

Stereo Review

INCORPORATING HIGH FIDELITY™

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BETTER AUTOSOUND**

**SPECIAL TEST:
PIONEER'S PREMIER
CAR DSP HEAD UNIT**

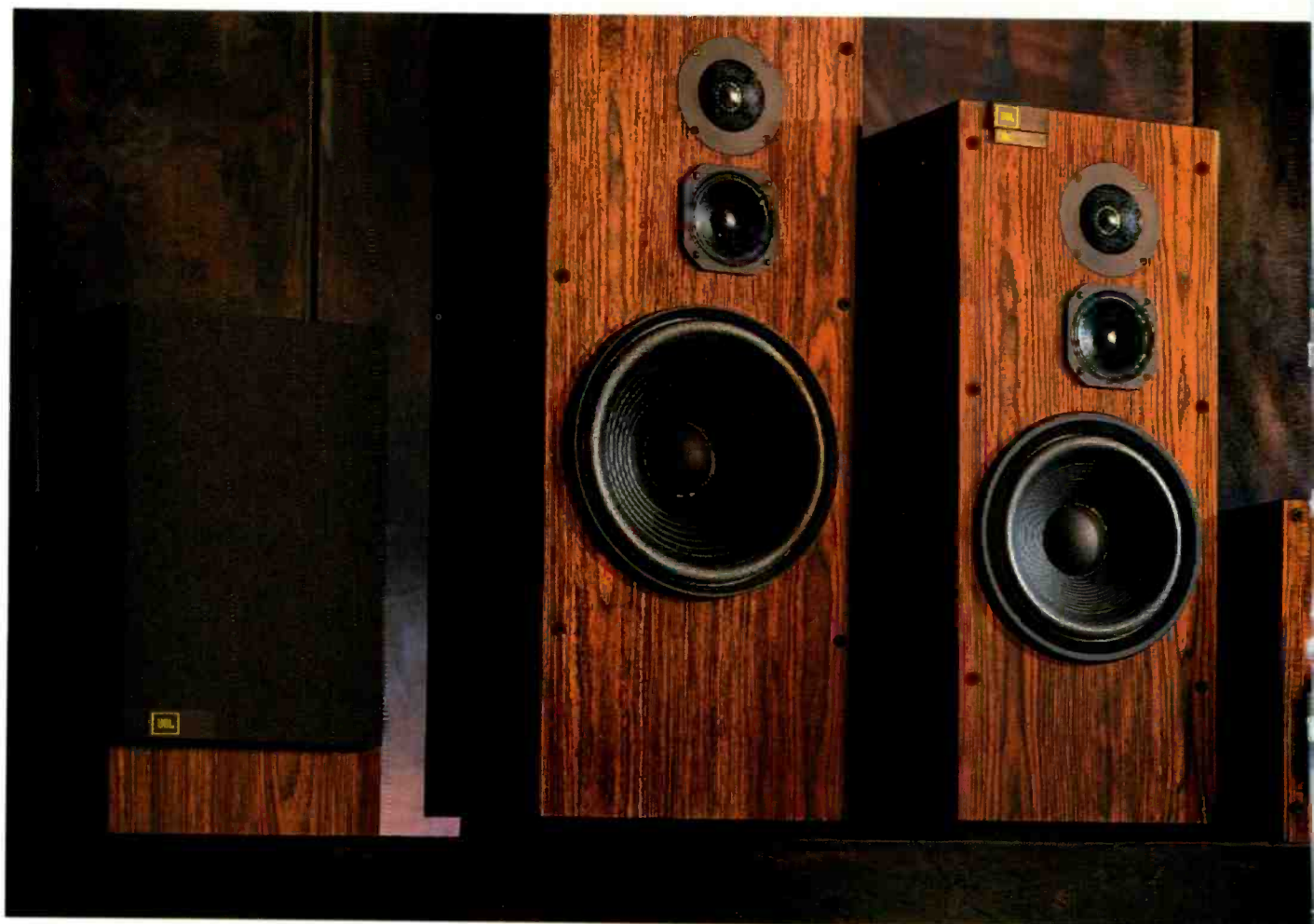
**ALSO TESTED:
CELESTION SPEAKERS,
JVC CD PLAYER,
AND MORE...**



MR DAVID S BUCHANAN
8960 YELLOW WOOD PL
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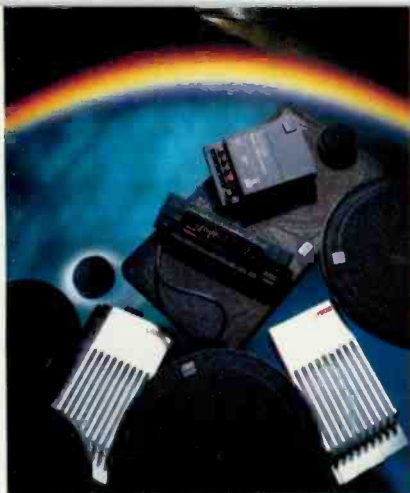
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Cover

Some options for upgrading a factory car stereo system: the Technics DA3000 DSP controller, Canton S30 amplifier modules, two-way a/d/s/ Model 320i/s speakers with separate crossover, the a/d/s/ S6.2i plate subwoofer, and a/d/s/ S8 subwoofers. For more, see "Tune-Up," page 49.

Photograph by Dan Wagner

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Stereo Review

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 Masterpiece Music from Newport Classic

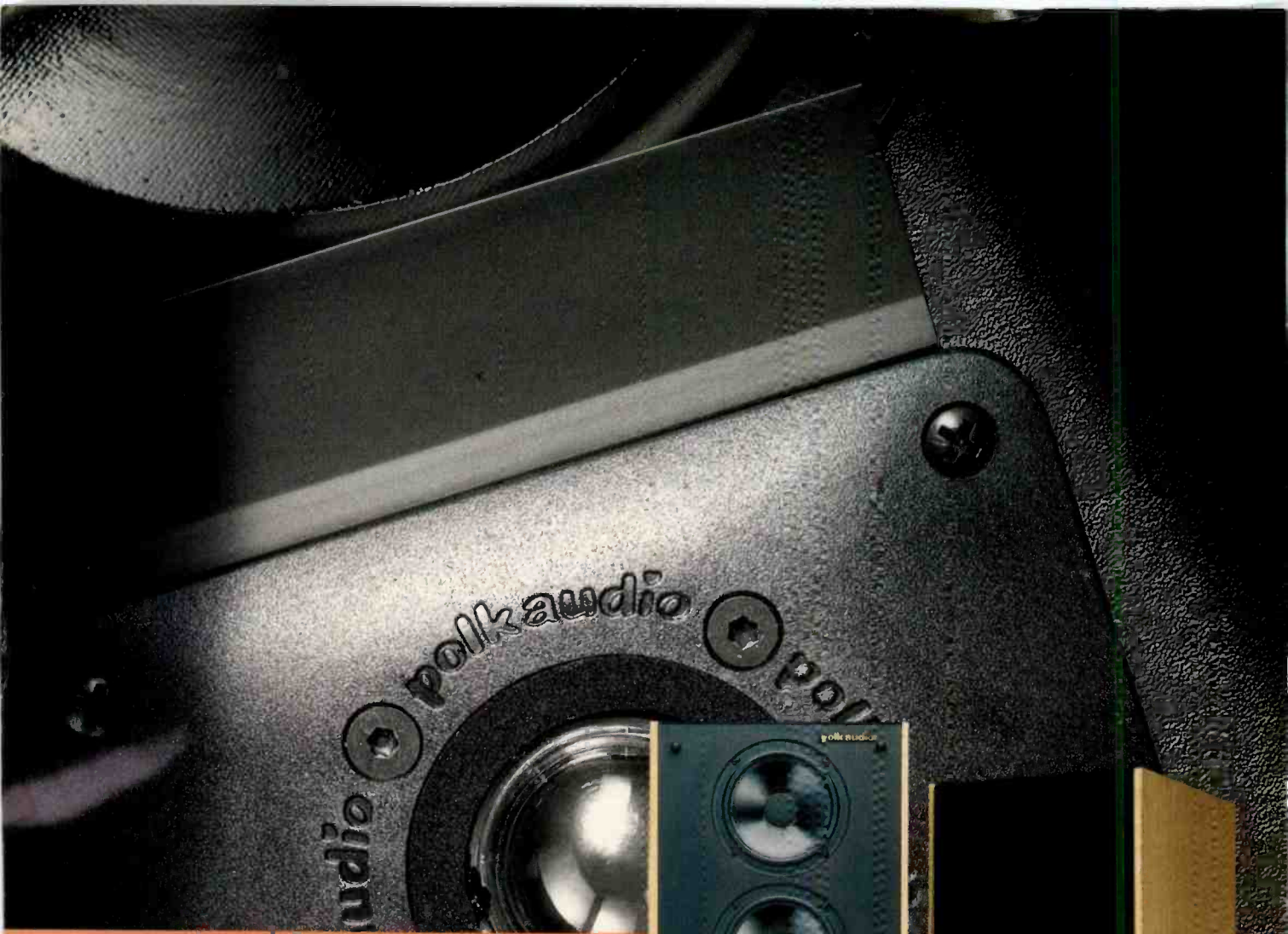
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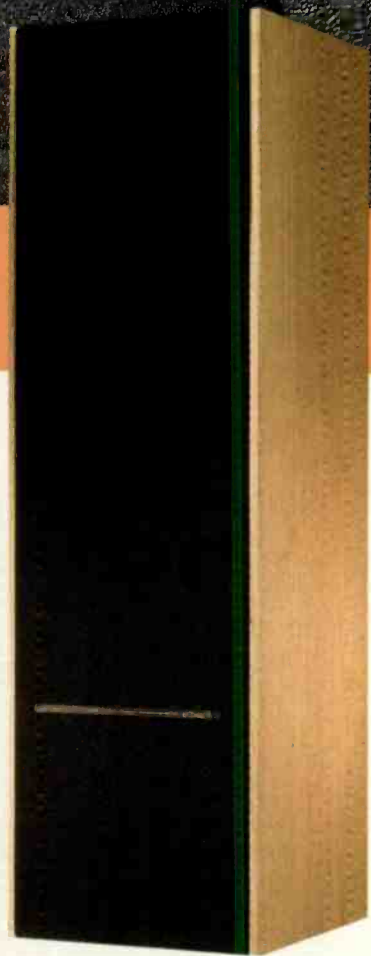
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Where to buy Polk Speakers? For your nearest dealer, see page 96.



BULLETIN

by Rebecca Day and William Livingstone

Supporting Porter

In February, Dionne Warwick received the first "You're the Top" Award for her contributions to sustaining the Cole Porter legend and winning new audiences for his music. The presentation was a part of the celebration of the one-hundredth anniversary of the birth of the beloved American songwriter, who was born in Peru, Indiana, June 9, 1891.

On May 18 and 19 the Indianapolis Symphony, conducted by Erich Kunzel with narration by Kitty Carlisle Hart, will give two concerts of Porter's music in Indianapolis. On June 8 the U.S. Postal Service will issue a first-class stamp commemorating Porter's birth. In New York on June 9 a gala birthday concert will take place at Carnegie Hall, and a similar gala will be held in London on June 16.

A three-CD (or three-cassette) collection of definitive renditions of Porter songs is among May releases by Koch International.

Digital Eight

Japanese manufacturers Aiwa, Canon, Fuji, Hitachi, Maxell, Konica, Matsushita, Sanyo, Sony, TDK, and Toshiba announced that they have jointly developed a 16-bit digital pulse-code modulation system for Hi8 camcorders. Currently, 8mm camcorders offer AFM analog stereo and 8-bit digital stereo or mono recording. The new system will have a frequency range of 5 to 22,000 Hz—equivalent to that of the CD and digital audio tape formats—but its sampling frequencies are at 48,000 and 32,000 Hz, eliminating the possibility of a direct digital recording from a CD or DAT. Prototypes of the

system are expected at the Japan Audio Fair next fall.

Music Notes

Nippon Columbia, the parent company of Denon Records, has acquired the Savoy Jazz catalog, including recordings by the bop artists Charlie Parker, Miles Davis, Cannonball Adderly, and many others. . . . In addition to "For the Duration," Rosemary Clooney's collection of World War II songs on CD and cassette, Concord Jazz has released a cookbook, *Concord Jazz Cooks*, available for \$11.95 plus \$3 shipping from Concord Jazz, Inc., P.O. Box 845, Concord, CA 94522. It includes recipes from Clooney, Dave Brubeck, George Shearing, and other Concord recording artists. . . . Neville Marriner and the Academy of St. Martin in the Fields have signed an extensive contract with Capriccio, a German recording company.

Product Notes

Technics has introduced two high-end component shelf systems called the Imagine line. The top model, the SC-E30 (\$2,200), features the SV-E10 DAT deck, and the SC-E10 system includes an analog cassette deck with Dolby HX Pro circuitry. . . . Canon, which will launch a line of loudspeakers in Europe later this year, expects to enter the North American speaker market in 1992. Plans also call for the introduction of a Canon Audio line of hi-fi components, possibly next year as well. . . . Nikkodo's LV-2000 karaoke combi-player (\$999) has a built-in digital echo processor for voice reverberation, a sound-multiplex switch and voice-changer function to eliminate

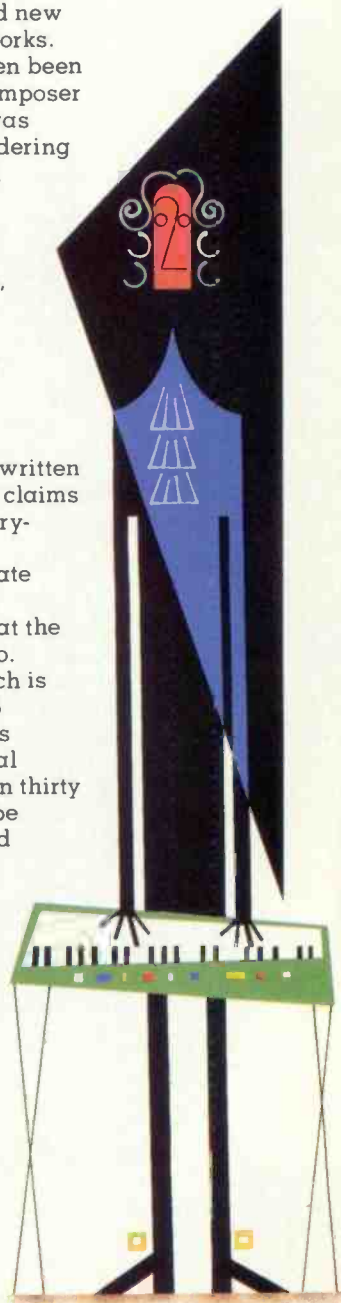
vocals on multiplex discs, and two microphone jacks.

Mozart Fallout

This year in observing the two-hundredth anniversary of the death of Mozart, both major and minor record companies have issued new recordings of his 835 works. Some attention has even been focused on his rival composer Antonio Salieri, who was once suspected of murdering Mozart, and EMI/Angel has just released a complete recording of Salieri's opera *Les Danaïdes* with soloists, chorus, and the Radio-Sinfonieorchester of Stuttgart conducted by Gianluigi Gelmetti.

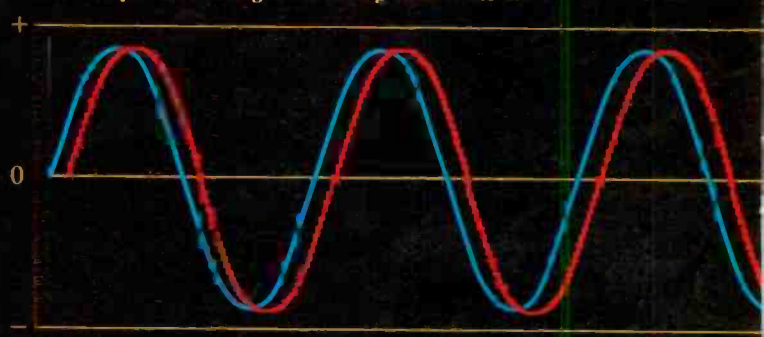
Roll Over, Mozart

Even if you've never written music before, Yamaha claims that with its new battery-powered QY10 music sequencer you can create professional-sounding musical compositions at the touch of a button or two. The portable unit, which is about the size of a VHS videocassette, contains sampled sounds (digital recordings of more than thirty instruments) that can be played back at will and combined into an infinite variety of pieces. Useful to beginners for ear training, the QY10 will enable professional musicians to compose anywhere and will make it possible for camcorder enthusiasts to create original soundtracks for their home videos. The QY10 is priced at \$399.





Blue: Output of bit stream digital-to-analog audio waveform.
Red: Output of 16-bit digital-to-analog audio waveform.



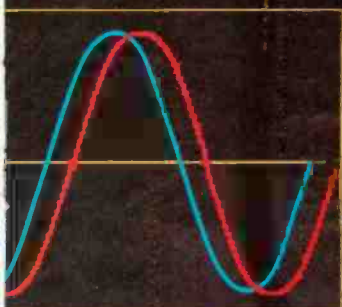
The advantages of a technological breakthrough are usually obvious. But they bring with them attendant problems. Eliminating those is what leads to perfection.

Everyone knows "digital sound" is cleaner, crisper. But sound waves aren't digital at all. They're analog. So the digital signals must be converted back to analog signals before they're sent to the speakers. The degree of accuracy of this process determines how good the sound is, how real.

The two accuracy problems involve "reading" and "converting" the digital information on the CD.

The "reading" or "sampling" occurs at 44,100 times per second. A 4x's oversampling digital filter purifies the sound at 176,400 times per second. And our 8x's oversampling CD units, 352,800 times per second. By utilizing an 8x's oversampling digital filter, virtually all harshness and coloration of sound are eliminated.

Finally, Skip-Resistant, Bit-Streamed, Fiber Optics, Digital CD.



With a conventional 16-bit CD, the sampled information is converted to an analog signal in this 16-bit "chunk." Big chance for error. Because the order within this chunk may be almost random. Take the numbers 1, 5, and 9. Arrange them in one order and the number is 951. In another, 519. Big difference. And in a 16-bit binary environment it could be even worse. Because the least significant bit represents the number 1 and the most significant, 32,768. A gap far greater than that between the decimal numbers of 1 and 9.

So our digital-to-analog converters, DAC's, don't convert the data in chunks. They do it one bit at a time. It's called "bit streaming." And it ensures that the analog waveform that is sent to the speakers is the ultimate in accuracy.

And because we're reaching for perfection, three more quick features. Our CD's are almost skip-proof. So don't worry about bumpy roads. And our

disc-to-disc access time is super-fast. No more twenty seconds of silence. And our 6300 CD changer unit employs a fiber optical cable to run through the car up to our head unit. After all, once you've gone to all this trouble to keep the sound clean and accurate, why mess it up with some static interference.

More importantly, our trunk-mount CD changers with our FMC 303 controller will plug into any existing in-dash FM radio. No more underdash-cutting and splicing. Which means when you go to sell your car, just unplug the unit, and the car's audio system is still just like it came from the factory.

Last, but certainly not least, is DAT. Digital Audio Tape units. We not only have them, we developed the first DAT player for the car. Our current model not only plays DAT's but also controls our CD changer. The ultimate in digital entertainment.

clarion



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LETTERS

Dolby S vs. DAT

Ken Pohlmann's conclusion in "Dolby S vs. DAT" (March), that the listening tests revealed less dramatic sonic differences than the differences in laboratory measurements would suggest, failed to take into account the DAT format's major advantage: consistency. He did point out that the analog deck used in the test required a lot of tweaking for optimum performance, which is probably not practical for the consumer. But he failed to point out that when an analog tape is played back on a different machine from the one that recorded it, the sonic differences are usually much greater because of azimuth differences between the machines and possibly differences in Dolby encoding and decoding. Given the consistency and flexibility of DAT, it comes out the real winner.

SCOTT REED
Park Forest, IL

DAT is here to stay, and I regret neither its arrival nor my purchase two years ago of an analog cassette deck. I wish, though, that a tape deck with dbx noise reduction had been chosen to compete against DAT. Not that it would have made an ultimate difference, but the dbx system's signal-to-noise ratio of better than 95 dB compares with that of DAT. I've never understood why dbx was not embraced with more gusto and now seems relegated to being a footnote in audio history.

Finally, it seems to me that for most listening—and certainly in an automobile—the benefits of the digital medium, whether DAT or CD, are simply inaudible, and a cheaper analog tape, even with Dolby C, is more than adequate.

STEVE KOHN
Copperas Cove, TX

Cocteau Twins

I cannot understand how someone could be as hostile and narrow-minded as Mr. Tim Forte (March "Letters") about one of the most avant-garde and original bands in the world, the Cocteau Twins. Elizabeth Fraser is a vocal goddess. No one, not even Sinéad O'Connor, can do with her voice what Liz does. When Mr. Forte says that "her electronically enhanced vocals came across as shrill and irritating," he's con-

We welcome your letters. Please address correspondence to Editor, STEREO REVIEW, 1633 Broadway, New York, NY 10019. You should include your address and telephone number for verification. Letters may be edited for clarity and length.

fusing layering with electronic manipulation. As for his complaint that he "could not decipher any of the lyrics"—you're not supposed to understand the lyrics! Liz has invented a whole new language that only she understands.

ANDREW BERENDS
Chester, VT

Power Labels

The March "New Products" item on the Alpine Model 7294 cassette receiver stated that the built-in amplifier is rated for 16 watts per channel into two channels, but the faceplate indicates it is 25 watts per channel.

JEFFREY SHAW
Seattle, WA

According to Alpine, the Model 7294 (as well as its replacement, the slightly modified 7294S) is rated for 16 watts per channel with 3 percent distortion. The 25-watt figure shown on the faceplate represents the unit's maximum continuous output, at an unspecified level of distortion.

Compact Test Disc

Where can I get the CD "Compact Test: *Demonstrations et Essais*" on the Pierre Verany label (PV-784031), as recommended in E. Brad Meyer's article "Listening" in January?

ERIC DENSON
Memphis, TN

Recordings on the Pierre Verany label are now being imported and distributed in the U.S. by Allegro Imports, 3434 S.E. Milwaukie Ave., Portland, OR 97202; telephone (800) 288-2007 or (503) 232-4213. The "Compact Test" disc should be available at large record stores and audio dealers by the time you read this.

