

If the dust is extremely severe, however, it may eventually work its way into switches and volume controls, although this usually takes years. When level controls begin to make noises as you turn them, or switches make intermittent contact, a shot of contact cleaner will usually fix the problem.

Incomplete Erasure

Q I recently decided to replace the music on several of my chrome tapes, but I found that some of the old music could still be heard during the quiet spots in the new recording. Is my erase head not working properly, or is it the tape? Or am I doing something wrong?

RON HERZIG
Darien, IL

A There could be a fault either in the erase head itself or in the circuitry that drives it, but before sending your cassette deck back to the shop to find out, you should investigate a couple of other possibilities.

For instance, the bias may not have been set properly when you made your new recording. If you use your deck primarily for playback, you might not be in the habit of routinely checking this control, as it has no function in playback, but during recording, chrome and chrome-equivalent tapes require a higher bias current than "normal" ferric-oxide tapes in order to erase the tape completely (and metal tapes need considerably more bias). Try recording a bit of silence over a loud portion of the offending tape, making sure that the bias is correct. If you can no longer hear the old recording, you've found the cause of the problem and can rerecord the new music without interference.

If that doesn't work, it may simply be that your tape heads or guides need cleaning. Oxide from tape can build up over a period of time, and when the buildup becomes severe, it can hold a tape far enough away from the heads that erasure is incomplete (this is usually accompanied by a reduction of high

frequencies on playback, but not always). A thorough cleaning of everything that the tape touches should restore the erase function.

Replacement Tonearms

Q A friend somehow broke the tonearm on his semi-automatic turntable, and I would like to buy him a new one. Will the replacement arm still return and start up the platter in the same way as the original?

TYRONE HALLUMS
Roanoke, VA

A Only if the new arm is an exact replacement of the broken one. It is very unlikely, however, that you will be able simply to go out and buy such an arm. The whole turntable will probably have to be returned to its manufacturer, or an authorized service facility, to have the new arm installed, and unless the repair is covered by the unit's warranty, this will probably cost more than buying a whole new turntable.

There are, of course, separate tonearms that could be installed instead, but these tend to be fairly expensive and would not perform the automatic functions that presumably determined your friend's choice of turntable in the first place.

Measuring Amplifier Power

Q I have been given an amplifier, but there is no indication of its output power. I don't want to damage my speakers by underpowering them. Can I get a fairly accurate assessment by connecting an ohm/voltmeter across the output terminals?

PAUL FOREMAN
Darien, IL

A No. Even assuming that you can set your meter to indicate watts, the only thing you will learn is the actual output power at a particular moment. What you want to know, however, is the maximum power your amplifier can consistently produce over a period of time without distorting or overheating. For example, the amplifier you have fallen heir to is rated by its manufacturer for a continuous output of 73 watts per channel into an 8-ohm load, both channels driven, from 20 to 20,000 Hz, with no more than 0.08 percent total harmonic distortion (THD).

To arrive at this figure, you would have to drive a stable 8-ohm load (speakers present complex loads that vary with frequency and so would be inappropriate for this purpose) at a level that produces 0.08 percent THD—which means you would need some way of measuring distortion. The test would

Magnificent Reception.

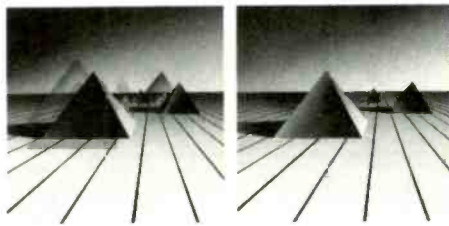
THE TX-11a COMBINES CARVER'S REVOLUTIONARY ASYMMETRICAL CHARGE COUPLED FM DETECTION CIRCUITS WITH AN AM STEREO SECTION CAPABLE OF FM-QUALITY RECEPTION.

The Carver TX-11a Stereo AM-FM Tuner is the most complete high fidelity broadcast reception component ever offered. It is a technical tour-de-force which further distances Bob Carver's unique products from traditional electronic components. First, by eliminating forms of FM distortion and interference that even the most expensive tuners available can't correct. And second, with a unique additional tuning section capable of making AM stereo sound as good as FM!

THE SILENT TREATMENT. While AM stereo may not yet be available in your area, you can receive FM stereo. Including stations so fraught with interference and distortion that you may be tempted to return to mono AM. That's why the TX-11a includes the first circuitry to remove hiss, "picket fencing" and the myriad other unpredictable noises which often disturb FM listening. Without reducing stereo imaging, frequency response or dynamic range.

Part of the FM signal, the left minus right portion, is extremely prone to "ghosting," or multipath interference caused by hills, buildings and other obstructions. Bob Carver's Asymmetrical Charge Coupled circuitry cancels distortion-causing "dirty mirror" images before they can reach your ears. It filters out noise and restores the part of the signal

needed by our ears and brain to construct stereo imaging. Reintroduced into the mono (L+R) signal matrix, a net reduction of 93% — or better than 20dB of noise reduction — is achieved. All ambient and localizing information is recovered. Only hiss and



distortion are left behind. Or, as *High Fidelity* magazine put it, "...clean, noise-free sound out of weak or multipath-ridden signals that would have you lunging for the mono switch on any other tuner."

Ovation magazine observed that the circuit, "...may well mean the difference between marginal reception of the station signals you've been yearning to hear and truly noise-free reception of those same signals."

Audio magazine called it, "An FM tuner breakthrough."

THE FIRST AUDIOPHILE AM STEREO CIRCUITRY. Contrary to popular belief, most AM stereo stations have frequency response (20-15kHz), separation (35dB) and signal-to-noise ratios (70dB) audibly indistinguishable from FM stations of equal strength. But only Carver offers the technology to appreciate this hidden performance.

At a press conference in front of America's top stereo writers, Bob Carver unveiled a low powered C-QUAM format AM stereo broadcast transmitter with a Carver Compact Disc Player as a source. The CD source and the TX-11a were also routed directly to a preamplifier and speakers for comparison.

When Bob switched back and forth, most listeners had difficulty distinguishing between the straightwire CD player and the TX-11a's over-the-air AM stereo reception! Many could tell no difference at all!

HUMAN ENGINEERED FEATURES AND CONVENIENCE. The TX-11a is designed to make enjoying FM and AM easy, not dazzle you with flashing light and complex programming. Thirteen presets, wide/narrow band selection, automatic/manual scanning as well as Multipath and Noise Reduction buttons are inset into the burnished anthracite metal face. Full instrumentation including digital display, 6-step signal strength LEDs and other monitor functions are tastefully recessed, visible but not garish. The result is performance without theatricality, access without complication.

CLEAR THE AIR by visiting your nearest Carver dealer. Ask to hear the most expensive tuner they sell. (It probably won't be the Carver TX-11a). Tune a multipath-ravaged, hiss-filled FM station on it; then the same station on the TX-11a Stereo AM-FM Tuner. Now press the Carver Multipath and Noise Reduction buttons. You'll hear why *High Fidelity* Magazine called it, "By far the best tuner we have tested..."



CARVER

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CIRCLE NO. 49 ON READER SERVICE CARD

Distributed in Canada by: evolution technology

HOW ALPINE RE-ENGINEERED THE CD PLAYER AND TUNER SECTION TO SHARE THE SAME IN-DASH CHASSIS.

It began with the goal of a car audio system able to do justice to the most artfully recorded music. It led to the development of a Compact Disc player smaller and more advanced than any before. And an FM-AM tuner of astounding capability. It resulted in Alpine's new Model 7902. The first true single-chassis all-in-one design available in a standard DIN-size unit.

Throughout the 7902, Alpine has blended the digital engineering of CD with state-of-the-art analog circuitry to precisely control the musical signal at all stages of its journey. A double-oversampling linear-phase digital filter eliminates the distortion you hear when digital signals are converted into analog form. The filter suppresses ultra-high frequency signals before their conversion to analog, while the double-oversampling process improves the upper-band frequency response. The result? Dramatically reduced harmonic distortion in your music.

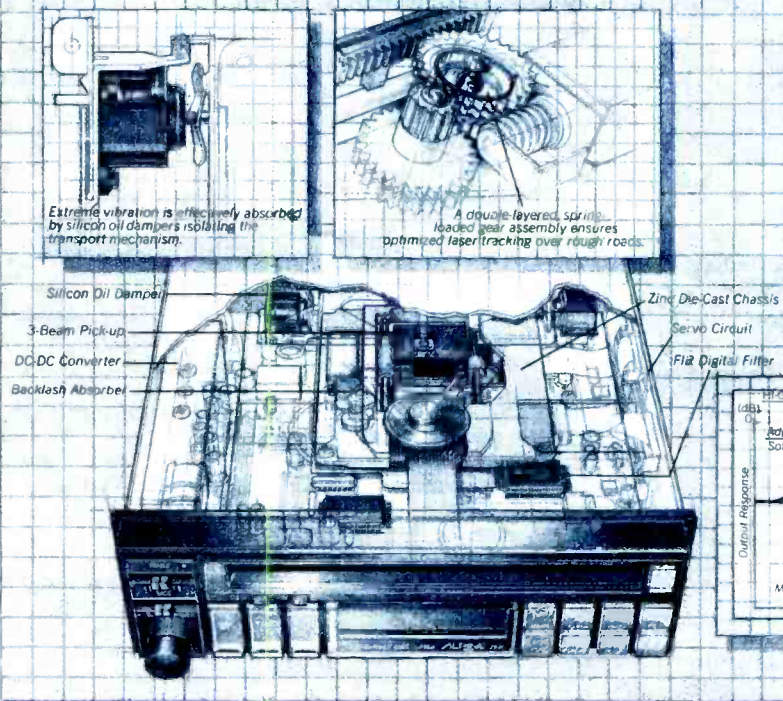
Once the music is converted to analog form, the signal continues to pass through a Butterworth analog filter. This rejects the ultrasonic noise that is characteristic of CDs.

ABSORBING THE SHOCKS OF THE ROAD WITHOUT LEAVING THE TRACK.

The mechanics of the 7902's CD section are no less innovative than its electronics. Alpine has combined its

own 3-beam laser pick-up with a series of other advances. Together they deliver exceptional sonic accuracy while compensating on the road for the bumps and jars that can

Silicon oil dampers also protect the CD mechanism from vibrations and outside shocks. And the entire CD assembly is mounted on a rugged zinc die-cast



A CLOSER LOOK AT THE ALPINE 7902 CD PLAYER/FM-AM TUNER.

cause a lesser CD player to mistrack.

A specially designed gear system for the laser drive prevents backlash—the looseness that degrades tracking accuracy. The 7902 uses unusual two-layered gears, with a spring placed between them to maintain tension. So the drive operates with absolute precision.

chassis that's able to absorb shock and vibration better than a common pressed steel or aluminum die-cast chassis.

Alpine's 3-beam laser pick-up uses a diffraction grating to split the laser light into a main beam and two "sub-beams." Constant comparison of the two sub-beams instantly corrects the main beam's alignment, keeping it right on track. Remarkably, Alpine engineering

has packaged all these advances into the first CD pick-up small enough to share an in-dash DIN-sized head unit with an equally advanced FM-AM tuner.

GIVING THE MOST DISTANT STATIONS A POWERFUL RECEPTION.

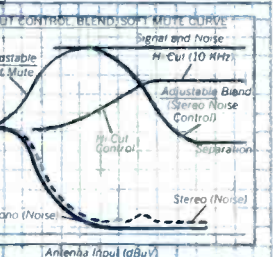
The Model 7902 incorporates a tuner section that's already legendary for its performance: Alpine's remarkable T-10 II Tuner.™

Three Alpine innovations contribute to the T-10 II Tuner's ability to

control circuit reduces the intermodulation distortion that can degrade your musical reception.

Throughout the entire 7902, a unique circuit topology called STAR (Signal Transit for Accurate Response) keeps critical circuits separated to avoid interference. Moreover, STAR takes advantage of computer-aided design to engineer the shortest routes for signals to travel. The result is exceptionally clear reproduction with greater dynamic range and a truly linear musical output.

Making the 7902 all the more unique is a shielded, pulse-width-modulated power supply designed with dual circuitry—two discrete power blocks that eliminate high-frequency signal interference. This rethinking and redesign of every aspect of circuitry results in improved clarity and definition, and contributes to the exceptional musicality of the 7902.

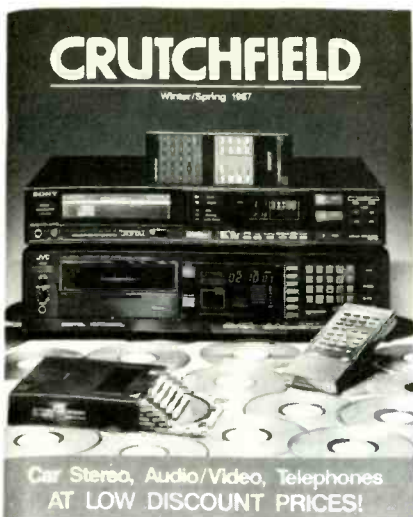


High cut, blend and soft-mute circuits work together to maximize reception of weak FM stations, and minimize static noise.

It all adds up to a tuner with superb clarity and definition. In an incredibly small package that, combined with Alpine's equally compact new CD section, makes the model 7902 a first for Alpine. And a first for the mobile audio industry.

To see and hear Alpine's new 7902 CD Player/FM-AM Tuner, visit your local Alpine autosound specialist.





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AUDIO Q&A

have to be repeated at enough discrete frequencies to insure that the amplifier provides at least this level of performance across the frequency spectrum, which means that you would require a tunable frequency generator, and each of these measurements would have to go on long enough to insure that the amplifier can produce this power level over an extended period of time rather than momentarily. Any amplifier can put out more than its rated power for short spurts, but the important measurement is its *continuous* output capability.

All in all, a very complicated and time-consuming procedure. You would be far better off simply to write the manufacturer and ask for the specifications (as I did!). While you are at it, request a copy of the owner's manual, which will not only list the specs but will also give you operating and maintenance instructions.

Hi-Fi Video Dubbing

Q I am about to purchase a VCR with VHS Hi-Fi sound, and I would like to copy tapes from it to my existing (non-hi-fi) machine, and vice versa. Will the copies be in hi-fi, or do I need two machines with the feature?

CHAR STANLEY
Princeton, MN

A With hi-fi VCR's, both the video and hi-fi audio are recorded helically on what used to be the video-only portion of the tape, but they are two separate signals. To copy both these signals requires two machines with the extra audio capability. Dubbing from a hi-fi VCR to a non-hi-fi VCR, you would lose the hi-fi audio track and record only the standard longitudinal audio track included on all videocassettes, hi-fi or otherwise, because the machine you're recording on cannot pick up the hi-fi signals. Trying it the other way around, using the older VCR for playback, you would still get only the non-hi-fi audio track in the dub, because the hi-fi VCR would not be receiving a hi-fi signal from the source.

Airline Sound

Q Could you describe the sound systems installed in airliners? They certainly are not audiophile quality. I realize, but how do they work?

BRUCE A. HIGHLAND
Avondale, AZ

A Whether we realized it or not, most of us were introduced to digital sound in the air. One of the main goals of aircraft designers is to reduce weight,

and while an audio distribution system could have been devised using individual wires to carry signals to each passenger, providing a dozen channels to three hundred or more seats in a wide-body jet would require miles of wire. To avoid this, digital multiplexing is used.

A multichannel tape deck feeds an analog-to-digital converter that samples each signal in turn and sends the composite signal to each seat by a single set of wires. A small digital analyzer at each passenger location selects only the portion of the multiplexed signal that is desired—if you choose Channel 1, for instance, only the first, thirteenth, twenty-fifth (and so forth) slices of the overall signal would be accepted and reassembled into a single bit stream. This is processed by a digital-to-analog converter at your seat and fed to a transducer in the armrest, which in turn is coupled to your ears by a pair of hollow tubes.

The fidelity of this system is relatively low because a lot of information must be distributed and sampling rates must be kept within reason. The necessary tradeoff between quality and selection was decided in favor of a wide choice of material.

Record Crackle

Q Every time I play certain records, I get an irritating sound that resembles static, and the noise gets worse as the signal level increases. This doesn't occur with newer records or even with all of my older ones. Nor did it seem to happen with my old cartridge, which I recently replaced with a better model. What can I do to correct the problem?

LAWRENCE TROST
Duluth, MN

A From the sound of it, you are experiencing the effects of past cartridge mistracking. If the stylus is allowed to rattle around in a record groove, it not only causes a particularly irritating sort of distortion—especially during highly modulated passages—but it tends to break off bits of vinyl in the process. The damage is permanent, and it usually becomes worse with subsequent playings. The cumulative nature of this damage may be why you only hear it on older records, and probably mostly on the ones that have been played most often.

It is possible that your old cartridge did not reproduce the distortion as dramatically because it had poorer high-frequency response (much of the damage caused in this fashion is at the upper end of the spectrum) or because the shape of your new stylus is more sensitive to the specific physical damage caused by the old one. □

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SONIC HOLOGRAPHY TRANSFORMS EXCITING NEW PROGRAM SOURCES AS WELL AS FAMILIAR OLD ONES INTO TRULY LIFELIKE MUSIC EXPERIENCES.

Watch a movie on a 13" black and white TV. Now see it in 70 millimeter Technicolor with Surround Sound.

Listen to your favorite musicians on a portable radio. Now sit three rows back from the stage at a live concert.

The difference is dimension: Width, depth, breadth and detail that turn flat sensory input into breathtaking reality. They're the missing ingredients of live musical performance that Sonic Holography restores to records, compact discs and even hi-fi movie soundtracks.

The most experienced and knowledgeable experts in the audio industry have concurred. Julian Hirsch wrote in *Stereo Review*, "The effect strains credibility — had I not experienced it, I probably would not believe it."

High Fidelity magazine noted that "...it seems to open a curtain and reveal a deployment of musical forces extending behind, between and beyond the speakers." According to another reviewer, "It brings the listener substantially closer to that elusive sonic illusion of being in the presence of a live performance."

All this with your existing speakers and music collection.

HOW SONIC HOLOGRAPHY WORKS. Unfortunately, conventional stereo cannot isolate the output of left and right speakers and send their output only to your left and right ears. Left and right versions of a sound occurrence also cross in the middle of your listening room, confusing your ears with additional extra sound arrivals a split second apart. Stereo imaging and separation suffer because both speakers are heard by both ears, confusing your spatial perception.

The Sonic Hologram Generator in the Carver 4000t Preamplifier, C-1 Preamplifier and Carver Receiver 2000 solve this muddling of sound arrivals

by creating a third set of sound arrivals. These special impulses cancel the objectionable second sound arrival, leaving only the original sound from each loudspeaker.

The result is a vast sound field extending not only wider than your speakers, but higher than your speakers as well. Sounds will occasionally even seem to come from behind you! It is as if a dense fog has lifted and you suddenly find yourself in the midst of the musical experience. Or, as the Senior Editor of a major electronics magazine put it, "When the lights were turned out, we could almost have sworn we were in the presence of a live orchestra."

IMAGINE THE POSSIBILITIES. Thanks to VHS and Beta Hi-Fi stereo soundtracks (found even on rental tapes), and the increasing number of stereo TV broadcasts, Sonic Holography can put you inside the video experience, too.

It's a breathtaking experience. Without the need for additional rear speakers, extra amplifiers or decoders, the visual experience is psychoacoustically expanded by lifelike sound that envelops you, transforming stereo from monochromatic flatness into vibrant three-dimensional reality. Instead of being at arm's length from the action, you are immersed in it.

Then there are the familiar audio sources which Carver innovation has further improved upon, each of which gains character and heightened impact through Sonic Holography.

Compact discs, whose potential is still trapped in the two-dimensionality of conventional stereo, are even more lifelike with Sonic Holography.

Thanks to the Carver Asymmetrical Charge-Coupled FM Detector, FM stereo broadcasts can be received hiss- and interference-free, ready to take on an astonishing presence and dimension through Sonic Holography.

Even AM stereo can actually become a three-dimensional phenomenon with Sonic Holography and the new Carver TX-11 $\frac{1}{2}$ AM/FM tuner which delivers AM stereo broadcasts with the same dynamics and fidelity as FM.

ENHANCE YOUR SPATIAL AWARENESS WITH CARVER COMPONENTS. When considering the purchase of a new preamplifier or receiver, remember how much more you get from the Carver 4000t, C-1 and Receiver 2000. Or add Sonic Holography to your existing system with the C-9 add-on unit.

Each can transcend the limits of your listening (and viewing) experiences by adding the breathtaking, spine-tingling excitement that comes from being transported directly into the midst of audio-video reality.

Visit your nearest Carver dealer soon and expand your range of experiences with Sonic Holography.



CARVER

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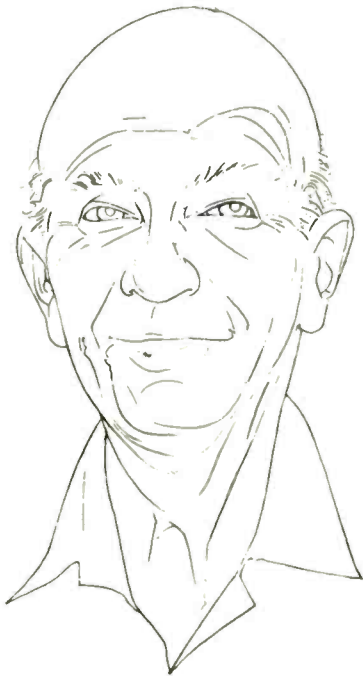
MUSICAL

ACCURATE

CIRCLE NO. 49 ON READER SERVICE CARD

Distributed in Canada by: evolution technology

by Julian Hirsch



Clearing the Cobwebs

No, the laboratory is not overgrown with cobwebs, but I have received several letters indicating some readers don't understand some of the terms and concepts used in our test reports. I would like to clear up some of these communication gaps at this time—a symbolic cobweb removal, if you will.

One correspondent wonders why it is that the frequency response of tape decks is often measured and rated above 20,000 Hz, but this is never done in connection with CD players. One good reason is that considerable design effort goes into each CD player to insure that its response does *not* extend past 20,000 Hz! In the process of decoding the recorded signal from digital to analog form, a spurious, frequency-inverted equivalent of the program is created that extends upward from about 22,050 Hz (half the 44.1-kHz sampling frequency of the CD format). If these spurious signals were allowed to mix freely with the decoded original program, a

process called "imaging," the playback would be very distorted and garbled.

A low-pass anti-imaging filter is used to remove these spurious signals from the decoded program before it leaves the CD player. It is not practical simply to cut off the frequencies above 22,050 Hz, leaving the lower ones intact. Real-world filters have a finite slope (the rate at which unwanted frequencies are attenuated), and the cutoff frequency must be chosen so that the necessary attenuation is obtained at the critical frequency (22,050 Hz) without losing any of the main program content below 20,000 Hz. Although filters can be made with extremely steep cutoff slopes, their operation can introduce large phase shifts within the range of the program itself.

Recognizing that there is no meaningful musical content above 20,000 Hz, the designers of the CD format established its maximum frequency as 20,000 Hz. The rate of attenuation above that frequency is not considered germane to a consumer product specification. A few test CD's have signals up to 22,050 Hz, the ultimate theoretical limit. Since no one specifies the player response above 20,000 Hz, there is little point in measuring it. There *are* small, but measurable, differences between players in their response up to that frequency, but the significance of these differences is as debatable as how many angels can dance on the head of a pin (which is even trickier to measure).

One of the most widely used and most misunderstood terms in the audio world is the decibel (abbreviated dB). Lay readers can take

some consolation in the fact that many engineers and technicians are equally confused on this matter! The basic unit is the *bel*, which was originally developed for use in telephone systems and was named after the telephone's inventor, Alexander Graham Bell, but it is generally more convenient to use one-tenth of a bel, or a *decibel*.

Fundamentally, the decibel is an expression of the *ratio between two power levels*. By extension, it is often applied to voltage ratios as well. Numerically, a figure in decibels is ten times the logarithm (base 10) of the power ratio. If you are rusty on logarithms, just remember that the log of 10 is 1, which means that a power ratio of 10:1 corresponds to 10 dB. Since the log of 100 is 2, a hundredfold power increase can be expressed in a much more convenient way as 20 dB, and so forth.

Since the decibel represents a ratio, its use requires a reference level. In the preceding examples, a power change from 10 to 100 watts, or from .01 watt to 1 watt, would be described as a 10-dB increase. If the change is in the opposite direction, a reduction instead of an increase, the number of decibels is the same but is preceded by a minus sign. If the variable is voltage instead of power, the logarithm is multiplied by 20 instead of 10.

I am not going to present a course in logarithms and decibel notation here, but I would like to point out that comparing two widely differing power levels is much more convenient in decibels. Consider the noise level in the output of a typical CD player, say -90 dB. This figure represents a power range of one billion to one or a voltage ratio of 31,600 to one. The convenience of decibel notation in this case is obvious.

Sometimes the reference level is unstated or implicit. The most familiar example of this is in the field of acoustics, where a 0-dB sound-pressure level (SPL) corresponds to an acoustic pressure of 0.0002 dynes per square centimeter. It is vastly more convenient to deal with sound-pressure or power levels directly, and generally the reference level is understood but not stated. We can simply refer to the sound-

Tested This Month

Onkyo DX-530 CD Player
 Boston Acoustics T830
 Speaker System
 Kenwood KA-3300D
 Integrated Amplifier
 dbx DX5 CD Player
 Celestion SL700
 Speaker System

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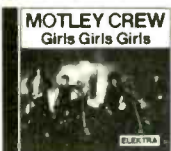
- | | | | | | | |
|---|---|---|---|--|---|--|
| 348458. Dvorak: Cello Concerto—Yo-Yo Ma; Moazzel, Berlin Philhar. (Digital—CBS Masterworks) | 349324. South Pacific. K. Ie Kanawa, J. Carreras, etc. (Digital—CBS) | 339044. Mozart: Symphonies 40 & 41 (Jupiter)—Kubelik, Bavarian Radio Or. (Digital—CBS Masterworks) | 346957. Steve Winwood—Back In The High Life. (Island) | 308049. Creedence Clearwater Revival Featuring John Fogerty/Chronicle. 20 greatest hits. (Fantasy) | 346312. Billy Joel—The Bridge. (Digital—Columbia) | 346544. Kenny G—Duotones. (Arista) |
| 347955. Huey Lewis & The News—Forel (Chrysolis) | 346643. Andreas Vollenweider—Down To The Moon. (CBS) | 339226. Gershwin: Rhapsody In Blue; more. Thomas, Los Angeles Phil. (Digital—CBS Masterworks) | 344622. Anita Baker—Rapture. (Elektra) | 343582. Van Halen—5150. (Warner Bros.) | 336222. Dire Straits—Brothers In Arms. (Warner Bros.) | 344721. Lionel Richie—Dancing On the Ceiling. (Motown) |
| 349985. Johnny Mathis/Henry Mancini—The Hollywood Musicals (Columbia) | 346478. Madonna—True Blue. (Sire) | 316604. Tchaikovsky: 1812 Overture; Marche Slave; Beethoven: Wellington's Victory—Moazzel cond. (Digital—CBS Masterworks) | 319996-399998. Motown's 25 #1 Hits From 25 Years. (Motown) | 326629. Bruce Springsteen—Barn In The U.S.A. (Columbia) | 341073. Steely Dan—A Decade of Steely Dan. (MCA) | 355156. Vladimir Horowitz Plays Favorite Chopin (Digitally Remastered—CBS Masterworks) |
| 348979. Tina Turner—Break Every Rule (Capitol) | 343319. Janet Jackson—Control (A&M) | 287003. Eagles Greatest Hits 1971-1975 (Asylum) | 291278. The Doobie Brothers—Best of the Doobies. (Warner Bros.) | 342097. Barbra Streisand—The Broadway Album. (Columbia) | 349373. Beethoven: Symphony No. 9 (Choral) Bernstein, NY Phil. (Digitally Remastered—CBS Masterworks) | 354985. Billie Holiday—From The Original Decca Masters. (Digitally Remastered—MCA) |
| 352633. Dolly Parton/Linda Ronstadt/Emmylou Harris—Trio (Warner Bros.) | 349571. Boston—Third Stage (MCA) | 347492. Glenn Miller Orchestra—In The Digital Mood. (Digital—GRP) | 345777. Peter Gabriel—So. (Geffen) | 345827. Bob James and David Sanborn—Double Vision. (Warner Bros.) | 314997-394999. Stevie Wonder's Original Musiquarium 1. (Tajma) (Digitally Remastered—MCA) | 353037. Miles Davis—Sketches of Spain. (Digitally Remastered—Cl Jazz Masterpieces) |
| 302570. Mussorgsky: Pictures At An Exhibition; Ravel: La Valse—Mehta, cond. (CBS Masterworks) | 290916. The Best Of Earth, Wind & Fire, Vol. 1 (Columbia/Arc) | 347492. Glenn Miller Orchestra—In The Digital Mood. (Digital—GRP) | 246868. Jim Croce—Photographs And Memories—His Greatest Hits. (Saisi) | 219477. Simon & Garfunkel's Greatest Hits. (Columbia) | 348110. Buddy Holly—From The Original Master Tapes. (Digitally Remastered—MCA) | 349613. Original Soundtrack—Round Midnight. (Columbia) |
| 336396-396390. Billy Joel's Greatest Hits, Vol. 1 & 2. (Columbia) | 343715. Vivaldi: Four Seasons—Moazzel cond. (Digital—CBS Masterworks) | 293597. Led Zeppelin—Houses Of The Holy. (Atlantic) | 334391. Whitney Houston. (Arista) | 348649. Pachelbel Canon & Other Digital Delights—Toronto Chamber Orch. (Digital—Fantare) | 352245. David Sanborn—A Change Of Heart. (Warner Bros.) | 35115-395111. Prince—Sign 'O' The Times. (Paisley Park) |
| 324822. Ravel: Bolero; La Valse; Rhapsodie Espagnole—Moazzel, cond. (Digital—CBS Masterworks) | 342105. Bangles—Different Light. (Columbia) | 350736. Rolling Stones—Rewind. (Rolling Stones Records) | 314443. Neil Diamond's 12 Greatest Hits, Vol. 2. (Columbia) | 260638. Chicago's Greatest Hits (Columbia) | 351122. Europe—The Final Countdown. (Epic) | 357186. Hooters—One Way Home. (Columbia) |
| | 356279. Gloria Estefan And Miami Sound Machine—Let It Loose. (Epic) | 138586. Bob Dylan's Greatest Hits (Columbia) | 348318. The Police—Every Breath You Take—The Singles (A&M) | | | 356873. The Outfield—Bangin'. (Columbia) |
| | | | | | | 354100. Crowded House. (Capitol) |



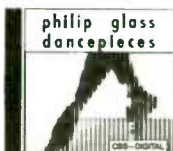
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TECHNICAL TALK

pressure level from a loudspeaker as 87 dB instead of 4.47 dynes per square centimeter.

Decibel notation also makes it easier to appreciate that increasing the sound level by, say, 40 dB—that is, from a moderately loud home listening level (80 dB) to a rock-concert level (120 dB)—requires a ten-thousandfold increase in power from the amplifier! It is generally considered that an acoustic level difference of 1 dB is barely detectable, and under many conditions a 3-dB change would be the least perceptible sound-level difference. Subjectively, a 10-dB change is perceived as doubling (or halving) the sound volume.

Finally, we come to the very different matter of quartz-synthesis tuners. What does this feature mean to you as a user? As you know, a nonsynthesizing tuner is set to the station frequency by turning a knob until a meter or light indicates correct tuning, or until the background noise and program distortion are minimized. Some tuning indicators are accurate, but many are not, so a

correct tuning indication may be obtained with a slightly mistuned receiver. The actual tuning is done by changing the frequency of an internal oscillator, which is continuously (smoothly) adjustable by the tuning knob.

A frequency synthesizer generates the same range of local-oscillator frequencies required in an analog-tuned receiver (normally, from about 99 to 119 MHz), which converts the 88- to 108-MHz FM band to the receiver's intermediate frequency (IF) of 10.7 MHz. The accuracy and stability of the IF frequency, however, is determined by a highly stable quartz-crystal oscillator, to which a variable oscillator is "locked" in the widely used phase-locked-loop (PLL) system. This locking action takes place at discrete frequencies, typically at intervals of 100 or 200 kHz for FM reception.

When such a tuner scans the FM band, its synthesized frequency is actually changing in increments of 100 or 200 kHz, corresponding to the standard spacing between FM broadcasting channels. Some tuner

manufacturers imply that the tuner actually locks to the frequency of the received station, but that is not the case, although in stereo reception a PLL oscillator in the tuner's multiplex decoder *does* lock to the transmitted 19-kHz pilot carrier. The accuracy of the tuner's crystal reference oscillator is comparable to that of the broadcast station itself, however, and the two should agree to within a few kilohertz.

On the face of it, the frequency-synthesis system seems ideal, and in many ways it is, but it is only one part of the reception system. Remember, the synthesized local-oscillator frequency converts the signal to the tuner's 10.7-MHz intermediate frequency, where it is amplified and finally detected and its modulation converted to audio signals. If the IF section, including its FM detector, are not tuned exactly to 10.7 MHz, or if its selective filters are not centered on 10.7 MHz or have an asymmetrical band-pass response, the tuner will effectively have a fixed tuning error on *every* station it receives. And even if you have incredible hearing acuity, or a distortion analyzer, very few synthesizing tuners allow you to change the tuning by the small amount needed to correct for this error.