Play Times

When compact discs first came out, I understood that the most a CD could hold was 75 minutes of music. Fine, I thought, since most albums are only 45 minutes anyway. Then the "Chicago Transit Authority" reissue came out with a total time of 76:34. Okay, I thought, they found a way to stretch it a bit. But now Blue Öyster Cult has finally released "Extraterrestrial Live" on CD with a total time of—are you ready?—78:09! Okay, just what is the limit on CD's? 80 minutes? 85? 90? (I wish!)

BRUCE MORTON
Utica, NY

If the disc manufacturer follows the standards established by Philips and Sony, maximum playing time is a little more than 74 minutes. It is possible to squeeze

the pitch of the data spiral somewhat and thereby slightly extend the playing time, but there is some risk involved in doing so, since the number of defective pressings may increase and some players may have trouble handling even nondefective out-of-standard CD's.

Domingo and Sons

In March "Record Makers," it was stated that Plácido Domingo's two sons would be making their recording debuts with the famed tenor. That is only partially true. Plácido, Jr., made his recording debut on the Angel CD "Roman Heroes," where he sings Flavio.

GERALDINE SEGAL
Randallstown, MD

Live Performance

I am a bit disturbed by the letter from Mr. David Chamberlain printed in the February issue. Some of us, it appears, have forgotten what our audio systems are all about. They were invented so that we could re-create events that we might otherwise not have been able to experience. As an audio recording engineer, I stand firm in my position that there is *no* substitute for a live performance. The dynamic intensity, the interaction between the performer and his audience, the sheer energy, the spatial ambience of the performance hall—all contribute to the complete experience, and they cannot be re-created in a recording studio.

To record a live performance in an attempt to retain its fleeting qualities is, more often than not, sheer hell. In the studio the environment can be rigidly controlled, but in concert there is only one shot for both the performer and the engineer. To have everything come together in a recording of a live performance is, well, magic. A live performance worthy of being released on records must surely be a work of art. To condemn such a recording because it contains applause is rather immature.

If we would only take a moment to reflect on the not too distant past when a note in a performance lasted *only* as long as the decay time of the room, and was remembered *only* by those in attendance, we might appreciate the marvelous machines that we now take for granted. These machines allow us time and time again to relive a glorious performance that took place in a real locale, with reverberation from a real room, and, yes, with applause from real people. Recording studios have their place, but when it comes to the kind of performance we are talking about here, I'll take the applause.

PHIL WHITE
Stillwater, OK

BOB MINTZER INVITES YOU TO SIT IN WITH HIS BAND.

The personnel list of the Bob Mintzer big band reads like a who's who of New York studio players.

But anyone can sit in. Anyone with a CD player.

You see, Mintzer's latest release, *Art Of The*

number of individually pre-amped microphones. While recording, the signal from each microphone is immediately converted to digital and mixed on a 24-bit digital console.

The result is a recording with more musical information than is usually present in ordinary recordings.

Which in turn complements Mintzer's composing and arranging



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The credit for this sonic feat goes chiefly to engineer and DMP Records president, Tom Jung.

Jung subscribes to the "less is more" school of engineering. To record the 17-piece Mintzer band, he used a minimum



Audio Magazine calls the T1030 Reference Standard Speaker "a tremendous value." Its 1-inch soft dome tweeter, 6½-inch midrange and dual 8-inch copolymer woofers recreate Bob Mintzer's ensemble brass with clarity and power.

style. While big band music is in itself complex, Mintzer creates even deeper shadings of texture and complexity in his music. Shadings that would be lost to lesser recording techniques.

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BostonAcoustics



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NEW PRODUCTS



Sony

Sony's XTC-100 car stereo receiver and CD-changer controller has a detachable faceplate to guard against theft. CD functions include repeat play, track and disc programming, and shuffle play. The tuner employs Sony's Super Interference Rejection circuitry and also features eighteen FM and six AM presets, auto memory, and memory scan. There is a front-panel input for a portable cassette player and two preamplifier outputs. The four-channel amplifier section is rated at 20 watts per channel. Price: \$340. Sony Corp. of America, Dept. SR, Sony Dr., Park Ridge, NJ 07656.

Bang & Olufsen

The Beosystem 2500 from B&O includes a programmable CD player, AM/FM radio, cassette deck, and display. The cassette deck features Auto Track Search to locate or program specific tracks; when recording from a CD, the deck automatically pauses after the disc finishes playing. Four amplifiers are built into the detachable, bi-amplified bass-reflex speakers, which have 1-inch dome tweeters and 4½-inch woofers. The grilles are available in blue, jade, cerise, gray, black, or white. The smoked-glass doors that cover the central section open at the approach of a hand. Overall dimensions (with speakers) are 33 x 14 x 6¼ inches. The system comes with the Beolink 1000 interactive remote control. Price: \$3,500. Bang & Olufsen, Dept. SR, 1150 Feehanville Dr., Mount Prospect, IL 60056.



Sanyo

The MAR-1200 is part of Sanyo's new line of car stereo cassette receivers featuring automatic loudness control, automatic tape standby, and the company's BassXpander circuit, which boosts low-frequency signals by 10 to 12 dB. The amplifier is rated for a maximum of 25 watts into two channels with total harmonic distortion of 0.8 percent. The tuner has twenty-four station presets, including six auto-travel presets. Cassette features include autoreverse and Dolby B noise reduction. Price: \$150. Sanyo, Dept. SR, 21350 Lassen St., Chatsworth, CA 91311.



Music by Mozart.

Don't get us wrong. We wouldn't presume to tamper with something as perfect as *Eine Kleine Nacht Musik* or *The Magic Flute*. We just wanted to make them easier to play.

So we created the M-T5010, the world's first cassette deck with on-screen commands. It's the newest part of Mitsubishi's Home Theater system, designed to make your audio and video



The M-T5010 dual cassette deck.



The M-R8010 Home Theater receiver.



Words by Mitsubishi.

components work together as one cohesive, easily-controlled unit.

No more straining to see those tiny little LED displays on your audio components, or guessing whether you've done something right. This tape deck has on-screen menus for every function, from recording to scanning. And visual displays that confirm what you're doing every time you press a button.

Of course, the M-T5010 is more than just a

new toy for videophiles. It has all the technical perks you'd expect from state-of-the-art audio, including dual amorphous tape heads, Dolby® HX Pro, and Dolby B & C noise reduction. Add to that functions like blank skip and intro-scan, and you get a cassette deck that makes playing your favorite music easier than it's ever been.

We like to think Herr Mozart would approve.

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NEW PRODUCTS

Arcam

The Delta 110 preamplifier has a built-in Bitstream 1-bit digital-to-analog converter for use with the company's Delta 170 CD transport. The preamplifier has five analog inputs, switch-selectable coaxial and optical digital inputs, moving-magnet and moving-coil phono inputs, and two tape loops. Independent selection circuits enable users to listen to one

source while recording from another. All circuits are built on computer-grade, double-sided printed-circuit boards. The digital and analog sections have separate toroidal power transformers and twelve power regulators to insure isolation. Price: \$1,500. Distributed by Audio Influx, Dept. SR, P.O. Box 381, Highland Lakes, NJ 07422.



Carver

The Carver DPL-33 surround-sound processor incorporates a Dolby Pro Logic decoder with second-generation automatic balance adjustment. Its three amplifier channels deliver 15 watts each to a pair of rear speakers and 25 watts to the center speaker. There are separate rear and center volume controls as well as a motorized master volume control. A

"Hall" mode, with two delay settings, is included for sources that have not been Dolby encoded. The unit connects to a receiver, integrated amplifier, or preamplifier via a tape-monitor or external-processor loop and has a replacement loop. A remote control is included. Price: \$450. Carver, Dept. SR, 20121 48th Ave. W., Lynnwood, WA 98036.



Monitor Audio

Monitor Audio's Studio 15 single-flow-reflex loudspeaker incorporates a 6½-inch woofer with a sandwich ceramic/aluminum-alloy cone, a die-cast chassis, and a 1¼-inch high-temperature voice coil. The tweeter is a gold-anodized-alloy dome with vented voice coil and magnetic-fluid cooling. Frequency response is rated as 35 to 28,000 Hz ± 3 dB and sensitivity as 88.5 dB. Nominal impedance is 8 ohms. Each speaker measures 10 inches wide, 20 inches high, and 8 inches deep and weighs 24¼ pounds. The cabinet is finished in a double layer of black lacquer. Optional lead-filled ST-15 stands come assembled and weigh 66 pounds each. Price: \$4,000 a pair; stands, \$750 a pair. Monitor Audio, distributed by Kevro International, Dept. SR, P.O. Box 1355, Buffalo, NY 14205.



Niles Audio

Niles Audio's IRD-8 infrared repeater and routing system enables users to control one or more components individually within an audio/video system, such as a single CD player among a stack of players or a single TV set in a "wall" of TV's. One IRD-8 can route an input signal to up to eight destinations, with adjustable output levels so each infrared flasher can target a specific component without affecting others nearby. The wall-mountable IRD-8 comes with an LED panel and a remote control. Price: \$350. Niles Audio, Dept. SR, 12331 S.W. 130 St., Miami, FL 33186.



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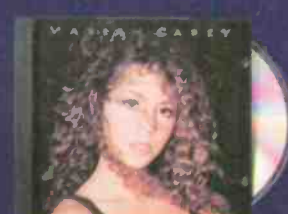
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NEW PRODUCTS

Bose

Bose has updated its three-piece Acoustimass 5 Direct/Reflecting speaker system with the Series II, which it says provides better bass, a wider dynamic range, lower distortion, and a smoother frequency response than its predecessor. The satellites have four 2½-inch wide-range drivers in cubical enclosures that can be mounted on a wall or ceiling. The bass module, which can be hidden from view, has two 5¼-inch woofers that fire into three internal chambers. The satellites measure 6½ x 3½ x 4¼ inches, the bass module 7½ x 14 x 19 inches. The system is available in black or white. Price: \$799. Bose, Dept. SR, The Mountain, Framingham, MA 01701.



Precise

The Precise Model 200BL is part of the company's new Beta line of loudspeakers styled by Design Edge of Philadelphia. The bookshelf-size, two-way bass-reflex system features computer-grade crossover components, gold-plated binding posts, and ¼-inch medium-density-fiberboard cabinets. The speaker has a 1-inch tweeter and a 6½-inch woofer. Frequency response is rated as 38 to 35,000 Hz, sensitivity as 89 dB. Finishes are oiled walnut or satin black. Price: \$550 a pair. Precise Acoustic Laboratories, Dept. SR, 200 Williams Dr., Suite B, Ramsey, NJ 07446.



Blaupunkt

The Blaupunkt M4 mobile compact disc changer is designed to be used with the company's Louisville AM/FM cassette receiver (not shown, \$400). The M4, approximately 4 x 8¼ x 11¼ inches, can be mounted horizontally or vertically almost anywhere in a car. The changer

mechanism has a spring-loaded, oil-damped suspension system. The unit uses dual 16-bit digital-to-analog converters and a four-times-oversampling digital filter. Price: \$500. Blaupunkt, Dept. SR, 2800 S. 25th Ave., Broadview, IL 60153.

Sunstone Enterprises

CD/Mate carrying cases come in ten- and twenty-CD sizes. The padded cases have static-free jersey pockets that prevent discs from touching each other, and they come with self-adhesive tabs that can be attached to smooth surfaces such as a car sun visor or the bottom of a portable CD player. Prices: \$18.95 and \$29.95 for ten- and twenty-disc holders, respectively. Sunstone Enterprises, Dept. SR, 19215 Parthenia, Unit C, Northridge, CA 91324.



Eclipse

Eclipse's ECE-302 removable car stereo cassette receiver can operate the company's ESD-330 ten-disc CD changer. The CD controller functions include disc and track selection, repeat, scan, and random play. The amplifier section is rated for 12 watts each into four channels; there's also a pair of line-level outputs. The tuner features automatic channel blend, a balanced mixer circuit, an FM-noise blanker, eighteen FM and

six AM presets, preset scan, and one-touch preset memory. The cassette player features a self-adjusting dual-azimuth tape transport, bidirectional fast-wind automatic program selector, Dolby B noise reduction, and ignition-off standby, which moves the head mechanism off the tape without ejecting the cassette. Price: \$380. Eclipse, Dept. SR, 19600 S. Vermont Ave., Torrance, CA 90502.

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Julian Hirsch,
Stereo Review, 1987

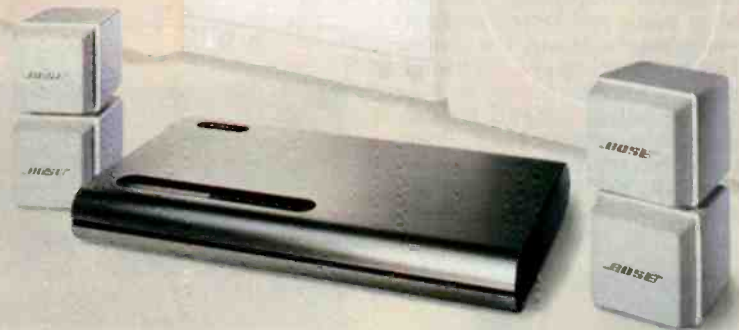


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Hans Fantel,
*The New York Times**, 1990



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SPECIAL CD OFFER

Masterpiece Music from Newport Classic

To celebrate the fiftieth birthday of the keyboard virtuoso Anthony Newman, Newport Classic has compiled a compact disc anthology of his recordings on the fortepiano, the harpsichord, and the organ and is offering this CD exclusively to STEREO REVIEW's readers for only \$4, which covers postage and handling.

Included among the selections of works from the Baroque and Classic periods is Newman's organ transcription of Jean-Joseph Mouret's Fanfare for Trumpets, the theme music for the popular PBS TV series *Masterpiece Theatre*. In 1987, Newman won a Record of the Year Award from STEREO REVIEW for a recording of Beethoven and Mozart. On this special CD, "Anthony Newman's Keyboard Companion," Mozart is represented by movements from Sonata No. 16 and from *Eine Kleine Nachtmusik*, and Beethoven is represented by the Choral Fantasy (with the Philomusica Antiqua Orchestra and Chorus conducted by Stephen Simon) and by the third movements of the "Kreutzer" Sonata for fortepiano and violin and the "Moonlight" Sonata for fortepiano. Music by Bach, Couperin, Daquin, Handel, and Scarlatti completes the contents of the disc. It has a total playing time of 71:43.

STEREO REVIEW's special CD sampler offers are intended to help our readers experiment with different kinds of music at minimal cost. We hope they help you increase your pleasure in listening to a wider variety of music, and we are pleased to add "Anthony Newman's Keyboard Sampler" to the series.

The Analytical Indexing feature of this CD is a unique tool for those who wish to observe the style of Baroque and Classic keyboard music. Newman is a celebrated American performer on period instruments, and the extensive notes included with this sampler disc explain the instruments, the

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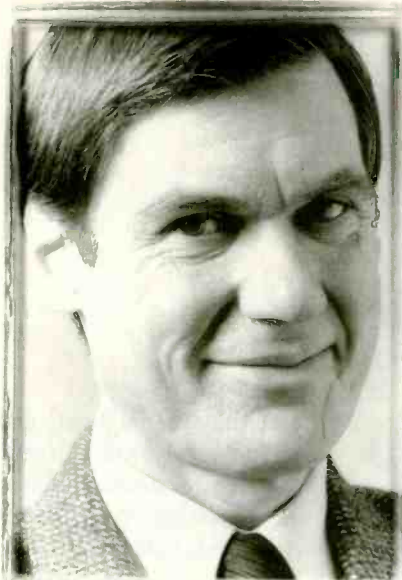
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AUDIO Q & A

by Ian G. Masters

CD's with Graphics

Q Recently I have encountered a number of compact discs that apparently have graphics included. I have tried playing these on a laserdisc player but have only been able to hear the music. How do I get to see the graphics?

SCOTT PIEPENBURG
Whitewater, WI

A One of the specialty CD formats is called CD+G, the G standing for graphics. It uses some of the excess storage capacity built into the compact disc system to encode in a teletext-like format still pictures, song lyrics, and so forth. The format is fairly popular in Japan, where it is used for karaoke sing-along systems. To see what's on your discs, you will need a special CD player designed to extract the graphics information. For the time being, both the discs and the machines to play them on are rare, but that may change.

Adding Drivers

Q My speakers, coaxial two-way models in bass-reflex enclosures, are about twenty-five years old. I can't afford to replace them, but I would like to add a midrange driver to create a more realistic sound. Could I mount the new drivers in the ports, which are on the front panels, and cut new ports in the backs of the speakers?

RUSSELL S. FIELDS
Sedona, AZ

A The design of a speaker system is a delicate balancing act in which everything is important: the number of drivers, their specific performance characteristics, the size and shape of the enclosure, the location and size of the port (if any), and so forth. Fiddling with any of these factors is likely to produce worse sound than you started out with.

Specifically, trying to make a three-way system out of a two-way one would be an almost impossible task. First, you would have to find a midrange driver that closely matched the other drivers in both sensitivity and dispersion, and then you would have to design a new crossover network to make the most of the various drivers and smoothly join their outputs—no mean feat even for the original designer of the system and virtually doomed to failure as a retrofit. To tinker with the enclosure design on top of that would just make matters worse.

If you really feel that your speakers need some help in the midrange, you might be able to use a graphic equalizer to smooth out the response in that region. A subwoofer might be a sensible addition as well, as those early reproducers tended to be deficient in the low bass. But leave the original speakers alone.

Preventing Turntable Hum

Q Occasionally I notice a background hum when I play my vinyl records. Wiggling the connection from the turntable to the preamplifier gets rid of it for a while, as does plugging the turntable into the preamp's second phono input, but it always comes back, even though I have grounded the system. How can I get rid of the noise permanently?

GUS ERBES
Mountain View, CA

A First of all, grounding the unit may or may not be the answer. All turntables come with special ground wires, and virtually all receivers and amps have terminals to attach them to, but they are often unnecessary. For most systems, it's advisable to set everything up but not to connect the ground wire. If there is hum, grounding may get rid of it, but if there is not, grounding may actually induce it. Check it out both ways.

It may be that you have a bad cable, a loose plug, or a faulty jack in your preamplifier. If it is the last, it's not wise to open up the chassis yourself; I would advise getting professional service. Since the problem is the same with the second phono input, however, I doubt that the jacks are at fault. The cables themselves may have a discontinuity somewhere, and you can usually isolate it by working your fingers along the wire bit by bit, flexing it slightly as you go to see whether that causes the hum. If that's the trouble, just replace the cable. By the same token, a bad plug is easily replaced if that's the cause. But before you go cutting any wires, try crimping the plug's collar slightly with a pair of pliers, mak-

ing sure there is a snug fit when you plug it into your preamp. That may be all that's necessary.

Multiple Speakers

Q My amplifier has two sets of speaker terminals, each marked "8 to 16 ohms." Could I safely connect three sets of speakers by hooking two of them (6 and 8 ohms) to one set of terminals and the third (8 ohms) to the other?

GEORGE SHAW
Brossard, Quebec

A I wouldn't advise it. If the speakers are connected in parallel, the total impedance will be quite low—about 2.4 ohms with all three sets running. Many amplifiers would be unhappy driving such a load. Even with the two 8-ohm speakers in parallel, the impedance would drop to 4 ohms. If the connection is serial, the total impedance will be high enough, but fidelity will probably be degraded.

Subwoofer Enclosure

Q I have an old 15-inch woofer mounted in a large box that I use as a subwoofer. It is extremely sensitive to room position. Would remounting it in one of those carpet-covered boxes used for autosound applications improve matters? Also, is there a way to connect this single speaker to both stereo channels without disrupting the signal fed to my main speakers?

DANIEL ERNI
Rolla, MO

A It's in the nature of subwoofers, and bass drivers generally, to be very sensitive to position. The sound they produce has wavelengths roughly equivalent to room dimensions, so standing waves often develop that make bass vary widely from place to place. Moving a speaker, or yourself, even a few inches can make a dramatic difference. That's physics, and merely putting the speaker in another box is not likely to change things.

As for connecting your subwoofer to both channels, that would be unwise at the amplifier's output stage, as the connection would simply patch right and left together. Not only would this destroy the stereo effect, but it would likely damage the output stages of your amplifier. You might rig a mixing circuit before the amplifier stage, but that would necessitate a separate amp for the subwoofer. It's probably unnecessary anyway; most of the deep bass is fed equally to both channels, so you are not likely to miss much by tapping only one side. □

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SIGNALS

by Ken C. Pohlmann

Hidden Distortion

If you're listening to music while you're reading this, you are most certainly being subjected to horrendous levels of distortion. Sure, you're listening to a CD, your amplifier weighs more than your refrigerator, and your loudspeakers cost more than your daughter's braces. And all that investment has optimized things like frequency response, low-level linearity, total harmonic distortion, channel separation, and the rest. The problem is that you are still being bombarded by forms of distortion you never considered.

The next time you attend a concert of classical music, try a little experiment. (Parenthetically, I hope you *do* attend performances of live music, because that experience is important in appreciating performances of recorded music.) While the performance is going on, reach into your pocket, pull out a dollar bill, and gently rustle the paper. You and everyone sitting around you will be amazed at how loud the sound is compared to the level of the music. Then, when you go home, put on a recording of classical music and repeat the experiment; you probably won't hear the paper. That's because classical music is often reproduced at an average level well above that typical of live performance. And that is distortion.

That's right—distortion is *any* difference between the original signal and the reproduced one. Thus, even

your volume-control knob can be a major culprit if you use it to set levels different from those of the original performance. More than a simple difference in volume, the unnaturally high level plays hell with the perceived spectrum of the music. The ear's frequency response varies substantially according to loudness. When you crank up classical music you not only introduce the absolute distortion of incorrect volume, but you alter the frequency balance that the performers, as well as the recording engineer and producer, worked so hard to achieve. Conversely, most rock music is played back too softly. Rock is intended to be a visceral experience, and loudness is important to it. When you turn it down, you are distorting its spectral balance.

The concert hall is also a great place to study another playback problem—spatial distortion. Live music is rich in spatial cues, much richer than most reproduced music. Conventional stereo playback creates a panorama between the loudspeakers. As effective as that is, conventional stereo actually radiates sound from two discrete sources, with the home listening room supplying relatively minor reflections. In a concert hall, we may have an orchestra consisting of a hundred direct sound sources deployed across the stage as well as literally thousands of reflections from the hall's walls and ceiling. It is that multitude of sources, from all directions, that helps persuade us that live music sounds better than reproduced music. Digital ambience processors are addressing this serious form of distortion, but there's still a long way to go.