This possibility is why we often comment in test reports on the tuning errors of FM tuners and receivers. Sometimes by slightly shifting the frequency of our signal generator, we can substantially reduce the measured distortion in the tuner's output or improve its usable-sensitivity measurement. We make mention of this fact, and the amount of the error (generally 20 to 40 kHz), but since there is nothing a user can do about it, we make our actual measurements with the generator (itself a highly accurate synthesized source) set to the same indicated frequency as the tuner. Fortunately, the effects of these tuning errors are almost never audible. They usually represent a slight economy on the part of the tuner's manufacturer; tuning accuracy can be trimmed very closely in manufacture, but few companies do so.

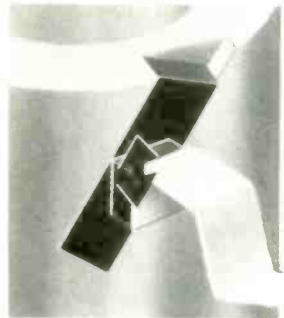
Well, so much for those cobwebs. Undoubtedly, more will appear with the passage of time. □



Canton announces significant engineering advances in the science of music reproduction.



Enlarged detail from center of photo: the rigid aluminum ring with obliquely positioned permanent magnets. In front of it, the semiconductor sensor which is linked via a supporting plate with the diaphragm and moves to and from with it.



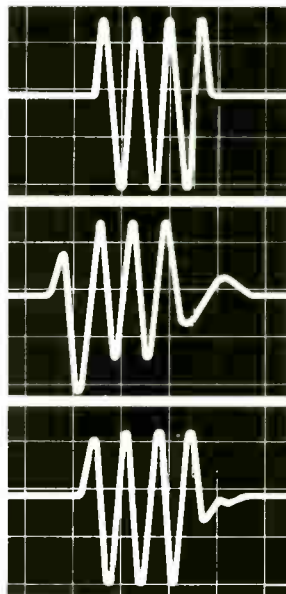
Motion Feedback:

All loudspeaker systems have an inherent problem. A driver's diaphragm is burdened by mass and reacts to sound impulses with a certain amount of inertia. A time delay exists between the instantaneous sonic impulse and the acceleration and deceleration of the diaphragm. This delay translates into coloration of the source material.

Canton's new CA series, in addition to their advanced power amplifiers, are equipped with a built-in electronic signal correction system which monitors each speaker diaphragm, checking whether its motion corresponds exactly with the impulses of the musical signal at all times. Instantly—within a fraction of a

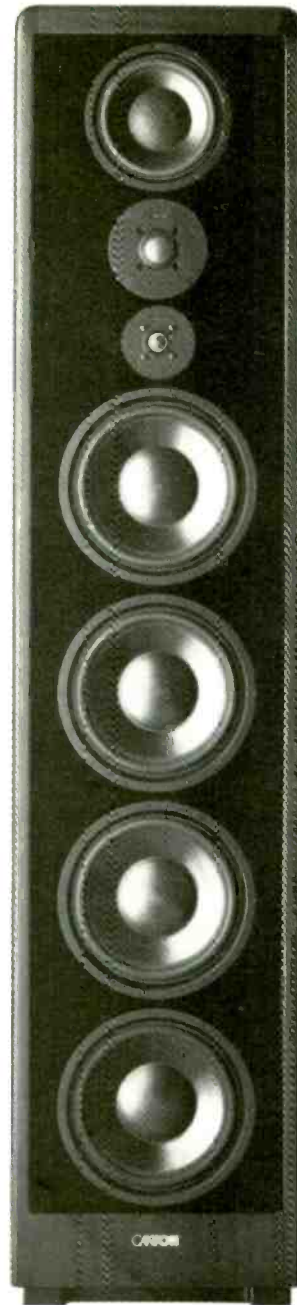
A "sound burst" (upper curve) as seen on the oscilloscope: fast attack and equally rapid decay of sonic impulses. Here's

what an uncorrected speaker makes of the signal (center curve): there are distinct discrepancies on both incursion and excursion. And here's how the Canton system corrects diaphragm motion (lower curve): to the exact image of the original sound burst, in all but infinitesimal "afterflash."



millisecond—any discrepancies are registered, fed back and corrected via counteraction of the built-in power amplifiers.

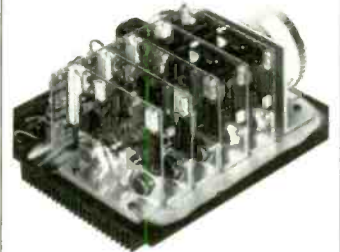
Canton employs a number of new patented processes for driver correction. In the woofer illustrated here, the "Hall Effect" is used. A semiconductor element serving as sensor cuts across the field of a fixed magnet. This creates an electrical voltage related to depth of insertion. Inversely, this "Hall Voltage" is an indicator for the position of the sensor, e.g. the diaphragm. By comparing this actual value with the target value of the musical signal, the control circuitry acquires the impulse needed for any amplifier counteraction. The diaphragm is accelerated or braked accordingly.



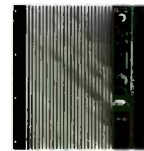
The top-of-the line CA 30 active speaker is a 4-way system powered by 7 internal amplifiers (one for each driver). The woofers are powered by 4x120 Watt amplifiers, the midranges by 2x100 Watt amplifiers and the titanium tweeter by 1x100 Watt amplifier. A total of 780 Watts per CA 30 speaker.

In addition, problems normally associated with passive crossover networks are non-existent due to Canton's advanced MOS-FET electronic crossovers.

Each amplifier is meticulously fine tuned to achieve optimal performance with its associated, companion driver.



With these high standards, all components—not just the signal correction circuitry—incorporate the most sophisticated technical advances. The entire system reflects the design approach customary in industrial electronics like using thick film modules with SMD's (Surface Mounted Devices), bus interface connections, and plug-in card technology for high reliability and performance capability.



Connecting and control elements on rear panel of a CA series active speaker. Each frequency range can be independently boosted or attenuated to compensate for listening room idiosyncracies.



Since active speakers incorporate their own built-in power amplifiers, all that's needed to drive them is a pre-amp like the new EC-P1 from Canton (pictured above).

Find out more about the entire Canton product line by visiting an Authorized Canton Dealer and picking up Canton's 1986/1987 40-page Loudspeaker Journal.

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Introducing the Pioneer Elite Hi-Fi C-90 Preamp and M-90 Power Amplifier. Together, they combine the finest in both audio and video to retrieve every detail and nuance found in your cherished records, tapes, compact discs, LaserVision™ discs and other software. Imagine a soundstage spread throughout your entire listening room! Stunning, transparent, three-dimensional music, the likes of which you've never heard, apart from a live performance.

We paid fantastic attention to detail to gain this level of musical truth. One example: the C-90 volume control is a motorized, high precision rotary potentiometer. This permitted us to create the world's first high-end preamp with a no-compromise hand-held "SR"[™] remote-control unit.

The C-90 features three separate power transformers—two to power left and right audio channels for vanishingly low crosstalk, and a third transformer to drive the preamp's unique video capabilities, relays, display and microprocessor. All switching functions are accomplished by electronic relays. Thus the signal paths are as short as possible, improving signal-to-noise ratio and channel separation. Anti-vibration measures taken to further the C-90's sonic excellence include a solid aluminum volume control knob, polycarbonate chassis feet, and rubber-cradled PC boards. Soft copper-plated screws insure a snug fit of chassis, transformers, transistors, and help to dampen vibration.

video enhancer, and two-buss switching (separate "Record" and "View" selectors). The C-90's unique system remote-control unit features volume adjustment, input source selection, and control of audio and video input devices such as Pioneer's "SR" compatible VCRs, CDs, LaserVision players and cassette decks.

The M-90 is a superb high-power stereo amplifier, utilizing dual-mono construction. It is conservatively rated at 200 W/CH into 8 ohms¹ and delivers 800 W/CH of dynamic power at 2 ohms.² The wide dynamic range of digital sources can now be reproduced effortlessly, with any loudspeakers. The M-90's high current capacity of 47 amps can handle the challenge of the most complex speaker loads. To further enhance S/N ratio and channel separation, relay-operated electronic switches and a long shaft volume control keep the length of signal paths down to a minimum. Why include a high quality volume control on a power amp? Simple. To pursue the straight-wire-with-gain philosophy when using a CD player connected directly. Pure sound, redefined.

The exquisite finish of the M-90 and C-90 reflects their quality. Elegant rosewood side panels and front panels with a deep hand-brushed lacquer finish emphasize the care of craftsmanship we've lavished on these two components. The Pioneer C-90 Preamp and M-90 Power Amp. Evolutionary? Hardly. Revolutionary? Most definitely.

For your nearest Pioneer Elite Hi-Fi dealer, phone 1-800-421-1404.

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²Measured by EIA method.

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CIRCLE NO. 19 ON READER SERVICE CARD

TEST REPORTS



ONKYO DX-530 COMPACT DISC PLAYER

Julian Hirsch, Hirsch-Houck Laboratories

ONKYO was one of the first audio manufacturers to apply optical data transmission techniques to a CD player. The aim was to isolate the player's analog circuits from its digital circuits, thereby preventing stray digital pulses from mingling with the playback signal. The high-speed pulses that form a digitally encoded signal are difficult to confine to a limited area and are easily coupled into other portions of the circuitry through stray capacitance and common ground paths. Onkyo's engineers felt that this effect needlessly increases the noise level in the analog audio outputs of a CD player.

Their solution was to isolate the sensitive analog and digital circuits physically and to transmit the signal through critical areas with light

beams. Optical transmission is essentially free of undesired cross-coupling effects, and the optical cables can easily accommodate very wide signal bandwidths (including those used for television programs and multiple telephone channels).

The DX-530 is the latest Onkyo CD player to employ Opto-Coupling. According to the manufacturer, the player uses Opto-Coupling modules for the two most important signals and photo-isolators for five others. The DX-530 also has double oversampling and digital filtering. The disc-playing mechanism, which is isolated on four rubber-damped spring supports, has a three-spot laser pickup.

In addition to the usual control functions, including fast search with audible sound and track-stepping, the DX-530 provides direct access

to any numbered track through a front-panel keypad. Its program memory can store a playing sequence of up to twenty tracks, and an entire disc or any selected portion can be repeated indefinitely.

The DX-530 also has a "shuffle play" mode, which plays all the tracks on a disc in random order. A timer switch permits playback, in either normal or shuffled sequence, to be initiated by an external timer. A small knob on the panel adjusts the volume from the adjacent headphone jack and the rear variable-level outputs; a second set of rear output jacks carries a fixed-level signal. There is also a pair of digital output jacks on the rear.

The display window of the Onkyo DX-530 is exceptionally informative and easy to read. When a disc is first loaded, it shows the total number of tracks and total playing time of the disc. While it is playing, the display shows the current track and index number (if any) and the elapsed time on the track. A button changes the display to show the remaining time on the track and

TEST REPORTS

disc. A grid displays the numbers of the tracks on the disc (up to No. 20) in the order in which they will be played, whether in normal, programmed, or shuffle-play mode.

The maximum number of programmed selections is twenty, but higher-numbered tracks can be included in the program (they appear on the display as a short dash instead of a number). Additional tracks can be added to a full twenty-track memorized program, without interrupting playback, as earlier tracks are played and their spaces become vacant.

A moment after pressing the shuffle-play button, the display grid fills with the sequence of track numbers the machine has randomly selected, and playback begins automatically. As the disc is played, the current track and index numbers are shown in their normal place in the window, with the next track at the upper left corner of the memory grid. The array of numbers advances each time a new track is started.

The DX-530 is supplied with a wireless remote control that duplicates all its front-panel controls ex-

cept for the disc drawer and power. It even has volume buttons for the variable line/headphone output control (the knob is motor driven when operated remotely). The player measures 17 $\frac{1}{8}$ inches wide, 14 $\frac{1}{4}$ inches deep, and 3 $\frac{3}{8}$ inches high, and it weighs 12 pounds, 5 ounces. Price: \$600. Onkyo, Dept. SR, 200 Williams Dr., Ramsey, NJ 07446.

Lab Tests

The audio output of the Onkyo DX-530, from a 0-dB recorded level, was 2.08 volts into an EIA standard load, with a channel imbalance of about 0.13 dB. The maximum level of the variable output was identical to the fixed output. The player's response with a recorded square-wave test signal had the ringing symmetry typical of digital filters, and the interchannel phase shift was 35 degrees at 20,000 Hz, indicating the use of a single multiplexed digital-to-analog (D/A) converter in addition to the double-oversampling technique.

The frequency response of the DX-530 measured ± 0.1 dB from 20

to 15,000 Hz. From 20 to 20,000 Hz, the output variation was +0.15, -0.25 dB. The total harmonic distortion (THD) was 0.004 percent at 0 dB, 0.0018 percent at -10 dB, and 0.009 percent at -20 dB. The A-weighted signal-to-noise ratio was 96.5 dB, and the dynamic range was 101.5 dB. Stereo channel separation was 90 dB at 1,000 Hz, narrowing to 77 dB at 20,000 Hz.

The DX-530 had no difficulty tracking through the largest calibrated errors on the Philips TS5A test disc. The player's cueing accuracy was excellent even when there was no silent interval between tracks. The slewing time was about average, requiring 3.5 seconds to move from Track 1 to Track 15 of the Philips TS4 test disc. The player had fairly good resistance to impact, requiring a fairly hard drumming with the fingers on its top or side to produce mistracking. The headphone volume was good through medium-impedance phones.

Comments

While we found nothing in the measured performance of the Onkyo DX-530 that would unambiguously distinguish it from a number of other good CD players that do not use optical coupling, everything seemed so logically designed and placed that I found myself believing it sounded better than others in our initial listening tests. In an A/B comparison with another good player, however, both machines sounded pretty much alike.

But we had no difficulty recognizing the distinctive quality of the DX-530's superbly designed display and control system. Without looking garish or excessively complex, the display manages to convey a maximum of useful information at a glance, and even more at the touch of a button. The memory display is also superbly logical, and so is the method of entering tracks into the memory. There is even an EDIT feature that lets you change the selected tracks in a program after you have entered them.

Overall, the Onkyo DX-530 earns high marks for its combination of excellent human engineering, a top-notch display, versatility, and simplicity of operation.

FEATURES

- Optical coupling between digital and analog circuits
- Spring-mounted mechanism for reduced vibration sensitivity
- Three-spot laser tracking system
- Double oversampling with digital filtering
- Fixed- and variable-level analog line outputs
- Digital audio output in rear
- Direct track access by keypad
- Index selection by pushbutton
- Programming for up to twenty tracks in any order; program sequence can be edited after selection
- Shuffle play for random sequence of all tracks on disc
- Fluorescent display of complete operating status of player
- Track stepping in either direction
- Fast search in either direction with audible sound
- Front-panel headphone jack with volume control
- Full-function wireless remote control

LABORATORY MEASUREMENTS

Maximum output level: 2.08 volts
Total harmonic distortion at 1,000 Hz: 0.004% referred to 0 dB, 0.0018% referred to -10 dB, 0.009% referred to -20 dB
Signal-to-noise ratio (A-weighted): 96.5 dB
Dynamic range: 101.5 dB
Channel separation: 90 dB at 1,000 Hz, 78 dB at 10,000 Hz, 77 dB at 20,000 Hz

Frequency response: +0.15, -0.25 dB from 20 to 20,000 Hz
Cueing time: 3.5 seconds
Cueing accuracy: A
Impact resistance: top, B; sides, B
Defect tracking: tracked all maximum-level defects on Philips TS5A test disc

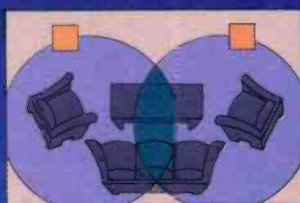
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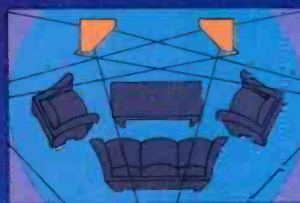
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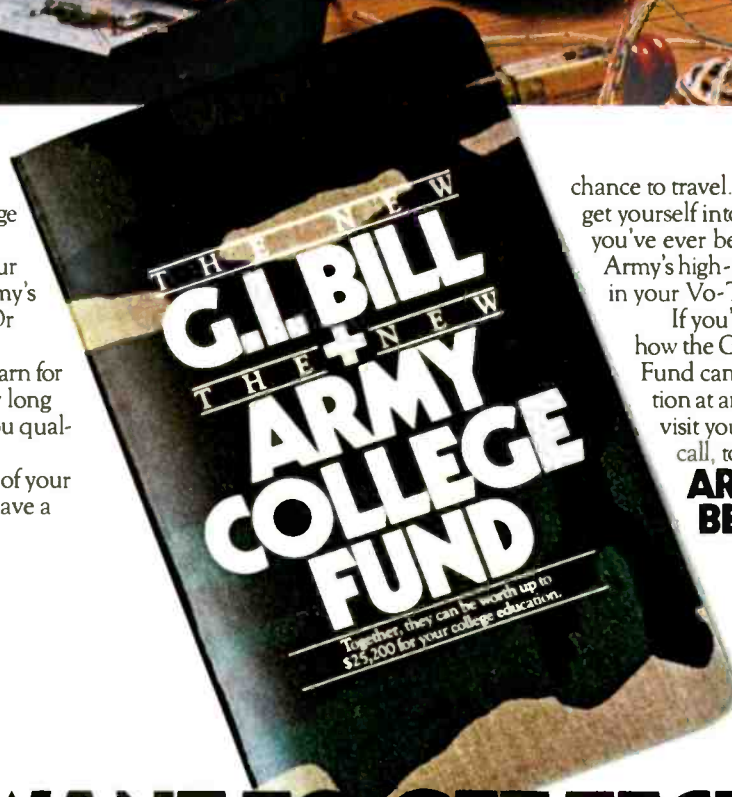
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BOSTON ACOUSTICS T830 SPEAKER SYSTEM

Julian Hirsch, Hirsch-Houck Laboratories

THE Boston Acoustics T830 is a three-way tower system 32½ inches high that occupies considerably less than a square foot of floor space (10 x 9¾ inches). The tower format allows the tweeter and midrange drivers to be located near the height of a seated listener's ear, and the woofer,

halfway up the front panel, is at an optimum height from the floor for uniform radiation into the room.

The 8-inch woofer, which operates in a sealed enclosure, crosses over at 800 Hz to a 3½-inch cone midrange driver whose voice coil is cooled and damped by ferrofluid. The second crossover, at 4,000 Hz,

is to a 1-inch dome tweeter, also ferrofluid cooled. The tweeter's faceplate and the rim of the midrange driver's basket are set flush with the front panel, with recessed screws, to prevent acoustic reflections that could interfere with the smoothness of the system's overall response. The detachable grille, using acoustically transparent black cloth, has also been designed to minimize diffraction effects.

The cones of the woofer and midrange driver are made of a copolymer that was chosen because it is inherently well damped, nonhygroscopic, and highly consistent from unit to unit. Special attention was paid to minimizing woofer distortion, including the use of a shorting

The T830's sound had a trace of crispness, but with no apparent emphasis or falloff in any part of the spectrum, and the stereo sound stage was broad and believable.

ring in the magnetic assembly to reduce flux modulation during large cone excursions.

The T830 has a rated frequency response of 45 to 20,000 Hz \pm 3 dB and a sensitivity of 88 dB sound-pressure level (SPL) at 1 meter with 1 watt (2.83 volts) into the speaker's nominal 8-ohm impedance. It is recommended for use with amplifiers delivering between 15 and 100 watts per channel. The vinyl-veneer cabinet is available either in ebony or in a dark woodgrain finish, including the front panel behind the grille. The twin binding-post terminals are located underneath the speaker. Price: \$450 a pair. Boston Acoustics, Dept. SR, 247 Lynnfield St., Peabody, MA 01960.

Lab Tests

The averaged room response of the Boston Acoustics T830 was flat within \pm 1.5 dB from 200 to 12,000 Hz. There was a slight peak of 2 dB at 14,000 Hz and a return to the reference level at 20,000 Hz. The combined close-miked frequency-response curves of the woofer and

TEST REPORTS

midrange driver were flat within ± 2.5 dB from 46 to 3,000 Hz and overlapped the room-response curve closely for about four octaves (an unusually close match). The resulting composite response curve was flat within ± 2.5 dB from 43 to 20,000 Hz, which would be noteworthy performance for *any* speaker and is possibly unique for one in the price range of the T830.

Our quasi-anechoic FFT response measurements confirmed the salient characteristics of the room-response curves, including the relatively flat bass response and the slight peak at 14,000 Hz (the latter also appeared in a response measurement made by the manufacturer using one-third-octave analysis). In our horizontal-directivity measurements, we found that the T830's frequency-response curves on-axis and 45 degrees off-axis were essentially alike up to about 6,000 Hz and then diverged, differing by 10 dB at about 12,000 Hz.

The group delay of the T830 system was excellent, varying less than 0.3 millisecond between 3,000 and 29,000 Hz. In the midrange, the group delay varied no more than 1.5 milliseconds between 200 and 4,000 Hz, and in the woofer range it remained within 3 milliseconds from 100 to 1,000 Hz. Few other speakers in our experience have matched this performance, let alone surpassed it.

The system's impedance was a minimum of about 4.7 ohms at 130 Hz, with a maximum of 17 ohms at 53 Hz. Over most of the audio range, it measured between 6 and 10 ohms. The measured sensitivity was 86 dB SPL at 1 meter with 2.83 volts of pink-noise input. We measured the bass distortion at a 4.5-volt drive level, equivalent to a 90-dB SPL. The distortion, as claimed, was very low, about 0.5 percent from 100 to 70 Hz, reaching 1.4 percent at 50 Hz and 3 percent at 40 Hz.

The T830 easily withstood high-power single-cycle tone bursts, with only a slight audible distortion (principally third-harmonic) appearing in the woofer's output at 100 Hz when the power reached 200 watts into its 4.9-ohm impedance. The woofer distortion did not become serious until the amplifier

clipped at about 700 watts! At 1,000 and 10,000 Hz, the amplifier clipped at 200 and 600 watts, respectively, before any significant distortion appeared in the speaker's acoustic output.

Comments

If measurements could adequately describe the sound of a speaker (which they cannot), we would not need to go any further in this report. In all measurable respects, the Boston Acoustics T830 delivered outstanding performance. Few speakers we have tested have had such a flat frequency response or such low distortion, for example, and most of those were considerably more expensive.

But the proof of a speaker is in the listening, and here, too, the T830 lived up to its promise. It had a trace of crispness (though we would not call it "bright"), with no apparent emphasis or falloff in any part of the audio spectrum. It imparted no upper-bass heaviness to human voices, and it reproduced the lower bass (down to the speaker's limits

around 40 Hz) effortlessly and cleanly. The stereo sound stage was broad and believable, though it did not attract attention to itself by any unusual or spectacular effects.

It is a little difficult to describe a speaker like the T830 in terms of its acoustic qualities, which really had no flaws that we could discern. A more reasonable approach might be to consider that the T830 retails for a mere \$450 a pair, just above the lowest-priced speakers that could be called "hi-fi," yet it holds its own very well in listening comparisons against others selling for many times its modest price. Such comparisons proved to be both illuminating and frustrating. The more expensive speakers *do* have special qualities that, while not necessarily readily audible with some program material, justify their higher prices, but, overall, we were enormously impressed with the excellence of this new arrival from Boston Acoustics. Its heritage is unmistakably evident in its superb sound, practical size and proportions, and affordable price. □



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KENWOOD KA-3300D INTEGRATED AMPLIFIER

Julian Hirsch, Hirsch-Houck Laboratories

MANY amplifiers are described as "digital-ready," but the Kenwood KA-3300D integrated amplifier is one of the few that actually contain true digital signal-processing circuits. Although its powerful amplifier section is purely analog in nature, the preamplifier/control section has internal digital-to-analog (D/A) converters designed to operate at sampling rates of 32, 44.1, or 48 kHz. These converters enable the KA-3300D to process the digital audio signals available from many CD players and DAT (digital audio tape) recorders, bypassing the

D/A converters and analog audio sections of the source components.

The Kenwood KA-3300D is a large, powerful amplifier, rated to deliver up to 150 watts per channel into 8-ohm loads from 20 to 20,000 Hz with no more than 0.004 percent total harmonic distortion. It carries secondary ratings (at 1,000 Hz) of 160 watts continuous output into 8 ohms and 220 watts into 4 ohms, and its dynamic power ratings are 178, 320, and 460 watts per channel into loads of 8, 4, and 2 ohms, respectively.

The amplifier has inputs and outputs for analog tape decks and one

DAT deck, with full recording, playback, and dubbing connections between the recorders and a selected program source. The normal CD input accepts a player's analog output, but the amplifier also has both optical and electrical digital inputs for a suitably equipped player. There are also analog inputs for a tuner and a phono cartridge (switchable for either an MM or an MC cartridge). The headphone jack and one of the two pairs of high-level auxiliary inputs are located below the front panel; the other AUX input is on the rear apron.

The tone controls, which can be bypassed, provide selectable turn-over frequencies of 200 or 400 Hz for the bass and 3,000 or 6,000 Hz for the treble. The loudness-compensation circuit, which operates independently of the volume setting and can also be bypassed, increases

TEST REPORTS

the low-frequency response as its control knob is rotated clockwise. Small buttons select the subsonic filter and mono or stereo mode, switch between the two AUX inputs, and reduce the audio level by 30 dB (MUTE).

A large, square DIGITAL DIRECT button switches the amplifier's input circuitry from analog to digital operation, lighting a green light next to it. A red LOCK light confirms that a digital signal is being received from the program source. Other buttons turn on the D/A converter, switch between the optical and electrical digital inputs in the rear, and connect the D/A converter to a DAT recorder.

Next to the tape-monitor button are three output-selection buttons, one for each of the three tape recorders that can be accommodated by the KA-3300D. A knob control connects the signal source to any of the tape machines for recording or cross connects any two of

them for dubbing in either direction. It is possible to record one program source while listening to another. Inactive recorders are automatically disconnected from the signal path. The speaker switch sends the output to either or both of two pairs of speakers or silences the speakers for headphone listening.

The KA-3300D measures 17¼ inches wide, 16½ inches deep, and 6¾ inches high, and it weighs 42 pounds. It is supplied with a fiber-optic cable, for connection to CD players having optical outputs, as well as a conventional stereo cable fitted with phono plugs. Price: \$1,199. Kenwood, Dept. SR, 2201 E. Dominguez, Carson, CA 90801.

Lab Tests

The standard one-hour preconditioning, with both channels driving 8-ohm loads at a 50-watt level (one-third power), left the top of the amplifier very hot—uncomfortable to the touch for more than a second

or two—but it did not become any hotter during our subsequent tests. We later discovered, by removing the top cover, that the KA-3300D has a small cooling fan located entirely within its case. The fan was so quiet that we never suspected its presence (and evidently its cooling ability was equally subtle).

With both channels driving 8-ohm loads at 1,000 Hz, the waveform clipped at 171 watts (clipping headroom 0.57 dB). Into 4 ohms, the clipping output was 248 watts. Surprisingly, the dynamic power output, measured with the standard 20-millisecond tone-burst, was only 138 watts into 8 ohms, for a dynamic headroom of -0.36 dB. Longer tone bursts yielded higher output powers, reaching the steady-state value of 171 watts at about 300 milliseconds on, 200 milliseconds off. The amplifier's slew factor exceeded 25, although a small "jog" appeared on the waveform at frequencies between 70 and 140 kHz. The KA-3300D was stable with complex simulated loudspeaker loads and had a reactive-load factor of 0.33 dB.

The 1,000-Hz distortion was nearly identical with 8- and 4-ohm loads. It decreased linearly from about 0.02 percent at 1 watt to less than 0.003 percent between 50 and 150 watts. With 8-ohm loads the distortion was a nearly constant 0.0025 to 0.003 percent from 20 to 7,500 Hz at full power and half power, rising to about 0.005 percent at 20,000 Hz. At one-tenth rated power the distortion curve was similar, with readings of about 0.006 percent up to 7,500 Hz and a maximum of 0.0094 percent at 20,000 Hz.

The KA-3300D had an input sensitivity (for a 1-watt reference output) of 12.3 millivolts (mV) at the AUX input and 0.2 mV (MM) or about 8 microvolts (MC) at the phono input. The A-weighted noise level, referred to 1 watt, was -77.5 dB for the AUX input and -76 dB for the MM phono input. The phono preamplifier overloaded at inputs from 157 mV (20,000 Hz) to 225 mV (1,000 Hz). The MM phono impedance was 47,000 ohms in parallel with a 220-picofarad capacitance.

The bass tone-control response

FEATURES

- Internal D/A converters for optical or electrical digital inputs
- Sampling rates of 32, 44.1, and 48 kHz
- Connections and switching for two analog tape decks, one digital tape deck (analog or digital output), two CD players (one with analog, one with digital output), three other high-level sources, and phono cartridge (MM or MC)
- Auxiliary inputs in front and rear
- Selectable tone-control turnover frequencies
- Tone-control bypass
- Subsonic filter
- Continuously adjustable loudness compensation
- Audio muting switch (-30 dB)
- Outputs for two pairs of speakers
- Three AC convenience outlets (two switched)
- Headphone jack

LABORATORY MEASUREMENTS

1,000-Hz output power at clipping: 171 watts into 8 ohms, 248 watts into 4 ohms, 312 watts (approximately) into 2 ohms

Clipping headroom (relative to rated output): 0.57 dB (8 ohms)

Dynamic power output: 138 watts into 8 ohms, 253 watts into 4 ohms, 460 watts into 2 ohms

Dynamic headroom: -0.36 dB (8 ohms—see text)

Harmonic distortion (THD + noise) at 1,000 Hz into 8 ohms: 1 watt, 0.018%; 10 watts, 0.006%; 150 watts, 0.0026%

Maximum distortion (from 20 to 20,000 Hz into 8 ohms): 0.0094% at 15 watts (20,000 Hz)

Slew factor: greater than 25

Sensitivity (1-watt output into 8 ohms): phono (MM), 0.2 mV; phono (MC), about 8 µV; auxiliary/CD/tuner, 12.3 mV

Phono-input overload: 157 to 225 mV

A-weighted noise (referred to a 1-watt output): phono (MM), -76 dB; auxiliary/CD/tuner, -77.5 dB

Phono-input impedance (MM): 47,000 ohms in parallel with 220 pF

RIAA phono-equalization error: ±0.1 dB from 20 to 20,000 Hz

Subsonic filter: -20 dB at 20 Hz

Maximum tone-control range: ±11 dB at 30 to 50 Hz; ±11 dB at 20,000 Hz

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curves had sliding turnover frequencies, varying from 30 to 300 Hz or 60 to 400 Hz depending on the switch setting. The treble curves were hinged at 2,300 and 5,500 Hz. The loudness compensation affected frequencies below 500 Hz, with a maximum boost of 9.5 dB at 50 Hz and below. The RIAA phono equalization was extremely accurate, varying only ± 0.1 dB from 20 to 20,000 Hz.

Comments

Considered merely as a conventional integrated amplifier, the Kenwood KA-3300D would rank well above average in almost every respect. It is one of the most powerful integrated amplifiers on the market, and it is capable of driving even low-impedance speakers to very high volume levels. In spite of its considerable temperature rise during preconditioning and sustained high-power operation, it never became more than faintly warm during normal use, even at high sound levels. Perhaps its cooling fan is in part responsible for this, although its massive construction certainly deserves some credit as well.

We cannot explain the peculiar inverse relationship between tone-burst duration and maximum power output that we measured with the KA-3300D, although we have occasionally seen a similar effect with other amplifiers. While it met its impressive 460-watt dynamic power rating into 2 ohms, the amplifier fell short of the corresponding ratings for 4- and 8-ohm loads. There is little doubt that it can easily drive 2-ohm loads under dynamic (music) conditions, but this should not be attempted with steady-state signals. The result is likely to be a blown line fuse, which cannot be replaced by the user.

For the most part, the front-panel controls of the KA-3300D are self-explanatory and actually easier to understand than those of many other amplifiers we have used. A possible exception is the rather complex-looking tape-recording selector, but its use is explained satisfactorily in the manual. A few other front-panel features also impressed us as obscure and possibly confusing: above the DIGITAL DIRECT button, which

bypasses the preamplifier stages and derives the signal from the amplifier's own D/A converters, a prominent illuminated window carries the legend VOLTAGE INTERFACE GATE, the significance of which was lost on us. Also, the tone-control bypass button, usually identified as such on other amplifiers and receivers, is called LINE STRAIGHT, and it is illogically located far away from the tone controls.

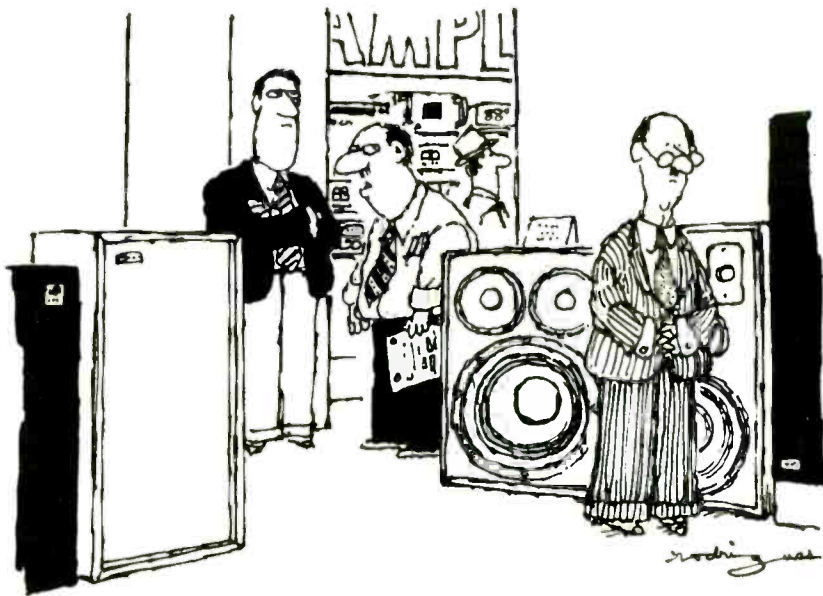
These quibbles aside, the Kenwood KA-3300D is a truly fine product. Wondering how much, if any, difference could be heard between its digital and analog operation, we used it with the only CD player we had on hand with a digital output (the Onkyo DX-530). We connected the player's analog outputs to the CD inputs of the KA-3300D and its (electrical) digital output to the corresponding digital input of the amplifier.

Comparisons between the two modes were easy since pressing the DIGITAL DIRECT button toggled between analog and digital operation and the amplifier's D/A converter and other circuits were evidently designed to match the CD standard

of 2 volts output from a 0-dB recorded signal. We noticed only a barely discernible level change as we switched between modes. It came as no great surprise to find that the two modes sounded essentially identical. Although at times we thought we detected a slight difference in the sound quality, neither mode was in any way superior to the other, and we suspect that the distinction resulted from the minute level difference.

Anyone who believes, however, that there are audible differences between CD players not related to measurable characteristics will certainly wish to audition this amplifier for himself with CD players having digital outputs (optical ones if possible). The digital circuits of the KA-3300D should replace almost every part of a CD player that has ever (to our knowledge) been claimed to affect its sound. Regardless of how you stand on this issue, it is a very fine, highly impressive amplifier whose ruggedness and exceptional quality of components and workmanship are immediately apparent.

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What Car and Driver says

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What Roundel says

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What Popular Mechanics says

In July, *Popular Mechanics* rated Escort first and Passport second in a group of 11 brands. The magazine concluded, "Clearly, the Escort is the best radar detector around. The best of the minis was the Passport..."



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DBX DX5 CD PLAYER

Julian Hirsch, Hirsch-Houck Laboratories

PROPRIETARY signal-processing circuits have earned dbx a unique reputation among both professional and non-professional users. The company is best known to audiophiles for its noise-reduction systems, whose operation is based on stable, linear gain-control elements and signal-level sensors. Perhaps not surprisingly, the new DX5 CD player incorporates some of dbx's special technology to permit a listener to modify the dynamic characteristics of a program.

The DX5 is representative of the best current CD player designs. It uses a three-spot laser tracking system, two separate 16-bit digital-to-analog (D/A) converters, quadruple oversampling at 176.4 kHz, and a combination of a linear-phase digital filter and a third-order analog filter. Its control functions are similar to those of most other full-featured CD players, including track skipping and fast scanning in both directions with audible sound, programmed play of up to sixteen selections in any order, and repeat play of the programmed tracks, the current track, or the entire disc. It also has a phrase-repeat function that

can repeat any user-defined segment of a program. Among its other features are an electronically operated volume control and a mute button that drops the volume by 20 dB.

Initially, the front-panel display shows the number of tracks on a disc and its total playing time. While the disc is playing, the number of the current track and its elapsed playing time are shown. Pressing the TIME REMAINING button changes the display to show the remaining time on the track (preceded by a minus sign); pressing it again shows the remaining time on the disc.

When the volume level is changed, the display information is replaced by the relative volume setting. A smaller display group to the right of the numerical section shows the current status of all the unit's basic operating controls. It even includes an ERROR indication that flashes when the laser is unable to track a disc for any reason.

The special signal-processing features of the dbx DX5 are controlled by three small knobs at the lower right of the panel and the small buttons with red lights above them. A fourth knob is the volume control

for the adjacent headphone jack. The AMBIENCE control affects the spaciousness of the sound by adjusting the amount of midrange and treble difference information in the program. At its center (detented) position, the program is unmodified. Turning the knob counterclockwise blends the midrange and treble, centering the stereo image and decreasing its apparent spaciousness. A clockwise rotation adds difference (L-R and R-L) information, increasing the sense of ambience and spaciousness and sometimes adding a touch of brightness to the sound.

The next control, marked COMPRESS, reduces the program's dynamic range as it is turned from its counterclockwise limit (where it has no effect on the program). The circuit makes loud passages softer and soft passages louder, which gives CD's a more comfortable dynamic range, comparable to that of an LP, for many listening purposes. The feature is especially convenient for making cassette dubs on CD's for use in a car, where the full dynamic range of a CD usually cannot be heard (or even recorded on tape effectively).

Finally, there is the Digital Audio Impact Recovery control (DAIR), which adds impact to musical transients by increasing the signal level briefly at the onset of a sudden change, at the beginning of a drum-

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beat or the attack of a piano note, for instance. The knob varies the expansion effect from none to maximum (at its clockwise limit).

The three signal-modification systems of the DX5 operate entirely independently of each other and can be used in any combination or to any degree that one desires. Their effects are indicated on a display above the controls. Colored lights show the instantaneous alteration of program dynamics, from compression to expansion, over a range of ± 10 dB.

The dbx DX5 comes with a wireless remote control. Even though it is considerably smaller than most we have seen, it not only duplicates all the front-panel controls except the power switch and the knob-operated functions, but its numerical keypad provides direct access to any numbered track or indexed section. The DX5 is finished in black with clear, legible gold markings. It measures 17 $\frac{1}{8}$ inches wide, 11 $\frac{7}{8}$ inches deep, and 3 $\frac{1}{2}$ inches high and weighs 11 pounds. Price: \$700. Dbx, Dept. SR, 71 Chapel St., Newton, MA 02195.

Lab Tests

The dbx DX5 had one of the flattest frequency responses we have measured from a CD player. From 20 to 20,000 Hz the output varied only $+0$, -0.1 dB; the only departure from flatness was a slight, smooth drop below about 50 Hz. The output from the 0-dB level recording was 2.06 volts (into an EIA standard load of 10,000 ohms in parallel with a 1,000-picofarad capacitor), and the channel levels differed by a mere 0.04 dB. Because each channel has its own D/A converter, the phase shift between them was negligible. It was about 4 degrees at 100 Hz, but measured 0 degree above that frequency except for a barely detectable 0.7-degree shift at 20,000 Hz.

The playback distortion at 1,000 Hz was 0.0039 percent at 0- and -10 -dB levels, increasing to 0.008 percent at -20 dB. The dynamic range (relative to the total harmonic distortion from a -60 -dB 1,000-Hz test signal) was 99.5 dB, and the A-weighted noise level was -105.5 dB referred to a 0-dB output level. The

channel separation varied between 91 and 97 dB over the range from 1,000 to 20,000 Hz. There was a trace of nonlinearity in the D/A converters at very low levels; a -80 -dB signal was reproduced at -77 dB and a -90 -dB signal at -85 dB.

The only measurement we made of the signal-modification systems of the DX5 was of the compression characteristic. At its maximum setting, this circuit compressed a 0-dB signal by 13 dB and boosted the level from a -90 -dB signal by 12 dB. The transition from compression to expansion took place at about -28 dB. In effect, the circuit was able to transform a program with a 90-dB dynamic range to one with a manageable 65-dB range, which is comparable to that of a very good analog recording and considerably better suited than the full dynamic range of a CD to a car stereo system or the capabilities of a cassette recorder.

The DX5 had no difficulty in tracking the highest levels of calibrated defects on the Philips TS5A test disc. Its laser slewed from Track 1 to Track 15 of the Philips TS4 disc in 3 seconds, about average for recent players, and it made the transition from Track 17 to Track 18, which have no time interval separating them, without any loss of program from either track. The DX5 had good isolation from external shock, requiring fairly vigorous finger tapping on its top or sides to induce mistracking.

Comments

Considering only its CD playing functions, the dbx DX5 ranks among the best units we have tested. Its measured performance was superb in every respect, representative of the current state of the art in CD player technology. Furthermore, its controls, indicators, and markings were notably easy to read, understand, and operate. And even the remote control, about half the size of those provided with most players, was a pleasure to use (although we did find that the infrared sensor window on the front panel of the DX5 had a restricted angle of view and would not respond if the controller was more than 45 degrees off-axis). We also found that the headphone output was sufficient to

FEATURES

- Three-spot laser tracking system
- Quadruple oversampling with digital and analog filters
- Dual D/A converters
- Programming for up to sixteen selections in any order
- Track stepping in either direction
- Fast search in either direction with audible sound
- Fluorescent display of player's complete operating status
- Repeat mode for entire disc, one track, or selected portion (phrase)
- Electronic volume control
- Headphone jack with volume control
- Full-function wireless remote control for all basic functions plus direct access to programs by track or index number
- Ambience control to increase spaciousness of sound
- Compression control to reduce dynamic range up to 25 dB
- Digital Audio Impact Recovery control to expand program transients up to 10 dB

LABORATORY MEASUREMENTS

Maximum output level: 2.06 volts
Total harmonic distortion at
1,000 Hz: 0.0039% referred to 0 dB, 0.0039% referred to -10 dB, 0.008% referred to -20 dB
Signal-to-noise ratio (A-weighted): 105.5 dB
Dynamic range: 99.5 dB
Channel separation: 94 dB at 10,000 Hz, 97 dB at 10,000 Hz, 91 dB at 20,000 Hz

Frequency response: $+0$, -0.1 dB from 20 to 20,000 Hz
Compressor range: up to 13 dB compression at 0 dB, 12 dB expansion at -90 dB
Cueing time: 3 seconds
Cueing accuracy: A
Impact resistance: top, B; sides, B
Defect tracking: tracked all maximum-level defects on Philips TS5A test disc.

TEST REPORTS

drive medium-impedance phones to very comfortable volume levels.

Altogether, the DX5 rates a host of superlatives for the way it handles the basics of playing CD's. Special mention is also due the excellent manual, which explains the DX5's special features in clear and easily understandable terms.

It is those special features, however, that really set the DX5 apart from all the rest. A purist need not compromise his standards in the slightest; when the signal-processing circuits of this player are not used, they are completely removed from the signal path. When we did use them, they performed their intended functions well, without audible side effects. Even used together and at their maximum settings, the compression, expansion, and ambience systems never caused the sound to become unnatural or even obviously altered. Effective as they are, none of these modifications are excessive, and this moderation goes a long way toward making them successful.

The ambience control was strikingly effective on programs recorded in a relatively "dead" acoustic environment. It added "air" to such material and provided an audible increase in the subjective upper-midrange content. Although we rarely find a recording that is too "live" sounding, the control should also be beneficial in such a case.

Of course, there is no reason why the same signal-modification circuits as in the DX5 could not be incorporated in any preamplifier, integrated amplifier, or receiver. From time to time products have appeared with apparently similar functions, but they have never produced the kind of results we experienced with the DX5. The probable explanation is that the specific circuit elements dbx has developed over the years were designed to operate without audible side effects, and they usually do so, which cannot be said for most others claiming to do the same job.

Even without its special circuits, the dbx DX5 would rank as one of the best CD players available. With them, it has to be considered a very impressive product indeed.

Circle 141 on reader service card



CELESTION SL700 SPEAKER

Julian Hirsch, Hirsch-Houck Laboratories

THE SL700 is the newest addition to the SL series of speakers from Celestion. It is an evolutionary development, incorporating a number of relatively minor refinements that in combination give the speaker a distinctive sound character, principally in respect to the breadth and depth of its subjective sound stage.

Like the SL600 and SL6S from which it was derived, the SL700 is a small, two-way system whose 6½-inch PVC woofer cone is molded with an integral surround and

joined to a rubber outer surround ring. Celestion's engineers found that this dual-surround design gives the woofer the desired transient-response capabilities as well as providing true piston action over its full operating range. The SL600 used a 1¼-inch copper hard-dome tweeter whose voice-coil former and dome were made in one piece. An improved version of this driver, pressed from aluminum, is used in the SL6S and SL700 to extend the high-frequency response. In the SL700, the crossover takes place at

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3,000 Hz, using a second-order low-pass section and a third-order high-pass section.

The cabinet of the SL700 is made of Aerolam, a sandwich of aluminum sheets bonded to a honeycomb internal structure. Developed for

The cabinet of the Celestion SL700 is made of Aerolam, a sandwich of aluminum sheets bonded to a honeycomb internal structure that is thin, light, and very rigid.

use in airplanes, the material is thin, light, and extremely rigid, with bending resonances above the low and midrange bands where conventional wooden cabinets typically resonate. The cabinet is stiffened further by an internal crossbrace, and the radiation from the rear of the woofer cone is absorbed by an acoustic foam whose absorptive qualities increase closer to the cabinet wall. The cabinet's exterior is finished in gray Nextel, a textured material. Dimensions are 14¹/₄ inches high, 8 inches wide, and 9¹/₂ inches deep, weight 13³/₄ pounds.

The SL700 is designed to be operated on stands, which are included with the speakers. The base of each stand has four adjustable spikes that make a firm contact with the floor, and its top surface has three pointed extensions that engage rubber fittings on the bottom of the speaker cabinet to anchor it firmly. Like the speaker cabinets, the stands are finished in Nextel, and they are quite heavy (about 45 pounds), providing a firm, stable foundation for the speakers.

The SL700 does not have binding posts or other familiar connectors for attaching the cables from the amplifier; instead, it has two pairs of jacks that accept standard (single) banana plugs. One pair leads to the high-frequency portion of the internal crossover network, the other to the low-frequency portion. If a single pair of wires connects the speaker to the amplifier, the two inputs must be paralleled. The speaker can be used either with separate cables

running from a single amplifier to the woofer and tweeter sections or with biamplication (separate amplifiers for the two sections).

The principal differences between the SL700 and the SL600 are the crossover design, including its components (low-loss capacitors and oxygen-free copper wire) and layout (the network is supported by the internal acoustic material instead of being rigidly fastened to the cabinet wall), the internal wire connections using heavy oxygen-free wire, the dual input connections, the coupling of the speaker to its stand and the floor, and the aluminum (instead of copper) tweeter dome/voice-coil assembly. Essentially unchanged are the cabinet dimensions and internal volume (12 liters, or 0.4 cubic foot), system impedance (nominally 8 ohms), and sensitivity (82 dB sound-pressure level, or SPL, at 1 meter with a 2.83-volt input). The low-frequency limit of the SL700 (at the -3-dB point) is rated as 63 Hz, compared to 75 Hz for the SL600, and its power-handling capability is rated as 120 watts of program material, compared to 100 watts for the SL600. Price: \$2,600 a pair, including stands. Celestion, Dept. SR, Box 521, Kuniholm Dr., Holliston, MA 01746.

Lab Tests

The measured room response of the Celestion SL700 was generally similar to that of the SL600 we tested three years ago, but it was markedly smoother and flatter over the largest part of the audio range, from approximately 400 Hz to beyond 20,000 Hz. The total variation between those limits was only 3.5 dB. The close-miked woofer response was also much like that of the SL600. The maximum output was between 100 and 150 Hz, falling off at 12 dB per octave at lower frequencies and at 6 dB per octave at higher frequencies. At 400 Hz, the woofer output leveled off and overlapped the room curve for the next couple of octaves.

The low-frequency portion of the composite response curve did not match what we heard from the SL700's, however. The shape of the curve suggests a boomy quality, but the sound of the SL700 had no trace

of that aberration. Close-miked measurements give a near approximation of the anechoic response of a woofer, and do not necessarily correspond to what might be heard in a normal room, but it is unusual to find a discrepancy of this magnitude. A clue to the reason for the difference between what we heard and measured from the SL700 lay in its room response at low frequencies. We normally do not use this measurement because it is inevitably affected by the room's resonances and is therefore highly irregular. In this case, the speaker's bass room response was only about 3 dB above the midrange level instead of the 8 dB that was indicated in our composite curve.

For the close-miked and room-response tests, and all our listening, the stands of the SL700's were about 4 feet from the back and side walls, and the speakers were angled inward about 20 degrees. This placement provided a minimum of bass reinforcement from the room boundaries and optimum listening quality.

Our quasi-anechoic FFT response measurements, made 1 meter from the speaker, were more consistent with what we heard than the other response tests. On the speaker's axis, response was flat within ± 2 dB from 180 to 14,000 Hz, dipped about 6 dB at 15,000 Hz, and returned to its average midrange

When we sat dead center, the sound from the SL700's seemed to extend well beyond the speakers. Instrumental definition of complex passages was outstanding.

level at 20,000 Hz. The tweeter resonance was at 24,000 Hz, where its output was up about 10 dB.

The phase linearity of the SL700 was excellent. The overall group-delay variation from 360 to 23,000 Hz was less than 0.5 millisecond, and over most of that range it was about 0.1 millisecond. In the woofer range, where even large amounts of group delay are normal (and not

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audible), we measured less than 8 milliseconds variation from 40 to 450 Hz.

From a minimum of about 6 ohms at 150 Hz, the system's impedance rose to 43 ohms at 68 Hz and 100 ohms at 2,300 Hz. The speaker's sensitivity was slightly low, 81 dB SPL at 1 meter with 2.83 volts input, and we had to drive it at an 8-volt level (equivalent to a 90-dB SPL) for our bass distortion measurements. As might be expected, the SL700's small woofer exhibited moderately high distortion with this input, rising from 2.7 percent at 100 Hz to 6.3 percent at 60 Hz and increasing more rapidly below that frequency. Subjectively, the lower limit of the speaker's response was about 50 or 60 Hz, and the distortion, which was almost entirely second- or third-harmonic, was not audible with musical programs.

The peak power-handling ability of the SL700 was comfortably higher than any input it is likely to experience in most installations. The woofer started to rattle with a one-cycle input of 65 watts at 100 Hz,

but at 1,000 and 10,000 Hz the amplifier ran out of output (at 140 and 225 watts, respectively) before the speaker reached its limits.

Comments

We first heard the Celestion SL700 at the Summer Consumer Electronics Show in Chicago last June, and we were immediately impressed by its seamless sound stage and the lack of any sense that these small speakers were producing the amount of sound we heard. Frankly, we did not expect to hear the same effect in our own room, but the spatial properties of the system were apparent from the first hearing.

When we sat dead center, the sound seemed to extend well beyond the speakers, which were less than 8 feet apart—nearly to the side walls, most of the way from floor to ceiling, and even beyond the wall behind the speakers. Listening with closed eyes produced this sensation almost every time, and soon the speakers became "invisible" (in an auditory sense) even with our eyes open.

We spent considerable time mak-

ing A/B comparisons between the SL700's and other speakers, some of which had better *measured* frequency-response characteristics than the diminutive Celestions. This proved to be a frustrating and confusing experience; our goal was to establish some connection between one or more measured properties of the speakers and their sound, and in this we failed utterly.

Constant group delay (a linear-phase-shift characteristic) seemed like a good explanation of the SL700's sound, and it was certainly very good in that respect, but so are other speaker systems that do not share its spatial properties and clarity. The SL700's instrumental definition of complex orchestral passages was outstanding, and whenever we heard anything similar from another speaker, it was plainly associated with a frequency-response emphasis that "sharpened" the sound. Maybe it was the stands, we conjectured. But placing the SL700's on top of other speakers made no significant change in their sound. As I said, frustrating!

Even though we did not discover the reasons for the characteristic sound of these speakers, we are convinced that it is something special—if not unique, at least very much out of the ordinary. Once you bring yourself to ignore the size and two-way design of the SL700, you realize that it has far more apparent bass output than the measured response would imply and that it can play very loud without generating unpleasant sounds. It is truly an excellent speaker.

It is also extremely expensive, and that is our major complaint. If you are prepared to spend over \$2,500 for a pair of loudspeakers, a number of other models compare favorably with the SL700's. The others may not sound better, but most of them are significantly larger and capable of handling greater power.

If you are considering speakers in this price range, however, try to audition the Celestion SL700 as demonstrated by a knowledgeable dealer. Be warned—you may be sorry you heard them, for then a critical decision faces you!

Circle 142 on reader service card



"... Oh, yes, Gus DaRosa the recording engineer. We buried him this morning. He was a very large-framed chap. We had to compress the coffin underpads, boost the side fabrics to compensate for removal of the satin lid panels, and equalize the headrest by expanding the cotton batting."

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SPEAKERS

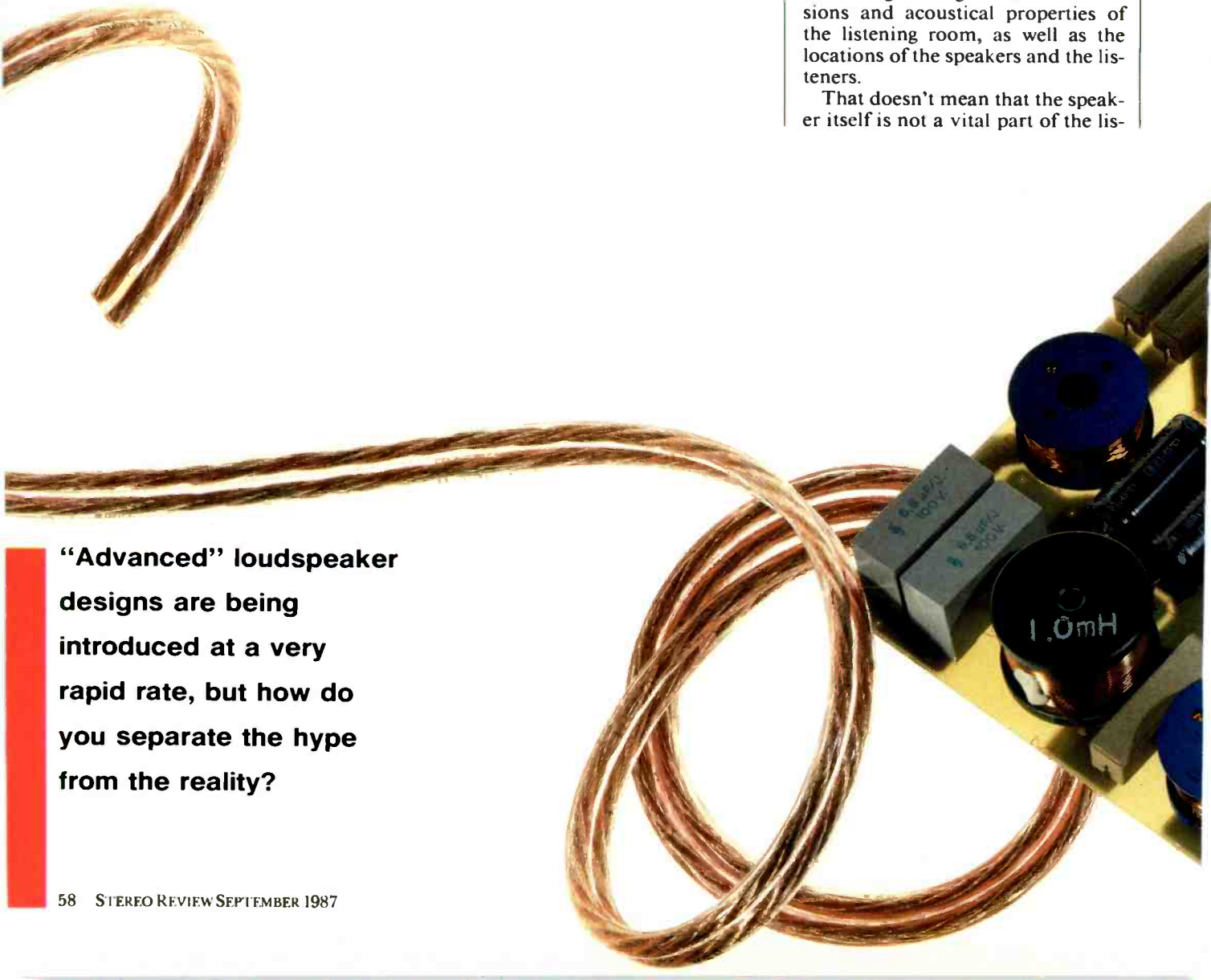
THE STATE OF THE ART

BY JULIAN HIRSCH

ALTHOUGH there are probably more loudspeakers in use than any other hi-fi component, thanks to stereo and, more recently, surround sound, and although loudspeaker design has undergone little fundamental change in more than half a century, "new" models continue to appear almost daily. Some of their novelty is cosmetic in nature, but most are claimed to offer a genuine listening improvement—or at least a *difference*—compared with previous models. But how much of this improvement is genuine, and how much is hype?

Strange as it may seem, there are *no* standards for defining the true performance of a loudspeaker. The sound we ultimately hear depends not only on the speaker's design (and, of course, the program, but let's ignore that for the present) but also to a great degree on the dimensions and acoustical properties of the listening room, as well as the locations of the speakers and the listeners.

That doesn't mean that the speaker itself is not a vital part of the lis-



"Advanced" loudspeaker designs are being introduced at a very rapid rate, but how do you separate the hype from the reality?

tening equation—it is probably the most important part. But the other factors influencing what we hear can severely complicate the task of judging speaker quality.

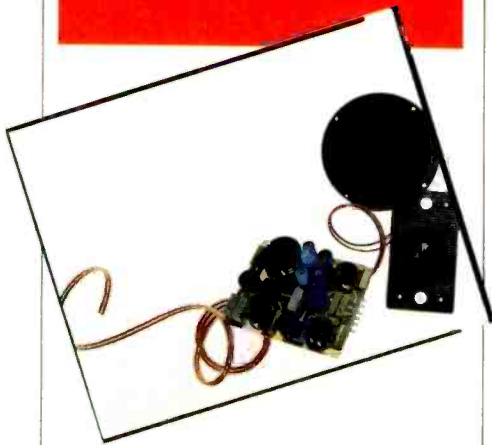
How Do Speakers Work?

All speakers create sound by pushing against the air to produce a pressure wave that radiates outward into the listening area. The most widely used (and most familiar) type of speaker is the magnetic, or dynamic, driver. In its usual form, a magnetic driver consists of a paper cone, or diaphragm, suspended from a metal frame, or "basket," by a flexible surround attached to its rim. A cylinder wound with a coil of wire, the voice coil, is attached to the apex of the cone. The voice coil, located in a narrow gap between two concentric iron cylinders, is immersed in a powerful magnetic field. When a current passes through the voice coil, an opposing magnetic force is generated that moves it, and the speaker cone, along its axis.

As the cone moves in and out, following the waveform of the driving

PHOTO BY RAFANNE GIOVANNI





There can be large differences in the sounds of speakers that appear to be quite similar.

signal, it pushes air ahead of it to form a positive pressure wave, which is followed by a negative pressure wave as the cone reverses direction. In most speakers the driver is installed in a box, or enclosure, that prevents the wave generated by the rear of the cone from radiating into the room; otherwise, the front wave would be partially canceled by the rear wave at low audio frequencies. A widely used variation on the box enclosure is the vented enclosure, which has an opening, or port, that allows some of the rear wave to enter the room. The rear wave is vented only at low frequencies, and correct venting reinforces the bass response down to a predetermined cutoff frequency, below which the speaker's output decreases rapidly. A properly designed vented enclosure can provide extended bass response with higher sensitivity (efficiency) than a sealed enclosure of the same size.

Generating low frequencies can require the movement of a considerable volume of air. To move all that air, the speaker cone must be capable of a large movement (excursion) or have a large area, or both. But a large, relatively massive cone cannot move rapidly enough to generate the higher audio frequencies effectively, and its response is neither smooth nor uniform at those frequencies. That's why the treble range is normally reproduced by smaller and lighter drivers called

"tweeters," while larger drivers, or "woofers," are used for the lower frequencies.

At high frequencies, where the wavelengths become comparable to the cone diameter, the sound tends to "beam," or radiate in a narrow angle, instead of covering a broad listening area. Beaming, which affects the overall character of the sound as well as its spatial properties, can be minimized by using a tweeter with a very small radiating surface. A popular tweeter design uses a dome (usually convex but sometimes concave) instead of a conical diaphragm. The frequency response of a dome tweeter can extend well above audible limits, with good angular dispersion.

Most modern speaker systems use multiple drivers in two-way or three-way configurations. A crossover network (a specialized form of electrical filter) channels low frequencies to the woofer and higher frequencies to the midrange driver and tweeter. The choice of crossover frequencies and cutoff slopes (the rate at which the input to a driver is decreased outside its operating range) can have a considerable effect on the ultimate listening qualities of the system.

As I mentioned, none of the basic elements of a dynamic speaker system are actually new, although the technology of designing and manufacturing modern drivers, and the crossover networks for them, continues to advance rapidly. Both processes have been greatly facilitated by the wide use of computers.

Although most of today's speakers use conventional box enclosures and dynamic drivers, there are some notable departures from the rule. A moving cone or dome is not the only way to move air. One of the earliest variants was the electrostatic speaker, which has long been an attractive solution to the known problems of dynamic speakers—principally the irregularities of frequency and phase response that result from cone resonances and color the sound.

An electrostatic speaker moves air with a thin plastic diaphragm carrying a fixed electric charge. In one typical configuration, the diaphragm is suspended between two grids of wire whose open construction allows the sound generated by its movement to escape. The audio signal is applied to the two metal electrodes, and the varying electric

field attracts and repels the plastic film in accordance with variations in the signal waveform.

An electrostatic diaphragm is fastened to a frame around its edges and cannot move as far as a typical dynamic speaker cone, but if it is large enough it can still move enough air to generate good bass response. Because of the extremely low mass of the film diaphragm, it can respond to the highest audio frequencies, extending well beyond the limits of human hearing. A full-range electrostatic speaker requires an area of at least several square feet (some are as large as 12 to 15 square feet) and normally operates as a dipole radiator, with equal sound output to the front and the rear. It must be located several feet from the rear wall, which reflects the rear output, adding a quality of ambience that is preferred by many people.

Although the sound quality of electrostatic speakers is widely admired, this type has several obvious drawbacks. Such speakers are large and expensive, and they often place severe demands on the driving amplifier. Also, they cannot deliver the sheer volume of sound, especially at low frequencies, that is possible with dynamic systems of comparable size or cost.

Dynamic and electrostatic speakers account for the vast majority of today's speaker systems. There are other types of magnetically driven speakers, such as planar diaphragms or ribbons, that share some of the qualities of both electrostatic and dynamic systems, but they are few and can be classified as magnetically driven dipole radiators.

What's New

If all speakers operate by the same basic principles, what is the justification for the multitude of new models that are announced every year? How many of them offer a genuine improvement in sound quality?

Like many other hi-fi components, speakers are often promoted on the basis of extremely minute sonic differences whose importance may, to many people, seem highly exaggerated. Bear in mind that no one has yet been able to determine which performance parameters are important for the best sound or, indeed, to define quantitatively what that "best sound" might be. For every case where someone has

attempted to establish a relationship between measurable performance and sound quality of speakers, on either theoretical or experimental grounds, there has been someone else with equally valid credentials and an opposite opinion.

For example, should a speaker beam its output toward the listener or should it have omnidirectional properties and "illuminate" all parts of the room with sound? These two contradictory concepts of desirable speaker performance have coexisted for many years, together with an intermediate variant, the combined Direct/Reflected sound long espoused by Bose.

One would hardly expect such disparate approaches to be equally correct, although "correctness" is hardly an appropriate term to apply to such a totally subjective matter as an individual's perception of reproduced sound. Nevertheless, proponents of each approach have made convincing arguments for their preferences. Even the verdict of that final arbiter, the consumer, has been similarly divided.

Can it be that there is no one theoretically correct dispersion pattern for a speaker intended to reproduce music in an arbitrary and undefined environment? Quite possibly, but that will not stop speaker designers from attempting to give their products wider consumer acceptance. Let's examine a few of things they are doing as part of that effort.

Spatial Control

We may never be able to produce a fully convincing illusion that the performance we hear from a recording is actually originating in the listening room, and there is good reason to believe that this is not a desirable aim in most cases. But today's technology has brought us surprisingly close to a more practical goal—recorded music whose sound is at least *believable*.

When we listen to stereo recordings through a pair of conventional speakers located at the front of the room, the "sound stage" is usually defined by the space between them. If the speakers are located well away from any room walls, the apparent width of the sound stage may be extended slightly beyond those limits, and some speakers can also impart a sense of depth or height to the sound. Moving close to one of the speakers will shift the apparent source of the sound to that side,

however, destroying the spatial illusion. In fact, the ideal stereo listening location is along a line between the two speakers, equidistant from them, and usually at such a distance that each speaker forms an angle of about 30 to 40 degrees with the listener.

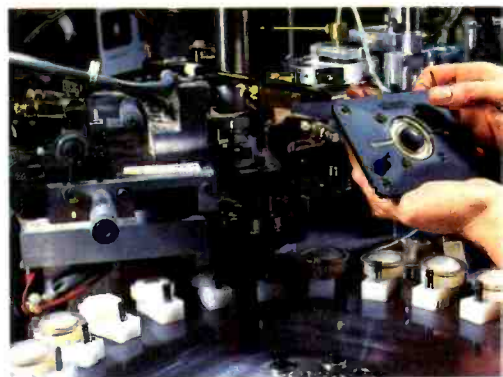
In recent years several speaker manufacturers have conducted studies to determine how the sound stage can be expanded and, if possible, made relatively independent of the listening position. One of the first commercially successful results of such an investigation that I can recall was the dbx Soundfield One. Designer Mark Davis used experimental studies to establish the criteria for the speaker and computers to help design the system.