Yet another form of distortion is one that affects thirty million Americans: hearing loss. This frequency-dependent loss not only distorts the normal frequency response of the ear but effectively decreases the ear's dynamic range by selectively raising the threshold of audibility relative to the threshold of pain. Moreover, our increasingly noisy environment is increasing both the number of people affected and the severity of loss. Long-term exposure to loud sounds inevitably takes its toll. How loud is loud? The danger can begin at 75 dB. For example, if you listen to a Walkman-type

tape or CD player with a ten-digit volume wheel set at 4 or higher, you are probably losing your hearing. Although prevention is the answer, technology can provide help.

In particular, digitally programmable hearing aids have been developed that perform an array of signal processing including selective equalization. A hearing test is performed with an audiology system connected to a personal computer, and the individual's device is programmed with a compensation curve precisely fitted to his hearing acuity. Moreover, it can easily be reprogrammed as needed.

Ensoniq has devised a programmable hearing aid with thirteen equalization bands—eleven one-third of an octave wide and two a whole octave wide. Nicolet has a device with three memories storing equalization, gain, and noise-reduction settings for different environments. Next-generation aids may automatically adapt to the input sound conditions. These and other devices will help restore more normal hearing to millions of people. Eventually this kind of aural distortion may be as easily corrected in some cases as eyeglasses correct optical distortion. Meanwhile, the desire for visceral experiences notwithstanding—**TURN IT DOWN!**

The point is this: Manufacturers are largely wasting their time and energy in seeking, for example, to decrease the total harmonic distortion (THD) of CD players from 0.0023 to 0.0022 percent. Current distortion levels are already well below the threshold of audibility. It is time to stop fooling ourselves into thinking that true enjoyment of music hinges on that extra 0.0001 percent of THD. It is time to broaden the spectrum of audio-equipment design goals and to address more realistic and important consumer needs. The first step is to instill a new sense of responsibility on the part of manufacturers and a greater willingness to develop innovative products.

Audio technology has progressed tremendously during its first century, but it's still a science shining a flashlight in a dark house, seeing only the areas where the beam happens to shine. It's time to turn on the lights and see all the possibilities, and confront all that hidden distortion. □

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“In its price category, the Adcom GFA-535 is not only an excellent choice; it’s the only choice.”

Sam Tellig, The Audio Cheap skate

stereophile

Vol. 10 No. November 1987



The complete report:

Sometimes products are too cheap for their own good, and people don't take them seriously: the Superphon Revelation Basic Dual Mono preamp, Rega RB300 arm, AR ES-1 turntable, Shure V15-V MR cartridge, and the B&K ST-140 power amp. They can't be any good because they cost so little, right?

Wrong, of course.

Adcom appears to be having the same problem with their \$299.95 GFA-535 amp. Credibility.

Now if this amplifier were imported from England and sold for \$599.95, then maybe it would be taken seriously. And highly praised, no doubt.

For the baby Adcom is one of the finest solid-state amps I have heard. No, not the best; I'm not sure what *is* the best. But it's an amplifier that is so good for so little money as to be practically a gift.

Actually, when Rob Ain from Adcom called, I was about as enthusiastic about the GFA-535 as you were before you finish reading this piece. But Rob insisted, "You've gotta hear this amp."

He brought it over the next day, along with the GFP-555 preamp (\$499.95), and we put both pieces into the rest of the system: a Shure Ultra 500 in a Rega RB300 arm on an AR ES-1 table, with Quad ESL-63 speakers on Arcici stands. Then we chatted for a half hour or so while the electronics warmed up.

And then, simultaneously, the two of us decided to shut up and listen.

Adcom GFA-535 power amplifier.

"I've never heard the Quad ESL-63 sound better," Rob said. Of course, he was hardly an impartial observer, but the sound was extraordinarily clean, detailed, and musical. If it wasn't the best sound I have ever heard from Quads, it was pretty close.

This humble \$300 amplifier was driving a pair of very revealing \$3000 speakers and giving a very good account of itself. (We listened first to some Goran Sollscher classical guitar.)

"So how come this product isn't flying off the dealers' shelves?" I asked Rob.

"I don't know. Everyone wants the GFA-555 with 200 watts per channel. Including people who don't need it."

"Does the GFA-555 sound any better?" I asked.

"It's our aim to have all our amps sound pretty much the same. You pay more money, you get more power."

Rob pointed out that while the GFA-535 is rated at 60Wpc, it puts out more like 80. And while I did not do any measurements, my experience with other amps tells me Rob's right. I suppose Adcom doesn't want to steal sales from its GFA-545, rated at 100Wpc and selling for \$200 more.

After a couple of hours, Rob left, grinning from ear to ear, and I later sat down to listen alone. True, when I tried certain Telarc and pushed hard I could get the amplifier to clip—two LEDs quickly light up (very useful). But the Quads were running out of the ability to use the power anyway. My first impressions

were confirmed: the GFA-535 is one of the best amplifiers around for driving Quads, Spendor SP-1s, too.

Suddenly, it hit me what this meant. Conventional wisdom had been dealt a severe blow. You know, the old saw that you should never power a good pair of speakers with a

“The GFA-535 reminds me of... amplifiers that sell... for about three and five times the price.”

cheap amplifier. Here was a cheap amp—one of the cheapest on the market—that sounded good with Quads, Spondors, later Vandersteens. Probably Thiels, too—at least the CS1. What it means is you can stretch your speaker budget a bit and get the speakers you really want, then economize by buying an Adcom GFA-535 for \$299.95. True, you may be a little power shy, but probably not much. And to say the least, the GFA-535 would make a decent interim amp.

What does the GFA-535 sound like? (You thought I'd forget that part, right?) Well, this is one of the most neutral amps I've heard.

“...the baby Adcom is one of the finest solid-state amps I have heard... so good for so little money as to be practically a gift.”

While it doesn't sound particularly tubelike, it avoids the typical transistor nasties through the midrange and into the treble. I wouldn't call it sweet—there's no euphonic coloring—but it isn't cold or sterile. What it is, is smooth. And detailed. Far more detailed than I would ever imagine a \$300 amplifier could be. The GFA-535 reminds me of the Eagle 2A and PS Audio 200C, amplifiers that sell, respectively, for about three and five times the price. Of course, they have more power. And they *are* more detailed. The point is, the Adcom comes close. Very close.

The bass, like everything else, is neutral, certainly not fat and overdone. But it's here where

you notice that this amp is not a powerhouse. You just don't get the solidity and extension you get with a very powerful (and expensive) solid-state amp. Nor do you get the breadth and depth of soundstage that you often find with a very powerful amp. The Adcom GFA-535 sounds a wee bit small, which it is.

My only criticism, and it's more of a quibble, is that the speaker connectors are non-standard and unique (so far as I know). You insert bared speaker wire into a hole and twist the connector tight a quarter turn. Most speaker cables will fit, but some will not. Certainly MIT won't. Neither will the best Kimber, the kind with eight clumps of strands. The less costly four-clump Kimber will, and proved an excellent choice. My sample amp was quiet—

“This amplifier is so good and so cheap that I think any CD owner who buys an integrated amp is nuts.”

no hum—and ran cool. There are selectors for two sets of speakers. And the 535 looks nice.

And talk about economy: If you're not into LPs anymore, you could buy a Mod Squad, dbx, or Old Colony line-level switching box—or possibly a B&K Pro 5 preamp, with its switchable line amp section (only \$350), or the Adcom SLC-505 passive preamp (\$150)—and run it with a CD player. In fact, if you are into CD only (no tape, no tuner, no phono), you could buy a CD player with a variable volume output and run it directly into the Adcom. This amplifier is so good and so cheap that I think any CD owner who buys an integrated amp is nuts.

In its price category, the Adcom GFA-535 is not only an excellent choice; it's the only choice. The real question is whether you should buy one even if \$299.95 is much *less* than you planned to spend for an amp—*ie*, whether you should put the money into a better CD player or pair of speakers instead.

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TECHNICAL TALK

by Julian Hirsch



The Human Dimension

LAST December, I described in this column some of the test procedures we apply to audio amplifiers. In the final paragraph, I stated that the ergonomic, or human-engineering, aspects of product design were a highly personal and subjective matter, best left to each individual to evaluate for himself.

A letter from a reader informs me that I am mistaken in this view, and that procedures for objectively evaluating the human factors in product design exist and are in common use. He points out that the Human Factors Society, whose membership includes more than 5,000 designers, engineers, and scientists, is dedicated to making products safer and more usable and to establishing methods for evaluating those qualities.

Frankly, I was unaware of the existence of the society and of its achievements. My own experience with ergonomic factors as applied to electronic products dates from the time, several decades ago, when I was involved in the design of laboratory test equipment, some of which was purchased by the military. Military sales required that we follow military specifications concerning the shape, operation, and marking of front-panel controls.

As it happened, this requirement posed no difficulties in terms of product design. For the most part, we just had to apply common sense. For example, we used tear-shaped knobs

whose angular settings were visible at a glance, and we limited the number of knob sizes and colors, generally making them correspond to the importance or frequency of use of each control. Wherever possible, we grouped controls according to function, minimizing time wasted searching for a control.

Not all controls are rotary in their operation. There can be continuously sliding controls (like those of many audio equalizers), slide switches, toggle switches, and pushbutton switches. One of the military requirements was that any control operation increase its labeled effect with a clockwise, upward, rightward, or inward movement. For example, a volume-control knob would have to increase volume with a clockwise rotation (and a volume slider would have to increase with an upward or rightward movement). But if the knob were labeled ATTENUATOR, a clockwise rotation would have to *reduce* the volume (that is, increase attenuation).

Some time ago, when most home hi-fi equipment used only knobs and toggle switches, there were few operational problems. A volume control, an input selector, and tone controls could be understood by almost anyone. Things are very different now, since most controls use pushbuttons. No longer can a user reach confidently for a particular control; the typical component panel is populated by a large number of (usually) small buttons, closely spaced, confusingly or illegibly marked, and often grouped in seemingly random arrangements.

In part, this state of affairs results from the packaging of multiple functions in a single product. Today's audio/video receiver is arguably the most operationally complex consumer product around, consisting as it does of an AM/FM tuner (often with more station preset memories than the number of stations receivable at a typical location), a preamplifier with switching facilities for a number of audio and video signals and their corresponding tape decks, Dolby Pro Logic circuits, perhaps some digital signal-processing circuits, and four or five amplifiers.

The dozens of controls that fill the panels of these receivers perform functions that were undreamed of not very long ago. It is nearly impossible

to mark them with words, and the result is a flood of abbreviations and acronyms whose semantic content is often as obscure as their visibility. My remarks in December's "Technical Talk" were actually inspired by having tested several A/V receivers that impressed me as being technological marvels, economic bargains, and (to a greater or lesser degree) ergonomic disasters. I realize that many people are not turned off by what I consider excessive complexity, and it was because of them that I referred to the subjective nature of ergonomics.

I suspect that today's military electronic equipment, with its incredible sophistication, is simpler to operate than much of our consumer audio equipment. It seems likely that a jet pilot or tank gunner does not have to squint closely or refer to the instruction manual to make his equipment perform some of its key functions.

As another example of an ergonomic nightmare, consider the question of programming a VCR for unattended recording. How many people do you know (other than yourself, of course) who can do that, especially in a hurry, without studying the instructions (which are often more confusing than helpful anyway)? Yes, I know of the recent appearance of an ingenious solution to that problem, which requires the user just to enter a series of numbers published in newspaper listings of programs, but the VCR manufacturers can claim no credit for it. Suppose every automobile manufacturer used different sizes, shapes, and locations of their controls, including nonstandard shift patterns and pedal locations—as they once did, long ago. Can you imagine the resulting chaos?

There is no need to go on and on. In my admittedly simplified view, ergonomics is basically a matter of applying common sense and good judgment (which are much the same thing, I guess). Too bad these qualities are so often ignored.

I am curious, however, about the methods by which ergonomic features can be evaluated objectively, and I intend to look into the matter. It is hard to imagine that anyone would actually *prefer* some of the designs that have reached the market if an alternative existed. □



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JVC XL-V141 Compact Disc Player

Ken C. Pohlmann, Hammer Laboratories

I'VE forgotten the exact words, but the comparison goes something like this: If the car industry had progressed as rapidly as the computer industry, a Rolls-Royce would cost \$2.50 and get two million miles per gallon. Fortunately for audiophiles, the evolution of stereo equipment has closely paralleled that of computers rather than cars. Today's CD players are a far cry from the first-generation models, delivering better performance at a significantly lower price. New budget-price players can usually perform at least as well as older high-end players.

The JVC XL-V141 is a good illustration. At \$180, it is the most affordable CD player in JVC's Digifine series, yet it offers solid audio credentials, including use of the company's new

"pulse-edge modulation" (PEM) 1-bit digital-to-analog (D/A) conversion technology. Although not laden with features, the XL-V141 does provide both automatic and manual track-sequence editing functions, which greatly facilitate disc-to-tape dubbing, particularly if you own a JVC cassette deck fitted with a CompuLink-1/Synchro interface.

The XL-V141's front panel is simply styled, with a minimum of controls, and its titanium finish is a welcome change from the usual black. A mechanical button is used to switch power on and off. The other buttons are electronic, including what is surely one of the world's largest drawer open/close buttons, making this very important control easy to find. A row of large buttons handles other basic

transport operations: two-speed forward and backward scan, forward and backward track skip, and stop. To one side is a large play/pause button.

When the machine is not in the play or pause mode, the two scan buttons can be used for track-sequence editing. For automatic editing, you load a disc and press the scan button labeled AUTO EDIT one or more times to select the cassette length (46, 54, 60, 74, or 90 minutes, sequentially); the player then selects as many tracks as will fit on each side of the cassette, and the display shows the number of tracks and time remaining on each side. The tracks are selected in their original order on the CD, and the player pauses at the end of the track that completes a tape side. Alternatively, you can use the button labeled PRGM EDIT, which enables you to select tracks individually and in any order. To help in the selection process, the display shows the numbers of the programmed tracks and the time remaining on each cassette side.

Five smaller buttons operate lesser functions. The SIDE A/B button is used to designate the tape side during track-

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sequence editing. The REPEAT ALL/1 button enables you to repeat a track, an entire disc, or all programmed tracks. The track-skip buttons can be used to select as many as thirty-two tracks for programmed playback; the MEMORY button is used to store the sequence of the selections to be played. The CANCEL button is used to delete programmed entries, one at a time, and the RANDOM button plays all the tracks on a CD in random order. Finally, a headphone jack is located just below the power button. The plastic disc drawer is designed to accept both regular and 3-inch CD's.

The XL-V141's bright-yellow fluorescent display provides numeric readouts of the total tracks on a disc, total playing time, the current track and index numbers, elapsed and remaining playing time, and indicators for edit modes, random and repeat

play, and other functions. On the back of the player are fixed-level analog output jacks and a pair of CompuLink-1/Synchro jacks for connecting the XL-V141 to other JVC components so that CD playback can be initiated from a receiver or a cassette deck can be triggered to start recording when CD playback begins. The AC line cord is detachable.

The XL-V141's chassis is made of steel, and the front panel is plastic with a thin metal cover. The feet are padded to prevent scratching of furniture and to provide a modicum of isolation from vibration. Inside, almost one-third of the chassis is vacant. The three-beam laser pickup and plastic disc drive, mounted on a steel subchassis, occupy another third, and a single audio circuit board occupies the rest. The circuitry consists mainly of a number of integrated circuits (IC's) for filtering

and control functions, plus JVC's proprietary PEM 1-bit D/A converter chip with Victor Advanced Noise Shaping (VANS).

Pulse-edge modulation is essentially a variant of the pulse-width modulation (PWM) system used by some other 1-bit converters; the main purpose of the design is to reduce the necessary clock frequency. VANS is a quasi-fourth-order noise shaper that is said to provide lower noise than other systems within the audio band while approximating the characteristics of a second-order noise shaper beyond the audible range. The transition to lower-order noise shaping at very high frequencies is to prevent excessive boosting of ultrasonic noise, enabling the use of a relatively shallow analog filter to remove it from the output. Like other 1-bit converters, JVC's PEM design greatly reduces zero-crossing distortion and low-level non-linearity. It also shares their freedom from drift due to temperature changes or aging and freedom from potential miscalibration, which are important advantages over multibit converters.

The XL-V141 measures 17 $\frac{1}{8}$ inches wide, 10 $\frac{3}{8}$ inches deep, and 4 $\frac{1}{4}$ inches high and weighs about 7 $\frac{3}{4}$ pounds. Price: \$180. The \$200 XL-V241 is identical except that it comes with a remote control. JVC of America, Dept. SR, 41 Slater Dr., Elmwood Park, NJ 07407.

Lab Tests

The XL-V141 met or surpassed its published specifications, delivering highly respectable performance for such a low-price player. Maximum output measured 1.88 volts—close to the nominal standard of 2.00 volts. Frequency response was quite flat, reaching its maximum deviation of -0.23 dB at 20,000 Hz, and de-emphasis error was a mere 0.2 dB at 16,000 Hz. Channel separation measured 94.8 dB at 1,000 Hz and 87.8 dB at 20,000 Hz. Dynamic range (EIAJ) was 98.7 dB, and the signal-to-noise ratio (S/N) was 106.1 dB. Total harmonic distortion plus noise (THD + N) measured a low 0.0021 percent at 0 dB and increased somewhat at lower playback levels, as is characteristic of digital audio devices; for example, it measured 0.13 percent at -40 dB, which is still quite good. The maximum interchannel phase shift, 2.7 degrees, occurred at 20,000 Hz. Speed

FEATURES

- PEM 1-bit D/A converters with VANS quasi-fourth-order noise shaping
- Plays 5-inch and 3-inch CD's
- Thirty-two-track programming capability
- Automatic or manual track-sequence editing for dubbing to cassette
- Random-play mode
- Repeat of track, disc, or programmed sequence
- Track skipping in either direction
- Two-speed audible fast search in either direction
- Display indicates status of operating controls, total tracks, total time, current track and index numbers, elapsed and remaining time on track
- JVC CompuLink-1/Synchro connector for unified system control
- Headphone jack

LABORATORY MEASUREMENTS

Maximum output level: 1.88 volts
Frequency response: +0.08, -0.23 dB from 20 to 20,000 Hz
De-emphasis error: 0.2 dB at 16,000 Hz
Channel separation: 94.9 dB at 100 Hz, 94.8 dB at 1,000 Hz, 87.8 dB at 20,000 Hz
Dynamic range (A-weighted): 98.7 dB
Signal-to-noise ratio (A-weighted): 106.1 dB
Total harmonic distortion plus noise at 1,000 Hz: 0.0021% at 0 dB, 0.014% at -20 dB, 0.13% at -40 dB

Linearity error: 0 dB at -70 dB, +0.2 dB at -80 dB, +0.3 dB at -90 dB
Maximum interchannel phase shift: 2.7 degrees at 20,000 Hz
Defect tracking: tracked 1,250-micrometer error on Pierre Verany #2 test disc
Slewing time (Track 1 to Track 21 on CBS CD-1 test disc): 5 seconds
Cueing accuracy: A
Impact resistance: top, B; sides, C

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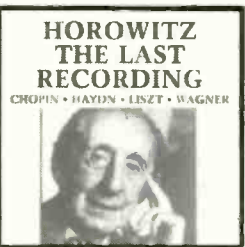
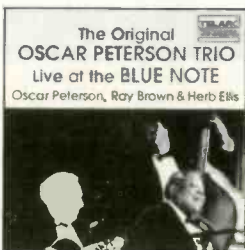
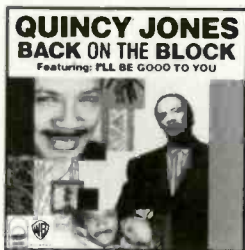
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error measured an utterly insignificant 0.0013 percent.

The XL-V141's front panel boasts of an "errorless" D/A converter, and that claim isn't far from true. Converter linearity was indeed perfect at -70 dB and remained excellent at -80 and -90 dB, where it measured +0.2 and +0.3 dB, respectively. There is no question that 1-bit D/A conversion has largely solved the problem of low-level nonlinearity.

The player's tracking ability was about average; it was able to play through a 1,250-micrometer error on the Pierre Verany #2 test disc with only minor audible errors. Its resistance to physical shock was also about average—more than a light tap was required to cause mistracking. In most cases, it is a player's mass, rather than pickup-suspension design, that most influences performance in this test. Thus, the XL-V141's light weight made it somewhat more susceptible to physical shock than a heavier player might be. The headphone output drove our phones to a satisfactory volume, but the lack of a level control for it is a serious disadvantage in normal listening.

Comments

The XL-V141 may lack some of the convenience features of a more expensive CD player, but, as our laboratory measurements indicate, and as we verified in the listening room, it does not skimp on performance. A thorough audition with a wide variety of program material ranging from rock to opera failed to expose any weakness in this player. Fidelity was consistent, without a trace of unwanted artifacts. Especially rigorous listening, in direct comparison with a high-end CD player, led to general satisfaction with the XL-V141 and proof that it was a strong contender.

If both your budget and your appetite for features are modest, the XL-V141 is a great bargain. In particular, if you already own a JVC cassette deck with a CompuLink-I/Synchro interface, the XL-V141 can be relied upon to supply all the audio signal your cassette recorder can handle—and then some. □



Celestion Model 5 Loudspeaker System

Julian Hirsch, Hirsch-Houck Laboratories

ALMOST two years ago we reported on the Celestion Model 3, an inexpensive speaker from a company noted for high-quality but relatively costly speakers. Not surprisingly, the \$250-per-pair Celestion 3, whose performance far surpassed that of most competitively priced speakers, swiftly and deservedly became a best seller.

The Model 3 has now been joined by the Model 5, a larger and slightly more expensive speaker that brings the qualities of the earlier model into another price bracket. The Model 5's closed cabinet has 50 percent more volume than that of the smaller speaker, but it is still a compact 13¾ inches high, 8⅞ inches wide, and 9⅞ inches deep, and it weighs a mere 10½

pounds. Removing the black cloth grille reveals a 6-inch woofer with a felted-fiber cone and a 1-inch titanium-dome tweeter.

The principal differences between the Model 5 and the Model 3, aside from their cabinet dimensions, are in the size of the low-frequency driver (the Model 3's is 5 inches) and in the crossover network. The crossover frequency has been reduced in the Model 5 from 5,000 to 4,000 Hz, and another reactive element has been added to provide 12-dB-per-octave slopes for both drivers. The front edges of the Celestion 5's cabinet are also slightly beveled to reduce diffraction.