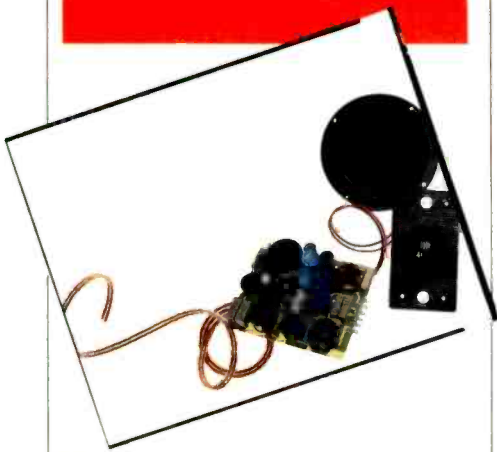
Essentially, the Soundfield One's directivity was designed to compensate for the normal effects of getting close to one speaker and far off the axis of the other. The Soundfield One used a large number of drivers in a phased array. Subsequent dbx Soundfield speakers have been simplified without significant loss of performance but with a considerable reduction in cost.

Another effort to remove the listening room from the equation was the Magic Speaker (MGC-1) from Acoustic Research. This system also used controlled directivity, for the main speaker array was designed to deliver a "first-arrival" sound to the listeners with a minimum of modifications from wall, ceilings, or floor



Many of the advances in loudspeaker technology stem from breakthroughs in the manufacturing process. The top photo at right shows a Polk tweeter assembly line in which steps have been consolidated to produce more uniform drivers. The middle photos show Celestion's experiments with improved cone materials and voice-coil windings, and the bottom photo illustrates how B&W uses laser interferometry to help determine the exact dispersion qualities of its speaker drivers.





► **Speaker design, once largely an art, is now a well-defined science.**

reflections. The first-arrival sounds are what provide the spatial cues by which a listener perceives the placement of the sound source(s). In the MGC-1 system, a secondary driver array provided the room ambience. Under the control of the listener, the secondary array reflected its output off a side wall and used a variable electronic time delay. The result was that these "late arrivals" provided the sensory effect of a space much larger than the usual listening room.

The AR MGC-1 was very successful in removing the surrounding space from the listening equation. It was also large and expensive, although a smaller and less costly model has since been developed.

A very different method of enhancing realism by expanding the apparent sound stage was developed by Polk Audio. It involved canceling the interaural crosstalk that normally restricts the width of the stereo stage. In a conventional stereo system, each ear receives signals from both speakers, differing in their arrival time by the small interval required for the sound to travel around the listener's head. The Polk Stereo Dimension Array (SDA) speakers use separate drivers, a few inches away from the regular driver array, to radiate a signal derived from the opposite stereo channel. Under the right conditions, this derived signal cancels the equivalent signal reaching the ear from the

opposite speaker system, which has the psychoacoustic effect of expanding the sound stage to the sides of the room and even along the sides toward the rear.

The greatest effect from this technique is heard along the ideal stereo listening axis, and it is highly dependent on a lack of coherence between the left and right program channels. Strongly separated channels, like the "two-channel mono" sometimes used to exaggerate stereo effects, give the most spectacular results with this type of signal processing, while more natural orchestral recordings made with close-spaced microphones receive little enhancement (and mono is unaffected).

Conventional Speakers

The preceding examples illustrate some of the sonic benefits of sophisticated or unconventional design approaches. Regardless of their merits, which are considerable, they make up only a small percentage of the hi-fi speaker systems purchased by American audiophiles.

Most people choose conventional enclosed speakers. They may be designed to perform at their best on a bookshelf, on free-standing pedestals, or on the floor, but they are still basically two- or three-way systems with passive crossover networks and dynamic drivers mounted in (usually) simple rectangular wooden boxes. Surely there cannot be major sonic differences between these speakers?

Actually, there can be surprisingly large differences in the sounds of speakers that may appear to be very similar. To be sure, such "differences" are usually little more than that, and it may be difficult to prove to anyone's satisfaction that one is *better* than another—although advertising and sales pitches will generally make a strong effort in that direction.

It is unusual for any single design factor to produce a distinctive speaker. If the difference in its sound is definite and desirable, chances are that several parts of the design are contributing to it.

There are many materials and construction techniques used in the manufacture of speaker drivers. In general, the aim is to minimize non-ideal behavior. For example, a cone should move like a single piston instead of having "break-up" modes that create a ragged frequency response. To achieve this effect,

designers use a variety of plastic materials for the cones of the better speakers, and the plastic is sometimes laminated with other materials to make the cones stiffer and less prone to flexing.

The shape of the cone (its included angle and depth) also differs among speakers. For woofers in particular, designers use a variety of suspensions for the voice coil and the surround. Their aim is to allow a large *linear* excursion, directly proportional to the requirements of the electrical driving signal, instead of one that is restricted by a limited range of movement in the driver.

A variation of cone design that has been used from time to time in dynamic speakers is the planar diaphragm. Provided that it is light and rigid, such a diaphragm simplifies keeping all the drivers in a system operating in phase and without time errors since all the radiating surfaces are in the same plane and therefore equidistant from a listener on the forward axis of the speaker.

Magnet design has changed over the years, reflecting the development of improved, lighter and more powerful magnetic materials. The changes are less important in home speakers, where size and weight are not critical factors, than in the case of automobile speakers or those used in portable radios or tape players. The magnet material itself has no effect on the actual performance of a driver provided that the correct magnetic field strength exists in the speaker's air gap.

For many years most tweeters have used hard or soft dome diaphragms. There does not appear to be a *decisive* quality difference between the two basic types (although I expect to hear strong arguments on that matter from their partisans). Some hard-dome tweeters use "exotic" and hard-to-work materials, such as beryllium and titanium, whose low mass and high rigidity are ideally suited to this function. These materials often have a greatly extended frequency response (well beyond audible limits), which is certainly a desirable characteristic if not actually a necessary one.

Crossover networks have probably received the most intensive scrutiny by speaker designers. The task of these networks is considerably more complex than merely distributing the parts of the audible frequency band to the corresponding drivers. The manner in which the

levels and phase relationships of the network outputs vary in the vicinity of the crossover frequency can have a great effect on the sound—probably more on its spatial character than on the frequency balance, but both are inextricably linked in the stereo process. Years ago crossovers were very simple circuits, with perhaps one capacitor and one inductor (or a pair of each) for each frequency separation. Many are still that elementary, but the more sophisticated designs made possible by computers can be surprisingly complex.

For more than twenty-five years we have been reaping the benefits of the design criteria for vented speaker enclosures developed by Neville Thiele and later expanded by Richard Small. Perhaps more than anything else, these equations led to the elimination of “by-guess-and-by-gosh” or cut-and-try speaker design, making it possible to create speakers with almost any combination of performance and physical properties as long as drivers with the necessary specifications can be manufactured. The influence of their work will continue into the future, and it may well be the single most important speaker development of the last couple of decades.

Finally, there is the enclosure itself. More than just a box to hold the drivers, it plays a vital role, for better or worse, in the system's total performance. There has always been more to a speaker box than appears on the surface: interior bracing to reduce panel vibration, stuffing with sound-absorbent material to damp volume resonances, and so forth. Enclosure refinement continues, but, as always, little or nothing shows externally.

There is no doubt that a perfectly rigid, nonresonant enclosure is a desirable feature for a speaker. More than thirty years ago, Wharfedale made hollow, sand-filled panels, and there were other enclosures using concrete, plaster, slate, concrete block, and similar rigid and massive materials. More recently we have seen the use of honeycomb-aluminum-sandwich panels (Celestion), an interlocking matrix structure (B&W), and an epoxy-laminated paper tube (Focus). Virtually every one of the speakers using such extrarigid enclosures has been acclaimed for its excellent sound compared with other systems of the day.

Speaker design, once largely an

art, is now a well-defined science, although it retains some elements of art in the choice of materials and manufacturing processes. It should surprise no one that the speaker designs that show the greatest conformity to known theoretical requirements almost always sound better (and generally measure better) than others. Bear in mind, however, that designers or manufacturers who devise a more ideal construction technique are likely to claim somewhat greater benefits from its use than strict objectivity would justify.

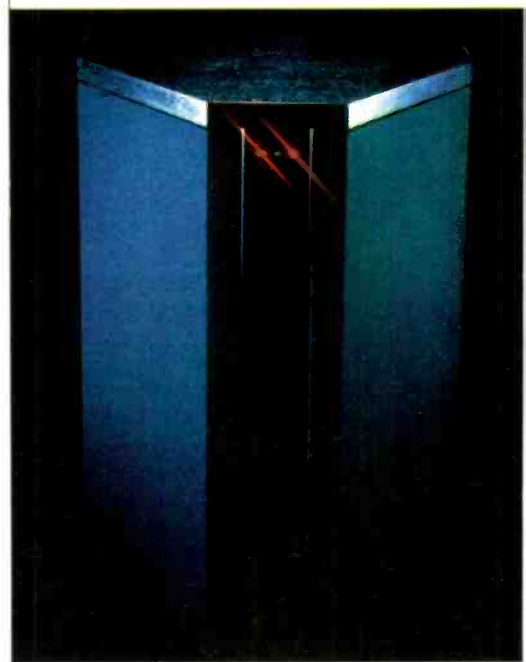
Continuing Evolution

It is reasonable to conclude from examining the past and present states of speaker technology that a steady evolutionary process has been going on, and it will probably continue in the foreseeable future.

Most speakers will continue to be enclosed box systems, if for no other reasons than that this format is most acceptable to the largest part of the buying public and that it yields a high quality-per-dollar ratio, at least in the low and moderate price ranges. Specialized variations on this theme, designed to have distinct spatial properties not readily available from conventional speakers, will unquestionably continue to proliferate, but they are not likely to make great market inroads among the general public.

More exotic speakers (planar or dipole radiators, both magnetic and electrostatic in their operation) will continue to hold their place, but their size and placement limitations, to say nothing of their prices, will probably keep them from capturing a much larger share of the market than they now hold. Exotic materials will continue to be used in drivers, especially in the upper part of the price range, but paper and plastics will continue as the mainstay of moderate-priced speakers.

As for the sound, although my crystal ball is a trifle cloudy on this question, I will venture to say that a few years from now, most of us will agree that speakers sound distinctly better than they did back in 1987. I also believe that their sound will be no closer to that of “the real thing” than the sound of speakers today, nor is it ever likely to be! But that won't stop audiophiles from arguing about the perceived quality differences and the pros and cons of the latest startling developments. □



Behind the scenes in the dbx laboratories (top photo), testing and retesting, measuring and re-measuring go on constantly in order to improve the sound of dbx's Soundfield series speakers. Shown is the new Soundfield 50.

Allison's new IC 20 (lower photo) achieves superior imaging through an ingenious electronic switching system. The output of different panels can be combined so that the sound stage is centered no matter where you sit in a room.



THE RIGHT SPEAKERS

Choosing the speakers that are right for you is tough but not impossible.

BY IAN G. MASTERS

“MY first job,” an audio engineer once told me, “was with a company that, while very successful, was notorious for producing speakers that had very weak treble response. The chief designer held that this characteristic was necessary for the proper reproduction of classical music. It didn’t sound realistic to *me*, but I wasn’t in a position to argue the point.

“Then, one day, I made a remarkable discovery. The designer was an avid music enthusiast and had had season tickets at the city’s concert hall for many years. I attended regularly as well, but normally I could only afford the cheap seats in the second balcony. On one occasion, however, only expensive tickets were available for an artist I particularly wanted to see, and I found myself sitting right behind my boss. As soon as the concert began, I realized that we were located in an acoustic anomaly—the high frequencies were severely muted. The live music sounded just like our company’s speakers!”

The loudspeaker has always been the problem child of audio. Other components, for all their complexity, have relatively simple aims: to store, transmit, or amplify an electrical audio signal without changing its waveform or adding unwanted sounds. Admittedly, the original signal is sometimes flawed (usually

because of the engineering), but once an electrical signal is generated, most audio equipment has little trouble dealing with it. Low distortion and noise, flat frequency response, and—in mechanical devices such as tape decks or turntables—speed stability are generally accepted as being the main requirements for high-quality reproduction. How low, how flat, and how stable components must be for their flaws to be inaudible may be disputed, but most audio designers agree that there is *some* level of performance beyond which improvement would yield no sonic benefit.

The Difficult Component

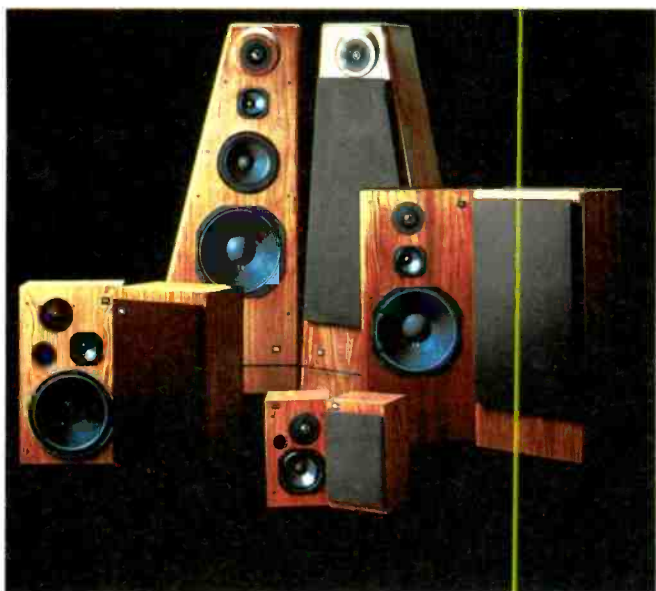
With speakers, nobody agrees on anything. For one thing, there is no consensus about what would constitute a perfect speaker. Should it be omnidirectional or carefully focused? Should it have flat response or a curve tailored to a particular type of music? Even if there were such agreement, there is no standard for measuring speaker performance, so it would be very difficult to identify a “perfect” sound reproducer even if one were to exist. Nor is there any way for a designer to predict how a speaker will sound in a particular listening room; not only are all rooms different, but the positions of both speakers and listeners have profound acoustic effects. And even if all these problems were solved, speaker designers



The Boston Acoustics A40 is a popular bookshelf system now in its second generation. The A40 Series II is rated for a frequency response of 65 to 20,000 Hz \pm 3 dB and features a ferrofluid-cooled polymer-dome tweeter. Available in woodgrain or black vinyl finish for \$220 a pair.

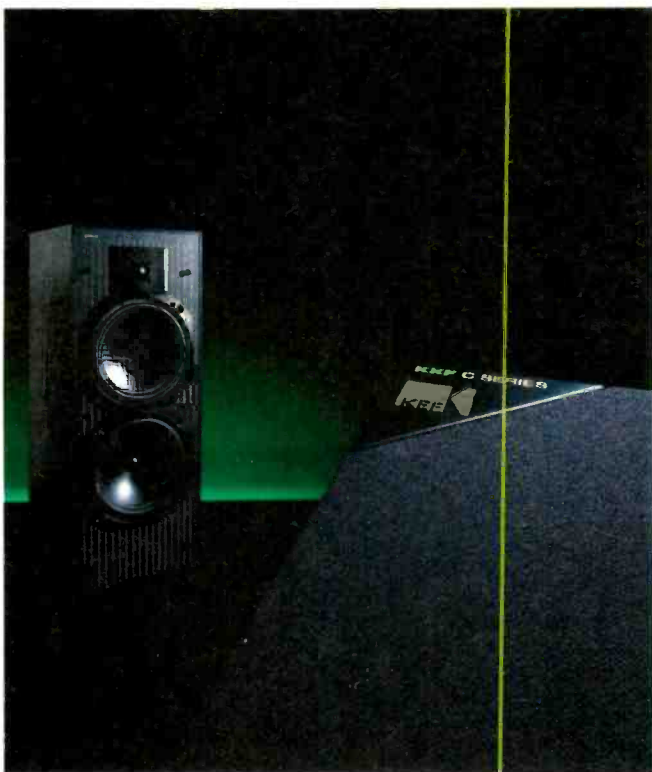


Thiel’s Coherent Source CS 2 is a floor-standing ported speaker featuring complete time and phase coherence achieved by a sloping baffle and a synthesized first-order crossover network. Frequency response is 38 to 20,000 Hz \pm 2 dB, and the speakers can handle inputs up to 250 watts. Height is 39 inches, and the base is 12 inches square. Price: \$1,550 a pair in teak finish.



The JBL Ti series speakers, which range in price from \$590 to \$3,790 a pair, all have ultra-low-mass titanium-dome tweeters and polypropylene midrange and low-frequency drivers.

Revox's three-piece system includes a subwoofer measuring 15 $\frac{3}{8}$ x 14 $\frac{3}{16}$ x 14 $\frac{5}{8}$ inches and two Piccolo satellites measuring 5 $\frac{1}{2}$ x 8 $\frac{3}{4}$ x 5 $\frac{3}{4}$ inches. System response is 48 to 22,000 Hz \pm 3 dB. The satellites, available separately, are \$300 a pair, the subwoofer \$350.



Standing 25 $\frac{3}{4}$ inches high, the KEF C40 is a sealed-box system with third-order bass loading to extend low-frequency response and increase power-handling capability. Frequency response is 68 to 20,000 Hz \pm 3 dB. Price: \$490.

would still have many different construction methods to choose from.

For anyone contemplating the purchase of an audio system for the first time, or even upgrading an existing one, all this confusion makes choosing speakers very difficult, as it has resulted in a truly staggering number of models, no two alike. And yet, selecting a pair of speakers is without a doubt an audio buyer's most critical decision—this last vital link in the audio chain will largely determine the overall sound of a system. Careful shopping is obviously required, but it's often hard for even seasoned audiophiles to know where to start.

Fortunately, of the myriad speakers available, only a very small number will exactly fulfill your requirements. By eliminating obviously unsuitable speakers, you can make the number of candidates more manageable.

Narrowing the Field

First, decide on a budget. Speakers are available at a wide range of prices, but price has very little to do with their quality. Very good and very bad speakers (and everything in between) exist at all price levels, so decide at the outset how much you can spend and restrict your research to that range. When you start making the rounds of the audio stores, you may well be attracted to a more expensive speaker because of its looks, its extra features, the appeal of its brand name, or its sound, and you may consider spending more than you had intended. By all means do so if you can afford it, but remember that blowing your budget is rarely necessary. Unless you have extremely unorthodox requirements, you should be able to find good sound without straining your finances unduly.

What you will pay for a given speaker also has a lot to do with where—and when—you buy it. Most audio retailers do have sales, and once you have decided what speakers you want, a little patience will often let you take advantage of the lower prices. Many dealers will also give you a break if you buy your whole system from them rather than from several different stores. Discount houses can also offer substantial savings, but you may have to sacrifice service if anything goes wrong, and almost certainly you will not have the opportunity to



exchange the speakers if you are not satisfied once you set them up at home. But however you achieve price reductions, they are worth seeking out, for they will enable you either to buy a more ambitious pair of speakers or to spend more on the other components in your system.

Once you have decided how much you can spend, look carefully at the requirements of the room in which your speakers will operate. One obvious factor is space: You can safely eliminate any speaker that simply won't fit in the area you have available. By the same token, if the only place you can accommodate your speakers is against a wall or in a corner, don't bother considering speakers designed to be positioned with free air around them. This category includes virtually all omnidirectional and bidirectional speakers as well as many conventional boxes. You may not be aware of such placement requirements without looking at an owner's manual, so make sure to check the manual before you make a final choice.

While an audio component's looks rarely have anything to do with how it performs sonically, it is usually unwise to underestimate the importance of visual appeal. Whatever speakers you eventually buy will become a prominent feature of your listening room. Don't count on their being unobtrusive—if you can't see them, you may not be able to hear them properly either. Within reason, choose units that will harmonize with your decor. While you may be content to have some bizarre-looking piece of exotic technology permanently ensconced in your perfect Georgian living room, other members of your household may not be quite so tolerant.

The size of your listening room has an important bearing on the speakers you choose. To achieve the same apparent listening level, a large area requires more acoustic output from a speaker than a small one does. Similarly, a "dead" room with thick carpets and draperies, overstuffed furniture, and so forth, requires more from a speaker than a "live" room with mostly hard surfaces.

Your listening habits also affect the amount of output your speakers will have to produce. High volume levels obviously need more power than background levels, but the type of music you listen to is equally important. Classical music may



All of the speakers in Magnat's MSP series have voice coils using the company's patented Ribbon-Wire, which packs up to 40 percent more copper windings in the voice-coil gap than conventional round wire. The bookshelf-size MSP 100 (shown) has a frequency response of 41 to 27,000 Hz \pm 3 dB and can handle up to 100 watts. Price: \$890 a pair.

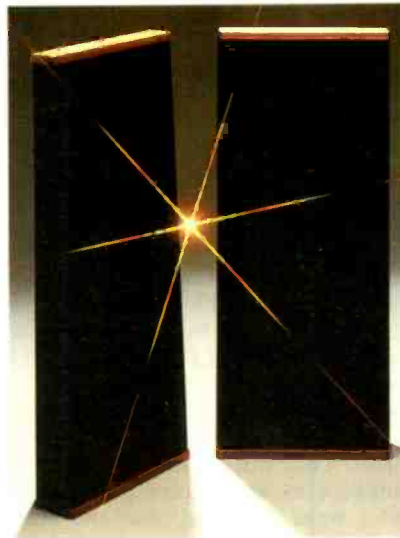
Polk's new RTA 111 is a 39-inch-high tower system with two 6½-inch bass/midrange drivers symmetrically arrayed above and below a 1-inch trilaminate-polymer dome tweeter. The acoustic center of the lower-frequency drivers coincides exactly with that of the tweeter, giving almost perfectly coincident radiation of the midrange and high frequencies for improved imaging and blending of the drivers' output. Two 8-inch passive radiators complete the system, which is rated for a response from 18 to 26,000 Hz \pm 3 dB. Recommended amplifier power is 10 to 250 watts. Price: \$425 each.



Magnepan's Magneplanar MG-IIIa is a full-range, floor-standing bipolar panel system utilizing both planar-magnetic and ribbon drivers. By eliminating the box enclosure, the design is said to produce a more open, natural, and dimensionally accurate sound. Price: \$1,995 a pair.



Canton's full range of speaker systems represents some of the best European technology and styling available. Prices range from \$12,000 a pair for the floor-standing, quad-amplified CA 30 to \$275 a pair for the Plus S minispeaker.



The DCM Time Frame TF500 (above) is a tapered-transmission-line, bass-loading system with a 6½-inch cone woofer and a 3¼-inch soft-dome tweeter with acoustic lens. Frequency response is 36 to 20,000 Hz ± 3 dB, height 41 inches. Price: \$549 a pair.

The ADS L series speakers (left) range from \$340 to \$2,600 a pair. All use high-compliance Stifflite cone woofers and soft-dome tweeters. The top-of-the-line L1590 features an optional biamp/crossover module.

have extremely high momentary peaks (particularly if it was recorded digitally), but rock music makes greater demands on audio equipment because it usually has higher *average* levels and therefore requires a system that won't fry when it's asked to produce sustained high output.

One way to obtain the necessary volume level is to use a high-power amplifier, often an attractive solution as watts are relatively cheap. High-wattage amplifiers run the risk of exceeding a speaker's power-handling capacity, however, and that can cause damage. The alternative is to choose speakers with relatively high sensitivity—ones that can produce a lot of acoustic output with relatively few watts from the amplifier. Not all speaker manufacturers measure sensitivity in the same fashion (or at all), but most now specify the acoustic output, in decibels of sound-pressure level (SPL) at 1 meter, from an amplifier input of 1 watt. A typical speaker with low sensitivity might show a specification of 84 dB SPL. For every 3-dB increase in sensitivity, *half* the amplifier power is required to produce the same sound level; anything above, say, 92 or 93 dB SPL is usually considered high sensitivity, and some blockbusters can put out more than 100 dB.

Sensitivity has very little to do with a speaker's overall sound quality; it is a measure of *quantity* for a given input. Another aspect of a speaker's design that should be considered even though it has no bearing on sonic character is its impedance: the electrical load presented to an amplifier's output circuitry, measured in ohms. Most amplifiers are intolerant of speakers whose impedance is too low because that increases current drain and can cause damage. Every amplifier spec sheet indicates the optimal load, just as every speaker has a stated nominal impedance.

In normal circumstances, it is unlikely that problems of impedance matching will occur, as the majority of home speakers have a nominal impedance of 8 ohms and virtually all amplifiers are happy driving that. If you intend to drive more than one pair of speakers from the same amplifier, however, remember that doing so reduces the total impedance and may cause trouble. When choosing speakers, therefore, you should limit your selection to



The pioneering Klipschorn is a folded-horn system designed for corner placement. A classic reference speaker, it costs about \$2,800 a pair depending on finish.

Apogee's Scintilla is a full-range ribbon dipole that stands 57 inches high. Each speaker requires 100 watts minimum power. Price: \$3,780 a pair.



models that will be compatible with your amplifier.

Doing Your Homework

Once you have identified your broad requirements, you will have eliminated the great majority of speakers on the market. You will then be faced with the more manageable task of finding a selection of the ones that do fit your particular needs. STEREO REVIEW and other audio magazines periodically publish comprehensive directories of audio components, with specifications and prices, and these are extremely useful for identifying candidates. Simply go through and mark those that match your criteria; in all likelihood, you will find several, but not too many. The information in the directories can often be supplemented by other published material such as test reports or advertisements.

Armed with this basic information, find out which of the brands you're considering are sold locally. While virtually everything is available in the major cities, if you live in a smaller town there is little point in selecting a speaker you'll have to go to another state to obtain. Often the telephone company's Yellow Pages will indicate which local dealers carry which lines, but a preliminary visit to as many of them as possible will not only give you an idea of what is available but also provide some sense of what each store is like. You will eventually have to make a careful choice as to where you want to make your purchase, and it is useful to weed out the obvious unsuitables at an early stage. This step may also narrow your equipment choices to some extent: You can safely eliminate any brand that is only available somewhere you wouldn't want to shop. While you're visiting the stores, pick up as much literature as you can. Most dealers can not only supply manufacturers' brochures but also test-report reprints—all favorable, of course, but they can still give you information about features, placement requirements, and so on.

Other valuable sources of information are audiophiles of your acquaintance, whether friends, relatives, or co-workers. Canvass their opinions about the brands you are considering and, if possible, even the specific models. Such unbiased opinions are worth many sales-

men's pitches or glossy advertisements. You may even find that someone you know owns one of your candidates. If he is happy with it, try to arrange a listening session (or, better still, borrow the speakers). If you like what you hear, you might even decide to cut short your quest and buy a known quantity.

Give some thought—but not *too* much—to brand names. No manufacturer's imprint, however good the reputation, is an absolute guarantee of quality, but buying a speaker made by a leading company will usually insure a certain level of workmanship as well as the likelihood that service will be available if you have a problem in later years. Generally, you should avoid a store's "house brands," not because they are bad speakers—some are excellent—but because their source is usually a mystery and their prices are often more or less arbitrarily set by the retailer.

The Last Round

However much research you might have done, your final choice can only be made by listening—*lots* of listening. The subject of auditioning speakers has given birth to a vast literature, and no two experts really agree on what is the most reliable method. Even if there were some agreement, the chances of your finding stores with ideal demonstration environments are very small.

Nevertheless, if your list of finalists is small enough—half a dozen, say—and you can find a dealer who carries most of them, direct comparisons should be possible.

The listening room should approximate the size and arrangement of your own, if possible, and you should try to persuade the retailer to place the speakers you are considering in positions roughly equivalent to where they will be in your own room. Listen to the speakers two at a time, using familiar material (preferably your own records). Bear in mind that the speakers will inevitably sound different when you set them up at home, so make sure that the dealer has an exchange policy in case the differences are so great that your sound is unacceptable.

Throughout this process, *take your time*. Loudspeakers are the most important component in your audio system, and only patience and persistence can insure that the ones you buy are right for you. □



POWERED SPEAKERS

BY WILLIAM WOLFE

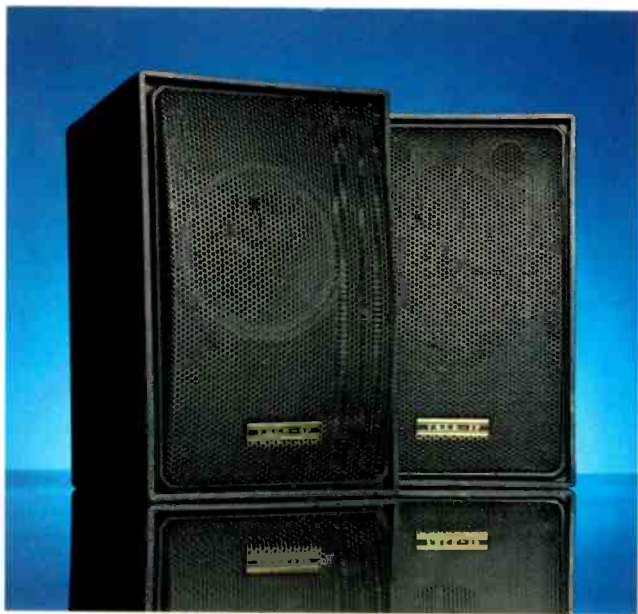
POWERED, or active, loudspeakers have power amplifiers built into them, and because of this they have long been regarded as something of an oddity in the audio universe. Recently, though, powered speakers have made a dramatic comeback—especially the compact models that can be connected directly to portable CD players, personal cassette players, and stereo video systems.

Today's powered speaker systems come in a variety of sizes and prices, and they can benefit home systems as well as portable ones. Though using active speakers at home means you cannot select your own power amplifier, they do offer a number of advantages over passive systems: the built-in amplifier(s) can be matched precisely with the speaker drivers, active equalizers can be introduced, and efficient low-level crossovers can be used. To complete your music system, simply connect a preamplifier or an individual line-level signal source to the speakers. If you are buying a new system or are considering an upgrade, powered speakers are an intriguing option.

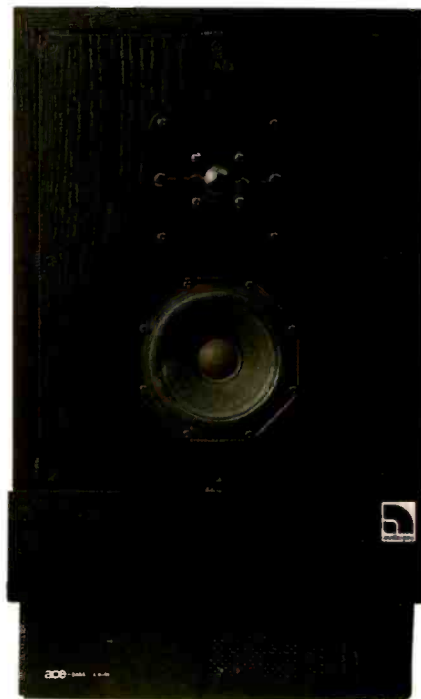


The Meridian M30 active speaker uses a pair of 70-watt Class AA amplifiers to drive its 5-inch paper-cone bass/mid-range driver and 1½-inch ferrofluid-damped soft-dome tweeter. A defeatable music-sensing circuit switches the system to standby mode if no signals are received for 10 minutes. The speaker measures 7 x 15 x 12 inches. Price: \$1,625 a pair.

ILLUSTRATION BY DIDIER



Audio Pro's A4-14 system includes an "Ace-Bass" subwoofer, two rear-mounted, downward-firing 5-inch woofers, a 4½-inch cone midrange, and a 1-inch soft-dome tweeter. Crossovers are at 300 and 2,500 Hz. Dimensions are 12 x 20½ x 10½ inches. Price: \$1,895 a pair.



Recoton's F.R.E.D. SP-1 has an efficient bass-reflex design, and the 12-watt-per-channel amplifier powers a 5-inch full-range driver in each speaker. The compact enclosures measure 17 x 10 x 7 inches. Price: \$169.95 a pair.



Proton's Model 313 has a 4½-inch passive radiator, a 4½-inch woofer powered by a 20-watt amplifier, and a 1¾-inch dome tweeter powered by a 5-watt amplifier. Tweeter output is adjustable. Dimensions are 6½ x 23 x 11 inches. Price: \$300 a pair.



The AR Powered Partners are shielded so that they can be used near video monitors without disrupting the picture. Each triangular speaker has a 4-inch long-throw woofer and a liquid-cooled tweeter. Dimensions are 6 x 10½ x 7¾ inches. Price: \$340 a pair.





The Active Diamond from Wharfedale is available in red, black, or white lacquer finish with removable cloth grilles. Its 20-watt amplifier drives a 4½-inch bass/midrange driver and a ¾-inch tweeter. Overall dimensions are 7½ x 9½ x 8 inches. Optional accessories include shelf and wall mounting brackets, a carrying case, and adaptors for headphone jacks. Price: \$200 a pair.

Available in 6 x 9 x 6-inch black or white polypropylene enclosures, the Bose Roommates (right) use some of the same technology found in Bose's popular Model 901, including active equalization. Price: \$229 a pair.



Bang & Olufsen's Beolab Penta (below) is a five-sided, bass-reflex tower system finished in brushed stainless steel. Height is 65 inches; base is 5 inches on a side. A 150-watt amplifier powers the nine drivers. Price: \$2,999 a pair.



John Bowers's Active 1 is a compact powerhouse, using a 200-watt amplifier to drive its two 6-inch Bextrene-cone woofers and a 100-watt amplifier to drive a 1-inch polyamide-dome tweeter. The speaker measures 10 x 24½ x 15¾ inches, and the stand holding the amplifiers raises the top of the speaker 33¾ inches from the floor. Price: \$2,995 a pair.



OPERA ON CD

A BASIC LIBRARY, PART 1

BY ROBERT ACKART




INCREASING public exposure to opera and wide appreciation of fine operatic performances have greatly expanded the list of what might be considered the "basic" operas. At one time such a list might have included simply *La bohème*, *Tosca*, *Madama Butterfly*, *La Traviata*, *Rigoletto*, and, possibly, *Lohengrin*. Those works made up the repertoire, and they were the operas that got recorded.

Operatically our lives are immensely richer now, and our tastes and knowledge are more schooled. Fortunately, there is much to choose from on compact disc—

more than we can cover even in a two-part survey (operas by Verdi and Wagner will be covered in Part 2, scheduled for later this year). There are, perforce, omissions, and there are bound to be new releases even of the works discussed by the time this discography is printed. But operatic recordings do not go out of print quickly, and the versions evaluated here should remain available for some time.

Much has been said about the sonic advantages of CD's over LP's. The superiority of the CD is a fact—and a big attraction—for the majority of recordings available in both

formats, but it is not invariably the case. Remastered analog recordings, however, generally gain in quality on CD. Another attraction, of course, is increased playing time. CD's offer long stretches of uninterrupted listening—sometimes more than seventy minutes.

When two or more CD versions of an opera are available, they are listed here alphabetically by label (Deutsche Grammophon being abbreviated to DG). The label name is followed by the catalog number and the number of CD's in the set. Mono recordings are indicated by an  symbol.

BEETHOVEN: *Fidelio*

◆ DG 419 436-2 (two CD's). Janowitz, Kollo, Jungwirth, Fischer-Dieskau, Sotin; Vienna State Opera Chorus; Vienna Philharmonic Orchestra, Leonard Bernstein cond. Impressively cast and conducted with passionate dedication, this 1978 recording remains something of a landmark. The musical and dramatic power of Beethoven's one opera is fully realized by the Viennese forces under Bernstein's direction, and Gundula Janowitz as Leonore and René Kollo as Florestan have the amplitude of voice their roles require. The rest of the cast is excellent. The *Leonore* Overture No. 3 is played as the introduction to the opera's final scene—and quite a performance it is, too!

◆ LONDON 410 227-2 (two CD's). Behrens, Hofmann, Sotin, Adam, Howell; Chicago Symphony Chorus and Orchestra, Georg Solti cond. This fine *Fidelio* was recorded in 1979. The choral passages, under Margaret Hillis's direction, are thrilling, and each of the soloists is in top form. Hildegard Behrens's voice, though perhaps not as large as Janowitz's, is an instrument of greater emotional power; Peter Hofmann performs convincingly as Florestan for the most part, but he is not quite equal to the demands of his big aria. Hans Sotin, Theo Adam, and Gwynne Howell are all commendable. The *Leonore* No. 3 is here played as an appendix to the opera.

BELLINI: *Norma*

◆ ANGEL Ⓜ CDCC-47303 (three CD's). Callas, Stignani, Filipeschi, Rossi-Lemeni; Chorus and Orchestra of La Scala, Milan, Tullio Serafin cond. Recorded in 1954 with a now legendary cast, this *Norma* is the only one available as yet on CD. While other performances *might* be more beautifully sung, Maria Callas's *Norma* is the standard for musical style and dramatic insight in this role. Her colleagues are somewhat less spectacular vocally but still splendid, and the conducting is authoritative.

BIZET: *Carmen*

◆ ERATO ECD 880373 (three CD's). Migenes-Johnson, Domingo, Raimondi, Esham; Chorus of Radio France; Orchestre National de France, Lorin Maazel cond. The 1984 soundtrack for the motion picture starring Julia Migenes-Johnson and Plácido Domingo, this *Carmen* is as graphic as a recorded performance can be. "Sexy" is the word! Of the four principal roles, it is Migenes-Johnson's characterization of Carmen that is the most sharpened by cinematic demands. She croons, storms, and whimpers to great effect and generally delivers the role precisely and expertly. The performances of Domingo and the others are vocally

praiseworthy but more conventional, though intensified beyond what is customarily heard in the opera house. For theatrical effect, Maazel sometimes alters rhythms, purposely slowing or speeding them, but the chorus and orchestra under his direction perform crisply throughout.

◆ DG 410 088-2 (three CD's). Baltsa, Carreras, Van Dam, Ricciarelli; Paris Opera Chorus; Berlin Philharmonic, Herbert von Karajan cond. The original *opéra comique* version, with trained actors supplementing the fine singers to produce a completely believable *Carmen*. The sound is gorgeous, and Karajan conducts at a leisurely pace that is altogether revelatory. Agnes Baltsa colors and inflects her voice to bring her Carmen very much to life, and while she sings sensually, she also sings very beautifully. José Carreras is generally fine as Don José except when singing forte in the upper register, and José van Dam's Escamillo is properly suave and dashing.

DONIZETTI: *Lucia di Lammermoor*

◆ ANGEL CDCB-47440 (two CD's). Callas, Tagliavini, Cappuccilli; Philharmonia Chorus and Orchestra, Tullio Serafin cond. A legendary recording that offers four special pleasures: Callas's Lucia, interpreted with such insight that the voice, though past its prime, truly becomes an instrument of dramatic communication; Ferruccio Tagliavini's Edgardo, a role especially suited to the purity of his voice; Piero Cappuccilli's Enrico, richly sung and

menacingly articulated; and Serafin's conducting, which illuminates Donizetti's sometimes shopworn masterpiece so that it emerges like a new and exciting creation. The remastered sound of this 1959 stereo recording is entirely satisfactory.

◆ LONDON 410 193-2 (three CD's). Sutherland, Pavarotti, Milnes; Chorus and Orchestra of the Royal Opera House, Covent Garden, Richard Bonynge cond. A very well remastered recording from 1972, when this cast was unsurpassed for *Lucia*. The unusually exciting performance is well paced for the high theatricality of the opera. Sometimes Bonynge's tempos are considerably faster than we're used to, and at others his purposeful slowing-up is dramatically enhancing. In short, Bonynge at his best. The entire cast is strong, and the three principals, on whom the success of a *Lucia* performance depends, sing with the controlled abandon of true virtuosos. This recorded version is made even more attractive by the restoration of passages that are often cut but help round out the work both as music and as a theater piece. Highly recommended.

GOUNOD: *Faust*

◆ PHILIPS 420 164-2 (three CD's). Araiza, Te Kanawa, Nesterenko; Chorus and Orchestra of the Bavarian Radio, Colin Davis cond. The reason for the enduring popularity of *Faust* is demonstrated by this performance, meticulously prepared and conducted with the style necessary to show off the work

Facing page:
scene from
Francesco
Rossi's film of
Bizet's *Carmen*.
The soundtrack is
available on an
Erato CD.

At right, Kiri Te
Kanawa is
a childlike
Marguërite and
Francisco Araiza
a stylish Faust in
the new Philips
recording of
Gounod's opera.



CHRISTIAN STEINER/PHILIPS CLASSICS

at its best. As Faust, Francisco Araiza sings convincingly and stylishly. Kiri Te Kanawa's silvery limpid voice evokes the childlike innocence of Marguérite, and Yevgeny Nesterenko makes a rich-voiced, vigorous Méphistophélès. Chorus and orchestra sing and play expressively. This is a well-recorded, effective performance of one of the "grandest" of grand operas.

GOUNOD: *Roméo et Juliette*

◆ ANGEL CDCC-47365 (three CD's). Malfitano, Kraus, Van Dam, G. Quilico, Murray, Bacquier; Chorus and Orchestra of the Capitole de Toulouse, Michel Plasson cond. "Elegant" is the word for this performance. Plasson's conducting is sure and sensitive, and while his approach to Gounod's score is never profound, it is theatrically effective and emotionally appealing. Alfredo Kraus brings an ardent youthfulness to Roméo, and Catherine Malfitano sings Juliette with a clear, silvery voice and a sense of character that complements Kraus's portrayal. Gabriel Bacquier, José van Dam, and Gino Quilico are vocally impressive and dramatically convincing as Capulet, Frère Laurent, and Mercutio, respectively, and Ann Murray sings Stephano's aria with polish. Recommended.

LEONCAVALLO: *Pagliacci*

◆ PHILIPS 411 484-2 (one CD). Domingo, Stratas, Pons, Andreoli, Rinaldi; Chorus and Orchestra of La Scala, Milan, Georges Prêtre cond. Taken from the soundtrack of Franco Zeffirelli's TV film, the recording itself is satisfactory, but the singing is uneven. Plácido Domingo and Teresa Stratas are well into their roles, but their performances are molded to the visual action of the film. As an operatic recording, this *Pagliacci* compares unfavorably with Riccardo Muti's on Angel and Nello Santi's on London, neither of which is available yet on CD.

MASCAGNI: *Cavalleria rusticana*

◆ PHILIPS 416 137-2 (one CD). Obraztsova, Domingo, Barbieri, Bruson, Gall; Chorus and Orchestra of La Scala, Milan, Georges Prêtre cond. For the soundtrack of the 1983 Zeffirelli film, Prêtre conducts an opulent, hit-'em-between-the-eyes performance that perhaps served its purpose but lacks nuance when heard on its own. Domingo stands up valiantly to Elena Obraztsova's muscular Santuzza—and nearly succeeds. Fedora Barbieri, long remembered with admiration, should want her thin-voiced, rather querulous Mamma Lucia quickly forgotten. Renato Bruson and Axelle Gall, as Alfio and Lola, come off best.

MUSSORGSKY: *Boris Godunov*

◆ PHILIPS 412 281-2 (three CD's). Vedernikov, Arkhipova, Masurok; TV



Maria Callas: legendary as *Norma, Lucia, and Tosca*

and Radio Chorus and Orchestra of the U.S.S.R., Vladimir Fedoseyev cond. This is a recording of *Boris* as Musorgsky left it, incorporating the additions and changes he made following the opera's initial rejection but *not* using the familiar Rimsky-Korsakov revisions. Some of the voices—such as Alexander Vedernikov in the lead—are not as big as we are accustomed to hear in this work, and, perhaps for that reason, other values come to light. In particular, the score is *sung* throughout, so we hear melody where we have come to expect declamation. The balance between the orchestra and the voices is good, and the recording itself is technically excellent. Fedoseyev's conducting is clear, clean, and crisp. Recommended.

MOZART: *Don Giovanni*

◆ ANGEL CDCC-47036 (three CD's). Allen, Vaness, Lewis, Ewing, Van Allan, Gale; Glyndebourne Festival Chorus; London Philharmonic Orchestra, Bernard Haitink cond. From the first clean, crisp, well-paced bars of the overture through the final sextet, musical matters are handled with style and the sense of theater and humor necessary to Mozart's *dramma giocoso*. Thomas Allen's clear-voiced Don recalls fabled performances of the not-too-distant past, and the rest of the cast is strong. Thanks to Haitink especially, this is the best recording of *Don Giovanni* since Fritz Busch's in 1936, also derived from a Glyndebourne production.

◆ DG 419 179-2 (three CD's). Ramey, Tomowa-Sintow, Winbergh, Burchu-

ladze, Baltsa, Furlanetto, Battle; Chorus of the Deutsche Oper, Berlin; Berlin Philharmonic, Herbert von Karajan cond. The recording is well balanced, clear, sonorous, and "live." The performance has several fine qualities: Samuel Ramey's warm voice and refined musical style as the Don; the graceful handling of Ottavio's two arias by Gösta Winbergh; the enchanting Zerlina of Kathleen Battle, who, more than the others in the cast, creates a living character; and, throughout, the firm stamp of Karajan's musicianship and imposing authority. But there is, too, some erratic pacing—forte passages seem to explode, and quiet sections are so relaxed that they tend to lose dramatic focus. The performance as a whole lacks excitement.

◆ EURODISC 6102-8723 (three CD's). Titus, Varady, Moser, Augér, Panerai, Mathis; Chorus and Orchestra of the Bavarian Radio, Rafael Kubelik cond. Kubelik tends toward a "romantic" reading of the score; his tempos are more relaxed than crisp, more leisurely than brisk. And Alan Titus is not yet a polished Don, singing the part accurately but without great magnetism. Without a dominating singer in the title role, Mozart's masterpiece inevitably lacks dramatic focus and tension. The rest of the cast is commendable, especially the three sopranos—Julia Varady, Edda Moser, and Arleen Augér—who contribute the most interesting performances.

MOZART: *The Marriage of Figaro*

◆ LONDON 410 150-2 (three CD's). Te Kanawa, Popp, Von Stade, Ramey, Allen, Moll; London Philharmonic Orchestra, Georg Solti cond. Recorded in 1981, this elegant performance has been successfully remastered for CD. The best performances are Frederica von Stade's captivating Cherubino, Lucia Popp's silvery Susanna, Thomas Allen's suave and clear-voiced Count, and Kurt Moll's blustering Bartolo. Te Kanawa, as the Countess, sings beautifully but seems uninvolved, making her characterization less than arresting. Samuel Ramey has one of the most satisfying voices I know—effortlessly produced, big, warm, and mobile—and yet, despite the apparent sincerity of his performance, his Figaro is unexciting.

◆ PHILIPS 416 370-2 (three CD's). Popp, Hendricks, Baltsa, Van Dam, Raimondi, Lloyd; Ambrosian Opera Chorus; Academy of St. Martin-in-the-Fields, Neville Marriner cond. We tend to take *Figaro* for granted until, to our delight, we come upon a performance that fully reveals its genius. This is such a performance. It is characterized by delicacy, crispness, accuracy, and finesse—qualities shared by the recording itself. Popp is at her stylish best; Barbara Hendricks sings Susanna with a purity of tone and ease of control not

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often encountered; José van Dam is a very winning *pícaro*; Agnes Baltsa uses her limpid mezzo-soprano to fine advantage as Cherubino; and Robert Lloyd contributes an endearing fuddy-duddy of a Bartolo. The ensemble singing is of a rare excellence throughout. In short, this version has everything that makes *Figaro* the unique achievement it is.

MOZART: *The Magic Flute*

◆ DG 410 967-2 (three CD's). Mathis, Ott, Araiza, Van Dam, Hornik; Chorus of the Deutsche Oper, Berlin; Berlin Philharmonic Orchestra, Herbert von Karajan cond. Richly remastered from a 1980 release, this CD version offers a truly stellar cast (including Anna Tomowa-Sintow and Agnes Baltsa as the First and Second Ladies!), and Karajan's direction brings out all the qualities that are dear to lovers of this most special *Singspiel*.

◆ PHILIPS 411 459-2 (three CD's). M. Price, Serra, Schreier, Moll, Melbye; Leipzig Radio Chorus; Dresden State Orchestra, Colin Davis cond. A strongly cast performance is lovingly molded to evoke the warmth, humor, and fairytale quality of Mozart's "people's opera." Margaret Price sings Pamina purely and touchingly, and Peter Schreier, Kurt Moll, and Mikael Melbye respectively bring affecting ardor, fatherly warmth, and endearing bump-tiousness to the roles of Pamino, Sarastro, and Papageno. The orchestral playing is especially fine.

OFFENBACH: *Tales of Hoffmann*

◆ LONDON 414 581-2 (two CD's). Sutherland, Domingo, Bacquier, Tourangeau; Suisse Romande Chorus and Orchestra, Richard Bonyngue cond. Despite Plácido Domingo's youthful singing, Gabriel Bacquier's suavely evil characterization, and Joan Sutherland's performance of all four soprano roles, I find this well remastered 1971 recording a disappointment. True, Sutherland's Olympia is an incredible accomplishment, with a more embellished version of the Doll's Song than I have heard from anyone else, but she makes little of Giulietta's character beyond some rather edgy laughter, and it's hard to understand most of what she's singing about as Antonia. Bonyngue's conducting is spirited, but at times it seems frantic. And the affected delivery of the dialogue is irritating.

PUCCINI: *La bohème*

◆ ANGEL © CDS-47235 (two CD's). De los Angeles, Bjoerling, Amara, Merrill, Reardon, Tozzi, Corena; RCA Victor Chorus and Orchestra, Thomas Beecham cond. This 1956 mono recording has been beautifully remastered for CD, and while the sound quality does not equal that of newer recordings, the performance is wonderful. The now legen-



Joan Sutherland: at her most "stupendous" as *Turandot*

dary singers were at their prime thirty years ago, and none of them ever sounded better or gave a more telling interpretation. Beecham's conducting fully reveals the score's humor and poignancy.

◆ PHILIPS 416 492-2 (two CD's). Ricciarelli, Carreras, Putnam, Wixel, Hagegaard, Lloyd; Chorus and Orchestra of the Royal Opera House, Covent Garden, Colin Davis cond. This well recorded performance, typical of Davis's work, is musically gratifying, carefully prepared, and sensitively communicated, but it lacks dramatic thrust and immediacy. Although Katia Ricciarelli sings a lovely Mimi, she does not seem to be especially involved in the role. José Carreras's performance, sadly, is not without effort even though it was recorded in 1979, before he turned to a more dramatic repertoire. The other three "Bohemians" are fine, but Ashley Putnam's Musetta is less an engaging hoyden than a strident shrew. The chorus and orchestra deserve high marks for musical finesse.

◆ RCA RCD2-0371 (two CD's). Caballé, Domingo, Milnes, Blegen, Raimondi, Castel; John Alldis Choir; London Philharmonic Orchestra, Georg Solti cond. An especially satisfying performance, originally recorded in 1974 and remastered to fine sonic effect. The four principal artists have rarely sung with so much freedom or dramatic expression. The serious moments are affectingly touching, the comic scenes have dash and bounce, and the participants communicate their sense of fun to the listener (a particularly delightful

vignette is Nico Castel's Alcindoro). The chorus and orchestra are in top form. Despite the strength of the combined forces, the star may be the conductor. This is one of Solti's best opera recordings, theatrically exciting yet free of his usual driving intensity. Recommended.

PUCCINI: *Madama Butterfly*

◆ CBS M2K 35181 (two CD's). Scotto, Domingo, Wixell; Ambrosian Opera Chorus; Philharmonia Orchestra, Lorin Maazel cond. This 1978 recording transfers fairly well to CD, although there is a bit of cloudiness in the sound every so often. Renata Scotto sings with passion, power, and, for the most part, unforced tone. Her Butterfly is more "heroic" than I prefer, but you can't deny her thorough knowledge of the role's musical and dramatic requirements. It is a pleasure to hear the impetuous, warm-voiced Pinkerton that Plácido Domingo creates here, and Ingvar Wixell is a compassionate and musically accurate Sharpless. Maazel's able direction yields lovely orchestral and choral moments, but overall this is the kind of intense reading of the score I find a bit tiring. Few will share that reaction, perhaps, given the stellar caliber of the participants.

◆ HUNGAROTON 12256-57-2 (two CD's). Kinčses, Dvořský, Miller; Hungarian State Opera Chamber Chorus and Orchestra, Giuseppe Patanè cond. Except for the conductor, this *Butterfly* is performed by non-Italian artists. It is, however, unusually satisfying. Veronika Kinčses and Peter Dvořský have made several other recordings, and the other principals, though not generally known, are very good; they sing clearly, easily, and intelligibly. Patanè moves things along at a pleasant tempo and at the same time brings out details of the music that I have not often heard. The recorded sound is characterized by exceptional clarity.

◆ LONDON 417 577-2 (three CD's). Freni, Pavarotti, Kerns; Vienna State Opera Chorus; Vienna Philharmonic Orchestra, Herbert von Karajan cond. One of Karajan's best opera recordings, the 1974 original has been particularly well remastered for CD. The distinguished cast (Christa Ludwig sings Suzuki) was dedicated to bringing out musical and theatrical nuances, and both the singers and the conductor succeeded admirably. The sound is excellent, and the drama unfolds in a way that would be noteworthy in the most effective stage performance. Recommended.

PUCCINI: *Tosca*

◆ ANGEL © CDCB-47174 (two CD's). Callas, Di Stefano, Gobbi; Chorus and Orchestra of La Scala, Milan, Victor de Sabata cond. Recorded in 1953, this *Tosca* made history. Callas—"La Divina"—is simply breathtaking in what

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was perhaps her most completely realized role, and she is marvelously supported by Giuseppe di Stefano, in golden voice, and Tito Gobbi, whose Scarpia remains the prototype of aristocratic malevolence. De Sabata's forceful conducting makes one wish he had recorded more than he did; alas, there was so little, and only this on CD for the moment.

◆ LONDON 414 597-2 (two CD's). Te Kanawa, Aragall, Nucci; Welsh National Opera Chorus; National Philharmonic Orchestra, Georg Solti cond. The orchestra, recorded with vibrancy and exceptional clarity, plays very well, responding deftly to Solti's driven reading of the score. Giacomo Aragall's durable, if not particularly beautiful, voice is capable of Cavaradossi's outbursts. Leo Nucci's Scarpia is unmoving; he sings well and is readily understandable, but he is not interesting. The same must be said of Te Kanawa's Tosca, which is neither memorable nor rich. The set is noteworthy chiefly for its splendidly sumptuous sound.

◆ RCA RCD2-0105 (two CD's). L. Price, Domingo, Milnes; John Alldis Choir; New Philharmonia Orchestra, Zubin Mehta cond. Here is a *Tosca* as alive and immediate as pasta with garlic. The performance stays close to what the opera is all about, passionate love and malevolent lust. The 1973 recording has a rich, full sound, and Mehta paces the score dramatically but without frenzy. Yes, Leontyne Price overacts at times, but we also have her wonderful smoky voice, which can suddenly rise in a silvery pianissimo. Yes, Sherrill Milnes's Scarpia is stolidly hateful rather than smoothly despicable, but he sings with conviction and impressive richness of tone. And, of course, Domingo sings splendidly.

PUCCINI: *Turandot*

◆ CBS M2K 39160 (two CD's). Marton, Carreras, Ricciarelli, Bogart; Chorus and Orchestra of the Vienna State Opera, Lorin Maazel cond. Recorded live in Vienna, this performance grows in intensity as it progresses. The sound, however, varies in quality, as is often the case with live recordings. Eva Marton sings powerfully and is undaunted by Turandot's dangerous tessitura, but there is little sense of *line*. She declaims the role. Katia Ricciarelli is more successful with Liù and offers some lovely singing. José Carreras is disappointing as Calaf; his light and once-melting lyric voice is not suited to the prince's heroic outbursts. Maazel's pacing is effective, though.

◆ DG 410 096-2 (three CD's). Ricciarelli, Domingo, Hendricks, Raimondi; Vienna State Opera Chorus; Vienna Philharmonic Orchestra, Herbert von Karajan cond. Karajan's recent tendency to play in a relaxed manner does not enhance a work as taut as *Turandot*,



Samuel Ramey: warmth and refinement as Mozart's Don

though the sound he draws from the chorus and orchestra is full and rich. The chief disappointment of this performance, however, is Ricciarelli, who sings with all the strength she can muster yet barely makes the grade. Turandot is a harrowing if short role; for a lyric soprano to attempt it is foolhardy. The much longer part of Calaf is just as demanding, and while Placido Domingo accomplishes it, he does so with effort. Barbara Hendricks's Liù is most beautifully phrased and sung.

◆ LONDON 414 272-2 (two CD's). Sutherland, Pavarotti, Caballé, Ghiaurov; John Alldis Choir; London Philharmonic Orchestra, Zubin Mehta cond. First recorded in 1973 and splendidly remastered for CD, this *Turandot* finds Joan Sutherland at her most "stupendous," Luciano Pavarotti singing at his golden-voiced best, Montserrat Caballé delivering her two arias in celestial voice, and Nicolai Ghiaurov particularly affecting as Timur. (The emperor Altoum is Peter Pears, no less, who brings a special quality to his lines.) The chorus is admirable, and the orchestra plays with exceptional precision and fervor. Mehta creates a sumptuous musical setting that you will rarely encounter elsewhere. Recommended.

ROSSINI: *The Barber of Seville*

◆ PHILIPS 411 058-2 (three CD's). Allen, Baltsa, Araiza, Lloyd; Ambrosian Opera Chorus; Academy of St. Martin-in-the-Fields, Neville Marriner cond. This *Barber*, performed *con brio* (*amore*), is the only one on CD so far. Marriner and the cast seem to be openly enjoying themselves. His conducting is

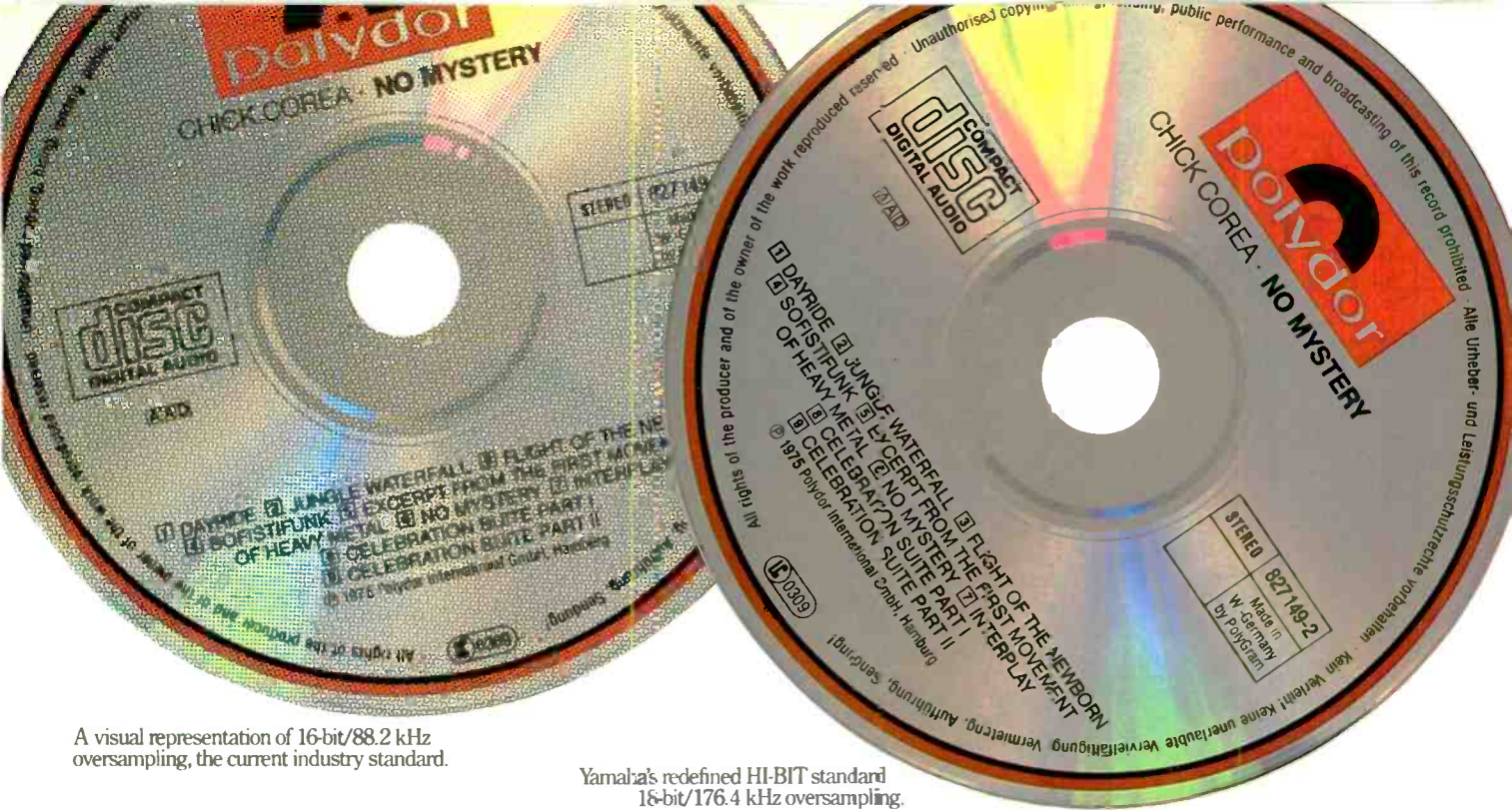
crisp, markedly rhythmic, and properly bubbly, and the vocal performances are all distinguished by fine diction, accurate and sometimes breathtaking *fiorentina*, and an infectious sense of comedy. The inclusion of Almaviva's Act II aria "*Cessa di più resistere*," always omitted in staged performances, comes as a happy surprise (its principal melody can be recognized in the Act II finale of *Cenerentola*, produced some eleven months after the *Barber*). A fully enjoyable recording.

R. STRAUSS: *Der Rosenkavalier*

◆ DENON 100C37-7482-4 (three CD's). Puzar-Joric, Walther, Stejskal, Adam; Dresden State Opera Chorus; Dresden State Symphony, Hans Vonk cond. This performance of *Der Rosenkavalier*, recorded live at the opening of the newly reconstructed Semper Opera House in Dresden in 1985, is musically satisfying, and for those who enjoy realistic touches, there are some audible but unobtrusive stage sounds. Only Theo Adam as Ochs will be familiar to most listeners, but all of the cast sing accurately, tastefully, and with dramatic conviction. The opening scene is particularly touching; Sophie comes across as a stronger personality than she usually does. Also, Ute Walther sings the Octavian/Mariandel horseplay at the beginning of Act III (it is too often whined or nasalized). All told, a lively, lilting performance.

◆ DG 413 163-2 (four CD's). Tomowa-Sintow, Baltsa, Perry, Moll; Vienna Philharmonic Orchestra, Herbert von Karajan cond. Karajan conducts as one who knows this score as well as any living exponent of it; the orchestra simmers, soars, and sings. Agnes Baltsa's Octavian is beautifully sung and imaginatively portrayed. Anna Tomowa-Sintow matches her partner vocally, if without great dramatic incisiveness. Janet Perry sings prettily but is able to do little to make the character of Sophie interesting. The real "stars" are Karajan and the orchestra. But why four discs?

◆ LONDON 417 293-2 (three CD's). Crespin, Minton, Donath, Jungwirth; Vienna Philharmonic Orchestra, Georg Solti cond. Except for a throbbing sound at the beginning of Act II and a few-out-of-focus notes in the initial Octavian-Sophie duet, the sonics of this 1969 recording are entirely satisfying. Régine Crespin, always one of the warmest, most womanly of Marschallins, offers a moving characterization that is one of the special pleasures of this set. Yvonne Minton sings Octavian with glowing tone and conviction, Helen Donath makes as much of Sophie as anyone could, and Manfred Jungwirth sings more of Ochs's part than we usually hear in the theater—a welcome change. Solti draws an even richer tone from the Vienna Philharmonic than Karajan does. Recommended. □



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by Christie Barter
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JACK MITCHELL

Lemper: Weill attraction

ON the basis of what we've read in the European press and have heard on her first record, one of the new season's early delights will be the American debut of the twenty-three-year-old singing actress Ute Lemper. A featured attraction in the Kurt Weill festival being held at Merkin Hall in New York, Lemper will sing a cabaret-style program on Saturday, September 26, that will in-

clude most of the material in her album debut, "Ute Lemper sings Kurt Weill."

Lemper's Kurt Weill album, released on the independent German Bayer label, is distributed here by Koch Import Service (95 Eads St., West Babylon, NY 11704) and should be available in all three formats at any major record store. □

GOOD Things Come to Those Who Wait. Suzanne Vega, currently the only folk singer in the Western World enjoying both a hit single (*Luka*) and a hit album ("Solitude Standing"), has made no secret of her two big heroes: Marlene Dietrich (whom she wrote a song about) and Sting (whom she hasn't written about yet). Consequently, since we know how much you worry about these things, we are pleased to report that Vega and the Police star finally met, blonde head to blonde head, after a recent Vega concert in Manhattan.

That they're both on A&M Records may have had something to do with it, but we can



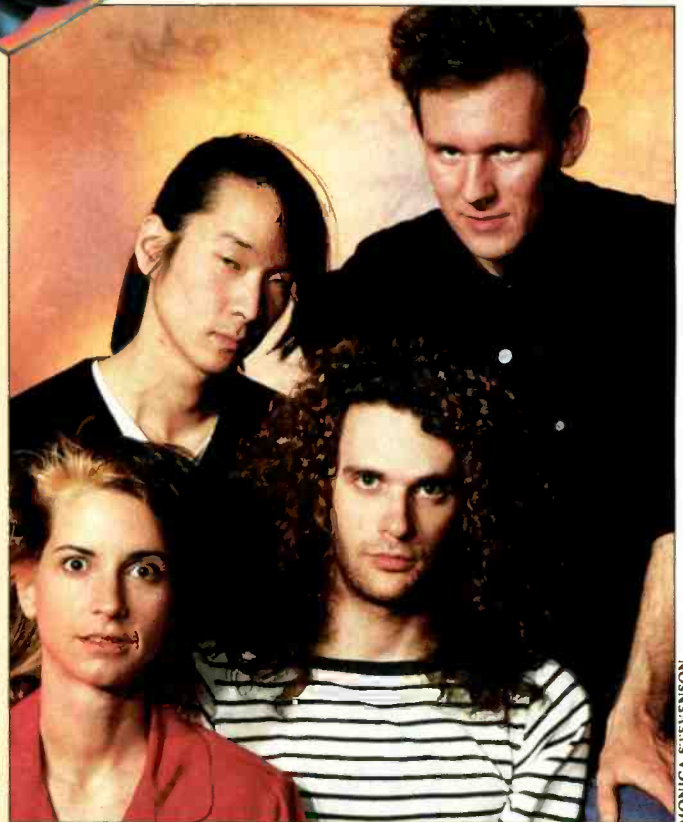
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Vega and Sting: hits and heroes

clude most of the material in her album debut, "Ute Lemper sings Kurt Weill."