Comparing the manufacturer's specifications for the two speakers, it appears that the Model 5's larger cabi-

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net and woofer extend its low-frequency response by 5 Hz: The Celestion 3's response is given as -3 dB at 75 Hz, whereas the Celestion 5's is down 3 dB at 70 Hz. They apparently use the same tweeter, and the high-frequency -3-dB limit is 20,000 Hz for both models. Other advantages of the Celestion 5 are said to be its higher sensitivity (88 vs. 86 dB) and increased power-handling ability (90 vs. 60 watts).

The Celestion 5 is available finished in simulated oak or black-ash veneer. Two insulated binding posts are recessed into the rear of the cabinet. Although they accept wire ends or single banana plugs, they are inexplicably spaced too far apart for dual banana-plug connectors. Price: \$429 a pair. Celestion Industries, Dept. SR, 89 Doug Brown Way, Holliston, MA 01746.

Lab Tests

The instruction booklet, which covers both the Celestion 3 and the Celestion 5, states that these speakers were designed to be mounted on shelves or on stands that place the backs of the cabinets at least 2 inches from the wall. We measured the room response of the speakers first with shelf mounting and again on stands about 2 or 3 feet from a wall. Between 50 and 150 Hz, the bass was stronger with shelf mounting, but the overall response characteristic of the speaker was not otherwise affected.

The close-miked woofer response reached a maximum between 100 and 300 Hz, falling at 12 dB per octave at lower frequencies. From 300 to 1,000 Hz the output sloped down gently by about 5 dB; at higher frequencies the close-miked measurement was not practical. Splicing the woofer and room-response curves produced a composite curve that varied only ± 3 dB from 60 to 20,000 Hz (it was still rising at the 20,000-Hz upper limit of our measurement).

The system's sensitivity was 90-dB sound-pressure level (SPL) at 1 meter with an input of 2.83 volts of pink noise. At that input level, the bass distortion was surprisingly low, falling from just over 2 percent at 90 and 100 Hz to 1.6 percent at 70 Hz, then rising to 4.3 percent at 50 Hz and 7.3 percent at 40 Hz. The system's impedance reached its maximum of 50 ohms at the 80-Hz bass resonance frequency, fell

to about 6.5 ohms in the 250-Hz region, and rose to slightly more than 20 ohms at 1,700 Hz before dropping to its overall minimum of 5.2 ohms around 9,000 Hz. Although Celestion does not specify a nominal impedance for the Model 5, a reasonable value would be 8 ohms.

At 100 Hz, the woofer began to rattle slightly with a single-pulse input of 38 watts, and it bottomed loudly at 70 watts. Our amplifier clipped before the system showed any signs of overload at 1,000 or 10,000 Hz.

Our quasi-anechoic FFT measurements agreed well with the swept sine-wave tests, showing a ± 3 -dB variation in output from 180 to 20,000 Hz on the speaker's axis. When we extended this measurement to 30,000 Hz, it re-

The frequency balance of the Celestion Model 5 is so nearly ideal that we were not aware of its bandwidth limitations—and with a large portion of the musical repertory, effectively there is no bandwidth limitation.

vealed a strong tweeter resonance at about 25,000 Hz, where there was a 15-dB peak. Although this peak was above the audible range, it produced a rising output in the top octave, from 16,000 to 20,000 Hz.

The Celestion 5 had exceptional horizontal dispersion, with less than 6 dB difference between the frequency response measured on-axis and 45 degrees off-axis up to almost 20,000 Hz. But we also found a strong cancellation hole in the off-axis measurement at 3,000 Hz, suggesting an appreciable phase change in that region. The same effect appeared as well in the group-delay measurement, which was exceptionally uniform over the full audio range except for a narrow jog of 0.8 millisecond between 3,000 and 4,000 Hz. This anomaly, which existed only in a narrow range of frequencies and listening angles, was never audible, however.

Comments

When we first listened to the Celestion 5 speakers, before conducting any tests, the effect was strikingly similar to what we experienced with the Celestion 3's. The sound quality was simply not consistent with their size, weight, and price. The frequency balance of these speakers is so nearly ideal that we were not aware of their bandwidth limitations—and with a large portion of the musical repertory, effectively there is no bandwidth limitation, since fundamental frequencies below 60 to 70 Hz are not present.

Of course, when we compared the Model 5's with much larger speakers, playing music with an appreciable bass content, there was a very real difference. But the key element in the quality of these speakers is that their faults are all matters of *omission* rather than *commission*. It is much easier to overlook a quality that is diminished or even omitted than one that is added to the sound and does not belong there at all.

When I compared the test data on the Celestion 5 with our measurements of the Model 3, I was amazed to see how similar they were. The only detectable differences were in the bass: The Model 5 showed a minutely greater output below 100 Hz, and its larger woofer and cabinet volume gave it a clear advantage in terms of lower bass distortion.

Although we had a limited number of other speakers on hand for comparison with the Celestion 5, it was obvious that it could hold its own with any of them in respect to clarity, spectral balance, and stereo imaging. Its highs were subjectively slightly brighter than those of some speakers and less bright than those of others. Although its bass reproduction was measurably less powerful than that of most larger speakers, it never sounded thin or skimpy. And between the bass and the treble, it sounded first-rate.

While I was not able to compare the Celestion 5 directly with its sibling, the Model 3, I believe that they would be difficult to tell apart in a blind test. Is the Celestion 5 worth its added cost? You will have to hear it for yourself to make that decision; for me, it probably would be. One thing is certain: The designer of these speakers knows how to extract the utmost in sound quality from inexpensive components. □

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Koss ESP/950 Headphones

Craig Stark, Hirsch-Houck Laboratories

KOSS has been making high-quality headphones for home and studio use for nearly three decades. Its most recent introduction is the ESP/950, an electrostatic headphone whose antecedents go back to 1967 but whose contemporary materials and design reflect the critical demands of professionals monitoring live recordings of orchestral music for release on compact disc.

Unlike conventional dynamic headphones, which draw their power from the user's amplifier or preamplifier, an electrostatic headset requires a power supply and amplifier of its own. The ESP/950 thus comes with a separate energizer/amplifier, which can be powered either by a battery pack that holds six C-cells or by a 9-volt AC adaptor unit that plugs into a wall

outlet. The headphones connect to their amplifier through a 4-foot cord, to which a 6-foot extension cable can be added. Both cables are Kevlar insulated and are fitted with special five-pin connectors.

The headset has large, softly padded circumaural earcups and a detachable foam-filled headband that adjusts easily to fit the head. Open-air in design, the ESP/950 does not acoustically isolate the listener from his surroundings. Indeed, since the backs of the earcups are also open, the headphones themselves can be heard some little distance away.

The sound-reproducing diaphragms of the ESP/950 are made from an almost massless polyester film some 1.5 micrometers (millionths of a meter) thick. Electron-beam-coated with

a semiconductive material to help insure a uniform field charge, the diaphragms are actually plates of high-voltage capacitors. But whereas full-range electrostatic loudspeakers have frequently proved unable to fill large rooms with loud, deep bass, within the confines of a headphone the 7-square-inch radiating surface of the ESP/950 diaphragms provides bass response to spare, as well as extremely high sensitivity (rated as 104 dB sound-pressure level at 1,000 Hz).

The E/90 amplifier unit has a high input impedance (50,000 ohms) and can be plugged into nearly any piece of audio equipment by using the RCA-type phono cables supplied. Adaptor cables for stereo miniplugs are also included. The E/90 has its own dual-concentric volume control, and its on-off pilot light doubles as a warning indicator if the battery voltage falls too low. All of the components and cables fit neatly within padded compartments of the system's soft-leather carrying case.

The ESP/950 headphones weigh a little over 12 ounces and claim a frequency response of 8 to 35,000 Hz. The energizer/amplifier measures 4¼ inches wide, 2½ inches high, and 6¼ inches deep, and it weighs 17 ounces. It is rated at 0.001 percent total harmonic distortion plus noise (THD + N) and 80 dB channel separation at a 100-volt differential output, with a 100-dB signal-to-noise ratio (S/N). Price: \$2,000. Koss International Corp., Dept. SR, 4129 N. Port Washington Rd., Milwaukee, WI 53212.

Lab Tests

Because the E/90 amplifier's audio outputs are designed to reach ± 600 volts in order to power the ESP/950 headphones, we did not measure the E/90 separately. We made our measurements on the headphones and amplifier as a combined unit. The headphones were mounted on a standard (ANSI) acoustic coupler, which places the calibrated microphone in a location that simulates the eardrum's position in the ear canal.

We tested the ESP/950's frequency response using a hundred different frequencies generated and measured by

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our Audio Precision test equipment. Driven to the rated 104-dB sound-pressure level (SPL), the system had a response within ± 3 dB from approximately 20 to 1,300 Hz, and except for a cavity resonance in our coupler at 2,500 Hz, response continued flat within $\pm 2\frac{1}{2}$ dB out to 20,000 Hz. THD + N was well under 1 percent from 80 to 8,000 Hz, again at an ear-piercing SPL of 104 dB. With the E/90's gain controls set at maximum the phones were able to produce the rated output level from an input signal of only 500 millivolts.

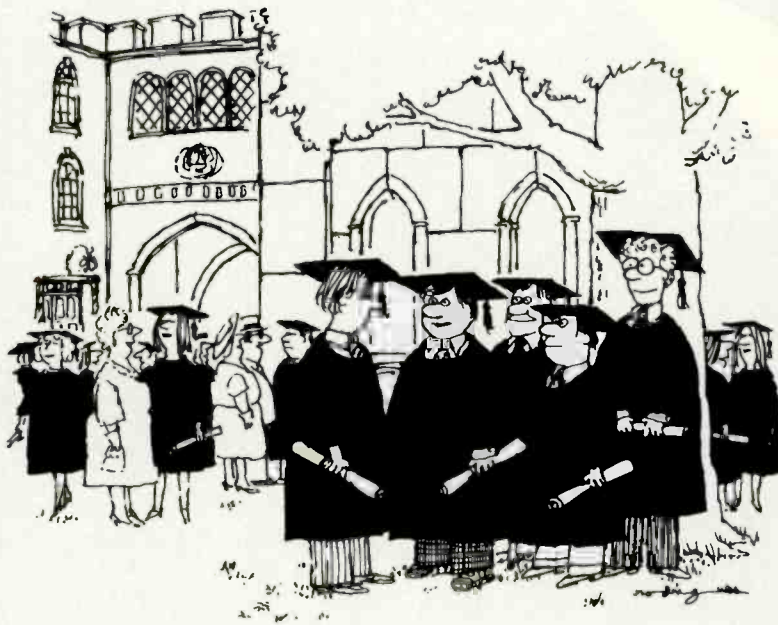
Comments

Headphones present a very different listening experience from that of music reproduction via loudspeakers. Imaging, in particular, takes on a different significance, for the listener's attention is not focused forward but rather on the space within his head. Only binaural recordings, made using microphones spaced eardrum to eardrum inside an artificial head, are capable of conveying a nearly complete surround-sound perspective to the headphone wearer. Such recordings are relatively scarce, but, as I found in listening to some I had recorded my-

self, they can be very dramatic and realistically "spacy" indeed.

When listening to conventional CD's and tapes, however, the Koss ESP/950 headphones did not so much compare with our loudspeakers as offer an alternative listening experience. Certainly we found their sound nothing less than superb. The clarity and sense of space conveyed by the ESP/950 system was greater than I have found with any other pair of headphones I have used, and the frequency response, from the deepest organ pedals to the highest overtones of brushed cymbals, was wide-range and well balanced. Part of the clarity I experienced was no doubt a result of the headphones' total lack of audible distortion. Even at onstage listening levels they conveyed a sense of handling the music with ease, never of harshness. Indeed, some recordings that tend to sound rather harsh through loudspeakers had none of that quality through the ESP/950's.

If I were an apartment dweller with sensitive neighbors I would certainly turn to the Koss ESP/950 electrostatics in preference to other headphones I have used—at least if I were fortunate enough to be able to afford them.



"Rob—Leon, Mario, Orrin, and I are off to invent a state-of-the-art loudspeaker. Want to join us?"

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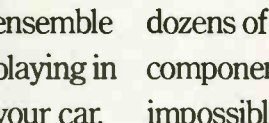
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graphic EQ features the convenience of six user presets.

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We could go on, of course. But we think you've probably heard enough.

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PSB New Stratus Loudspeaker System

Julian Hirsch, Hirsch-Houck Laboratories

THE Canadian-made PSB New Stratus loudspeaker is an improved version of the Stratus system first introduced about three years ago. According to the manufacturer, PSB International, it differs from the original Stratus in having about 2 dB higher sensitivity, increased power-handling capacity,

less compression at very high levels, wider high-frequency dispersion, and a slightly smoother overall response. The system's other specifications, however, including the sizes of the cabinet and drivers, the crossover, and the low-frequency response, are unchanged.

The New Stratus is a two-way sys-

tem whose 8-inch woofer has a 1½-inch voice coil, a PVC surround, and a 48-ounce magnet for higher output in the low bass and smoother midrange response. The woofer operates in a vented enclosure whose 3-inch-diameter duct is said to operate like an organ pipe at frequencies below 50 Hz, delivering strong bass down to 26 Hz without upper-bass boom. The woofer is located at the top of the speaker's front panel, with the tweeter below it and the port near the midpoint of the panel.

The system's newly designed tweeter, operating above 1,800 Hz, has a 1-inch aluminum-alloy dome with a polyamide suspension said to be able to operate as a piston up to 20,000 Hz. The aluminum voice coil, attached directly to the dome for improved heat sinking, receives additional cooling from low-viscosity ferrofluid in the magnetic gap. The crossover network, a 24-dB-per-octave Linkwitz-Riley design, uses heavy air-core inductors and high-quality film capacitors.

The wood-veneered cabinet is made of a high-density composite and is available in light-oak, dark-oak, or black-lacquer finishes. The cabinet is internally damped with felted material, and it is heavily braced, with aluminum extrusions at the top and bottom to lock the wood panels in place. It measures 11 inches wide and 13½ inches deep. The 2-inch-high integral pedestal, matching the cabinet finish, is 13¼ inches wide and 15¼ inches deep, making the system height 37½ inches.

Like the pedestal base, the cabinet's top plate is made of solid hardwood. The front panel and grille frame are beveled to minimize diffraction around the edges. Separate gold-plated multiway binding posts for the woofer and tweeter inputs are located on the bottom of the cabinet. They are normally connected by jumpers but can be separated for biwired or bi-amplified operation. Each speaker weighs 60 pounds.

The New Stratus system's specifications include a frequency range of 26 to 24,000 Hz with a ±1.5-dB variation between 40 and 20,000 Hz. The rated impedance is 6 ohms, with a minimum

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

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

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

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

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

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TEST REPORTS

of 5 ohms. Sensitivity is specified as 88 dB sound-pressure level (SPL) in an anechoic chamber, 90 dB in a typical listening room. Rated power handling is 200 watts. Price: \$1,800 a pair. PSB Speakers, Dept. SR, 633 Granite Ct., Pickering, Ontario L1W 3K1.

Lab Tests

The room response of the PSB New Stratus speakers was unusually uniform over the full audio range, the major variation being a slight bump at 220 Hz caused by a boundary effect. Even including that peak, the room response varied only ± 4.5 dB from 20 to 20,000 Hz. In the range above 300 Hz, the variation was ± 3.5 dB up to 20,000 Hz.

The close-miked woofer response, combined with the port response, was ± 3.5 dB from 20 to 700 Hz, with the maximum at 40 Hz. The woofer's output dropped at higher frequencies, leveling off at -9 dB, relative to the average midbass level, between 1,000 and 1,800 Hz (the close-miked measurements are not fully valid in that range).

When we combined the woofer response with the room response, the composite curve was very flat (within ± 2 dB) from 100 to 900 Hz and fairly flat between 1,000 and 2,000 Hz but down 4 dB relative to the midrange output. The curve rose to reference level at 3,300 Hz, then sloped off smoothly to -4 dB at 10,000 Hz. The output rose again in the next octave, to $+1$ dB at 18,000 Hz. The maximum bass output was $+3$ dB at 40 Hz, returning to reference level at 25 Hz and dropping 3.5 dB from 25 to 20 Hz.

The composite frequency response was consistent with our quasi-anechoic FFT measurements, which had the same general contours and a ± 3 -dB variation from below 200 Hz to beyond 23,000 Hz. An extended FFT measurement to 30,000 Hz showed a large (9-dB) tweeter resonance peak centered at about 25,000 Hz, but it had a negligible effect below 20,000 Hz.

The horizontal dispersion was good; the response curves on-axis and 45 degrees off-axis remained within 6 dB of each other up to 10,000 Hz and diverged only moderately from there to about 16,000 Hz. The group delay was virtually constant above 8,000 Hz, with variations of about ± 0.2 millisecond from there to 3,000 Hz. From 3,000 down to about 600 Hz, the

delay was a relatively constant 0.4 to 0.5 millisecond, suggesting a difference in effective path length of about 3 inches between woofer and tweeter.

The system's impedance reached its minimum of about 5.1 ohms at 166 Hz and its maximum of about 13 ohms at 900 Hz. The 6-ohm rating seems conservative, since the impedance remained between 6 and 12 ohms over most of the audio range. The phase-angle variation of the impedance had a peculiar shape, reading between ± 30 degrees over most of the range above 100 Hz but exhibiting numerous abrupt fluctuations at lower frequencies as it dropped to as low as -120 degrees at 30 Hz. Perhaps these fluctuations corresponded to natural resonances in the woofer vent tube (which PSB likens to an organ pipe), although they had no measurable or audible effect on the acoustic bass response.

Sensitivity (in a normal room) measured 89 dB SPL. At a 3.1-volt level, corresponding to a 90-dB SPL, the woofer distortion was between 0.35 and 1 percent from 60 to 150 Hz, leveling off at 1.2 percent from 150 to 330 Hz and rising to about 2 percent from 400 to 1,000 Hz. The effective crossover to the vent was at about 65 Hz, and the distortion measured at the port was about 1 percent down to 40 Hz and rose to 5 percent at 25 to 30 Hz. In our single-cycle-burst power tests at 100 Hz, the woofer cone emitted a rattle with an input of 360 watts into its 5.5-ohm impedance.

Comments

The measured performance of the PSB New Stratus was excellent. Its response smoothness, deep bass extension, and very low bass distortion were outstanding, especially for a two-

way system with an 8-inch woofer.

When the speakers were placed as recommended, about 18 inches in front of a wall and angled slightly inward, their imaging qualities were impressive. The sound stage covered the space between the speakers and slightly beyond. The positioning of discrete sound sources in selections from the Chesky jazz sampler and test disc (JD37) was exceptionally believable, vertically as well as laterally.

The New Stratus had a distinctive sound character, especially when compared with a few other comparably priced speakers. Perhaps its most noteworthy characteristic was a silky smoothness, with never a trace of edginess or hardness. Even recordings that appeared to have a noticeable crispness or emphasis in the upper midrange or treble with other fine speakers sounded easy and free from such qualities when heard through the New Stratus.

This smoothness was not the result of a restricted frequency response—the New Stratus's output was flat and smooth to well above the limits of human hearing. Whatever the reason for the effect, the New Stratus is an exceptionally easy speaker to listen to. There was always a believable sense of depth and height, with hardly a hint that the speakers themselves were the sound source.

The bass response of the New Stratus is *real*, meaning that you won't hear any bass if there is none in the program but you will both hear and *feel* it when it is present. The speaker's low bass distortion may have something to do with this characteristic. Altogether, the PSB New Stratus is an exceptionally fine speaker with livable dimensions and handsome styling. □



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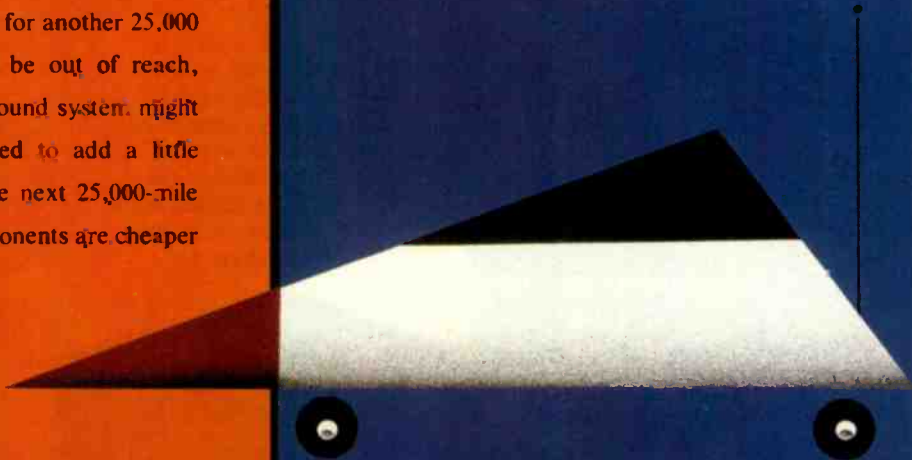
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TUNE-UP

**BREATHE NEW LIFE INTO
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INSTALLED SOUND SYSTEM.**

MUCH to the chagrin of automobile manufacturers, many Americans are deferring the purchase of a new car. Eyeing uncertain economic conditions, the average buyer has decided that the transmission on his 1985 Excelsior is probably good for another 25,000 miles. While a new car might be out of reach, upgrading an old car's factory sound system might not be, and many have decided to add a little enjoyment to their drives to the next 25,000-mile mark. Certainly new audio components are cheaper



by Ken C. Pohlmann



Alpine's Model 5959 six-disc CD changer (\$850) is designed to be added to a factory sound system with a minimum of fuss; plug-in wire-harness adaptors are available for a variety of vehicles.

Blaupunkt's CDP 01 CD player (\$500) is a practical addition to standard radio/cassette systems. The player can be pulled from the dash for security.



The Boston Acoustics Pro Series Model 5.2 speaker system (\$399) combines a pair of 1-inch tweeters, two 5¼-inch woofers, and a crossover in one easy-to-install package.



Clarion's Model 72EQ (\$150) squeezes a seven-band equalizer, a two-way crossover, and a subwoofer output into a 1-inch-high chassis.



than a new car, but even a relatively modest investment warrants careful consideration. Should you sink those dollars into a new head unit? Equalizers? Amplifiers? Crossovers? Speakers? Any of these choices may make sense, but only if you are aware of all the options and strive for a balanced installation, free of weak links.

Most factory installations consist of a cassette receiver (a cassette player, an AM/FM tuner, and a low-power two- or four-channel amplifier) and two to four loudspeakers. Clearly, an upgrade could replace either the head unit or the speakers, or both. A new head unit, for example, could improve radio reception and tape playback. Factory head units are often quite satisfactory in these respects, however. Usually a far greater improvement can be realized by upgrading the downstream signal path—beginning with amplifiers and speakers.

Power Up

The amplifier built into a head unit can provide only a small power output. When it is pushed even to moderate listening levels, distortion rapidly increases. Outboard amplifiers can deliver much greater power, enabling you to play music loud with less distortion.

When choosing an outboard power amplifier for operation from a receiver, remember that the main purpose of a head unit is to put out speaker-level signals, not line-level signals. Although some head units *can* deliver both, many (especially among those that are factory-installed) do not. If your upgrade amplifier can't handle that high level, you'll need to attenuate the signal, and that will increase the cost and complexity of your installation. So make sure the amplifier you choose can handle a wide range of input signals. For example, the input sensitivity of Denon's DCA-500 power amp can be varied from 0.1 to 2 volts. Amplifiers like this can be wired directly to the outputs of most factory head units.

Speaker Upgrades

New speakers can also invigorate a factory sound system. Start out by looking for speakers of a size, shape, and depth that can drop into your car's existing speaker cutouts. For example, an aftermarket 4½-inch round speaker should mount directly into a 4½-inch cutout; at most, you may have to drill new screw holes. You needn't limit yourself, how-



IF YOU EXPLOIT PRE-EXISTING SPEAKER CUTOUTS, YOU CAN MINIMIZE INTERIOR ALTERATIONS.

ever, just to replacing existing speakers. Many car bodies have mounting locations to accommodate several different sound systems, some of which may be covered over when a particular system is installed. With a little exploration, or advice from a car-stereo dealer, you'll soon discover these "hidden" locations. By exploiting the pre-existing speaker cutouts, you can minimize cutting and other interior alterations. But if you're not satisfied with the carmaker's choices for speaker locations, there's another economical approach: Almost any place in a car can hold a surface-mount speaker.

Just don't forget that you'll need amplifiers to drive all those new speakers. Multiple speakers can be wired in parallel across a single amplifier output, but this reduces the impedance seen by the amplifier, which can damage it if the impedance gets extremely low. You should never allow the load on an amplifier to drop below 2 ohms.

Tweeters are particularly easy to add, at least in terms of cutting. They are small and can often be mounted on existing surfaces. Their placement is critical, however. The spaces just inside the side mirrors are often ideal because they provide a direct sound path near ear level. Alternatively, you can mount tweeters on the top of the dashboard and bounce their sound off the windshield, but this will alter their frequency response and somewhat degrade the stereo image. No matter where you put them, you'll find that add-on tweeters greatly enhance the presence of the music.

Equalization

With the addition of outboard power amplifiers and improved or additional

speakers, you have completed a basic upgrade. There's much more you can do, however, depending on your budget. The first step to a more sophisticated system is usually to add an equalizer between the head unit and the power amplifiers.

Although many people choose a dash-mounted graphic equalizer and take great delight in moving all the sliders up and down, it's often better to go with a trunk-mounted graphic or parametric equalizer. The job of such a hidden equalizer is to optimize the system's frequency response—ideally a one-time job, so you can lock the settings in until you make some other change to the system that necessitates a retuning. Optimal response does not always mean flat response. In fact, flat frequency response typically sounds quite bad in a moving car, where low frequencies tend to be masked by road noise. An equalizer can be used to contour the system's response so that it sounds right. It is a good idea, if you can afford it, to use separate equalizers for the front and rear channels.

A graphic equalizer has fixed frequency bands whose outputs can be individually boosted or cut. A parametric equalizer has fewer bands but more flexible controls, with adjustments for center frequency and "Q" as well as amplitude. The center-frequency setting determines where the filter will act in the audio spectrum, and the Q setting determines the width of the frequency band over which it will operate. The higher the Q setting, the narrower the band. Because of the complexity of a parametric equalizer and the need to use a real-time spectrum analyzer to help achieve the right tuning, the process is often best left in the hands of a professional installer.

Enclosures and Crossovers

As your system grows in complexity, you might want to consider enclosures for the woofers to smooth and extend bass response. There is much more to this than just throwing boxes around speakers, however. It is necessary to solve enclosure design equations based on specifications for the particular driver to be used. Fortunately, a number of excellent software packages are available for this purpose. Most run on IBM-compatible personal computers, and with a little help from the manual, you'll be designing sealed or vented enclosures in no time. If that doesn't appeal to you, leave enclosure building to the experts. Most good installers have all the software and hardware needed to design and build custom enclosures for your car. Alternatively, many companies manufacture enclosures tailored to specific speakers (and cars). Either way, you are assured that the speaker and enclosure are optimally tuned.

As a car's speaker complement increases, crossovers become more critical. Crossovers are filters that divide the audio signal into two or more frequency bands, sending each to a speaker optimized for its reproduction. There are two types of crossovers: passive and active. Passive crossovers are inserted between the amplifier and the loudspeakers; active crossovers are placed ahead of the amplifiers. An active-crossover system thus requires more amplifier channels, but in return it offers better control and less signal degradation.

In either case, by controlling the frequency range reaching each speaker, crossovers help protect the speak-



SOPHISTICATED SOUND IS USUALLY

TO ADD AN EQUALIZER.

ers from overload and improve their performance. For example, a high-pass (low-cut) filter should be installed ahead of a tweeter, because low frequencies can damage tweeters. Conversely, a low-pass (high-cut) filter should be installed ahead of a woofer to minimize intermodulation distortion and to prevent the woofer from reproducing frequencies where its response is likely to be ragged.

Proper selection and adjustment of crossovers is a crucial but difficult aspect of system design. The frequency at which a crossover's response is down by 3 dB, called the cutoff point, is taken as the crossover frequency. Also important is the slope of the crossover's response. As filter stages are added, the slope increases in increments of 6 dB per octave. For example, a first-order (single-stage) crossover filter rolls off response above or below the cutoff point at a rate of 6 dB per octave.

The choice of cutoffs and slopes depends on the speakers employed and the overall system design. In a two-way system, you might use a third-order (18-dB-per-octave) high-pass filter set at 7,000 Hz and a second-order (12-dB-per-octave) low-pass filter set at the same frequency. It is also important to attenuate extremely low frequencies—below 20 Hz especially. The infrasonic frequency range normally does not contain musical information, and you would waste valuable amplifier power and increase woofer distortion trying to reproduce it. An additional high-pass filter, set at 20 Hz, will solve the problem.

Serious Bass

Should you feel the need for serious bass, you'll probably want to install a

subwoofer. A subwoofer requires not only a speaker but also a crossover, an enclosure, and a relatively large dedicated amplifier. In other words, a subwoofer requires an independent audio channel reserved for the very low frequencies.

Although full-blown car installations often use 12- or 15-inch subwoofers, you may find that an 8-inch subwoofer, or multiple 8-inch subwoofers, will do the job. These speakers should be mounted in an enclosure to improve their bass response, but that is not possible in some cars. You might try using the trunk itself as an enclosure, mounting the subwoofers in the rear package tray and sealing the trunk. Don't forget to add a high-pass filter to eliminate frequencies below the audible range—you want your subwoofer to reproduce deep bass, not infrasonic junk.

System Integration

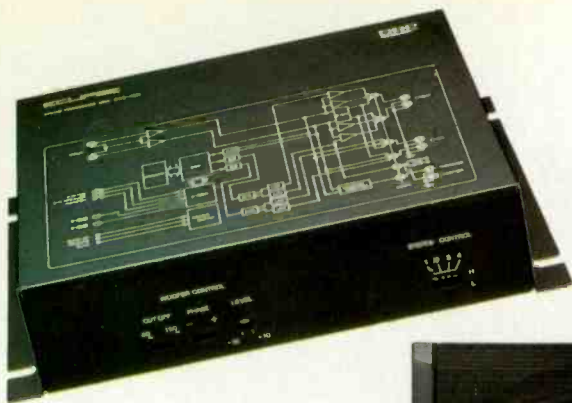
The addition of separate outboard equalizers, amplifiers, and crossovers could soon fill your entire trunk with electronics, but many manufacturers have devised components that neatly integrate a number of these functions on one chassis. Because they operate from a common power supply, size and weight are reduced, as is wiring complexity.

For instance, a single chassis might be designed to hold several independent amplifier channels and the requisite crossovers. Case in point is the Soundstream MC245, a five-channel power amplifier with crossover circuitry. It contains four 35-watt channels (bridgeable into two 90-watt channels) and a 100-watt subwoofer channel. The four main channels can be used as full-range amplifiers, or

high-pass filters with a fixed cutoff frequency and slope can be switched into either channel pair. The subwoofer channel can be used as a full-range amplifier, or you can switch in a low-pass filter, also with a fixed cutoff frequency and slope.

A more unusual product, of particular interest to those upgrading factory systems, is the Altec Lansing ALC-11. It is an equalizer designed to accept stereo audio signals from a head unit and send them on to power amplifiers. But the ALC-11 is also a passive crossover, so the output from the power amplifiers goes back to it before passing on to the loudspeakers. The ALC-11 is great for two-way stereo installations. It provides bass and mid-range parametric controls along with a high-frequency level control and a high-pass filter with variable cutoff. Add appropriate speakers (a pair of tweeters and a pair of woofers, for example) and power amplifiers, and you're in business.

Supplemented by components like those described above, a factory sound system can attain a very high level of performance. And because you have retained the original head unit and not added any more in-dash components, the installation can be very stealthy. With equalizers, amplifiers, and crossovers concealed in the trunk and additional speakers tucked away or concealed under fabric, the bad guys will never know what you're packing. In addition, when it comes time to sell your car, it will be an easy matter to pull out the extra audio equipment, leaving only a few barely perceptible screw holes. Still, with all this reproduction hardware on board, you may find yourself feeling cheated in terms of source material. Extending



The Eclipse EQS-1001 digital processor (\$700) simulates the ambience of a variety of listening environments, from a jazz club to a stadium.

Replacing stock rear-deck-mounted 6 x 9-inch speakers with coaxials like Jensen's JCX220 (\$70 a pair) is the most common car stereo upgrade. The JCX220's can handle 130 watts apiece.



Linear Power's Model 2202 amplifier (\$500) delivers 110 watts per channel, enough to add oomph to any mobile sound system.

Polk Audio's MM 300 two-way plate speaker (\$160 a pair) comes with hardware for either surface or flush mounting (half an inch of clearance is required for flush installations). Power handling is 100 watts.



our stealth philosophy, adding a trunk-mounted CD changer will exactly fill the void.

Let's Get Digital

Fortunately, a variety of CD changers are available. One that is particularly easy to tie into a factory system is Alpine's Model 5959 CD Shuttle. This six-disc changer uses four 20-bit digital-to-analog (D/A) converters for first-class reproduction, and it even has a digital output for the not-so-distant time when all car audio interconnections are digital. The Model 5959 can be operated with Alpine 5953 or 5954 remote controls, as well as by some Alpine head units. The Model 5959 was designed specifically with factory upgrading in mind; currently, fourteen different Shuttle Links are available for a wide variety of cars. Installation requires absolutely no cutting or modifications. Alpine even publishes a factory-radio identification guide that identifies which Shuttle Link you need to connect to your car's head unit.

If you are very serious about car audio, you'll want to check out the new crop of digital signal processors. DSP units perform a wide variety of chores, including ambience enhancement, equalization, time alignment, and dynamic-range compression and expansion. A model that fits nicely into the stealth concept is the Eclipse EQS-1001, a hideaway processor that generates ambient sound fields mimicking a broad spectrum of acoustical environments, from jazz clubs to stadiums. It can be controlled by the EQR-1100 wired remote. The effect of DSP ambience enhancement can be stunning, but only if you are willing to invest in a serious system with high-end equalizers, amplifiers, crossovers, and speakers. In most cases, putting together this type of system will require replacing the factory head unit as well.

An upgrade project can cost from a few hundred dollars to many thousands. No matter what your budget, it is important to plan the system as a whole, upgrading consistently through the audio signal path. There is little advantage in buying expensive amplifiers, for example, if there's no money left for crossovers. Even if you are building on a paycheck-to-paycheck basis, take a logical approach that will minimize rewiring. When you're done, and the sound is fabulous, perhaps you'll decide to keep that old Excelsior indefinitely—provided the transmission holds out. □

PIONEER PREMIER KEX-M900 CAR DSP HEAD UNIT

Digital signal processing pulls into the car stereo mainstream

DIGITAL signal processing, or DSP, is not, strictly speaking, a new technology. It has been used for many years now, in applications ranging from the exotic (enhancing video images transmitted from distant spacecraft) to the relatively mundane (error correction in CD players). But the cost of the technology has now dropped to the point where very sophisticated DSP functions can be incorporated into consumer products, including, most recently, some designed for use in the car.

Case in point: the Pioneer Premier KEX-M900 DSP preamplifier and cassette deck. Priced at \$1,200 with its companion GEX-T70 external AM/FM tuner module (the two are packaged together), this head unit brings unprecedented audio processing power to the fingertips of car stereo listeners and points to the future of auto-sound technology. The M900 provides four preset ambience-enhancement programs, seven-band graphic equalization, separate three-band parametric equalization for front and rear channels, independent bass and treble control for front and rear, and automatic road-noise compensation, and it performs all of these functions digitally. With the supplied tuner module and the optional CDX-M50 CD changer (\$500) under its control, this head unit can do it all.

As you might expect, the KEX-

M900's front panel is about a light-year beyond those of typical analog units in styling and control functions. Although it has only twenty-four buttons, many of them have multiple functions, and four of them are menu-driven. The large display screen is also vital to operating the M900. Usable front-panel area is increased because the tape-loading slot is concealed behind the panel, which folds forward to reveal the slot as well as the cassette-eject button. In addition, the front panel can be detached entirely so that you can carry it with you when you leave the car, rendering the unit valueless to thieves.

DSP provides such flexibility that it is difficult to describe the KEX-M900's operation fully. To understand how it works, you really need to play with the unit and refer (often) to the owner's manual. With that caveat, let's take a look: Volume (and other functions) are adjusted with the large + and - buttons. Fader and balance settings (and other functions) are controlled with four small buttons arranged in a cross configuration: The up/down buttons adjust the fader between front and rear, and the left/right buttons adjust balance. A rocker button to the right of the balance/fader cross is used for fast winds and music searching in the tape mode, station tuning and local/distant sensitivity selection in the tuner mode, and track skipping and manual searching in the



PHOTOS BY GENE COLEMAN

by Ken C. Pohlmann



All of the KEX-M900's many functions are controlled with just twenty-four buttons on the front panel (which folds down to expose the cassette slot). An eight-button remote can handle most basic operations.

CD mode. A forward/backward button next to the rocker is used to change tape direction, select the tuner band (three FM and one AM), and cancel programmed CD tracks.

A large button to the right of the display is used to swing down the front panel and expose the tape-loading slot. Conveniently, the panel automatically raises itself after a tape is loaded. A source-selector button chooses among CD, tape, and tuner and, in addition, turns the head unit off. A nearby clock button is used to display and set the time. The BSM (best stations memory) button automatically tunes in the six strongest stations in a band and stores them in presets.

The SHIFT/SUB-MODE button is small but vitally important in operating the KEX-M900. It enables you to step through several control modes; in each mode, four menu-driven "soft keys," F1 through F4, take on different functions. (Bear with us a bit here—we'll explain the unfamiliar functions shortly.) In Mode 1, they select bass control, treble control, equalization adjustment, and EQ defeat. Mode 2 changes them to selectors for the ASL (automatic sound levelizer), loudness compensation, SFC (sound-field control), and SFC mode. To enter Mode 1 or 2, you press the Shift/Sub-Mode button. In Mode 3,

In the CD mode, the soft keys provide track scanning, track-sequence programming, manual search, and repeat and random playback. In case you're keeping track, each of the four soft keys controls at least six different functions, and some modes have sub-menus that provide extra functions.

A Processing Powerhouse

Although some of the M900's soft-key functions, such as loudness compensation, are easy to understand and operate, many require the use of other buttons on the front panel. We don't have room for a full description of all of these functions (the owner's manual is fifty-six pages long), but you can get an idea of the processing power contained in this head unit from a few of its unusual features. For example, the SLA (source-level adjuster) program for soft key F3 in Mode 3 enables you to set different tape and CD volumes relative to the FM volume. The ASL (automatic sound levelizer) program on soft key F1 in Mode 2 monitors the noise level inside the car and automatically increases the audio volume when the noise increases.

Bass and treble are adjusted in Modes 1 and 3. You select Mode 3 first and use the F2 soft key to switch between F&R and F/R, so that you can

at the top left of the front panel are then used to select the equalizer band—low, mid, or high—to be adjusted. You select the center frequency you want with the left/right cross buttons and as much as 12 dB of boost or cut with the up/down buttons. The cross buttons also select frequency and level in the graphic EQ mode. You can select from thirty-one center frequencies from 20 to 20,000 Hz in the parametric equalizer; the graphic equalizer has seven fixed center frequencies from 60 to 10,000 Hz.

Equalizer and tone-control settings can be stored for instant recall with the six memory buttons at the top left of the control panel. Settings are recalled by entering Mode 1 and pressing the appropriate memory button. Flat response can be restored by pressing the F4 soft key while in Mode 1. These six buttons also serve as station presets in the tuner mode and disc selectors in the CD mode.

The sound-field control (SFC) program is entered through Mode 2, in which soft key F3 turns SFC on and off. SFC modes are selected with F4, which steps through Studio, Jazz Club, Concert Hall, and Stadium ambience settings. The KEX-M900 directs ambience-enhancement information only to the front speakers, so the effect can be adjusted only through the fader control.

Other Goodies

Some of the front-panel buttons used to control DSP operation serve other functions as well. For example, the cross buttons can be used to enter titles for CD's—up to ten characters each for as many as seventy-two discs. You just hold down the display button in the CD mode, then use the left/right buttons to select a character position on the display and the up/down buttons to select the desired character. Each time a labeled CD is played, its title will come up on the display.

Throughout all these operations, the dot-matrix display supplies a steady stream of status information in both alphanumeric and graphic form. The display automatically follows the audio source, mode, and soft-key programs selected. In addition, you can use the display button to alter the normal display so that it shows the equalization applied to either front or rear channels—for example, the net effect of bass, treble, and parametric equalization across the audio band. To help acquaint users with the KEX-M900's many functions, Pioneer has included a self-demonstration pro-



The KEX-M900 points
to the future of
autosound technology.

which is invoked by holding the Shift/Sub-Mode button down for 2 seconds, the keys select parametric or graphic equalization (PEQ or GEQ), F&R (front and rear) or F/R (front or rear) equalization, SLA (source-level adjuster), and optimization of the sound-field control for a right-hand-drive or left-hand-drive car.

The Shift/Sub-Mode button also calls up the program that controls the currently selected source: tuner, tape, or CD. In tuner mode, the soft keys provide preset scan, local/distant sensitivity adjustment, seek tuning on/off, and mono/stereo switching. In the tape mode, they turn noise reduction on or off, choose between Dolby B and Dolby C, and select blank skip, radio play during fast-forward, and repeat.

adjust the tone of the front and rear channels either together or separately. You can then enter Mode 1 and use F1 to select bass control and F2 to choose treble control. The left/right cross buttons select the frequency at which the control's action starts (250, 160, 100, or 63 Hz in the bass and 4,000, 6,300, 10,000, or 16,000 Hz in the treble), and the up/down buttons boost or cut response by as much as 12 dB.

The KEX-M900 also gives you the option of either parametric or graphic equalization. To select the type of equalization, you must enter Mode 3 and use the F1 soft key. If you select parametric, you then press F3 to reach the EQ submenu and to select equalization for either the front or rear speakers. The 1L, 2M, and 3H buttons

gram stored in memory. You can call it up by turning the unit off and pressing the Shift/Sub-Mode and display buttons simultaneously—great entertainment while you wait for the tow truck.

The M900 also comes with a wireless remote control. It has only eight buttons and therefore provides only simplified operation of the head unit. There is, however, a LEARN button on

at -90 dB was $+5.1$ dB, which is pretty good for a car unit. Interchannel phase error was a mere 1.2 degrees at 20,000 Hz.

The cassette section's performance was also very good. Frequency response in both directions was quite flat, never deviating by more than 3.2 dB. Noise was low, particularly with Dolby C, as were flutter and crosstalk

about par. Overall, there were no weak links in the measured performance of this audio package.

On the Road

Installation of the KEX-M900, GEX-T70, and CDX-M50 posed no particular problems. The M900 has power leads, front and rear audio outputs, inputs for the tuner and a CD



The KEX-M900's front panel can be detached (left) and carried away for security when you leave your car. Its tuner circuitry is contained in the external GEX-T70 module (below), which is designed to be lucked out of sight under the dash.

the controller that can be set to emulate any button on the front panel. You program it by pressing and holding the display button, pressing soft key F4, and pressing the button on the head unit that you want memorized.

In the Lab

At the heart of the KEX-M900 is a formidable array of DSP technology. Its 32-bit microprocessor uses 24-bit coefficients for precise signal-shaping computations, and the bus structure enables data to travel simultaneously in both directions between the processor and its memory. The other digital circuitry is also impressive. Analog-to-digital (A/D) circuits use two-times-oversampling input filters and 16-bit converters, and the output digital-to-analog (D/A) converters are the latest 1-bit design.

The quality of the KEX-M900's design is readily apparent in its performance on the test bench. We measured the DSP section by feeding it signals from the CDX-M50 CD changer. Frequency response deviated by no more than 0.73 dB, and channel separation at 1,000 Hz was a solid 50 dB. Dynamic range and signal-to-noise ratio (S/N)—95.8 and 98.8 dB, respectively—were both very good. Total harmonic distortion plus noise (THD + N) was respectably low, reading 0.033 percent at 0 dB and 0.1 percent at -20 dB. D/A linearity error



between sides. Channel separation and speed accuracy were very good as well.