Lemper began her professional career in the theater singing Grizabella in the

all sleep easier knowing that this historic confrontation has taken place. Sting, meanwhile, when not hobnobbing backstage, is hard at work on the follow-up to his best-sell-



MONICA STEVENSON

Hugo Largo: dancing to no drummer?

ing album "Dream of the Blue Turtles." □

OH, that Michael Stipe, what a nut! The R.E.M. lead singer gets a chance to do his first project as an outside producer, and who does he pick to work with? Hugo Largo, a band with two bass players, an electric violin, and no drummer. Who's gonna dance to that, we ask you?

Well, funny thing is, the resulting album ("Drum," on Relativity Records) is absolutely fascinating, a haunting, dreamlike collage of folk music, Philip Glassian minimalism, and the Lou Reed of "Street Hassle." Despite the instrumentation and the ethereal vocals of Mimi Goese, the music is not—we repeat, *not*—New Age. There's a genuine rock sensibility at work here, however muted. Stipe, by the way, chimes in on occasional backing vocals, but the stuff sounds nothing like R.E.M., or anything else we've heard lately, which is meant as a compliment. Check it out. □

NICE Guys Finish First. How's this for a scenario? After years of slogging, an unknown band from the wilds of Wisconsin records an album in a member's basement, gets it mastered and pressed, and sends a copy to a major hi-fi magazine. A smart reviewer (whose initials are S.S.) flips over it and writes a rave. Major record company sees the review, listens to the album, and signs both band and record immediately.

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blank recording tape, is helping to underwrite the costs. In turn, Juilliard will "dedicate" to TDK a series of concerts by the Juilliard Orchestra at Alice Tully Hall during the 1987-1988 season.

Glaser's Juilliard poster, which measures 24 x 36 inches, sells for \$25 (\$100 signed by the artist) at the Juilliard Bookstore, 144 W. 66th St., New York, NY 10023, or by mail (add \$5 for postage and handling) from Whiteprint Editions, 207 E. 32nd St., New York, NY 10016. □

WHERE Are They Now? Several of our readers have recently asked us about the whereabouts of Marshall Chapman, the lanky country rocker and heartthrob who won a STEREO REVIEW Record of the Year Award in 1978 and later missed out on becoming Chrissie Hynde through the accident of bad timing. Well, funny they should ask, because Chapman has reappeared after something of a dry spell. First, Jimmy Buffett did three of her tunes on "Last Mango in Paris," and then Sawyer Brown had a Top 10 country hit with her cautionary *Betty's Being Bad*. And now comes Chapman's own perfectly swell new album, "Dir-



Country rocker Chapman: perfectly swell

ty Linen," available on cassette only as an import on the German Line label (\$10 from Tall Girl Records, 900 19th Ave. So., Suite 803, Nashville, TN 37212). Fans of Chapman's more rocked-out live show are advised to check out her participation in the current Buffett tour, "A Parrot Looks at Forty." □

THE Live from Lincoln Center television series on PBS is inaugurating its new season with a direct transmission of the New York Philharmonic's opening concert at Avery Fisher Hall on September 15. The concert will feature Murray Perahia as soloist in Beethoven's Piano Concerto No. 4, with Colin Davis conducting, and CBS Masterworks is supporting the event with a promotional blitz spotlighting the completion of the pianist's Beethoven concerto cycle with Bernard Haitink and the Concertgebouw Orchestra. Perahia's recordings of Concertos Nos. 1 through 4 have been available for a while now and have been picking

up all kinds of good press. No. 5, the *Emperor* Concerto, takes pride of place among CBS Masterworks' September releases.

Perahia has also recorded all of Mozart's piano concertos—the first American pianist to do so—conducting the English Chamber Orchestra himself. Those recordings are now available on CD in two boxed sets totaling thirteen discs. □

Perahia: Beethoven on PBS



Glaser's poster

AMERICAN artist and graphic designer Milton Glaser has created a poster to benefit the Juilliard School in New York. While Juilliard is not the first major musical institution in the city to derive funds from a Glaser poster (Carnegie Hall had one for its ninetieth anniversary in 1981), in this case a third party, TDK Electronics, best known in the U.S. for its

Fire Town: nice guys finish first



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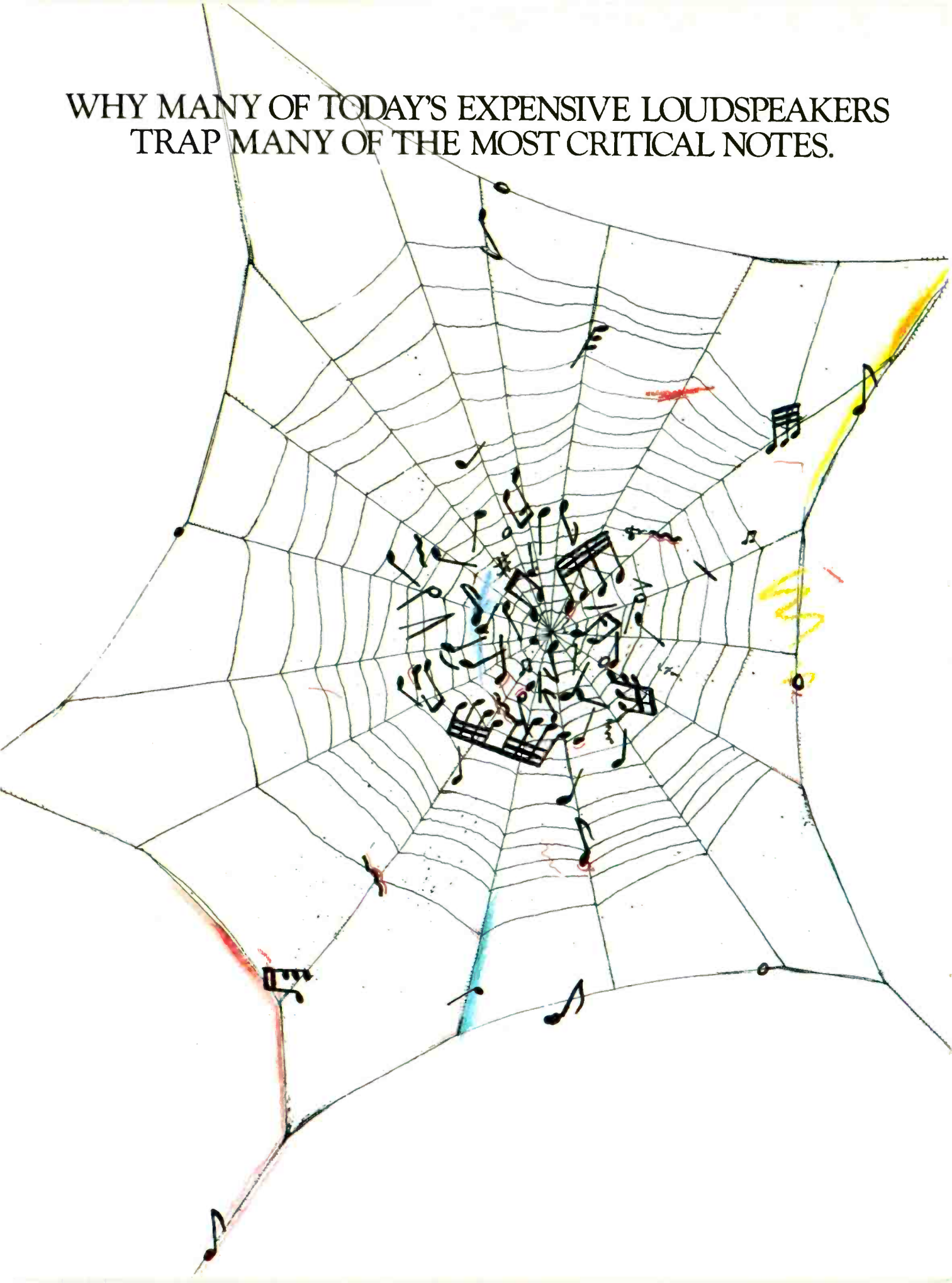
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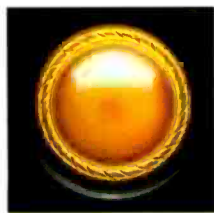
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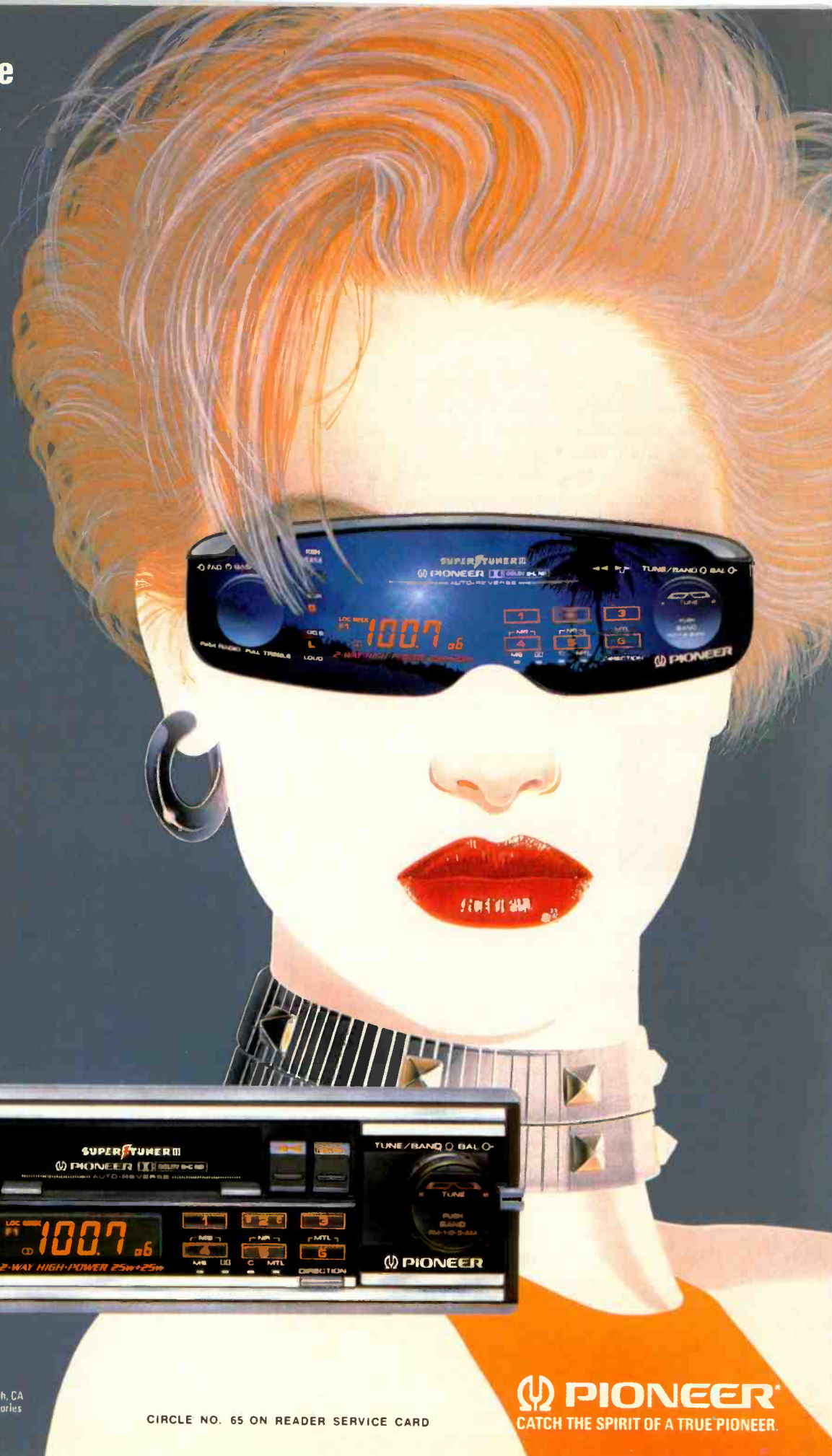
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WHITE ANIMALS: UP-TO-DATE RETRO ROCK

REVIEWING a rock-and-roll album is sometimes a bit like making a public-service announcement—getting the word out for a good cause. In the case of the White Animals, currently the best-kept secret of regional rock-and-roll, I want to get explicit about it. To paraphrase a well-aired TV spot, a band is a terrible thing to waste.

The Animals, who've been tearing it up in Nashville and beyond for nearly eight years, are a classic American band in the great tradition. They deserve a wider audience, and with the release of "In the Last Days" they may just get it. What's remarkable about these guys is that, unlike a lot of other current roots-conscious bands, they manage to sound both retro and impeccably up-to-date. The basic sound, of course, is pure garage, thirty years of rock history run through a Cuisinart. You want frat-party stomp? Brit Invasion tunefulness and songcraft? Southern r-&-b grit? They're all here, in more or less equal proportions, and without a hint of camp: the stuff is clearly in the Animals' blood. But at the same time, they also have an appreciation for the wilder psychedelic overtones of Jamaican dub music; it colors nearly everything they do, and the result is utterly unique.

The Animals' new album may be the best they've done; certainly it's the most assured and the most deeply felt. In fact, underneath the general good-time facade, songs like *Last Five Years* have a sort of wistful melancholy and regret that's unexpectedly touching, especially coming from a bunch of hellraisers like this lot. Still, the album's centerpiece is basically a high-spirited aural raspberry, a radical deconstruction job on David Essex's

glam-era hit *Rock On*. The Animals pull out all the stops, and what was once a sort of self-consciously minimal novelty song turns before your ears into a roiling sea of over-the-top guitars and jungle drums, living up to its lyrics at last. It's a great performance. *Steve Simels*

THE WHITE ANIMALS: *In the Last Days*. The White Animals (vocals and instrumentals). *Don't Treat Me like a Dog; You Bring Out the Best in Me; Last Five Years; You Don't Know; Rock On; A Lonely View; She's Gonna Break It; Could You Be Loved; I Thought That; A Prison Song*. DREAD BEAT DBLP 4157 \$8.98, © DBLC 4157 \$8.98.

BYCHKOV'S STIRRING SHOSTAKOVICH

IHAVE been hearing great things about Semyon Bychkov, the young conductor from Leningrad who is now a U.S. citizen and music director of the Buffalo Philharmonic, but I haven't had an opportunity to hear any of his concerts. His debut recording, the Shostakovich Fifth Symphony with the Berlin Philharmonic, makes clear at once what all the fuss is about.

Perhaps any conductor can make a big noise with this Shostakovich symphony, but few possess the understanding and skill to dig to its core and bring out both its strictly musical values and its emotional

intensity for maximum impact on the very deepest level the way Bychkov does here. He displays more than mere virtuosity or showmanship. You are aware of a profound and insightful musical mind—probing, clarifying, and refining the familiar score to yield heretofore unnoticed details that make the experience richer and more illuminating without getting in the way. The momentum, in fact, is maintained throughout the four movements with exceptional assurance, and the tempo choices simply couldn't be better.

The Berlin Philharmonic always plays creditably, but rarely—in recordings, anyway—with the passionate commitment conveyed here. Bychkov seems to have fired up every member of the orchestra to his own level of conviction, and the performance comes off in the nature of a collective testament, a grand affirmation of musical faith that anyone whose ears and heart are in working order should find irresistible. The recording itself is vivid enough to project all of Bychkov's (and Shostakovich's) clarifying power—with the single exception, perhaps, of the bass drum at the very end, which might have been a little more brightly lit.

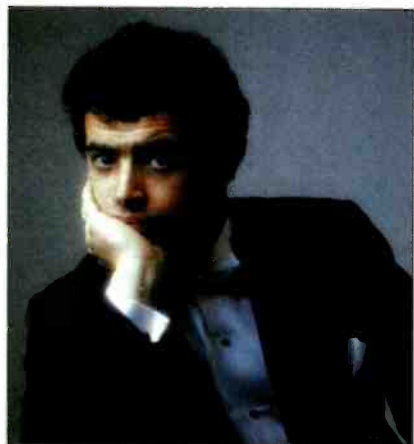
There have been other fine accounts of the Shostakovich Fifth—Rostropovich's on Deutsche Grammophon remains in a class by itself for its raw power and uncompromising evocation of exposed nerves—but Bychkov's is clearly



The White Animals: a classic American band

BEST RECORDINGS OF THE MONTH

CHRISTIAN STEINER/PHILIPS CLASSICS



Semyon Bychkov: probing

one of the very best, one that actually adds to our understanding of an already admired work.

Richard Freed

SHOSTAKOVICH: *Symphony No. 5, in D Major, Op. 47*. Berlin Philharmonic Orchestra, Semyon Bychkov cond. PHILIPS 420 069-1 \$10.98, 420 069-4 \$10.98, 420 069-2 no list price.

TOM WAITS: AS RAGGED AS REALITY

NO other musician creates a separate reality as engrossing, convincing, or terrifying as the one Tom Waits invents each time he makes a record. You don't just "put on" a Waits album. You think about it first. Then you pour yourself a strong drink.

While most pop musicians tend to grow softer and make more commercial compromises as their careers lengthen, Waits has done just the opposite. The truck drivers and waitresses and night hawks of early albums like "Closing Time" and "The Heart of Saturday Night" seemed starkly naturalistic in their day; now, they're almost romantic. Waits grew harder-edged with the pimps and strippers and two-bit hoodlums of "Small Change," "Blue Valentine," and "Foreign Affairs," but even these chilling excursions

seem glossy and melodramatic compared with his recent work.

Waits's latest album, "Franks Wild Years," completes a trilogy begun with "Swordfishtrombones" in 1982 and continued by "Rain Dogs" in 1985. They are recordings in which Waits abandoned what few commercial pretensions he had left and began to make music of ever-increasing eccentricity and conviction. No longer are his characters romanticized symbols of life on the edges. Now they're real. Now they're scary. Like "Swordfish" and "Rain Dogs," "Franks Wild Years" takes some getting used to. And like those albums, it's worth the effort.

"Franks Wild Years" began as a song from "Swordfishtrombones" about a man who gets drunk one night after work and sets fire to his house with his wife and her Chihuahua inside. "Frank" then took on a life of his own in a musical play Waits wrote and performed in about a down-and-out lounge singer who, sitting on a park bench in East St. Louis, is freezing to death and reliving his life in a semi-hallucinatory state. "Franks Wild Years" includes many of the songs from the play, but it further develops the musical settings of Frank's reminiscences.

There's an astonishing variety of musical styles and instruments here, and the sound is like nothing you've ever heard. Waits's voice croaks as though it had marinated in cigarette smoke and Carstairs for a week. The instruments are woozy and continually out of tune. And the production values are what you'd expect from a bootleg tape of a 1950's bop combo playing rumbas in the basement of an East Village tenement. But there's a reason for the disheveled production. This is music as ragged and beat up as the lives Waits sings about.

As Frank, Waits traverses a range of musical styles, from Afro-Cuban jazz to Irish drinking songs, carnival music to spaghetti-western guitar, Middle Eastern snake charming to Fifties rock-and-roll, gypsy tarantellas to the hopelessly pathetic Sinatra-style crooning of *Straight to the Top* and *I'll Take New York*. None of it is played straight. All of it is wonderfully evocative but quite

frightening at the same time. The lyrics are hilarious, and for a while you chuckle at Frank's cornball posturing. But as his luck runs dry and he slides toward drunkenness and dissipation, the reality Waits creates becomes almost too much to bear. That's when you pour that second drink.

Mark Peel

TOM WAITS: *Franks Wild Years*.

Tom Waits (vocals, Optigon, pump organ, guitar, percussion); instrumental accompaniment. *Hang On St. Christopher; Straight to the Top (Rhumba); Blow Wind Blow; Temptation; Innocent When You Dream (Barroom); I'll Be Gone; Yesterday Is Here; Please Wake Me Up; Franks Theme; More Than Rain; Way Down in the Hole; Straight to the Top (Vegas); I'll Take New York; Telephone Call from Istanbul; Cold Cold Ground; Train Song; Innocent When You Dream (78)*. ISLAND 90572-1 \$8.98, 90572-4 \$8.98, 90572-2 no list price.

HORSZOWSKI: HONEST, VITAL AUTHORITY

IN June 1986, twelve days before his ninety-fifth birthday, Mieczyslaw Horzowski played a solo recital in London. The Wigmore Hall advertisement carried a marvelous photograph of the



Tom Waits: hard-edged

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BEST RECORDINGS OF THE MONTH

COLBERT ARTISTS MANAGEMENT, INC.

eight- or nine-year-old Horszowski performing in 1901 and the statement, "Mieczyslaw Horszowski has had the longest international career of any major performer in Western classical music." I'm sure that's true, and I would emphasize the word "major," for, while Horszowski may not be turning up in advertisements for the American Express card, he is unquestionably a major figure.

What matters now is not that Horszowski continues to perform in his mid-nineties but the way he performs, the way he has always performed: authoritatively, poetically, communicatively, enlivened by the music and breathing its own life back into it. Solo recordings by Horszowski have been all too rare (the only one that comes to mind, in fact, is the one he made for Vox some thirty-five years ago of the Chopin Impromptus and the E Minor Concerto). Most of his recordings have been chamber music, with such companions as Casals, Szigeti, and the Budapest Quartet, and in ensembles organized by Alexander Schneider.

Horszowski's new Nonesuch recording is especially welcome because it is made up of the sort of solo material he has been playing in his recent recitals: Mozart's D Minor Fantasia (K. 397), two Chopin nocturnes, Debussy's *Children's Corner*, and Beethoven's Sonata No. 2. While the playing is anything but faceless, Horszowski is content in each case to allow the composer's own personality to prevail; he never thrusts his own at the listener. The endearing quality of the Debussy, the poetry of the Chopin, the fluent wit of the Beethoven are not interpretive overlays, but the qualities the composers themselves wrote into their music. Here is no arch-priest, no self-exalting "living legend," but an honest living musician with a loving regard for the beauty of every note and an unerring sense of flow.

When I last heard Horszowski in recital, at the Kennedy Center in Washington in October 1984, the jewel-like Terrace Theater seemed to be populated mostly by pianists, some of whom had made pilgrimages from distant cities. Rudolf Ser-



Mieczyslaw Horszowski: unerring

kin was there, and so were Eugene Istomin and András Schiff and Seymour Lipkin and several others. Some had been his pupils, and all, in a sense, have been his students, as anyone can be who hears the unostentatious yet all-revealing realizations of the works in the new Nonesuch release. It's Horszowski's picture, rightly enough, that's on the cover, but one buys the record, and treasures it, for Beethoven, Mozart, Chopin, and Debussy. It's a lovely, well-balanced program, actually much better for a single sitting than an hour of Beethoven or Mozart or Chopin or Debussy only.

The recording itself, made at the Curtis Institute in Philadelphia (where Horszowski has taught for the last forty-five years), is as honest and true as the playing. Since the music is all too familiar for the customary explication, Nonesuch has sensibly offered instead a charming piece on Horszowski by Joseph Horowitz.

Now, please, let's not stop with this one issue. This vital musician has a lot more to share with us.

Richard Freed

MOZART: *Fantasia in D Minor (K. 397)*. **CHOPIN:** *Nocturne in F-Sharp Major, Op. 15, No. 2; Nocturne in D-flat Major, Op. 27, No. 2*. **DEBUSSY:** *Children's Corner*. **BEETHOVEN:** *Piano Sonata No. 2, in A Major, Op. 2, No. 2*. Mieczyslaw Horszowski (piano). NONESUCH ● 79160-1 \$9.98, © 79160-4 \$9.98, © 79160-2 no list price.

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- **GORDON LIGHTFOOT: *Summertime Dream***. REPRISE 2246-2. "Running over with poetry" (Best of Month, October 1976).
- **ELVIS PRESLEY: *The Memphis Record***. RCA 6221-2-R. *The Number One Hits*. 6382-2-R. *The Top Ten Hits*. 6383-2-R (two CD's). *The Complete Sun Sessions*. 6414-2-R. "Commemorative" reissues, digitally remastered. "Rockabilly mementoes" (July 1976).
- **SOPHISTICATED LADIES** (Duke Ellington). RCA 6208-2-RC. Original-cast recording, with Gregory Hines and Phyllis Hyman. "Dazzling" (July 1981).
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- **BEETHOVEN: *Piano Concertos Nos. 1-5***. **MOZART: *Piano Concerto No. 21***. Fleisher, Szell. CBS M3K 42445 (three CD's). Among "the touchstones for stereo-recorded interpretations" (December 1965).
- **DVOŘÁK: *Violin Concerto: Romance in F Minor***. Perlman. Barenboim. ANGEL CDC-47168. "Luscious" (September 1976).
- **MASCAGNI: *L'amico Fritz***. Freni, Pavarotti; Gavazzeni. ANGEL CDCB-47905 (two CD's). "Impressive performance of a lovable work" (Best of Month, July 1969).
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- **PETTERSSON: *Symphony No. 7***. Dorati. SWEDISH SOCIETY DISCOFIL/IBR SCD 1012. "Mesmerizing" (May 1973).
- **PURCELL: *The Fairy Queen***. Gardiner. DG ARCHIV 419 221-2 (two CD's). "A peak in the performance of English Baroque music" (Best of Month, March 1983).

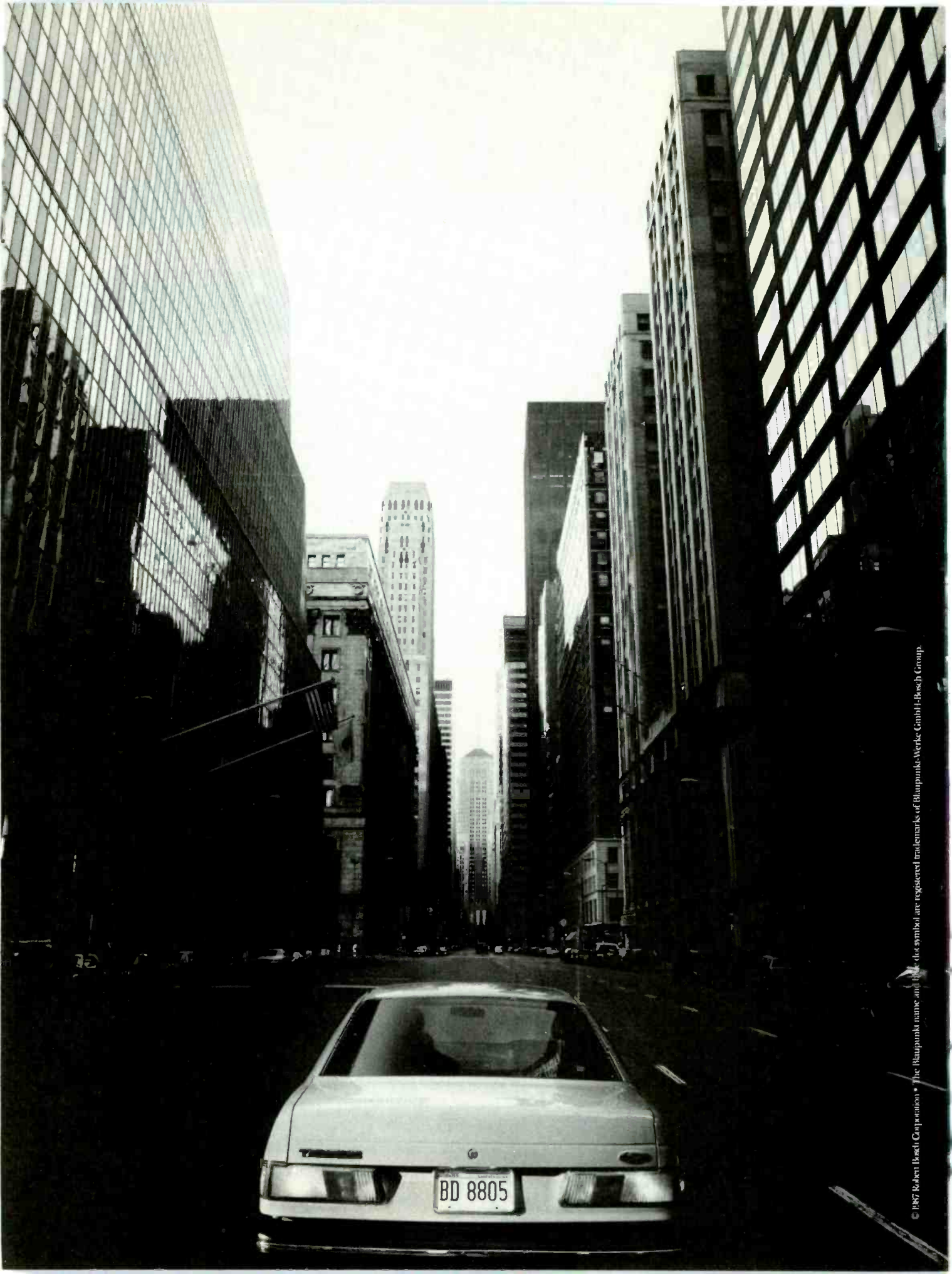
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*Discs and tapes reviewed by
Chris Albertson, Phyl Garland,
Alanna Nash, Mark Peel,
Steve Simels*

DEBORAH ALLEN: *Telepathy*. Deborah Allen (vocals, keyboard sequencer programs); Deniece Williams (background vocals); vocal and instrumental accompaniment. *Telepathy; You Can't Say No; You're the Kind of Trouble; Don't You Think I Don't Love You*; and five others. RCA 6239-1-R \$8.98, © 6239-4-R \$8.98.

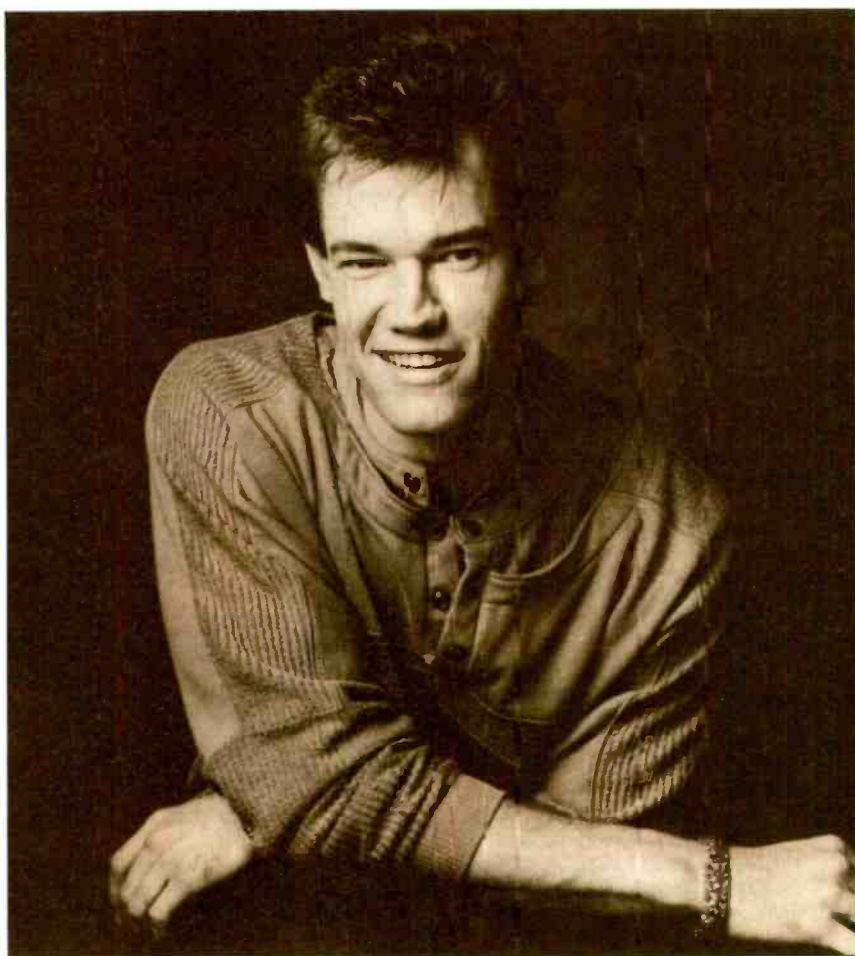
Performance: *Full-tilt*
Recording: *Busy*

From the first crack out of the box—the title song, written and produced by the eternally erotic Prince—Deborah Allen's "Telepathy" grabs hold of a hot libido and squeezes it for all it's worth. Yes, in case you were wondering, this is the same Deborah Allen who initially made her mark in country music as part of a ghostly duet with Jim Reeves and who went on to score a pop hit with *Baby, I Lied*. But it's clear from the cover photo—where she looks like Brenda Lee on drugs—that Allen has dramatically changed her tune.

"Telepathy" turns out to be mood music for the manic depressive and the sexually weird, masquerading as, in the words of the press release, "serious and sultry" pop. Throughout, aiming to sound both decadent and hot-blooded, Allen caterwauls, purrs, and pouts her way over a driving beat and walls of synthesizers. She gets convincing on the Prince number, a funky, throbbing treatment of sexual abandon (for some reason, Prince has chosen to use the unlikely pseudonym of "Joey Coco" here), and keeps the mood going for several tunes before letting up.

Allen isn't really much of a singer—there's something annoying about the thinness of her voice, which even Greg Mathieson's huge production can't cover up—but she is an affecting pop songwriter, as she proves in the eight tunes she has written in collaboration with her husband, the gifted Rafe Van Hoy. Obviously, "Telepathy" is mostly a collection of cheap thrills. But it's a head-turner for a little while, anyway. *A.N.*

CHET ATKINS: *Sails*. Chet Atkins (guitar, banjo); Mark Knopfler, Earl Klugh (guitar); instrumental accom-



WARNER BROS

RANDY TRAVIS

THE voice is so nasal as to set your teeth on edge occasionally, but the singing is as smooth as a mint julep on Derby Day, a seemingly effortless glide from one note and one emotion to another. After years of industry predictions that this one and that is the new Merle Haggard, or the heir to the throne of George Jones and Lefty Frizzell, twenty-eight-year-old Randy Travis, with only two albums to his credit, has come along to show he has not so much *aimed* for that honor, but that he was born to it.