Since the GEX-T70 tuner module is included with the KEX-M900, we measured its performance as well. Surprisingly, the figure for 50-dB quieting sensitivity surpassed that for usable sensitivity (the opposite of the usual result), but both were excellent. AM rejection was very good, as was image rejection. Adjacent-channel selectivity was superb, and alternate-channel selectivity was very good. Capture ratio was mediocre, however. Distortion, noise, and channel-separation readings were all very good. The tuner's FM frequency response was excellent, and the AM response was

player, and a fiber-optic audio connection for the CD changer. The GEX-T70 tuner module has power leads, an audio output and control cable, and an antenna input. The CDX-M50 changer has power leads, a control cable that connects to the tuner module, and a fiber-optic output to the head unit. I installed the M900 in the dashboard of my Porsche 911 and the tuner and changer in the front trunk. The audio outputs from the M900 were routed to downstream amplifiers and speakers.

Before hitting the road I spent about an hour familiarizing myself with the M900. This is an important responsibility of ownership (or reviewership) of a sophisticated head unit; it would be dangerous indeed to learn as you

go—attempting to drive while exploring the front panel. One can imagine a future in which, for liability reasons, car DSP units incorporate interlock systems so that you can't start your engine until you've passed a programmed operating test!

Once on the road, I found listening to the KEX-M900 pleasurable indeed, but operating it was sometimes difficult. Working the M900 requires so many keystrokes and such close observation of the display that detailed operation is simply impossible in city traffic. The problem is aggravated by the fact that the display is difficult to read in bright sunlight—a real hassle for me in Miami. I found it much better to save complex adjustments for red lights and to use only primary controls while moving.

That limitation aside, however, I found the KEX-M900 very satisfying

to use. The No. 1 reason was its sound quality, which was very good. There are plenty of opportunities for signal degradation in a DSP system, but Pioneer's programmers seem to have steered clear of most of the potential pitfalls. Through a multitude of control permutations, with all three audio sources and all kinds of processing, I was well satisfied with the fidelity.

Although I was initially skeptical, I soon found that the ASL (automatic sound levelizer) function worked quite well. It was subtle yet effective in keeping the music audible above the road noise—not as easy as it might seem, as the circuit must be capable of differentiating loud music from loud noise, or else it would continually turn up the volume. The M900 avoided that trap, always responding appropriately to changes in noise level. I also liked having the option of three different

sensitivity levels: My noisy, air-cooled 911 required the highest setting.

THE graphic and parametric equalizers both worked very well. I found it easy to manipulate the response, making small as well as large changes where necessary. Of course, as with any equalizer, one always wishes there were a few more bands or a somewhat larger boost/cut range. In this case, having only three bands in the parametric was sometimes limiting, as was the restricted frequency range of the graphic equalizer. But you can overcome these limitations to some extent by piggybacking the equalizer curves onto the bass and treble controls.

The sound-field-control software was very interesting. Each of the four simulated venues provides a nice effect and has applications for different kinds of music. In particular, I liked the Studio and Jazz Club modes. Being unable to alter the acoustical characteristics of the preprogrammed environments was sometimes frustrating; fine-tuning the ambience enhancement can be just as important as tweaking the equalization. I suspect further improvements in processing power will enable future Pioneer head units to provide this measure as well. Users should also be aware that ambience processing is applied only to the front channels, where it is mixed with direct sound. This limits the KEX-M900's ability to truly re-create a room environment. In fact, the SFC programming provides more of an ambience effect than true sound-field control. Still, I liked it for what it was.

No road test of the KEX-M900 would be complete without praise for its detachable faceplate. The ability to pull off the front panel and slip it into your pocket makes fully removable (and luggable) head units obsolete. I even liked the M900's habit of gently buzzing if I turned off the engine but forgot to remove the face. (If more than 30 seconds elapses after you've turned off the engine, the front panel is secured and cannot be detached.)

An afternoon with the KEX-M900 and its companion source components leaves one in awe. It is hard to believe that the M900 can perform all these functions with such fidelity, especially when you compare it with the most sophisticated head units of a year ago. What's behind this quantum leap is DSP. This incredibly potent technology will carry audio reproduction forward into the next century. The KEX-M900 is a window into that future. □

LABORATORY MEASUREMENTS

• Control Section

Maximum output level: 2.70 volts

Frequency response: 20 to 20,000 Hz +0.02, -0.71 dB

Channel separation: 50.1 dB at 1,000 Hz, 53.2 dB at 20,000 Hz

Dynamic range (A-weighted): 95.8 dB

Signal-to-noise ratio (A-weighted): 98.8 dB

Harmonic distortion (THD + N at 1,000 Hz): 0.033% at 0 dB, 0.11% at -20 dB

Linearity error: +5.1 dB at -90 dB

Maximum interchannel phase shift: 1.2 degrees at 20,000 Hz

Tone-control range: +8.5, -9.3 dB at 100 Hz; +9.0, -10.0 dB at 10,000 Hz

• Tape Section (IEC-standard test tapes)

Frequency response (31.5 to 18,000 Hz, forward): Type I (120- μ s EQ), +0.0, -3.2 dB; Types II and IV (70- μ s EQ), +0.03, -2.8 dB

Frequency response (31.5 to 18,000 Hz, reverse): Type I, +0.2, -2.9 dB; Types II and IV, +0.17, -2.1 dB

Signal-to-noise ratios (A-weighted):

	Type I	Type II
NR off	45.6 dB	48.5 dB
Dolby B	53.7 dB	56.2 dB
Dolby C	60.8 dB	63.6 dB

Wow-and-flutter: 0.07% wrms, 0.14% DIN peak-weighted

Speed error: +0.46%

Crosstalk between tracks at 1,000 Hz: -49.7 dB

Channel separation at 1,000 Hz: 39.1 dB

Fast-forward/rewind time (C-60): 105 seconds

• Tuner Module (all measurements for FM only except frequency response)

Usable sensitivity (mono, 75-ohm input): 15.6 dBf

50-dB quieting sensitivity (mono, 75-ohm input): 11.5 dBf

Harmonic distortion (THD + N) at 65 dBf: mono, 0.67%; stereo, 0.59%

Signal-to-noise ratio at 65 dBf: mono, 55.4 dB; stereo, 54.6 dB

Channel separation at 1,000 Hz (65 dBf): 40.9 dB

AM rejection (65 dBf): 65.2 dB

Capture ratio (65 dBf): 4.8 dB

Selectivity: adjacent-channel, 40.3 dB; alternate-channel, 88.0 dB

Image rejection: 58.7 dB

Maximum output voltage (FM, 100% modulation): 0.84 volt

Frequency response: FM, +0.68, -2.24 dB, 30 to 15,000 Hz; AM, +0.0, -14.96 dB, 30 to 3,000 Hz

the PREAMPLIFIER TUNER

*An integrated
component
that offers the
flexibility
of separates*

SINCE the days of the vacuum tube, high-end audio has favored ever-greater specialization and separation of functions. The high-power amplifiers of the “golden age” of tubes unavoidably generated lots of heat, and their massive power supplies and relatively primitive wiring topologies could easily introduce fidelity-destroying hum and noise in the precious audio signal, especially the tiny and therefore highly susceptible output from a phono cartridge. Thus, separate components—individual preamps and power amps—were the norm. The FM tuner, also very sensitive to noise and interference, was another discrete component, and the preamp itself might be further broken down, moving to its own chassis a “pre-preamplifier” circuit for low-output moving-coil cartridges.

With the wide acceptance of the transistor in the 1970's, the receiver—integrating the functions of a preamplifier, power amplifier, and tuner—came into prominence. Why would you want to cram three complex circuits into a single box? Simple answer: to save money. A receiver requires only one chassis, a single power supply, and just one packing carton, owner's manual, and brochure, and the advertising budget and sales and marketing forces can be pared down as well. All of these items add expense, and as a result of reducing them a receiver can be sold for half as much as an equivalent-power set of separates. The receiver is also vastly more compact than separates and often simpler to connect and to operate.

Nevertheless, even in this microchip age separate components retain supremacy in serious hi-fi circles—and for some of the same reasons as always. While heat is seldom a burning issue for solid-state ampli-

by
David Simon

Adcom's GTP-500II is an excellent example of the new breed of preamp tuner. Its low-profile chassis houses all the functions expected of basic high-performance separate preamplifiers and digital tuners.



the
PREAMPLIFIER
TUNER

Carver's remote-
controllable CT-17
provides such extras as
Dolby Pro Logic surround
decoding and the
company's proprietary
Sonic Holography circuit
and Asymmetrical
Charge-Coupled Detector
FM tuner.



The NAD 1700 offers
a feature rare even on
separate preamps:
switchable turnover
frequencies for the tone
controls. Also included
are a remote control
and NAD's FM
noise reduction.

ers, the substantial power supplies in today's high-current amps can make maintaining the 96-dB dynamic range required by digital sources a challenge in an integrated component. Just as significant, as much because of marketing pressure and cachet as any concrete engineering rationale, many manufacturers reserve their best designs for the separate categories.

The preamplifier/tuner, however, is one integrated component that's finding favor even in high-end circles. Its time appears to have come—or, more accurately, returned (tuner/preamps enjoyed a brief popularity about twenty years ago). The reasons for the renaissance are unchanged from a generation ago: Combining an AM/FM tuner and a full-function preamplifier in a single chassis brings substantial reductions in cost and complexity while retaining the advantages of having a separate power amp, with its attendant high voltages and currents and potentially signal-perturbing magnetic field.

The combination also yields great flexibility. As your system grows, you can upgrade the amplification without junking a perfectly satisfactory front end. But there are other preamp/tuner advantages in this modern age. Remote control is now *de rigueur* in even a moderately elaborate setup; a preamp/tuner immediately reduces controller clutter and joins two frequently used items under a single commander. In home-theater and multi-room installations, a preamp/tuner (like full separates) gives you more flexibility than an integrated amplifier or a receiver when it comes to adding surround processors, multiple (or multichannel) power amplifiers, and multiroom signal distributors. You can easily patch peripherals between the preamp and power-amp stages, where most such boxes are meant to go, and you can select just the amount and kind of amplification you need instead of having to supplement or work around whatever amplifier is built into an integrated unit.

A preamp/tuner also permits you to get top-of-the-line front-end technology without having to buy the biggest power amplifier in the line at the same time—as is usually the case with receivers. On the other hand, going the preamp/tuner route does mean that a change in one side of the combination requires changing the other—or, at least, leaving an unused half languishing on the vine if you introduce a new, “must-have” discrete tuner or preamplifier into your system.

But the quality, diversity, and value

of current hybrids are powerful attractions. Typical is NAD's \$799 Model 1700, a preamp/tuner that unites the company's top technology in a legitimately high-value package. The NAD 1700's preamplifier section incorporates such audiophile-oriented features as a discrete-component (non-IC) phono preamp with built-in moving-coil pre-preamp stage, useful 18-dB-per-octave infrasonic filtering, and an unusual volume-control circuit said to preserve dynamic range at all settings (the volume knob is motor-driven via the supplied remote control). The NAD 1700 also features a Bass EQ circuit, to help extend the low-frequency response of small speakers, and unusually flexible tape-dubbing facilities as well as a semi-parametric tone-control system.

THE NAD 1700's tuner section uses a MOSFET front-end design that is claimed to have superior performance with "real-world" signal levels—in particular, sharp selectivity to distinguish the closely spaced FM stations common in most urban areas. The Model 1700's tuner also boasts NAD's FM noise-reduction circuit, which is said to add 10 dB of quieting to weak signals, and an unusually wide-bandwidth AM section.

The Model 1700's little sister, the NAD 1600, lacks the FM noise reduction and knob-based manual tuning, substitutes more conventional tone controls, and supplies a slightly less advanced tuner section, phono preamp, and infrasonic filter. Otherwise, it's quite similar to the Model 1700—and at half the price (\$399), it's a conspicuous bargain.

A particularly novel preamplifier/tuner comes from Carver Corporation, whose super-slim CT-6 combo occupies just one standard EIA rack space (1¾ inch high). Priced at \$550, the CT-6 is crammed with unusual features, including Carver's proprietary Sonic Holography circuit. This image-enhancement system works by compensating electronically for interaural crosstalk, an artifact of stereo reproduction that can compromise natural acoustic directional cues. The CT-6 also incorporates the company's Asymmetrical Charge-Coupled Detector, which is said to reduce noise dramatically on very weak FM signals while maintaining a significant stereo effect.

A full-size and even more feature-heavy Carver preamp/tuner, the CT-17, includes all of the above plus

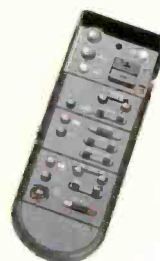
on-board Dolby Pro Logic surround decoding and two additional surround modes for music listening and for monophonic sources. (It comes with an unusually cogent owner's manual that provides extensive surround-sound setup and usage tips.) The up-to-the-minute CT-17 also has dual, independently controlled output buses to facilitate use in a dual-zone setup—for example, simultaneously playing CD's in one room and FM or tapes in another (you need a second power amp for the remote zone). A jack for an optional infrared-remote repeater on the rear panel facilitates complete control of the preamp/tuner from secondary rooms.

Adcom was among the first companies to repopularize the preamp/

tuner. Its latest example, the \$600 GTP-500II, is a fully remote-controlled component that spreads its convenience through the house by accepting optional remote sensors, which permits system control from any connected room. The preamp section maintains low distortion and wide dynamic range through the use of tight-tolerance components in all critical circuits as well as an unusual, low-impedance RIAA equalization network in the phono stage. Outputs are buffered to prevent signal-degrading component interactions. On the tuner side, Adcom employs a newly improved IF stage for reduced distortion and tight selectivity. The lower-price GTP-400 (\$400) boasts only slightly less impressive specs.



Proton's AP-600T boasts Schotz II FM tuner circuitry for improved performance with weak and strong signals. It has independent selectors for listening and recording.



The Luxman TP-114, designed to facilitate system control, has special connections for remote components and infrared sensors.



the PREAMPLIFIER TUNER

Luxman's flagship preamp/tuner, the \$1,250 TP-117, was the first serious model from a traditional full-line audio manufacturer to integrate multi-room capabilities from the start, including video signal switching and distribution. The unit can be set up for independent control of source, volume, and tone-control settings in each of two zones. Five remote-sensor inputs enable the two zones to cover as many as fifteen rooms. Built-in RF modulation enables the TP-117 to send a video program from any master-system video component to a remote room via the same coaxial cable that communicates the control commands (but in the opposite "direction") from an optional outboard remote sensor box. Two or three TP-117's can be daisy-chained together, providing

phono pre-preamp is also provided. Remote-controlled but with a motorized volume control, it boasts a 100-dB (A-weighted) signal-to-noise ratio (S/N) for line-level inputs as well as an unusually quiet 80-dB S/N for the moving-magnet phono stage.

CALIFORNIA'S Soundcraftsmen coined the term "pre-ceiver" for its Pro-PT5 preamp/tuner (\$599). The Pro-PT5 combines a sensitive FM section, which is equipped with a differential-multiplex high-blend circuit said to maximize separation while reducing noise and distortion in weak signals, with a fully equipped, remote-controlled preamplifier. The latter includes a continuously adjustable loudness contour to compensate at any volume for the human ear's level-dependent response, along with Soundcraftsmen's Spectral Gradient filter, which is claimed to "eliminate the harsh characteristics associated with many CD's." The Pro-PT5 has an unusually low-noise FET phono stage plus remote-activated C-MOS switching said to eliminate noise and distortion that can be caused by conventional mechanical switches.

From Parasound comes a pair of preamp/tuners. The C/PT-600 (\$375) sports variable loudness compensation, dual tape-monitor loops with cross-dubbing, and a sophisticated FM tuner section. It also has such thoughtful touches as muting-delayed output for protection against amplifier turn-on thumps and a 10-ampere power switch, which, along with the C/PT-600's rear-panel AC convenience outlets, should manage the power needs of most systems entirely. The \$550 Model C/PT-1000 adds a Class A, FET-based preamp section heavily populated with high-grade circuit components, defeatable tone controls, and full remote control, among other extras.

On the whole, the preamp/tuner concept makes a great deal of sense. As a compromise between the convenience and value of a receiver and the sophistication of separate components, it strikes a natural balance. And, like separates, it leaves the choice and location of amplification—or even the use of that enlightened hi-fi rarity, the powered loudspeaker—entirely up to the user, without penalty. The range of today's preamplifier/tuners should prove sufficient for almost any taste or budget. But given the category's swelling popularity, it seems likely that tomorrow will bring even more choices. □



The RTC850 reflects Rotal's design goal of high performance without undue operational complexity. It has a motorized volume control and sixteen station presets.

flexible audio-plus-video for as many as six zones distributed through several dozen rooms. Besides all that, the TP-117 incorporates a slew of advanced audio and video features, including computer-optimized FM tuning via a MOSFET front end, buffered switching for as many as four video sources, and motor-driven volume controls for both zones.

A simpler sibling is Luxman's TP-114. This preamp/tuner leaves out all of the multiroom accoutrements and substitutes only marginally less sophisticated audio circuitry and FM performance. But these sacrifices net a nearly two-thirds break in price, to just \$450.

From Rotal—a Japanese firm with a British design team and manufacturing facilities in Taiwan—comes the RTC850, a \$499 preamp/tuner. It is said to use high-grade, 1-percent-tolerance resistors at critical circuit points as well as "specially selected audio capacitors." An on-board moving-coil

CARLENE

**"I guess all the planets
finally lined up. I really do think**

this is just the right time for me, but

CARTER

**part of it is that I'm a lot
more focused."**

.....

by Alanna Nash



THREE and a half years ago, Carlene Carter looked in the mirror and saw herself clearly for the first time in a decade. After five albums in the late Seventies and early Eighties (including "Musical Shapes," hailed as one of the finest country-rock records of the post-rockabilly era), her

life and career were on a slow slide into shambles. Her third marriage, to British rocker Nick Lowe, had all but unraveled, and she often drank to excess, partying with people whose lives had dead-ended long ago.

"I looked at myself, and I went, 'S---, this isn't happening,'" Carter, now thirty-five, recalled recently. "I was bored to death. I wasn't doing anything, I wasn't going anywhere, and I

WARNER BROS. RECORDS

knew a lot of the drinking was just an escape.

"Suddenly it dawned on me that I could do this forever, or I could die, like a lot of my friends. Or maybe if I stopped this, I could have a chance to do what I really longed to do. I wasn't happy. But I decided to *get* happy, real quick."

Today, Carter has much to be happy about. Her comeback album, "I Fell in Love," made most critics' "Best of the Year" lists, scored a Grammy nomination, and continues to ride comfortably on the country charts.



"I'm very proud of my heritage, and I felt like I'd been letting it down."

The reasons for the success of the album, recorded on the West Coast, are as varied as the changing styles of country music itself. One is Carter's insistence on paying allegiance to the roots of rural music while keeping a sharp eye on contemporary country-rock. Another is her choice of upbeat, positive songs, most of which she wrote or co-wrote. Still another is the album's exemplary musicianship. Howie Epstein (of Tom Petty and the Heartbreakers) produced it, and the supporting cast includes guitarists Albert Lee and James Burton, keyboard player Benmont Tench, pedal-steel guitarist Jay Dee Maness, drummer Jim Keltner, and vocalists Dave Edmunds, Keith Knudsen, Levon Helm, Nicolette Larson, and Kiki Dee.

Even so, Carter hadn't expected the album's success. The first time she had a crack at a recording career, Nashville thought she was too pop and L.A. considered her too country (most of her audience wasn't quite sure either). And her last release, "C'est Si Bon" on Epic, was a disastrous synthesizer-pop record clearly destined for oblivion.

"I guess all the planets just finally lined up this time," Carter mused in her thick Tennessee drawl. "I really do think this is just the right time for me, but part of it is that I'm a lot more focused. I floundered around for years trying to find the right balance of country and rock, which was always a dilemma for me. I couldn't really see

myself wearing frilly little lace dresses and singing ballads for the rest of my life, which is what I always thought country music was."

The fact that Carter had such a narrow fix on country music is surprising, considering she's had a close-up view of it all her life. The daughter of June Carter and Carl Smith, the country hitmakers of the Fifties and Sixties, Carlene can boast an impeccable hillbilly pedigree. Great-niece of A. P. Carter and granddaughter of Mother Maybelle of the legendary Carter Family, she joined ranks with what would

be yet another famous country-music clan in 1967, when her mother, who had divorced Smith when Carlene was two, married Johnny Cash.

Already a big star and soon to be a bigger one, Cash served as Carlene's primary father figure, since she visited her natural father only on weekends. Still, Carter said, she never knew much about country music until she moved to England in 1978. Growing up, she listened to the popular rock acts of the time—the Beatles, Eric Clapton, Ray Charles, Janis Joplin, Jimi Hendrix, and the Byrds.

And when Carter began singing her original songs at local pubs around Nashville—using the name Calhoun Cartier and insisting she was really a stripper from L.A.—her songs rode a stylistic fence, the best ones coming out like *Easy from Now On*, which she co-wrote in 1976 with Susanna Clark. (Emmylou Harris saw fit to record it for "Quarter Moon in a Ten Cent Town," borrowing a line in the song for her album title.)

Even now, Carter said, "If Howie [Epstein] had complete control over what I write, it would come out even more hillbilly. People would think it's just the opposite—that he would be the one who would want to keep it more contemporary, more rock-sounding." She laughed way down in her throat. "The problem is, I just haven't written that many hillbilly songs."

For insurance, when Carter went to

England in the late Seventies to make her first record, she took along several contemporary country musicians, including Hank DeVito and her stepfather's son-in-law, Rodney Crowell (husband of Cash's daughter Rosanne). Welsh wunderkind Dave Edmunds was set to produce. But Crowell, who helped graft country music to rock and pop to produce its more modern hybrid forms in the Seventies and Eighties, convinced her that Edmunds wasn't taking the record in the right direction. In the end Carter, then twenty-two, collaborated with the British group the Rumour instead. The result was a sweet-but-strong album that sounded more like an Englishman's view of country music than that of a young woman reared in Nashville. And along the way she met her husband-to-be, Edmunds's friend and fellow rock star Nick Lowe.

First married at fifteen, with two young children and two divorces by twenty, Carter was in no marrying mood, having vowed that "no man will ever rule me again." But Lowe always treated her as an equal—never demanding breakfast, lunch, and dinner on the table, the way her previous husbands had—and the two had a whirlwind, highly publicized romance. The marriage officially lasted eleven years, although the couple lived together for only six, during which time Lowe adopted Carter's daughter, Tiffany. The union "just ran its course," Carter explained, but she and Lowe remain close; when her Grammy nomination came, Lowe was one of the first people she tried to call.

ALTHOUGH Carter was out of the public eye in the States during most of her eight years in England, she continued to write, turning out songs for the Doobie Brothers, the Go-Go's, and Leo Sayer. She also made several tours of Europe and appeared in the role of Prudie ("the lighthouse one") in the London stage version of *Pump Boys and Dinettes*, an experience that taught her discipline, increased her range by five notes, and forced her to take herself seriously as a vocalist.

By the mid-Eighties, however, Carter was ready to come home. Despondent over the failure of her marriage, the uncertain future of her career, and the fact that she had become what she calls a "Champagne Charlie," she felt a need to surround herself with family and "people who love me a lot." Moving into her ancestral home—the house in which grandmother May-

belle, her lifelong fishing and gambling buddy, died—she soon went on tour with the Carter Family, singing the songs that in many ways defined country music for generations.

“Working with the Carter Family really got me back into country,” admitted Carter, who legally changed her surname from Smith years ago. “I loved singing with them, and I loved playing that music. It touched me in a way that nothing I’d done before did. I knew then that I wanted to carry that on in some way, even though it might not be exactly like them. I’m very proud of my heritage, and I felt like I’d been letting them down.”

Finally, after two years on the road, Carter quit the group to work with Epstein on demos for “I Fell in Love.” When they finished the tape and took it to Warner Brothers, Carter’s original label, neither Carter nor Epstein was sure the music they’d made was “country,” since they never listened to country radio. But Warner executives took one listen and recognized that Carter could be *the* Homecoming Queen of 1990. Maybe she *was* more focused this time around than last. And just maybe the audience had caught up to her brand of country—smart music set to contemporary rhythms, but with lyrics rooted in a tradition as old as the hills.

The fact that Carter has feet in two worlds shows up not only in her music but in her stage routine as well. Wrapped in a short, spangled dress with fringe—sort of Carnaby Street goes Nashville—and the long, red hill-billy jacket she wears on the back of her album (“because when I lift my arm, my dress comes over my butt”), Carter dances all around the stage in her cowboy boots while strapped to a blond Gibson guitar nearly as big as she is.

For a woman who takes her songwriting seriously, she comes across as amazingly girlish in performance, but she introduces songs with a surprising twist. “There was this man in my life, and he just wouldn’t leave me alone. I did everything I *could* to get rid of him,” she sighs in *The Leavin’ Side*, “so finally I just shot the son of a bitch.”

“I *am* in the mode right now where I think country music needs a breath of good-naturedness and a girl who can go out there and have fun,” she told me. “Other girls want to do that, but they’re afraid they’ll seem improper. Why can’t you dance and have fun and wear short skirts? I think I *do* have an image of being a little fluffy in some

sense, but if people listen to the record, they’ll know there’s a lot more to me than that—that I can turn right around and write a real serious song like *Me and the Wildwood Rose*.”

ONE of the most evocative and affecting songs in recent country music, *Me and the Wildwood Rose* recounts Carter’s childhood memories of the days when she and her little sister, Rosey (nicknamed “the Wildwood Rose” by her mother), traveled with the Carter Family and Mother Maybelle, the matriarch of all rural musicians, who set a style of guitar and autoharp playing that would influence country music for decades to come. “If I could change a thing in this world,” Carter wrote, “I’d go back to the days of Grandma and her girls/Singing sweet and low/For me and the Wildwood Rose.”

Although the sting of Mother Maybelle’s death in 1978 has finally faded, Carter wishes she could somehow share her new success with her. In a way, perhaps she has; sometimes she senses her grandmother watching over her, smiling her approval.

“When I think about some of the things I did in the old days, it scares me to death,” Carter said. “I’d never trade it for nothing, but I’d never go on stage drunk now. In fact, I don’t even drink, period. And I was so reckless, not really caring what I said. But I take my career very seriously now. It’s what I love most of all, the writing and the performing and making records. To think how close I came to blowing that completely and not getting a second chance . . . well, a lot of people never get to make a comeback, especially to someplace they never got to the first time!”

Carter might not have gotten there either, she said, if performers like Dwight Yoakam hadn’t convinced her that she was ready—and that country was ready for her.

“I see now that there’s a little niche for me,” she summed up. “It’s a youthful approach to life. I’ve lived a lot, and I relate to those women who live in a trailer park in Kansas, because I’ve lived in a trailer, too. Most women who buy records are looking for a little bit of hope. They want someone to tell them it’s gonna be okay. I feel like I’m a woman’s woman, and I’m always for the girl. And I hope they feel that way about me.

“Most of all,” she said in a voice tinged with experience, “I want them to know that there’s a light at the end of the tunnel.” □

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1980

1981

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Willie Nile: Neon-Lit Folk-Rock Writ Large

WILLIE NILE is one of the most gifted of the heretofore missing-in-action graduates of the early New Wave, skinny-tie rock explosion of 1978-1980. That categorization does him something of an injustice, of course. Nile's guitar-driven, Dylanesque music, inhabiting a space somewhere between the starker CBGB bands and roots rockers like Joe Ely, was aligned with the New Wave more by accident of timing and his outsider's attitude toward the music business than by any specific stylistic elements. In any case, his two Arista albums—overflowing with funny, image-laden, romantic songs, snazzy guitar hooks, and inimitable wounded-ferret vocals—were among the major pleasures of their day. Now, after a decade-long hiatus, Nile's returned with "Places I Have Never Been," and while it's not the flawless masterpiece you might hope for, it's still a veritable folk-rock apotheosis, in many ways the record Roger McGuinn's "Back to Rio" should have been but wasn't.

The album's overall approach, to be sure, is largely formalist. Nile's style has changed not a whit since last we heard from him. What seemed retro in an almost avant-garde way back then, though, today sounds like the work of a traditionalist craftsman more concerned with making the right generic gestures than with innovation or the Big Statement. In short, "Places" is not going to be mistaken for the cutting edge of contemporary pop.

In a sort of Brobdingnagian way, however—and it's a *big* "however"—there is something original happening here, much of it courtesy of producer T-Bone Wolk (of Hall and Oates fame). The central sound, of course, is vintage Sixties via "Blonde on Blonde" and the early Byrds, all traditional keyboards (lots of Hammond organ) and ringing twelve-string guitars. But Wolk, with the help of a cannily cast gang of supporting musicians—including Pretenders' Robbie McIntosh, the inimitable Richard Thompson (who contributes fabulously

spooky lead guitar in *Cafe Memphis*), and the recently ubiquitous McGuinn—has taken that sound and writ it unprecedentedly large. Everything here seems either underlined or neon-lit. The guitars don't just chime, they CHIME, the drums don't crash so much as they detonate, and so on. And yet, miraculously, it doesn't degenerate into Spectroesque aural mud. Despite the instrumental overkill, the result is as transparent as can be, with the emphasis where it belongs—on the songs and Nile's singing. All in all, in fact, it's one of the most amazing production feats in memory; this kind of music has never—honestly, never—been presented with such power.

Therein lies the rub, of course. With so much going on, the danger of its turning into overripe parody is ever present, and occasionally Nile's new songs or his performances threaten to do just that. *Breakdown*, for example, finds him almost turning himself inside out to express some fairly simple emo-

tions and ride over Wolk's Wall of Sound, an unmet challenge only partly mitigated by a guitar riff for the ages.

Mostly, though, Nile rises to the challenge, and then some. *Rite of Spring* is as gorgeous-sounding a love song as you're likely to hear this year. *Cafe Memphis*, an older song with mutated Beatnik-era lyrics (the sort of thing that got Nile tagged initially as yet another New Dylan) is a raging rocker with *misterioso* to burn. And *Don't Die*, a hilarious cautionary tale inspired by hatchet-job celebrity bios like Albert Goldman's *Elvis*, has the kind of incendiary, slightly askew guitar work and drive you associate with vintage Tom Verlaine and Television. Best of all—especially when the whole business seems about to slide off the precipice of AOR pomposity—is *That's Enough for Me*, a demented Irish jig/children's tune (featuring angelic background vocals by two of the Roches and Loudon Wainwright) in which Nile, with astonishing over-the-



Nile:
innocence,
cynicism,
and a
backbeat



top glee, Demands It All (girls, the Pulitzer Prize, a new guitar, happiness) to the strains of what is simultaneously the silliest and the catchiest tune of his career.

That mix, in the end, is definitive Willie Nile—innocence and cynicism, melodies to drift away on, plus the world's loudest guitars and a thundering backbeat. If that sounds slightly old-fashioned in 1991, well, it isn't any less valuable to have around. Miss this one at your peril. *Steve Simels*

WILLIE NILE: *Places I Have Never Been*. Willie Nile (vocals, guitar); Roger McGuinn, Robbie McIntosh, Richard Thompson (guitar); T-Bone Wolk (bass); Mickey Curry (drums); Terry and Suzzy Roche (back-up vocals); other musicians. *Places I Have Never Been; Rite of Spring; Heaven Help the Lonely; Cafe Memphis; Yesterday's Dreams; Everybody Needs a Hammer; Renegades; Don't Die; Breakdown; Children of Paradise; That's Enough for Me*. COLUMBIA © CK 44434 (52 min), © CT 44434.

for Tenor, Horn, and Strings. Martyn Hill's light yet superbly projected tenor voice does full justice to words and music, and Jeffrey Bryant's horn need defer to none of his predecessors. The Royal Philharmonic strings are in splendid form, and Ashkenazy has come up with some of his best conducting yet. The recording is simply gorgeous and flawlessly balanced. Hearing the blood-curdling *Lyke-Wake Dirge* and the exquisitely moving *Keats To Sleep* is by itself worth the price of the disc. *David Hall*

Ashkenazy in Moscow

VLADIMIR ASHKENAZY'S Moscow concerts with the Royal Philharmonic in November 1989, marking his first visit to the U.S.S.R. in twenty-six years of self-exile, brilliantly demonstrated the conductorial prowess he developed over those years with performances of two twentieth-century British scores, William Walton's Symphony No. 2 and Oliver Knussen's Symphony No. 3. Both works were recorded live in the Great Hall of the Moscow Conservatory, and RPO Records has now released them together with a wonderful studio recording of Benjamin Britten's *Serenade for Tenor, Horn, and Strings*.

The first performances of the Walton Second, in 1960, were a critical success, but the work did not begin to catch on with the public until George Szell took it up in 1962, subsequently recording it with the Cleveland Orchestra. Ashkenazy brings more heart to the piece than Szell did, especially in the bittersweet central movement, which also has moments of menace. He captures splendidly the mercurial

quality of the opening movement as well as the expansive variety (with lots of metal percussion) of the passacaglia finale and its fugue, which bears an odd family resemblance to that in the second movement of Bartók's Second Suite for Orchestra.

Knussen's single-movement Third Symphony, completed in 1979, is in one of its aspects an evocation of the madness and death of Ophelia in Shakespeare's *Hamlet*. Approximately a quarter-hour long, it uses an eclectic, Postexpressionist musical language that is highly compressed yet scarily suggestive. It is not easy going at first hearing. I compared the new recording with the 1981 Unicorn-Kanchana version made under Knussen's supervision by Michael Tilson Thomas and the London Sinfonietta. Ashkenazy's reading strikes me as more freely poetic, and certainly the Royal Philharmonic players have the intricate and often disparate strands of the score well in their fingers.

Both live recordings are remarkably fine, especially in terms of the tricky balance requirements of the Knussen work. But while the inclusion of applause in the two earlier "Ashkenazy in Moscow" recordings (one from RPO, the other from EMI/Angel) can be justified on the basis of the repertory, Beethoven and Rachmaninoff concertos, not to mention the sense of occasion, I found it annoying with these twentieth-century orchestral scores. The Walton gets a cordial reception, but the Knussen clearly left the Russians nonplused.

The gem of this disc is the wonderfully sensitive performance of Britten's 1943 masterpiece, the *Serenade*

ASHKENAZY IN MOSCOW 2: *The English Works*. Walton: *Symphony No. 2*. Britten: *Serenade for Tenor, Horn, and Strings, Op. 31*. Knussen: *Symphony No. 3, Op. 18*. Martyn Hill (tenor); Jeffrey Bryant (horn); Royal Philharmonic Orchestra, Vladimir Ashkenazy cond. RPO/MCA © MCAD-10099-2 (71 min), © MCAC-10099-4.

The Return Of Nils Lofgren



IN "Silver Lining," his first solo album in nearly a decade, Nils Lofgren saves the best for last. The solo that completes the album's last song, *Girl in Motion*, is a heartbreaker. The girl is leaving for good, and Lofgren's guitar ebbs with tenderness and flows with regret. The solo begins with a searing burst as he pushes himself to the romantic edge. Then the surge begins to falter, and it seems as if

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his passion is spent, but he rallies with a string of notes as tiny and sharp as tears. The second wind is as powerful as it is surprising, and when the song finally fades out, the silence is a relief. Nothing else in "Silver Lining" comes as close to perfection as this wedding of words and music; it might have been too much to bear.

Lofgren is an extremely expressive guitarist who emphasizes emotion over technique. And, considering the depth of his ability and the breadth of his imagination, that means he's one of our leading Fender Stratocaster Romantics. No wonder Bruce Springsteen added him to the E Street Band five years ago. You might think he would have a treasure trove of new songs after all this time, but his material here is uneven. *Valentine* is a moody gem, a plea to a girl friend to understand that love can go on despite rough patches. *Walkin' Nerve* captures all the essential pissiness of high-schoolers. And the title track is properly outraged at the way certain problems—justice, the environment—never get solved. *Gun and Run*, on the other hand, is a dumb, confused fantasy about bounty hunting, or maybe robbery, or who knows what. *Little Bit o' Time*, about how time will heal a

love wound, barely registers before it's over.

But all the songs, even the weak ones, benefit from intense performances. Lofgren seems to have recorded them live in the studio with bare-bones arrangements. In the tracks where Springsteen (*Valentine*) or Levon Helm adds a desperate or urgent back-up vocal to Lofgren's plaintive, nasal singing, you really hear it. Better yet, every tune acts as a springboard for that guitar. Like Neil Young's latest, "Ragged Glory," this is a guitarist's album. Lofgren's fluid fretwork kicks off the tunes, punches them up during the bridges, spins them out to their conclusions. He just can't seem to play enough. Certainly, I couldn't hear enough. "Silver Lining" is about feeling, not thinking. Welcome back, Nils. Long may you wail.

Ron Givens

NILS LOFGREN: *Silver Lining*. Nils Lofgren (vocals, guitar); Ringo Starr (vocals, drums); Bruce Springsteen, Levon Helm (back-up vocals); Clarence Clemons (saxophone); other musicians. *Valentine*; *Walkin' Nerve*; *Live Each Day*; *Sticks and Stones*; *Trouble's Back*; *Little Bit o' Time*; *Bein' Angry*; *Gun and Run*; *Girl in Motion*. RYKODISC © RCD-10170 (50 min), © RACS-10170.

giving us a pair of nearly contemporaneous works from the end of the composer's creative life. The combination also provides a welcome contrast in instrumentation that eliminates any uncertainty on the listener's part as to where one work ends



Melos Quartet: vigor and compassion

and the other begins. The way "the other begins" in this case may strike some listeners as a bit aggressive, at least in contrast with the frequently exaggerated tenderness that was for so long the norm. The adagio is set forth without heaving sighs—but not without compassion. That quality is as abundant, in its most genuine sense, throughout both performances as the vigor already mentioned. Here we have no impression of doddering old Brahms pulling the covers over his head but of a formidably seasoned master reveling in the rhythms and colors he has developed as his own.

Both Gérard Caussé, the violist in Op. 111, and Michel Portal, the clarinetist in Op. 115, are superb players and blend seamlessly with the Melos Quartet. There are other fine accounts of both of these quintets, but what the Stuttgart foursome and their associates give us here is just the sort of thing that makes duplication appealing. And the sound, while it is big, is well defined and has just the degree of warmth that sets off this music at its best.

Richard Freed

BRAHMS: *String Quintet No. 2, in G Major, Op. 111*; *Clarinet Quintet in B Minor, Op. 115*. Gérard Caussé (viola); Michel Portal (clarinet); Melos Quartet. HARMONIA MUNDI FRANCE © HMC 901349 (67 min).

A Different Kind of Brahms from the Melos Quartet

THE powerful, close-up recording of the new Harmonia Mundi CD of two Brahms quintets featuring the Melos Quartet tends to make the opening of Op. 111 sound as if it were played by the combined string sections of the Berlin and Vienna Philharmonic orchestras. Once one makes the necessary adjustment, though, the performance is a very winning one, not least for the players' resistance to what must be a very strong temptation to underscore the "autumnal" element in the work. The moments of poignancy are the more touching for the vigor surrounding them.

Collectors are accustomed to having this string quintet packaged with Brahms's slightly earlier one, Op. 88, but Harmonia Mundi has coupled it with the Clarinet Quintet, Op. 115,



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Parke Puterbaugh, and Steve Simels



Boy George: love hurts

BOY GEORGE: *The Martyr Mantras*. Boy George (vocals); vocal and instrumental accompaniment. *Generations of Love; One on One; Love's Gonna Let U Down; After the Love; I Specialize in Loneliness*; and six others. VIRGIN © 2-91596 (70 min), © 4-91596.

Performance: *Different*
Recording: *Subdued*

Boy oh boy, has Boy George gone off the deep end. Open up the booklet accompanying his new album, "The Martyr Mantras," and there's a recent picture of Britain's all-time-favorite cross-dressing singer. Instead of the brightly plumed, gender-bending phenom of the mid-Eighties, however, there's a guy with hair cropped to stubble, attired in plain white garb and laboring humbly over an ironing board—all of which lends credence to those Krishna-conversion rumors. Boy George hasn't dropped from sight like Cat Stevens, though, and the album maintains a danceable, if noticeably restrained, pulse for 70 minutes. Touted as George's move to house music, "The Martyr Mantras" elongates

Explanation of Symbols

- Ⓢ = Tape cassette
- Ⓛ = LP record
- Ⓣ = Compact disc (timings are to the nearest minute)

subdued electronic grooves while the singer makes downcast observations about the wages of love, to whose karmic wheel he feels chained.

In *Love's Gonna Let U Down*, he sings: "I used to be a boy, now it seems I'm a man/Pick myself up off the floor for another game of who's gonna hurt me now." *I Specialize in Loneliness* finds him singing in a voice eerie with ragged overtones over cleanly delineated piano chords and filigreed acoustic guitar. The jazzy, Latin *Love Hurts* casts a musically seductive glow reminiscent of Boz Scaggs's *Lowdown*, with Boy George laying out his paradox in a voice as light as a breeze: "Love hurts, yes it hurts/ But it's good for fools." Suffering never sounded so lush, or so inevitable, as it does in "The Martyr Mantras." The whole project is resolutely strange from the top down—overtones of Eastern religion absorbed into house music sung by a one-time celebrity transvestite who's gone to Krishna yet uses the eyebrow-raising *nom de plume* "Angela Dust" for writing and production credits on his own album. Somehow it works, in a peculiar way that defies analysis. *P.P.*

MARSHALL CRENSHAW: *Life's Too Short*. Marshall Crenshaw (vocals, guitars); Fernando Saunders (bass); Kenny Aronoff (drums); other musicians. *Better Back Off; Don't Disappear Now; Fantastic Planet of Love; Delilah; Face of Fashion; Stop Doing That*; and four others. PARADOX/MCA Ⓢ MCAD-10223 (46 min), Ⓣ MCAC-10223, Ⓛ MCA-10223.

Performance: *Solid*
Recording: *Good*

Marshall Crenshaw, bless him, seems to be stuck in a multidimensional time warp. Not only does he sound like several of the major rock heroes of the past, including Buddy Holly and the Beatles, but he remains centered emotionally in his late teens. Like a sort of high-school Peter Pan, Crenshaw always sings about life on the adolescent cusp—old enough to fall in love, but young enough to be lost in the hormonal horse race. Nothing sums up the Crenshaw view of relationships like this line from *Walkin' Around* in "Life's Too Short": "Sometimes I just don't know what to think anymore."

To be honest, not every song here is as ingenuous as that, but Crenshaw seems fascinated, if not obsessed, by love that doesn't quite work. Always trapped in the romantic push-pull of rushing together or ripping apart, he gives the impression of being something of a masochist. Why else would he keep putting himself through this craziness if he didn't like pain? I guess it's like the Woody Allen joke about the man who thought he was a chicken and whose family didn't want him cured: They needed the eggs.

"Life's Too Short" delivers what we

expect from Crenshaw—nearly perfect pop melodies, snappy (even occasionally inspired) lyrics, and irrepressible performances. The songs don't waste a single measure, surging forward with Crenshaw's lean guitar taking the lead. Solos come rarely and briefly, because instrumental prowess isn't the point. The songs are uppermost, but in this case, they're inseparable from the singer. Marshall Crenshaw, at least while he's singing, is his songs. *R.G.*

LACY J. DALTON: *Crazy Love*. Lacy J. Dalton (vocals); vocal and instrumental accompaniment. *Forever in My Heart; Crazy Love; The Loveless Cafe; The Deal; Walk Away; Restless*; and four others. CAPITOL Ⓢ C21S-94569 (37 min), Ⓣ C41H-94569.

Performance: *On the mark*
Recording: *Very good*

After a rocky period with Columbia, Lacy J. Dalton has found a friendly port with producer Jimmy Bowen and Capitol Records. The collaboration has yielded what is probably Dalton's finest album overall—"Crazy Love," a collection of songs dealing with the complexities of human relationships. While a couple of songs here are hardly worth her time (the derivative *Rainman* and *The Loveless Cafe*), in the meat of the album—four songs that resonate with genuine passion—she's treated as the exemplary singer she is.

The cornerstone is Fred Knobloch's *The Deal*, the most intelligent and moving treatment of divorce ever attempted in country music. Dalton gives the song a tremendous vocal reading, filling the lyrics with immeasurable sorrow and heartache. There's not a campy *D.I.V.O.R.C.E.* moment here, and none of that crying-in-your-beer stuff, either, only the pain of two people who hurt too much to cry. Dalton continues to show off her interpretive skills and extended range in Michael Bolton's *Walk Away*, another song about the down side of love, and *Lay a Little Love on Me*, a bottleneck blues in which she's free to be sensual and direct at the same time. But the second most moving song is one Dalton wrote with her son, *Little Boy Blue*. It's a different kind of love song, one in which they both spell out the unyielding love between a parent and child, especially that of a mother whose work demands that she spend most of her time away from home and of a son who respects her for refusing to take the easy way out.