Granted, Travis has yet to evolve into a writer of significance, but his new record, "Always & Forever," shows he is on his way. *Good Intentions* matches any of Haggard's songs of wayward youth and regret, *Tonight We're Gonna Tear Down the Walls* does credit to Bob Wills, and *I Told You So* is the kind of big, trembly heartbreak song that Elvis Presley spent a lifetime pursuing. And as a *phraser*, Travis, who grew up on a North Carolina turkey farm, clearly surpasses most of the old country masters.

His handling of *My House*, for example, shapes the images with photographic clarity, enough to raise the hair on the arms of his listeners and bring a lump to the throat of anyone who has ever loved another human being.

Recently, when Travis became the all-time youngest member of the Grand Ole Opry, Roy Acuff dropped his curmudgeonly stance long enough to welcome the young traditionalist to the cast. "We need you," Acuff supposedly told him. Anyone who cares anything about country music will agree.

Alanna Nash

RANDY TRAVIS: *Always & Forever*. Randy Travis (vocals); vocal and instrumental accompaniment. *Too Gone Too Long; My House; Good Intentions; What'll You Do About Me; I Won't Need You Anymore; Forever and Ever, Amen; I Told You So; Anything; The Truth Is Lyin' Next to You; Tonight We're Gonna Tear Down the Walls*. WARNER BROS. 25568-1 \$8.98, © 25568-4 \$8.98, © 25568-2 no list price.

EXPLANATION OF SYMBOLS:

- = DIGITAL-MASTER LP
- Ⓢ = TAPE CASSETTE
- Ⓢ = COMPACT DISC

paniment. *Sails; Why Worry; Up in My Treehouse; Laffin' at Life; My Song;* and five others. COLUMBIA FC 40593, © FCT 40593, © CK 40593, no list price.

Performance: *Fluid*
Recording: *Lovely*

Although he is best known as a Nashville guitarist extraordinaire, Chet Atkins is as at home with classical music, blues, flamenco, and jazz as he is with country. In 1982, after some twenty-five years of overseeing the Nashville division of RCA, he moved his affiliation to Columbia and quickly set about recording "Stay Tuned," a jazz-fusion effort with Larry Carlton, Earl Klugh, George Benson, and Mark Knopfler. Another jazz-fusion LP, "Street Dreams," followed, and now we have "Sails." As with its predecessors, "Sails" is a sophisticated, low-key, and deft performance. Sometimes it gets a bit *too* quiet, and Bergen White's strings tend to run sappy. But Atkins and company work a fine balance. Knopfler adds drive to Chet's laid-back approach, and Klugh keeps things properly mellow. Unquestionably a keeper. *A.N.*

DAVID BOWIE: *Never Let Me Down.*

David Bowie (vocals, guitar, keyboard, percussion); Carlos Alomar (guitar, guitar synthesizer); Erdal Kizilcay (keyboards, drums, bass); Peter Frampton (lead guitar); vocal and instrumental accompaniment. *Day-In Day-Out; Time Will Crawl; Beat of Your Drum; Never Let Me Down; Zeroes;* and six others. EMI AMERICA PJ-17267 \$9.98, © 4PJ-17267 \$9.98, © CDP-46677 no list price.

Performance: *Out of shape*
Recording: *Okay*

In the five-year span from 1971 through 1975, David Bowie recorded nine albums, most regarded today as classics. In the last five years, since 1983, he has released just three new albums. This little bit of history suggests that David Bowie has had other things on his mind than making music. "Never Let Me Down" does nothing to contradict that impression. Lazy, amateurish, unfocused, and nearly unlistenable, it is undoubtedly Bowie's most brain-fatigued record ever.

The first track, *Day-In, Day-Out*, is an extreme example of the current, misguided belief that funk must be discordant and played in impossibly convoluted time signatures to be any good. Bowie's almost mumbled vocal sounds as though he's embarrassed by the song—and he should be: like much of popular culture in the 1980's, it is meaningless. Bowie clearly has let himself get so out of shape he can't tell how awful a song like the sluggish *Time Will Crawl* really is. In *Beat of Your Drum*, he's reduced to doing a parody of Bowie-the-crooner; in *Never Let Me Down*, he confuses soul with sleeping



David Bowie: just trying something different

GREG GORMAN/EMI AMERICA

sickness—by now, he's beginning to come off like Lloyd Price playing a half-empty Myrtle Beach lounge. Every song has a pieced-together-as-you-go feel. Tempos shift without creating any tension or edge. It's as if Bowie hadn't given any thought to how he wanted a song to sound, so he just kept trying something different hoping it would work. It never does. *M.P.*

JOCELYN BROWN: *One from the Heart.*

Jocelyn Brown (vocals); vocal and instrumental accompaniment. *Ego Maniac; Love's Gonna Get You; Living Without Your Love; I Cry Real Tears; Caught in the Act;* and three others. JELLYBEAN/WARNER BROS. 25445-1 \$8.98, © 25445-4 \$8.98, © 25445-2 \$15.98.

Performance: *Promising*
Recording: *Very good*

"One from the Heart" is an appropriate title for this debut album by Jocelyn Brown, for every note she sings seems to be part of a heavy personal statement. That's not to say she's a downer—far from it. She comes on like a spitfire when she strikes out at errant lovers in quality dance tunes like *Ego Maniac* and *Caught in the Act*, but she is at her best on the gut-tugging torcher *Living Without Your Love*. An assortment of producers has supplied Brown with stylishly contemporary songs and

arrangements, though the dominant element is her own voice. It's an instrument that served her well in the past when she worked as a back-up singer for artists like John Lennon, Luther Vandross, George Benson, and Culture Club. In her rich, throaty sound, you'll hear a touch of Aretha Franklin's earthy reality and a whisper of Randy Crawford's trembling anticipation, along with a let-it-all-hang-out assertiveness that is entirely her own.

Although this album is fashioned for the urban market, Jocelyn Brown's talent is worthy of a broader audience. With performances of this quality, I'm certain she'll find it. *P.G.*

JAMES CARR: *At the Dark End of the Street.*

James Carr (vocals); Jimmy Johnson (guitar); Roger Hawkins (drums); David Hood (bass); Spooner Oldham (keyboards); other musicians. *(At the) Dark End of the Street; Pouring Water (On a Drowning Man); Love Attack; You've Got My Mind Messed Up; To Love Somebody;* and nine others. BLUE SIDE/UPSIDE BL 60008-1, © BLC 60008-4, no list price.

Performance: *Powerful*
Recording: *Pretty good*

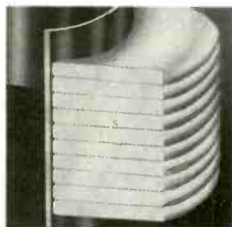
James Carr is one of the genuine legends of mid-Sixties soul music, a guy who cut a couple of incendiary regional

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STREISAND'S SHOW

BARBRA STREISAND'S first "full-length" concert in twenty years qualified as a genuine event last September—and so does the album "One Voice," which documents it. Streisand raised her "one voice" on the grounds of her California home to benefit a group of organizations involved in protecting human rights and the environment and in anti-nuclear activities. And what a voice she raised!

This was no grandstanding, token benefit on Streisand's part. She sang her heart out in a way she hasn't done in quite some time, and she reaffirmed that there's still no one who can top her as a pop vocalist when she's at her best. Mixed in with her inevitable renditions of *People*, *The Way We Were*, *Evergreen*, and *Happy Days Are Here Again* are two Harold Arlen songs Streisand had never before performed publicly: *Over the Rainbow* (including its seldom-heard verse) and *It's a New World* (from the 1954 *A Star Is Born*). Contrary to her own brief remarks regarding these songs, Streisand need have had no fears about singing them because of their

identification with another great singer, Judy Garland (of whom Streisand speaks touchingly). As with almost any good song she turns her voice to, Streisand finds a way to make these two movingly her own.

Barry Gibb joins Streisand for a more contemporary interlude in *Guilty* and *What Kind of Fool*, which shows that imaginative teamings can be a worthy bonus for any solo act, including Streisand's. But it's still Streisand's show all the way, and she pulls it off as few other performers today could—right through her compelling rendition of *America the Beautiful*. Roy Hemming

BARBRA STREISAND: *One Voice*. Barbra Streisand (vocals); vocal and instrumental accompaniment. *Some-where*; *Evergreen*; *Something's Coming*; *People*; *Over the Rainbow*; *Guilty*; *What Kind of Fool*; *Papa, Can You Hear Me?*; *The Way We Were*; *It's a New World*; *Happy Days Are Here Again*; *America the Beautiful*. COLUMBIA OC 40788, © OCT 40788, © CK 40788, no list price.

hits and then more or less disappeared. He is apparently still alive but has become a sort of psychological basket case on the order of Pink Floyd's Syd Barrett. Whether his mental problems have contributed to his legend, I wouldn't venture to guess, but on strictly musical grounds, as this long-overdue compilation of his best stuff demonstrates, Carr deserves his reputation as one of the greats. Imagine a cross between Otis Redding, Percy Sledge, and any number of gospel singers, and you'll begin to have an inkling of the power of his performances. There is at once an almost Olympian repose and a suggestion of darker emotional currents; the combination is quite remarkable. The often-covered title track is the major stunner here. S.S.

DAVID ALLAN COE: *A Matter of Life . . . and Death*. David Allan Coe (vocals); vocal and instrumental accompaniment. *The Ten Commandments of Love*; *Jody Like a Melody*; *Need a Little Time Off for Bad Behavior*; *Southern Star*; *Child of God*; *Wild Irish Rose*; and five others. COLUMBIA FC 40571, © FCT 40571, no list price.

Performance: *Good stuff*
Recording: *Fine*

It isn't every record that comes complete with a photo of the artist's father reposing in his casket—wearing his son's "On Tour" sweater, of course—but then, David Allan Coe could never be accused of turning out your average record. This latest one, more autobiographical than most, even for Coe, celebrates the circle of life, stemming from the death of the singer's father and the birth of his daughter in one three-week period last year.

Coe stops just short of going overboard with both his grief and his joy, but he's more effective in chronicling his father's passing than his daughter's arrival. One of the three songs about the elder Coe, *Child of God*, shows the singer at his most powerful and inventive. One of the younger Coe's strong points is that, even on record, there's something dangerous about him—you never know what he's going to do. In that respect, and in most others that count, "A Matter of Life . . . and Death" never lets down for a second. A.N.

CURIOSITY KILLED THE CAT: *Keep Your Distance*. Curiosity Killed the Cat (vocals and instrumentals). *Misfit*; *Down to Earth*; *Free*; *Know What You Know*; *Curiosity Killed the Cat*; and four others. MERCURY CAT LPI \$8.98.

Performance: *Oh, shut up*
Recording: *Slick*

A very wise person once told me never to trust a band that names a song after itself or vice versa. I bring this up in the case of *Curiosity Killed the Cat*, the latest contender for the title of Biggest



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Band in England for the Next Five Minutes, because side one of their debut album closes with a song of the same name, and while listening to it I was struck by a nagging worry: Did I leave the hall light on when I left for work this morning? Which is to say, this is the kind of album and band that makes the mind wander a bit.

Here's yet another collection of Anglo pretty faces dispensing a tuneless brand of post-disco dance pop, as utterly indistinguishable from the Thompson Twins or the Blow Monkeys as Jessica Hahn is from Donna Rice. Coming soon to better cut-out bins everywhere, I'm sure. S.S.

HEART: Bad Animals. Heart (vocals and instrumentals); other musicians. Who Will You Run To; Alone; There's the Girl; I Want You So Bad; Wait for an Answer; and five others. CAPITOL PJ-12546 \$9.98, © 4PJ-12546 \$9.98, © CDP-46676 no list price.

Performance: Overachievement Recording: Excellent

If I were an impresario and wanted to put together the world's greatest rock group, I'd take Fleetwood Mac and replace Stevie Nicks with the Wilson sisters, Ann and Nancy. These two could be backed by a couple of Capuchin monks and an accountant and still rock the back row at the Rose Bowl. Paired with Lindsay Buckingham's singularly deranged, energized rock, this group would be dangerous.

"Bad Animals" follows up last year's mega-hit comeback album "Heart" with more soaring two-part harmonies, seductive ballad singing, and hard-kicking vocal leads wrapped around competent, professional, but uninspiring AOR rock. "Animals" is the kind of "classic rock" that gets played on those FM stations that still keep Stairway to Heaven, Free Bird, and Riders on the Storm in heavy rotation. Alone is already a certified "classic," and Who Will You Run To is bound to join it. They'll get played on the radio from now until you're collecting Social Security, and everyone you know will buy the album. Which is why you don't have to. M.P.

LADYSMITH BLACK MAMBAZO: Shaka Zulu. Ladysmith Black Mambazo (vocals). Unomathemba; Hello My Baby; At Golgotha; King of Kings; The Earth Is Never Satisfied; and five others. WARNER BROS. 25582-1 \$8.98, © 25582-4 \$8.98, © 25582-2 \$15.98.

Performance: Spirited Recording: Fine

The cultural spotlight in South Africa has increasingly fallen on the creative expression of the indigenous black people. A catalyst in the musical movement has been Paul Simon, who used some of South Africa's finest artists in his Grammy-winning "Graceland" set and later on his national tour. Foremost

among them was the a cappella male singing group Ladysmith Black Mambazo, and Simon produced the group's first American album, "Shaka Zulu."

The group's haunting, irresistible sound is derived from a peculiarly South African music sometimes called Ngomabusuki, meaning songs of the night, because it is sung by black miners far from the ears of their bosses. The miners live in single-sex dormitories, near their jobs but far from their families, which they can visit only a few times during the year. Such music would have to be plaintive, and it is. Yet it also contains hope for freedom from oppression, usually couched in religious terms.

Under the direction of its founder, a singer-composer named Joseph Shabalala, Ladysmith Black Mambazo has shaped this music into an extraordinary and unique art form. The uniqueness derives not only from the precision of the group's harmonizing and mastery of shifting rhythms but from the profound emotion that infuses their sound. They also call upon their own linguistic traditions, with the famous "clicks" and other tongue tricks incorporated into the lyrics. But above all there is in this music an indomitable spirit. It is the music of people who know that some day they will win. P.G.

THE MEKONS: Honky Tonkin'. The Mekons (vocals and instrumentals). I Can't Find My Money; Hole in the Ground; Sleepless Nights; Keep Hoppin'; and nine others. TWIN/TONE TTR 87113 \$8.98, © TTR 87113C \$8.98.

Performance: Amazing Recording: Very good

The Mekons were among the first of the original British punk groups, and now, as the Eighties wind down, they're the last, although this is not exactly the same band. In fact, some seventy-five different folks have been Mekons over the years: apparently, when punk announced that anybody could (and should) be in a band, these characters took it seriously. In any case, the music the current Mekons are making is light-years removed from punk thrash. It is, instead, a beer-soaked, politically angry British take on hard-core American country, at once hugely ironic and passionately felt.

The songs in "Honky Tonkin'" are about love, guilt, booze, injustice, tradition, and coping with a world that, in Ernie Kovacs's phrase, is essentially copeless. There are obvious analogs—the Gram Parsons-era Burrito Brothers, even the Band (the Mekons have been known to cover Richard Manuel's The Shape I'm In)—but mostly this is original stuff, for all its debt to Nashville. The Mekons may be the last of a dying breed, but there's more life in this record than in a hundred music videos on MTV, and you miss it at your peril. S.S.

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ANNE MURRAY: *Harmony.* Anne Murray (vocals); vocal and instrumental accompaniment. *Are You Still in Love With Me; Anyone Can Do the Heartbreak; Perfect Strangers; Give Me Your Love;* and six others. CAPITOL ST-12562 \$8.98, © 4XT-12562 \$8.98, © CDP-46761 no list price.

Performance: *Stuck*
Recording: *Very good*

It's impossible to fault her voice, of course, but Anne Murray has been

mired in adult-contemporary sludge for so long she appears either not to notice or to be so entrenched that she cannot work her way out. "Harmony," with virtually nothing to recommend it, is only more distressing proof of Murray's steady, and tragic, artistic disintegration. Too bad. *A.N.*

OINGO BOINGO: *Boi-Ngo.* Oingo Boingo (vocals and instrumentals). *Home Again; Where Do All My Friends Go; Elevator Man; New Generation; My*

Life; We Close Our Eyes; Not My Slave; and two others. MCA MCA-5811 \$7.98, © MCAC-5811 \$7.98, © MCAD-5811 no list price.

Performance: *Hepped up*
Recording: *Excellent*

One look at the cover of "Boi-Ngo" and you know these guys are hot—any group this goofy looking *has* to be getting by on talent. Oingo-Boingo's first album is an eccentric, hyper-charged, and charming record, bouncing with double-time, peripatetic arrangements, curious, twisting melodies, and acrobatic vocals. For a band with two saxophones, a trumpet, and two guitars, Oingo Boingo is strangely dominated by the *vocal* work of its members—they're almost New Wave Doo Wop.

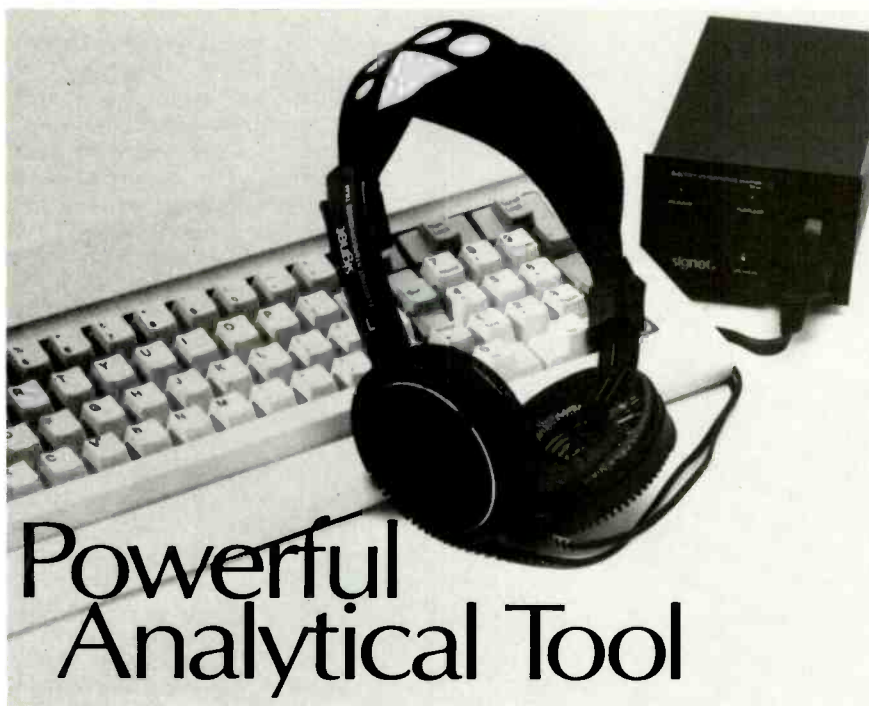
Lead singer and songwriter Danny Elfman is smart enough to play to this strength. His hook-laden songs all feature outstanding vocal arrangements, from the cascading chorus of *Home Again* to the finger-snapping *a cappella* intro on *Where Did All My Friends Go* to the rich harmony of *We Close Our Eyes*. Although it's a West Coast band, Oingo Boingo is almost British in outlook and energy. Songs like *Home Again*, about the brave front we put on when we're out in the world, hiding the overwhelming urge to crawl up into a ball when we get back home, and *My Life*, a gem of synth-pop musing, convey the same kind of dazed-and-confused-but-making-the-best-of-things attitude that typifies British pop. Quirky, unassuming, and thoroughly engaging. Recommended. *M.P.*

SLY AND ROBBIE: *Rhythm Killers.* Sly Dunbar (drums, percussion); Robbie Shakespeare (bass); Bootsy Collins (vocals, guitar); Henry Threadgill (saxophones, flutes); Bernie Worrell (prepared piano); other musicians. *Fire; Boops (Here to Go); Let's Rock; Yes We Can; Rhythm Killer; Bank Job.* ISLAND 90585-1 \$8.98, © 90585-4 \$8.98, © 90585-2 no list price.

Performance: *Incendiary*
Recording: *Excellent*

What a wonderful collection of styles and themes this album hurls at us! Just when it seemed that contemporary urban dance music was about to self-destruct under a mountain of monotonous beats and retarded raps, Sly Dunbar and Robbie Shakespeare come along to demonstrate how the best of the past can be combined with current modes to produce music that is both imaginative and readily accessible.

Both of these guys have been around for a while, having started out in Jamaica where they anchored Peter Tosh's backing groups during the late Seventies. For "Rhythm Killers" they collaborated with veteran funkster Bootsy Collins to produce bump-and-grind dance music with all the bumps in the right places. The format is simple. Each



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The individual leading edge attack of each musical note lasts less than 1/1000 of a second, yet forms the keen edge of musical reality which must be present if true high fidelity is to be realized. It is especially necessary with the increased dynamic capabilities of Compact Discs and video Hi-Fi. In ordinary amplifier designs, the vast amounts of power required is provided by bulky, expensive power supplies and huge output transformers.

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which can react to musical transients as brief as 1 millisecond.

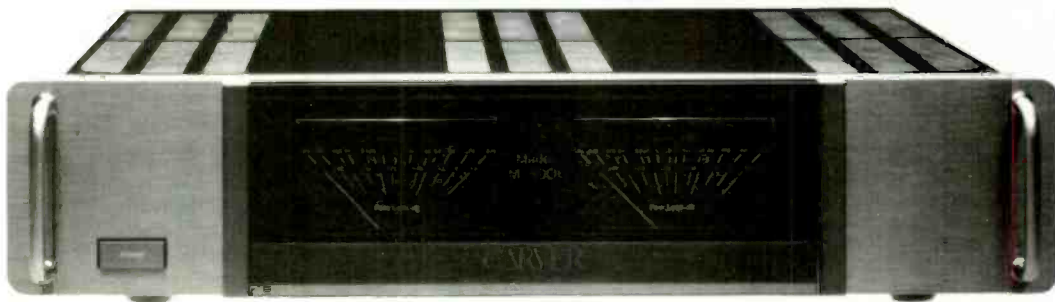
In addition, the M-500t's lack of external fan noise is complimented by internal circuitry with the best signal-to-noise ratio of any production amplifier. Better than 120dB. And, unlike any other amplifier in its price or power ranges, the M-500t is capable of handling problematic speaker loads as low as 1 ohm. It may also be used in a bridged mode as a 700 watt RMS per channel mono amplifier without any switching or modification.

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album side is based on a funk classic of proven merit. Side one is derived from the Ohio Player's incendiary *Fire!*, side two from *Yes We Can*, one of the best tunes ever recorded by the Pointer Sisters when they dared to be different. These anchoring songs serve as starting points for uninterrupted improvisations in rhythm that build to multiple climaxes while drawing from wildly disparate musical styles. Blistering blues guitar licks are juxtaposed with quotations from the *Masterpiece Theatre*

theme music and Henry Threadgill's intellectual saxophone commentaries, all interwoven with the thumping rap exclamations. The result is one of the best dance records I've heard in a very long time—funk with a fresh twist that begs to be heard again and again. *P.G.*

TOM WAITS: *Franks Wild Years* (see *Best of the Month*, page 88)

THE WHITE ANIMALS: *In the Last Days* (see *Best of the Month*, page 87)

JAZZ

THE DUKE ELLINGTON ORCHESTRA: *Digital Duke*. The Duke Ellington Orchestra, Mercer Ellington cond. *Satin Doll; Perdido; Prelude to a Kiss; Cottontail*; and four others (four additional selections on the CD). GRP Ⓛ GR-1038 \$8.98, © GRC-1038 \$8.98, © GRD-9548 no list price.

Performance: *Kinda Dukish*
Recording: *Excellent*

The Ellington sound is well preserved on this new release by the current Duke Ellington Orchestra, which is led by Duke's son, Mercer; a few members in the band actually did work for his father. Mercer Ellington acted as manager and played the trumpet in his father's band for nine years before circumstances made him its leader. What he inherited was the world's most famous big band, an organization that time had granted a life of its own. And you still hear today echoes of its illustrious past, the work of men like Johnny Hodges, Billy Strayhorn, Cootie Williams, and Lawrence Brown. But this is not the Duke Ellington Orchestra frozen in time, nor is it really a 1987-vintage Ellington Orchestra. It is an "Ellingtonian" orchestra that captures the essence of early Seventies Duke and adds enough fresh ingredients to make it tantalizing.

Among the fresh ingredients are some excellent solos, in *Jeep's Blues* and *Prelude to a Kiss*, by Ellington alumnus Norris Turney, who replaced Hodges and follows, stylistically, in his footsteps. The most stunning moments, however, are provided by guest tenor saxophonist Branford Marsalis, who sets *Cottontail* on fire. Overall, a fine production. *C.A.*

LEE KONITZ: *Ideal Scene*. Lee Konitz (soprano saxophone); Harold Danko (piano); Rufus Reid (bass); Al Harewood (drums). *Ezz-thetic; If You Could See Me Now; Silly Samba; Chick Came Around*; and three others. SOUL NOTE SN 1119 \$9.98, © 1119C \$9.98, © 1119CD no list price.

Performance: *Superb*
Recording: *Excellent*

As Lee Konitz points out in his notes, when his quartet recorded "Ideal Scene," in Milan last summer, it was a finely tuned working band, having just finished eight concerts at the North Sea Festival, in the Hague, and played Japan several months before. It is certainly not just another saxophone-with-rhythm combo. The close rapport Konitz has with the rest of this quartet is evident from the beginning, and I would expect no less, considering the cast. Three of the seven tunes are by pianist Harold Danko, a prolific com-

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THE UNTOUCHABLES

WHILE *The Untouchables* is clearly the best movie based on an old TV show ever made, it is not quite the masterpiece some are claiming. Despite an occasionally well-written scene by David Mamet, some nice performances (notably by the sublime Sean Connery as the wise old cop), and some well-staged action sequences, it's basically a live-action cartoon, and a rather thinly plotted one at that. That people are going bonkers over it is, I think, more a comment on the generally pathetic state of American filmmaking at the moment than a reflection of anything specifically swell about the film itself. But, then again, what do I know? I actually liked *Heaven's Gate*.

In any case, the one aspect of the film that I am unambiguously enthusiastic about is the score. Ennio Morricone, a composer much beloved of avant-garde rockers because of his penchant for cul-

tural and stylistic cut-and-paste games, weighs in here with an absolutely smashing effort, in equal parts Italianate romanticism, parodistic period pop, and contemporary high-tech. Heady, breathlessly paced, and utterly original, it's an aural collage that works even without the visuals. In an era when most film music is either a marketing ploy (*Top Gun*, *Beverly Hills Cop II*) or a pale John Williams pastiche (take your pick), *The Untouchables* has a score that's the work of a genuine talent pushing a medium to its limits. In short, the album is the best thing of its kind since Randy Newman's soundtrack for *The Natural*. Highly recommended.

Steve Simels

THE UNTOUCHABLES (Ennio Morricone). Original-soundtrack recording. Orchestra, Ennio Morricone cond. A&M ● SP-3909 \$8.98, © CS-3909 \$8.98, © CD-3909 no list price.

poser who has yet to get the attention that is his due. It's all high-caliber jazz in that enduring vein we once called "modern." C.A.

MIKE MELILLO/CHET BAKER: *Symphonically.* Chet Baker (trumpet); Mike Melillo (piano); other musicians. Orchestra Filarmonica Marchigiana, Mike Melillo cond. *Laura; Yesterdays; My Foolish Heart;* and two others. SOUL NOTE SN 1134 \$9.98, © 1134C \$9.98, © 1134CD \$9.98 no list price.

Performance: *Uneven*
Recording: *Good*

The going is a bit rough at times, but this live set, which for the most part features Chet Baker's still-mellow trumpet against a lush symphonic background, is not an altogether bad bit of jazz-flavored mood music. The roughness is largely due to the nature of the recording, which was made at a live concert with an Italian orchestra that sounds as if it would be more at home performing Verdi and Puccini. There was apparently little time for rehearsal, and Baker did not always show up—which shows up clearly in the performance. On only one track do he and Mike Melillo perform without the orchestra, and that's in *My Foolish Heart*, which Baker sings in the same foggy voice that once brought him great popularity outside the jazz world. Melillo's arrangements are pleasant but uneventful. The charts might have been more adventuresome, but, given the situation, it would probably have been unwise to aim higher. Don't go away thinking this set is *all* bad, though. It's just a little uneven. C.A.

MARK MURPHY: *Night Mood.* Mark Murphy (vocals); vocal and instrumental accompaniment. *Sails; Love Dance; Ticket; Dinorah Dinorah; Madalena;* and four others. MILESTONE M-9145 \$9.98, © 5-9145 \$9.98, © 9145-2 \$16.98.

Performance: *Right mood*
Recording: *Very good*

Since his appearance on the jazz scene in the late Fifties, Mark Murphy has been quietly building up a following. He has recorded some thirty albums in as many years, and his latest, "Night Mood," is a well-honed set featuring compositions by Brazilian songwriter Ivan Lins. The years have added a bit of gravel to Murphy's voice, but it is quite becoming. As with so many other cabaret singers, it's the delivery that counts. The accompaniments provided by the group Azymuth as well as by alto saxophonist Frank Morgan and trumpeter Claudio Roditi add a jazz flavor, but Murphy has always been jazz-oriented. He has also crossed over the border into pop; here he straddles it. I like it. C.A.

BUDDY TATE: *The Texas Twister.* Buddy Tate (clarinet, tenor saxophone, vocals); Paul Quinichette (tenor saxo-

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phone); Cliff Smalls (piano); Major Holley (bass); Jackie Williams (drums). *Talk of the Town*; *Chicago*; *Boogie Woogie*; *Topsy*; and four others. NEW WORLD NW 352-1 \$10.98, © NW 352-2 no list price.

Performance: *Gentle swing*
Recording: *Quite good*

When tenor saxophonist Buddy Tate recorded this album, a day before his sixty-first birthday in 1975, he had more or less withdrawn from the New York scene. By the mid-Seventies, his warm, at all times robust Texas tenor seemed to find more appreciative ears in Europe. Tate, now seventy-three, is still summing up his experiences with the bands of Count Basie, Andy Kirk, Lucky Millinder, and Hot Lips Page, but "The Texas Twister" captures his work at a particularly creative time when he was able to combine impressive experience with strength that has now begun to ebb. The presence of another of the Count's former tenors, Paul Quinichette, gives these quintet tracks a Basie flavor, which Tate further enhances by rendering vocals that evoke Jimmy Rushing's style. They rarely make music like this any more, so this recording (originally released on Master Jazz) is a particularly welcome addition to the growing CD jazz library. Let's hope a similar laser rebirth is in store for the superb Chiaroscuro album "Buddy Tate and His Buddies," which he made two years earlier with Roy Eldridge, Mary Lou Williams, Buck Clayton, and Illinois Jacquet. C.A.

JOSH WHITE, JR., WITH ROBIN BATTEAU: *Jazz, Ballads & Blues*. Josh White, Jr. (guitar); Robin Batteau (violin); Jerry Burnham (bass). *St. James Infirmary*; *Don't Smoke in Bed*; *House of the Rising Sun*; *Strange Fruit*; *Call Me Darling*; and five others. RYKO © RCD 10033 no list price.

Performance: *Excellent*
Recording: *Yodeler's dream*

Guitarist Josh White, Jr., plays in a style that is virtually identical to the style that brought his late father such great popularity several decades ago. I happen to like this kind of polished blues guitar, but much of this recording is marred by a dreadful abuse of the echo chamber. It is as if White and his partner, violinist Robin Batteau, were playing inside a large, empty cave. Engineers were fond of using excessive reverb in the Fifties, and pop producer Phil Spector took it to the max in the following decade, but I thought we had outgrown this sort of thing. And these two fine players certainly don't need it. So let's say that I love the picture but hate the frame. This is a wonderful set of familiar material, much of it associated with White's father, and I will be the first to recommend it if Rykodisc ever remasters it to give these performances the presence they deserve. C.A.

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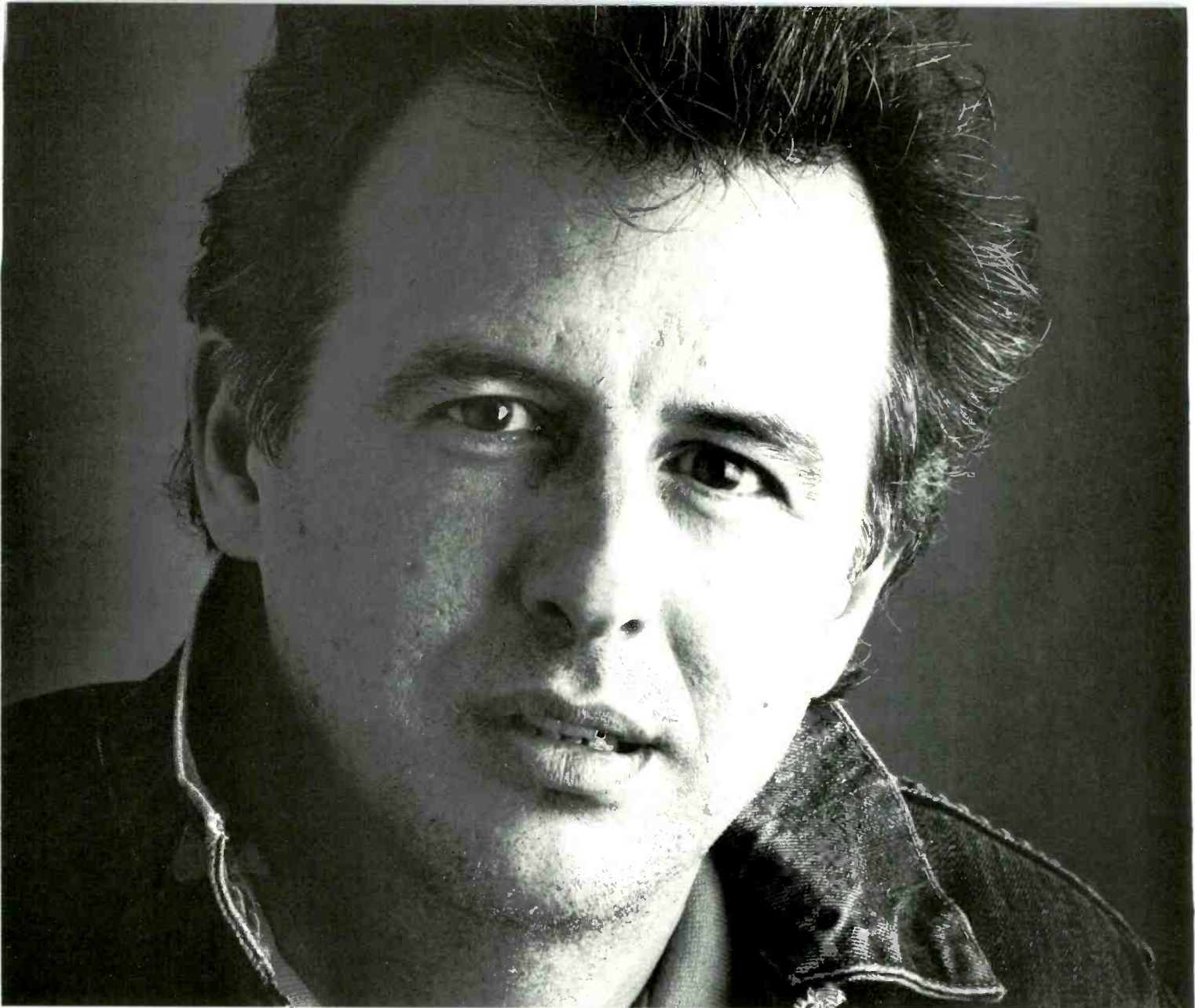
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Discs and tapes reviewed by Robert Ackart, Richard Freed, David Hall, Stoddard Lincoln

BACH: *English Suite No. 2, in A Minor (BWV 807); English Suite No. 3, in G Minor (BWV 808)*. Ivo Pogorelich (piano). DEUTSCHE GRAMMOPHON ① 415 480-1 \$10.98, © 415 480-4 \$10.98, © 415 480-2 no list price.

Performance: *Glib*
Recording: *Fine*

Many pianists, not realizing (or ignoring) that the harpsichord is basically a legato instrument capable of sustained lines, use a continuous staccato touch when playing Bach. Ivo Pogorelich is no exception. Despite his compelling drive, Pogorelich plays the fast movements of these suites in so staccato a fashion, and so fast, that you feel a mechanical rather than a musical force is at work. The allemandes, on the other hand, are slow and gluey. Further misunderstanding of the Baroque style is manifested in Pogorelich's handling of the ornaments and his curious reversal of dynamics in the two bourées of the Second Suite and the two gavottes of the Third. In paired dances of this sort, the second is usually softer and lighter. All in all, this is a disappointing release, not because the pianist plays badly but because his style of playing is so inappropriate to the music. S.L.

BENJAMIN: *At First Light; A Mind of Winter*. Penelope Walmsley-Clark (soprano); London Sinfonietta, George Benjamin cond. *Ringed by the Flat Horizon*. BBC Symphony Orchestra, Mark Elder cond. NIMBUS © NI 5075 no list price.

Performance: *Accessible*
Recording: *Very good*

George Benjamin was born in 1960, which makes him twenty-seven years old—long in the tooth for a rock star but extraordinarily young for a successful classical composer these days. Benjamin composes in what might now be called mainstream modernism. He makes a big, sure, colorful symphonic sound. The pieces here are tonal pictures—the Straussian tone poem updated. *At First Light* was inspired by a Turner painting, *Ringed by the Flat Horizon*, his best-known work, by a photograph of a thunderstorm over the desert and some lines from T. S. Eliot's

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Soprano Rosalind Plowright

A NEW "FORZA"

VERDI'S *La forza del destino* is perhaps the most difficult of his operas to assess. Its diffuse plot deals with love and vendetta, war, and religious commitment. Dramatically, it's virtually impossible to find a point of focus. Musically, too, it is something of a patchwork, with glorious bits next to trite or insipid passages. Finally, the characters seem rather remote, not really developed as in other Verdi operas. They are, indeed, pawns of the force of destiny. The opera is well titled.

La forza casts its spell nevertheless. Focused or not, it is highly theatrical, and the music is very exciting. You can't help being caught up by Verdi's invention, passion, and uncanny sense of what will work in the theater.

Giuseppe Sinopoli's new Deutsche Grammophon recording of the opera delivers what we have come to expect from his past performances: tautness, musical focus, a strong rhythmic sense, and attention to sometimes overlooked musical details. The Ambrosian Opera Chorus and the Philharmonia Orchestra perform splendidly under his meticulous direction, and the recorded sound is first-rate.

As Leonora, Rosalind Plowright sings with emotional conviction and musical ease; her "*Pace, pace*" is especially rewarding. José Carreras strives valiantly with Alvaro and brings a sense of character and dramatic urgency to his

effort; unfortunately, his voice is not of sufficient weight to support the tessitura of the role, which requires the artist to "sing out" a good deal of the time. Renato Bruson fares better as Carlo, singing with the attention to refinements in both his music and characterization that is a hallmark of his recordings.

Agnes Baltsa, the Preziosilla, sings her two scenes with ease and disarming *éclat* (I normally find the role annoyingly silly), and Paata Burchuladze and Juan Pons are particularly effective as Guardiano and Melitone, respectively. The other members of the cast fulfill their assignments commendably.

Regardless of my feelings about the opera itself, I fully intend to play this performance of *Forza* many times over. It's *that* kind of opera—and that kind of performance. Recommended.

Robert Ackart

VERDI: *La forza del destino*. Rosalind Plowright (soprano), Leonora; José Carreras (tenor), Alvaro; Renato Bruson (baritone), Carlo; Paata Burchuladze (bass), Guardiano; Juan Pons (baritone), Melitone; Agnes Baltsa (mezzo-soprano), Preziosilla; John Tomlinson (bass), Marchese di Calatrava. Ambrosian Opera Chorus; Philharmonia Orchestra, Giuseppe Sinopoli cond. DEUTSCHE GRAMMOPHON ① 419 203-1 three LP's \$29.94, © 419 203-4 three cassettes \$29.94, © 419 203-2 three CD's no list price.

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Stereo Review

The Waste Land; A Mind of Winter sets (rather high-handedly) a poem by Wallace Stevens.

Benjamin, who is British, is very well served by these convincing recordings and the state-of-the-art performances (something that doesn't happen very often with new orchestral music in this country, even with music by established composers). He is a big talent, no doubt of it, and he writes serious modern music in a comfortable mode—picturesque, nondogmatic, quite romantic in scope and intention. The old Central European style has been trimmed and reshaped, the angst taken out. Expressionism without fear, modernism without tears.

Eric Salzman

LISZT: *Hungarian Rhapsody No. 2, in C-sharp Minor; Liebestraum No. 3; Valse oubliée No. 1; Consolation No. 3; Waldesrauschen; Mephisto Waltz No. 1; Isoldes Liebestod.* Israela Margalit (piano). CHANDOS ● ABRD 1197 \$11.98, © ABTD 1197 \$11.98.

Performance: *Mostly fine*
Recording: *A little clangy*

Except for the arrangement, or paraphrase, of the finale of Wagner's *Tristan und Isolde*, everything in this Liszt package is about as basic as one might

imagine—a convenient “starter set,” one might say, for acquainting new listeners with this repertoire. Since many buyers may view it in just that light, it is fortunate that it is all brought off so well. These tend to be “comfortable” interpretations rather than revelatory ones, but they are none the worse for that. If Israela Margalit tells us nothing new about the music, she does suggest she cares for it a great deal, and for the most part she has all the technical resources required to put it over.

Margalit takes the familiar *Liebestraum* very slowly, barely maintaining momentum, and might have brought more drive to the *Mephisto Waltz*, but the evocative-poetic sections are beautifully realized, as are the *Valse oubliée* (refreshingly bright-eyed), the well-loved *Hungarian Rhapsody*, and, especially, both *Waldesrauschen* and the Wagner transcription. The last, a work of such adventurousness that it is better to think of it as “Liszt, based on Wagner,” will be a stunning discovery for most listeners, and there can be no question of Margalit's understanding of the piece or her capacity for conveying all of its remarkable power. The piano sound is a bit less smooth than we've come to expect from Chandos, but it is certainly vivid enough.

R.F.

MAHLER: *Symphony No. 3, in D Minor.* Gwendolyn Killebrew (contralto); Boys' Choir of the Bonn Collegium Josephinum; Women's Choirs of the Bavarian and West German Radio; Cologne Radio Symphony Orchestra, Gary Bertini cond. DEUTSCHE HARMONIA MUNDI/ANGEL © CDS-47568 two CD's no list price.

Performance: *Distinguished*
Recording: *Very good*

Mahler's gorgeously sprawling Third Symphony has been lucky in its recorded performances. Indeed, I cannot recall any inferior ones, and the seven versions currently available on CD all stand up well. Those that have stayed in my library are the famous Leonard Bernstein/New York Philharmonic version of 1962, now available on CBS compact discs, and the 1970 Jascha Horenstein recording, which I have on an Advent cassette but which first came out on Nonesuch (neither is still in the catalog). To my great pleasure, I can say that this new recording with Gary Bertini conducting is almost equally distinguished.

The kaleidoscopic unfolding of the immense, half-hour first movement proceeds with a splendidly cumulative impact that makes you as fully aware of

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Esa-Pekka Salonen: dynamic Nielsen

the music's poetic values as of its electrifying sonorities. The huge orchestral forces are beautifully focused, both as a whole and in detail, in somewhat closer perspective than usual without any sense of undue acoustic confinement. The lateral imaging of the stereo sound stage is superbly effective. The minuet-like second movement is imbued with delicious naiveté in its opening pages, and the third movement, with its touchingly evocative posthorn solo, is notable for the way an effect of distance is achieved.

The true centerpiece of the work is the great contralto solo on the text of Nietzsche's *Midnight Song* from *Thus Spoke Zarathustra*. Not only does Bertini treat it as the centerpiece, but in Gwendolyn Killebrew he has a singer who goes to the very heart of both music and text. Killebrew's opening is in veiled tones, and as the music arrives at its point of greatest intensity—"O Mankind! Deep is its grief!"—she elicits a response of profound emotion. A triumph.

The delightful "*Es sungen drei Engel*" choral movement for boys and women, with its pre-echo of the Fourth Symphony, comes off beautifully, with a highly effective division between the boys on the left and the women on the right. The great closing "hymn of love" unfolds at the same slow, sustained tempo as in the Bernstein recording, but it never achieves quite the same vibrant intensity. Even so, this recorded performance as a whole has much to recommend it, and I would want it for the solo-contralto movement alone. *D.H.*

NIELSEN: *Symphony No. 1, in G Minor, Op. 7.* Swedish Radio Symphony Orchestra, Esa-Pekka Salonen cond. ***Little Suite for Strings in A Minor, Op. 1.*** New Stockholm Chamber Orchestra, Esa-Pekka Salonen cond. CBS ● IM

42321, © IMT 42321, © MK 42321, no list price.

Performance: *Arresting*
Recording: *Clean and lean*

Brahms was still alive in Vienna and Dvořák in America had yet to complete his *New World Symphony* when the twenty-seven-year-old, budding Danish symphonist Carl Nielsen put the final touches on his first essay in the genre, the *Symphony in G Minor*. And indeed, there is much more of the dynamism of Brahms and Dvořák in this music than there is of the easygoing lyricism of Niels Gade, Nielsen's mentor at the Konservatorium in Copenhagen. In addition, we find the beginnings of Nielsen's innovative treatment of key progression as well as a third movement of pronounced harmonic originality.

Most previous conductors who have recorded the First Symphony have treated the score as something of a preparatory essay for greater works to come. Not so Esa-Pekka Salonen, whose extraordinarily dynamic reading searches out every last bit of the purely Nielsenesque to be found in the piece, especially in the first and fourth movements, where we hear both exposition repeats. The slow movement has an extra measure of intensity here, and the *Allegro commodo*, which is often heard as a kind of Brahmsian intermezzo, goes at a faster pace than usual, becoming something rather fierce. Nielsen's even earlier Suite for Strings normally gets the salon treatment, but, again, Salonen seeks out things in the music that make it sound somewhat less comfortable.

Salonen elicits razor-sharp attacks and rhythmic responsiveness from both the Swedish Radio Symphony and the New Stockholm Chamber Orchestra. The sound that emerges from Stockholm's Berwald Hall is clean and a bit cool, but with an almost elemental transient impact. *D.H.*

SHOSTAKOVICH: *Symphony No. 5, in D Major, Op. 47* (see *Best of the Month*, page 87)

TCHAIKOVSKY: *Symphony No. 6, in B Minor, Op. 74* ("*Pathétique*"); *Polonaise from "Eugene Onegin."* Cleveland Orchestra, Christoph von Dohnányi cond. TELARC © CD-80130 no list price.

Performance: *Good and clean*
Recording: *Very good*

TCHAIKOVSKY: *Symphony No. 6, in B Minor, Op. 74* ("*Pathétique*"). Boston Symphony Orchestra, Seiji Ozawa cond. ERATO ● NUM 75303 \$10.98, © MCE 75303 \$10.98, © ECD 88242 no list price.

Performance: *Good*
Recording: *Good*

This seems to be open season for the Tchaikovsky *Pathétique* on CD. The

new one by Christoph von Dohnányi and the Cleveland Orchestra is straightforward and to the point, with tempos that keep the music flowing—no lachrymose lingering here. The close attention Dohnányi gives to coloristic detail is shown by the very opening, which has a fine realization of the dark viola timbre. Notable, too, are the clarity, almost never achieved, in the descending bass figuration that accompanies the march tune in the third movement and the intensity and thrust of the central section of the final movement. Overall, this is a good reading of the "objective" school, enhanced by the splendid acoustics of Cleveland's Masonic Auditorium, which both contains and projects the orchestral sound to good effect. The *Eugene Onegin* Polonaise is well done, but I see no reason for it here even as a filler.

Seiji Ozawa's *Pathétique* is more emotionally charged and intensely lyrical, and he achieves the most telling results in the middle movements. My long-held view that Ozawa has a flair for the balletic elements in Tchaikovsky is certainly borne out in this case. For sheer drama, the central portion of the *Adagio lamentoso* gets top marks. The sound is good, if just a shade recessed in the string department. *D.H.*

VAUGHAN WILLIAMS: *Symphony No. 2* ("*A London Symphony*"); ***The Lark Ascending, for Violin and Orches-***



Seiji Ozawa: Tchaikovsky with flair

tra. Barry Griffiths (violin); Royal Philharmonic Orchestra, André Previn cond. TELARC © CD-80138 no list price.

Performance: *Exquisite Lark*
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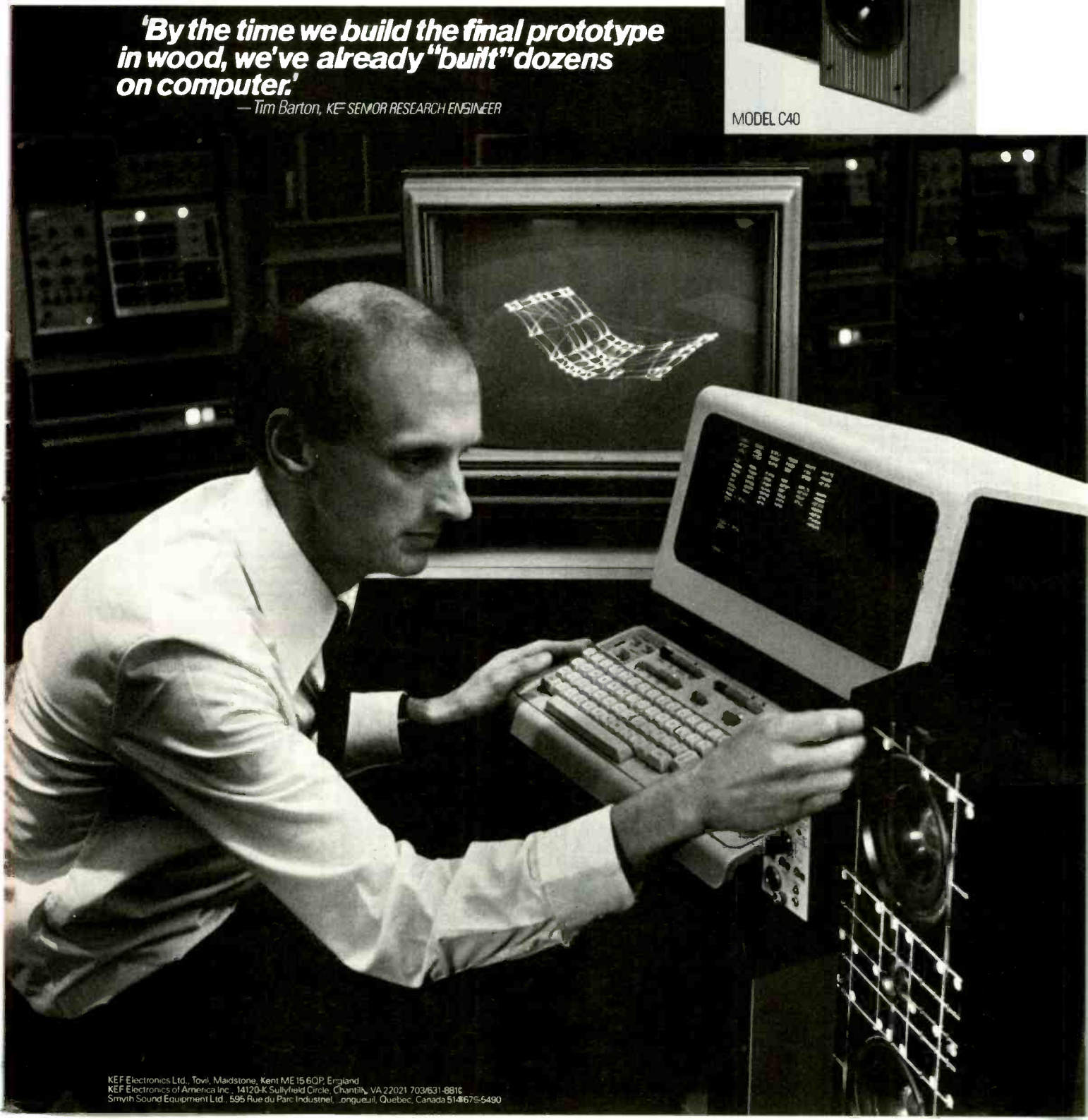


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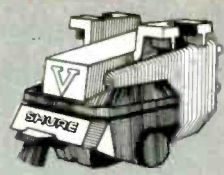


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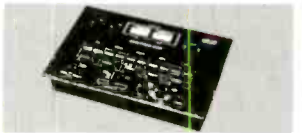
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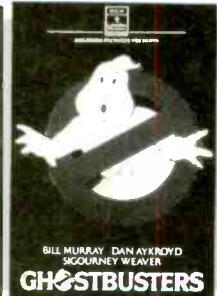
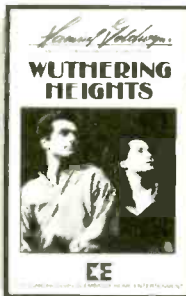


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AS AMERICAN AS PITTSBURGH

BACK in the old days, when American writers were trying to write the Great American Novel, American composers similarly became involved with the symphony. Could there be an American symphony—recognizably in the great tradition but also American in flavor and tone? Copland's Third Symphony is probably the best-known work of this kind, but there are others. During World War II, when Shostakovich's latest would arrive from a besieged Leningrad, we would send over a Roy Harris in exchange.

William Schuman's contributions to the Great American Symphony genre changed the nature of the discourse. Between his own Symphony No. 2, performed by the Boston Symphony in 1939, and his No. 7, commissioned by the same orchestra for its seventy-fifth anniversary and first performed in 1960, Schuman introduced a note of seriousness and introspection. These works retain a spaciousness and grandeur that seem connected with the work of composers like Harris and Copland, but they are also much more in the general framework of modernism. Much of the Schuman Seventh is made up of large-scale dissonant chorales. The intensity of this highly emotional music is relieved only by an optimistic rhythmic scherzo-finale, the most obviously American music of the symphony. A good piece and deserving of revival.

The Schuman Seventh has been newly recorded for New World Records by a first-rank American orchestra, the Pittsburgh Symphony, under a distinguished American conductor, Lorin Maazel. Maazel comes from a Pittsburgh family and was brought up there. He is currently the symphony's principal guest conductor and musical advi-



William Schuman

sor, presumably on the way to taking over the post of music director.

Maazel's recording of the Schuman Seventh is coupled with one of the *Steel Symphony* by Leonardo Balada, a Catalan composer (born in Barcelona, Spain, in 1933) who has lived in this country since 1956. Balada has taught at Carnegie-Mellon University in Pittsburgh since 1970, and his *Steel Symphony* is an homage to his adopted city—an evocation of the great steel mills that made Pittsburgh the extraordinary if infernal place it once was. (Today it's a bright and cheery and rather picturesque place for big corporate headquarters; the grime and smoke are gone along with most of the mills.)

Balada's hymn to industry has its predecessors, notably the work of the Italian Futurists, Soviet composer Alexander Mossolov's *The Iron Foundry*, and a lot of the music and ideas of Edgard Varèse. There are also perceptible influences from a more recent Eastern European school represented by Krzysztof Penderecki and György Ligeti. It is an extremely well-wrought (the right word, I think, for iron and steel) and colorful work, a lot more picturesque than the factories that inspired it. It begins with the orchestra tuning up and ends with the tuning A from which it departed. It is rhythmic but only occasionally uses the big pulses that one might expect. Balada has romanticized those now-gone steel mills from an essentially Old World modernist perspective. It is a curious epitaph—a European composer's poetic meditation on a giant American industry in its death throes. A strange and quite powerful statement.

Eric Salzman

SCHUMAN: Symphony No. 7. BALADA: Steel Symphony. Pittsburgh Symphony Orchestra, Lorin Maazel cond. NEW WORLD • NW 348-1, © NW 348-4, © NW 348-2, no list price.

gorgeously lush sonics, with extraordinarily deep bass tones, cannot save a reading that verges on the somnolent for much of the time. Compared with Sir Adrian Boult's two definitive recordings (the first done under the composer's supervision), André Previn's new one is a minute slower in the first movement, two and a half minutes slower in the slow movement, and almost two minutes slower in the finale. Only the scherzo is reasonably paced.

The prevailing slow tempos deprive the music of the vivid drama that marked Previn's own 1972 version recorded with the London Symphony in Kingsway Hall, issued here on RCA. Also vitiating the dramatic impact of this CD is the excessive dominance of the bass part of the spectrum, to the point where the middle frequencies—especially from the violins—are thrown out of focus relative to the musical texture. I would be inclined to blame the recording locale, Fairfield Hall in Croydon, except that this very same disc offers the very finest realization of *The Lark Ascending* that I have heard on or off discs. Virtually every other recording I know of *The Lark* makes the violin sound decidedly larger than life, but soloist Barry Griffiths, Previn, and the engineering staff have everything just right here. As in the symphony, the solo wind playing too is outstanding in sensitivity and warmth. I wish the whole disc had been as good!

D.H.

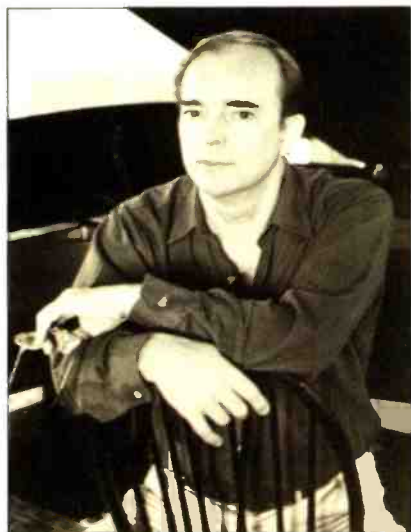
WEBER: Clarinet Concerto No. 1, in F Minor, Op. 73; Clarinet Concerto No. 2, in E-flat Major, Op. 74; Concertino in C Minor, Op. 26. Sabine Meyer (clarinet); Dresden State Orchestra, Herbert Blomstedt cond. EMI/ANGEL © CDC-47351 no list price.

Performance: *Marvelous*

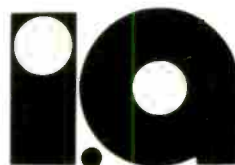
Recording: *Demonstration class*

Since the LP edition of this recording, which I've been enjoying for the last year or so, was issued in Angel's Eminence series, on a superb German pressing enhanced by DMM, at a list price of \$6.98, I was prepared to advise that it would be foolish to invest nearly three times as much for the CD—but I'd have been wrong. This release is a stunning demonstration of the new medium's capacity for surpassing the old. Sabine Meyer's clarinet now sounds even juicier and more beguiling, and the Dresden strings under Herbert Blomstedt take on a brighter sheen, but with no loss of the warmth so impressive on the LP. The gain in all-round vividness brings out more of the infectious charm in both the music and the performances, and it would be hard to imagine this music (or any music, for that matter) better served. For the record, while the LP was labeled "digitally remastered," the CD is marked "DDD" (digitally recorded), and I'm sure the latter is correct. There is also a different, more elaborate set of notes with the CD.

R.F.



Leonardo Balada

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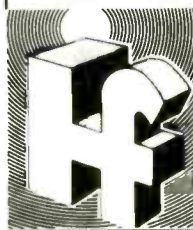
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Performance: Spectacular
Recording: Likewise

Remember the palmy days of the direct-cut super LP? The general assumption was that once the original metal master had done its service, that would be the end of production. Well, the team of Ed Wodenjak and Bert Whyte, who produced these last recordings by organ virtuoso Virgil Fox (1912-1980), saw to it that mastering was also done on analog tape, and, more important, on digital tape using the then brand-new Soundstream recording system. The Bainbridge label has taken over the material issued on two direct-to-disc LP's by Crystal Clear and has reissued it on a single CD.

In my 1979 review of the Crystal Clear records, I recommended the set to Romantic-organ buffs and subwoofer fanatics. On compact disc the sound is no less spectacular, but the balance between the various divisions and ranks of the 1977 Ruffati organ (at Garden Grove Community Church in California) is decidedly more realistic. The acoustic surround is fairly close, but the sonics are astonishingly clean.

Virgil Fox might be considered the Stokowski of the organ. Fox's technique was nonpareil. His musicianship ranged from the most scrupulous to what purists considered outrageous, but his concert audiences loved every bit of it.

Unquestionably, the most idiosyncratic interpretation here is that of the Bach Toccata, Adagio, and Fugue, in which the adagio is treated as a study in *diminuendo* rather than working toward the usual roof-raising climax following the recitative. But it is the Gallic spectacles that find Fox in his own element—the Litanies of Jehan Alain and the fleet Marcel Dupré Prelude and Fugue. And it is a pleasure to hear the popular Franck work handled briskly rather than in the usual ponderous style. The Jongen, which tried my system sorely back in 1979, posed no problems this time around, although my system has been upgraded since then. All told, this is a highly enjoyable production. D.H.

MIECZYSLAW HORSZOWSKI: Piano Music of Beethoven, Chopin, Debussy, and Mozart (see Best of the Month, page 88)

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Simply turn to the Reader Service/Buyer Poll card in this issue. (You can locate it in the Table of Contents.) You'll find full instructions on the card.

We hope you'll join us this month—and every month in which you buy audio/video equipment. Your answers are important to us—and you'll find the resulting benefits important to you.

Turn to the Buyer Poll now—and thanks for helping us out!

Stereo Review

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SEPTEMBER

THE HIGH END

by Ralph Hodges



The Well-Tempered Ear

ALL of the mail that has turned up on my desk recently has had to do with questions of the physiology and psychology of the human hearing mechanism. I can't imagine why this should be so, but it's certainly a pleasure to see the readers of this column digging a bit below the surface of things.

To those who have suggested that all manner of phenomena—such as fatigue, tedium, indigestion, general illness, impatience, alcohol, and drugs—might have a significant influence on the listening experience, I can cheerfully report much confirmation in past and present literature. I have seen trained ears become remarkably erratic through annoyance at the presence of tobacco smoke in a room. I have colleagues who are uncomfortable evaluating stereo equipment unless the music used is of no interest to them. (I am the opposite; if the music has no substance to my mind, my attention span shrinks almost instantly.) There are numerous published accounts of how people who listen for a living have been tripped up by uncongenial mental or physical states. Fortunately, the best of them quickly realize when they're

impaired and take their condition into account.

What has kept this information from wide understanding is, first, that it's obviously unquantifiable and, second, that it tends to appear in technical journals that have their own, sometimes almost impenetrable jargon. Furthermore, many of the implications have to be extracted by inference.

So where can an interested party turn to learn about hearing foibles and fallibilities? A good starting point is one of the classics. Hermann Helmholtz's *On the Sensations of Tone*, published well over a hundred years ago, has an astonishing amount of information in it that applies directly to sound-reproduction devices the author never heard or envisioned. But if this book proves to be difficult going (as it is for many), a great deal can be deduced from a much pleasanter exercise: a simple contemplation of the equally tempered or well-tempered musical scale.

As a term, "equal temperament" would seem to suggest orderly mathematical relationships existing between various notes on, for example, a piano keyboard. Nothing could be further from the truth. Octave relationships are direct multiples of one another in the well-

All kinds of phenomena—fatigue, tedium, indigestion, illness, impatience, alcohol, drugs—might significantly influence listening.

tempered scale, but within the octaves everything is willy-nilly, no note having any particular bearing on its predecessor or successor.

The well-tempered scale was devised empirically, over quite a period of time, in an effort to perfect a system by which melodies could be transposed from one key to another without losing their identities—and by which big chords spanning many octaves could be sounded without universal wincing. Except for a few visionaries, no one expected it to be eternally enduring, and even today there are composers trying to wean

us away from it. And yet it is hard to find a country that doesn't have the well-tempered scale at the core of its contemporary music. It makes no sense to the mathematician, and even most musicologists tend to believe it is an "impure" construction that owes its appreciation to a learning process. Nevertheless, youngsters with very modest musical talents seem to be able to switch keys within the system effortlessly and securely, even though the tonal relationships are arbitrary. People foreign to Western music find it remarkably accessible. It works, and the numbers be damned.

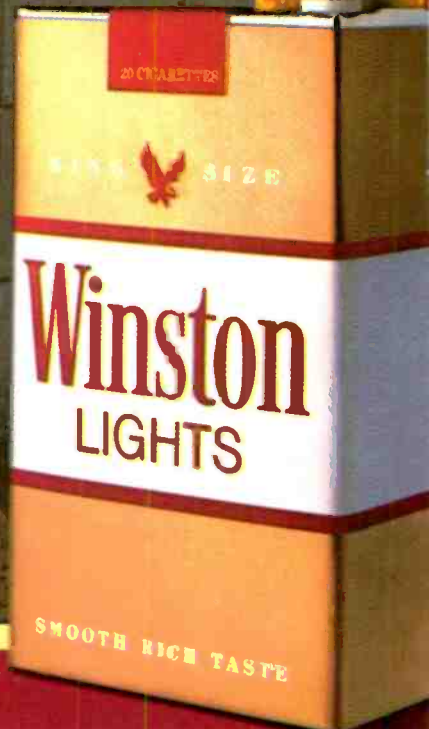
Meanwhile, in the real world, musical instruments continue to form their overtones along Pythagorean (that is, strictly mathematical) lines, and many of the most familiar forms of distortion do likewise. There is, in other words, a good deal of conflict built into our systems of writing and performing music, and the tension that results has elevated some composers to glory and reduced others to ignominy. Instruments like the pipe organ, naturally rich in overtones and further enhanced by the player's ability to select the harmonic structure of notes at the console, entrance some listeners and drive others half mad. The informed guess is that there is just too much war going on between Pythagorean and well-tempered mechanisms for the ear seeking serenity. Alas, many of those most upset are faithful churchgoers.

Have we gotten to any big conclusions yet? I can think of two that are perhaps worth rattling around mentally. First, if we had decided on a system of temperament that more closely approached mathematical ideals, distortion might very well be less audible or less objectionable. Second, if Western music lacked its built-in tensions of pitch and tonality, we might be able to regulate our perceptions so that a composition wasn't pleasant one day and irritating the next. If you carry these concepts to their logical conclusions, you might discover reason to believe that, given a different sort of music, we'd have much less need of hi-fi. But what's done is done. Besides, I like the well-tempered scale. I whistle it all day long. □

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