"Crazy Love" is a bluesier album than Dalton has ever done, and it suits her. Never strictly a country singer, she has always offered an amalgam of rock, blues, and folk, styles she blunted somewhat to fit the country format. But from the title song—a remake of the Van Morrison classic—to the strong melody

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In case you hadn't noticed, we've been hearing a lot of "rock is dead" pronouncements these days. That kind of doom-mongering will cut no ice with the million-plus folks who recently bought the Black Crowes album, for example, but it's not completely surprising either. After all, it's seasonal business as usual; we've heard the plaint every two years or so since 1970. In part, too, it's self-serving, Kill the Fathers guff from younger critics who came of age during the disco era. And it's also a result of understandable semantic confusion. I mean, face it—if Poison is a "rock" band, then we should probably retire the term.

Nevertheless, given the current lock on the upper reaches of the sales charts maintained by postmodern disco (that is, dance music), it does sometimes seem

manner of the original Them with Van Morrison.

The new album (on cassette only, for the moment) is a mix of recent studio efforts and live cuts, and what is surprising about it is how artfully the Roues have made it sound spontaneous (far more so than its estimable predecessor). In fact, in many ways the whole thing could pass for a late-night club jam between Howlin' Wolf, Gene Vincent, and the Yardbirds. Equally surprising, the least doctrinaire-purist cuts here turn out to be the most impressive—particularly *Don't Hide Your Face*, which suggests the "London Calling" Clash, and *Burnin' of the Soul*, a Hendrix tribute that walks the line between homage and personal expression with considerable panache. But almost everything in "Rites of Fall," even a rockabilly ready-

of *Forever in My Heart*, which would have been a pop radio staple in the Sixties, Dalton is now letting her expressive gifts flow. With a record company that seems willing to back her integrity, she may finally become the total artist she's promised for so long. "Crazy Love" is her joyous celebration—and ours as well. A.N.

DREAM ACADEMY: *A Different Kind of Weather*. Nick Laird-Clowes (vocals, guitar); Gilbert Gabriel (keyboards); Kate St. John (horns, vocals). *Love; Mercy Killing; Lucy September; Gaby Says; Waterloo; Twelve-Eight Angel*; and five others. REPRISE © 26307-2 (43 min), © 26307-4.

Performance: *Snoozy*
Recording: *Good*

It's a bad sign when the only nonoriginal song in an album is positioned as the lead track, as is the case in the Dream Academy's third album, "A Different Kind of Weather." A funky/dreamy reworking of John Lennon's *Love*, it opens the record on an engaging note, but the rest is mired in vagaries. Instead of writing songs, the Dream Academy erects musical shapes that loom hazily inside a fog of stillborn rhythms and formless impressionism. Nick Laird-Clowes's voice undergoes so much studio treatment that it sounds mechanically gauzy and sibilant. There are some genuinely pretty, evocative moments—*Twelve-Eight Angel* being the best musical example and *Forest Fire* containing the most arresting lyrics—but mainly the atmosphere is saturated with an oppressive, inchoate grayness. P.P.

GIPSY KINGS: *Allegria*. Gipsy Kings (vocals and instrumentals). *Pena Penita; Galaxia; Solituda; La Dona; Allegria; Un Amor; Papa, No Pega la Mama; Sueno; Tristessa; Amor d'Un Dia; Luna de Fuego*; and six others. ELEKTRA © 61019-2 (57 min), © 61019-4.

Performance: *Unadulterated*
Recording: *Good*

The Gipsy Kings are unique among World Music artists. The sound of their seven guitars throbs with the percussive rhythms of Spain, and their impassioned vocals are laced with the haunting melismatic improvisations of flamenco, but they sing in Gitane, a mixture of the Spanish, French, and Gipsy languages. A sense of freedom, of being beyond boundaries, infuses their work. Theirs is a powerful sound that pulls you back to an earlier, more romantic time. You almost feel that Carmen could come dancing by at any moment, gripping a rose between her teeth.

The two Gipsy Kings recordings previously released in this country were made after they had come under the influence of manager-producer Claude Martinez, who skillfully augmented their natural sound with synthesizers and electric bass. "Allegria," put together



The Roues: Billy Roues, Ed Steinberg, and Muddy Roues

that the traditional rock band—guitar(s), bass, drums, and somebody yowling up front—is, if not dead, at least on the endangered-species list. And that state of affairs is only one of the reasons why "Rites of Fall," the debut release by the Roues, is such a pleasant surprise; obviously, the Great Tradition still lives, if only in the dark recesses of West Nyack, New York.

Actually, surprise is not really the right word. Before the obligatory legal hassles, these guys kicked up a lot of critical and FM dust as the Broadcasters, under which moniker they did a stunning 1988 Enigma album produced by MC5 legend Wayne Kramer. The basic sound of the group has changed very little since then. It's still fueled by incendiary vocals, snappy neo-everything guitar, and believable harmonica work from brothers Billy and Muddy Roues, and it's still roots-rock filtered through a punk-blues sensibility in the

made like *Mad Rocker*, sounds like the work of guys who not only Mean What They're Saying but are enjoying the hell out of themselves while they say it.

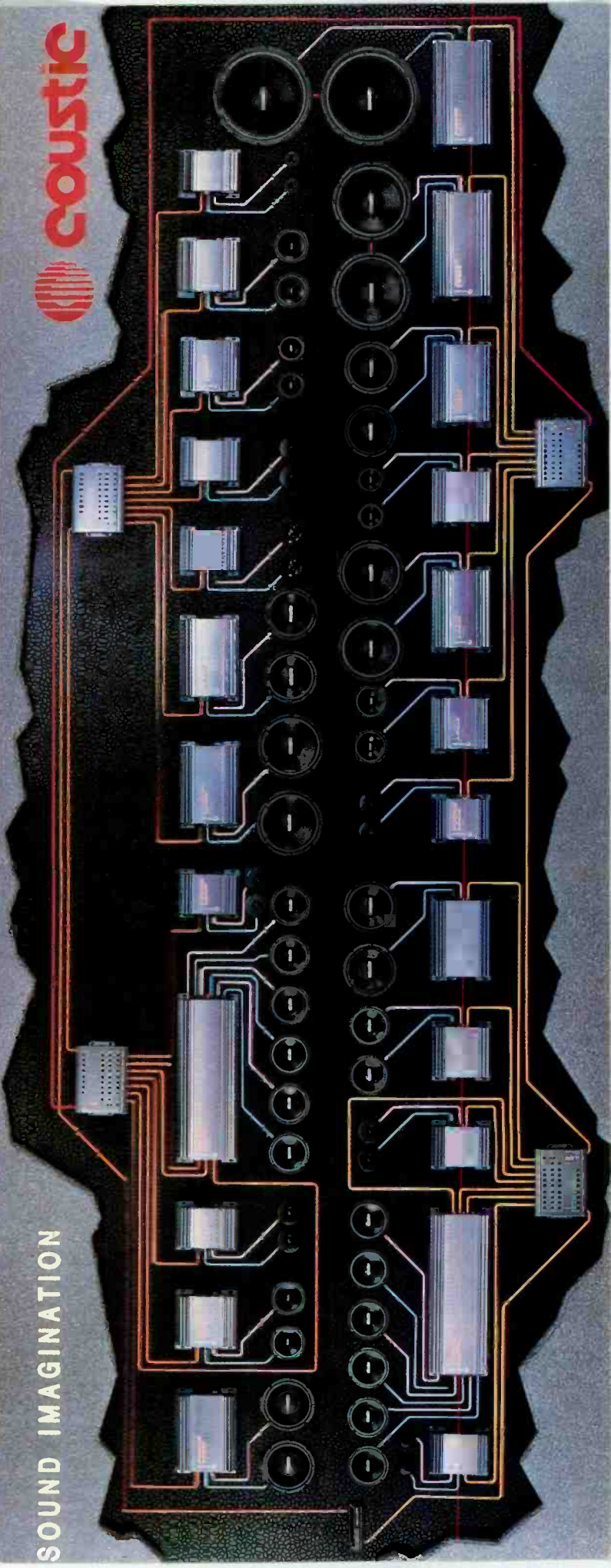
In all, you couldn't ask for a more convincing refutation of the "rock is dead" received wisdom. If there's a god in Recording Heaven, there'll be a sequel in short order, and on a bigger label.

Steve Simels

THE ROUES: *Rites of Fall*. The Roues (vocals and instrumentals); Blackie Pagano (guitar, bass, back-up vocals); other musicians. *Don't Hide Your Face; Mad Rocker; Damage; All Things to All People; I Don't Wanna Die Unknown; Burnin' of the Soul; Growin' Up Evil; Something's Going On; I Had a Dream; Pretty Wild One; Pay Day; World of Hate; I Got Out*. SWITCHBLADE © SB115 CA-1 (\$12 postpaid from Switchblade Records, 115 W. Nyack Rd., West Nyack, NY 10994).

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from recordings they made in France in 1982 and 1983, presents them devoid of adulteration. The performances are so stunning that it is hard to imagine why the modern effects were later employed at all. Adding to the spontaneous flavor is the inclusion of intermittent patter as one track blends into another. You seem to be present at the creation of this marvelous music, and what an invigorating experience it is.

The only flaw here is in the packaging. There are no liner notes, nor even an adequate explanation of how this recording differs from others already on the market. And while the sense of the songs is conveyed through the music itself, a translation of the titles at least, if not the lyrics, would aid understanding. Music this good deserves a more respectful presentation. **PG.**

SUSANNA HOFFS: *When You're a Boy*. Susanna Hoffs (vocals, guitar); other musicians. *My Side of the Bed*; *No Kind of Love*; *Wishing on Telstar*; *Unconditional Love*; *Something New*; *So Much for Love*; and six others. COLUMBIA © CK 46076 (45 min), © CT 46076.

Performance: *Professional*
Recording: *Very good*

Susanna Hoffs's "When You're a Boy," her first solo album since the breakup of the Bangles, is a painstakingly assembled collection of modern pop, which is both its strength and its weakness. It's not as good as a Bangles album, replacing their special chemistry with a bloodless professionalism. Still, Hoffs's affecting, little-girl voice combines with David Kahne's sure-handed production and a passel of charming, hook-filled songs for an album that is hummably pleasant and then some. These days, you're grateful for whatever small pleasures can be salvaged.

Kahne, you'll recall, produced the Bangles' second album, "Different Light," which was a veritable hit factory for the fetching California foursome. It's not surprising that Hoffs re-enlisted him for "When You're a Boy"; she seems less reluctant to make commercial concessions than her former bandmates. Thus, she's joined by two and often three other songwriters in the credits, and five tunes aren't from her hand at all. A solid, stylish rhythm guitarist, she is relegated in her own album to playing "additional guitar," whatever that means, behind a studio hireling named Rusty Anderson. Nevertheless, all involved evince an old-fashioned reverence for melody, tickling the Beatlesish Sixties without losing their grip on Nineties sounds and technology.

My Side of the Bed is an obvious single, mixing adult sophistication with adolescent hearts and flowers and wrapping it up in an attractive musical package with a quivering, breathily sultry vocal from Hoffs. Her voice soars and swoops ambitiously in *No Kind of Love*, another dramatic midtempo ballad. Sometimes

the Kahne/Hoffs pop machine gets too homogenized for its own good, as songs like *Wishing on Telstar* and *Only Love* are rounded and polished to dull formulaic parameters. Moreover, *So Much for Love* is just the sort of number I hoped she *wouldn't* record—a wafer-thin contemporary-groove thing better suited to some singer in Prince's posse. On the plus side, *This Time* is so energetic a pop rocker you'll be pulling out old British Invasion albums to learn where you heard it first—only to discover it's got a 1990 copyright. Co-written by Cyndi Lauper, *Unconditional Love* boasts a sweet, ingenuous vocal and would appear to be tailor-made for radio. All in all, "When You're a Boy"—which takes its title from David Bowie's *Boys Keep Swinging*, a song Hoffs covers here to neutral effect—has genuinely enjoyable moments and provides a contemporary facelift to some wonderfully retro pop stylings. **P.P.**

THE HUMAN LEAGUE: *Romantic?* Human League (vocals, synthesizer, guitar, percussion); other musicians. *Kiss the Future*; *Heart Like a Wheel*; *Men Are Dreamers*; *Mister Moon and Mister Sun*; and six others. A&M 75021 5316-1, © 75021 5316-4, © 75021 5316-2 (43 min).

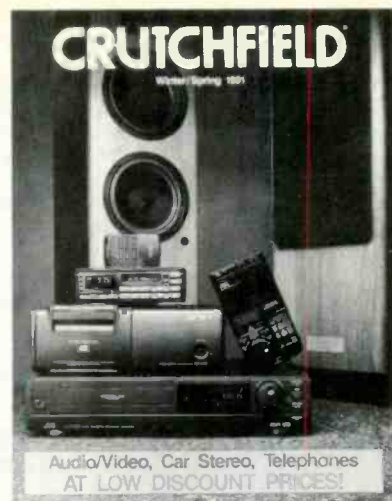
Performance: *Robotic*
Recording: *Shrill*

Synth-pop from Britain enjoyed a brief spurt of fame in the States during the early Eighties. The movement made its first big commercial landfall in the form of the Human League's landmark No. 1 single, *Don't You Want Me*, and Platinum album, "Dare." The group proved that synthesizers could have soul, hooks, and melody and could groove just like "real" music. Since then, however, the Human League has failed to build on that foundation, and "Romantic?" finds them ready to pack it in. The machines have taken the upper hand, and the music is measurably less joyful. Singer Philip Oakey himself sounds like a replicant, stiffly reciting the lyrics in a wooden monotone. In contrast, the amateurism of the female singers is almost (but not quite) a relief. The synthesizers and drum programs are anachronistic, like some late-Seventies disco remix with an irritatingly familiar collection of woofs, wheezes, thwacks, and squirrely sound effects. Worst of all, there's not a hook you'll ever need to hear again. **P.P.**

KING'S X: *Faith Hope Love*. King's X (vocals and instrumentals); other musicians. *We Are Finding Who We Are*; *It's Love*; *I'll Never Get Tired of You*; *Fine Art of Friendship*; *Mr. Wilson*; *Moanjam*; *Six Broken Soldiers*; *I Can't Help It*; and five others. MEGAFORCE/ATLANTIC © 82145-2 (62 min), © 82145-4.

Performance: *Classic*
Recording: *Very good*

The number three has a great deal of resonance for King's X right now. First



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of all, the group is a hard-rock trio with a tight, springy sound that harks back to the glory days of progressive rock. Next, there's the fact that "Faith Hope Love" is the band's third album. Then there's the verbal trinity of the title and the corresponding religious Trinity that underpins all the music here.

As you may have guessed by this point, King's X is a Christian band, but for the most part in this recording it refuses to preach. With the exception of the anti-abortion *Legal Kill*, the band

doesn't take specific moral stands. Instead, a glowing positivity infuses the lyrics, giving the album a hang-loose Sixties feel. That fits very well with the music, which seems like a cross between the gritty, fluid sound of Free and the sweet, soaring harmonies of the later Beatles. King's X performs as if their souls are in the balance, which gives "Faith Hope Love" an extra urgency. Even if you don't subscribe to their religious views, you can certainly respond to the power of their music. *R.G.*

NILS LOFGREN: *Silver Lining* (see Best of the Month, page 68)

KATHY MATTEA: *Time Passes By*. Kathy Mattea (vocals); vocal and instrumental accompaniment. *Time Passes By*; *Whole Lotta Holes* (with the Roches); *What Could Have Been* (with Emmylou Harris); *Asking Us to Dance*; *Summer of My Dreams*; *Harley*; *Quarter Moon*; and four others. POLYGRAM © 846 975-2 (42 min), © 846 975-4.

Performance: *Moving*
Recording: *Very good*

Kathy Mattea grew up listening to Buffy Sainte-Marie and Joni Mitchell instead of Loretta Lynn and Tammy Wynette, and she's long purveyed folky, commercial country music. But she has never made it so plain—or as emotionally affecting—as in "Time Passes By."

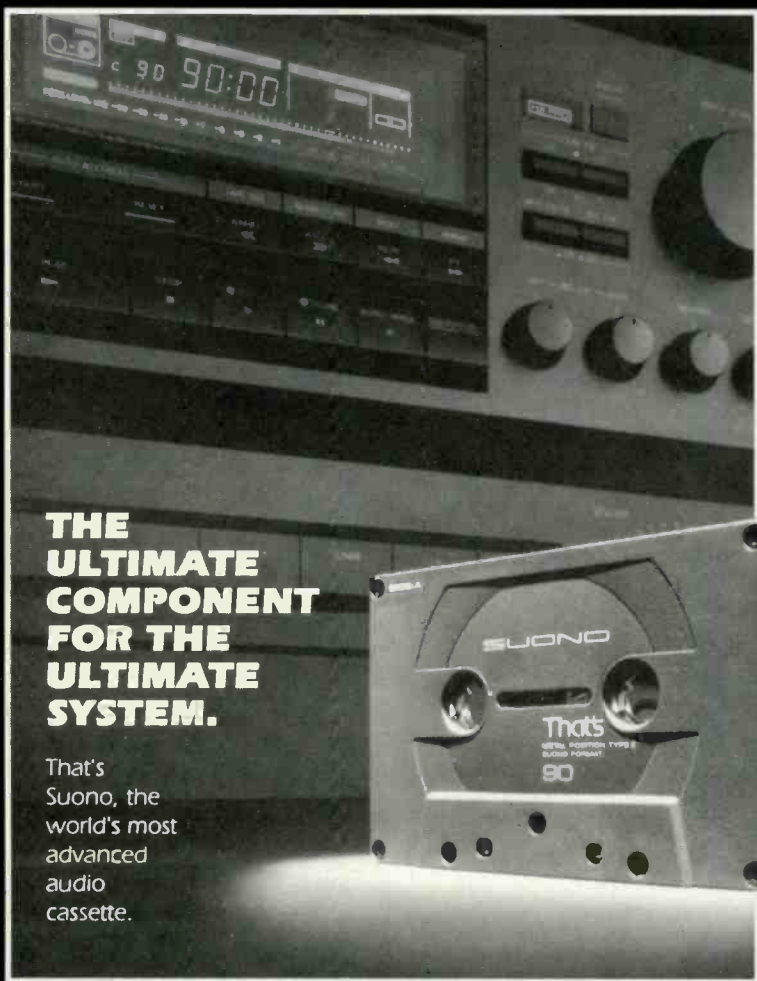
Unlike her recent Grammy-winning hit, *Where've You Been*, which is knee-jerkingly sentimental—an elderly amnesiac regains her memory only when her life's companion enters the room—the material in "Time Passes By" does not take the quick and easy path to the heart. Still, the lovers who twine their way through the songs here do resemble the elderly protagonists of *Where've You Been* in that they are all too aware of time. "Live the dream before it's too late," Mattea seems to be saying in her title song.

Mattea has taken country music's high road for several years now. She has succeeded—where someone like Nanci Griffith has not—in gaining hits with essentially folk-minded songs that speak intelligently of the human condition. With the exception of *Harley*, an offbeat song about a child lost to his family when the sidecar flies off his mama's motorcycle, the songs in this collection are quiet and reflective, long on vivid imagery and integrity. Most of them succeed on quiet eloquence—more insight and emotion than story line—tapping into the inner life of the singer, the songwriters, and the listener.

Mattea knows that in times of strife, the only food that truly nourishes the soul is a relationship that melds two spirits and strengthens both partners. She explores every side of that premise here, from the emptiness in her life when a relationship doesn't work (*Whole Lotta Holes*) to finding that even though she can't have the one she wants, fate has the right mate waiting for her after all (*What Could Have Been*, a shimmering duet with Emmylou Harris). There are also some exquisite songs of love supreme—*A Few Good Things Remain*, *I Wear Your Love*, *Asking Us to Dance*, and *Summer of My Dreams*—for which she changes from the folk-like arrangements that dominate this record to a formal string quartet playing in what one imagines to be a stately parlor setting.

There may not be any big, splashy moments here, or songs so melodically or lyrically unusual that they line up for

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awards. But Mattea's sure, resonant alto comes across as more than just one of country music's finest instruments. It is a lifeline, a window to the self—and, ultimately, to the heart of the faith within us all. *A.N.*

VAN MORRISON: *Enlightenment*. Van Morrison (vocals); vocal and instrumental accompaniment. *Real Real Gone; Enlightenment; So Quiet in Here; Avalon of the Heart; See Me Through; Youth of 1,000 Summers*; and four others. MERCURY © 847100-2 (51 min), © 847100-4.

Performance: *Rich*
Recording: *Very good*

Van Morrison's particular romantic obsession draws from two deep wells of inspiration: the earthy passion of American r-&-b and the mystical fatalism of Irish culture. Throughout his career, he's fused these influences into one rich musical amalgam. "Enlightenment" is yet another album near his peak, proving that Morrison can still pack a wallop with music that's grown increasingly quiet in recent years.

Morrison shows his blue-eyed-soul roots most clearly in *Real Real Gone*, a chugging rave-up spiced by a deep organ groove and spitfire horn accents. "And Sam Cooke is on the radio," he sings, "And the night is filled with space/... You're a friend of mine/And I'm real real gone." Never has he so vividly combined love and love of music (and I'm including his classic *Jackie Wilson Said*).

Elsewhere, Morrison's flame burns a little cooler. In the title cut, he muses on the impossibility and necessity of defining inner peace. *So Quiet in Here* is about the paradise you can find in the right place, at the right time, with the right people. *See Me Through* is a plea for help. The album ends with three tunes—*Start All Over Again, She's My Baby*, and *Memories*—that barely scratch the surface of romance in the warming-up, piping-hot, and cooled-down phases, respectively. What saves them from wimpy sentimentality is Morrison's music; in middle age, he's distilled his style into the clear, understated essence of emotion. He still wears his heart on his sleeve, but the heart is lean and the sleeve is tailored. *R.G.*

WILLIE NILE: *Places I Have Never Been* (see Best of the Month, page 67)

MANDY PATINKIN: *Dress Casual*. Mandy Patinkin (vocals); vocal and instrumental accompaniment. *On the Atchison, Topeka, and the Santa Fe; Bein' Green; Triplets; Being Alive; Evening Primrose Medley; Pal Joey Suite; Giants in the Sky*; and five others. CBS © MK 45998 (73 min), © MT 45998.

Performance: *Ultra-expressive*
Recording: *Excellent*

Whereas many of the best pop singers approach individual songs as miniature

plays, Mandy Patinkin approaches most of his as miniature psychodramas. And as he proved with his recent one-man Broadway show (as well as in the earlier *Evita* and *Sunday in the Park with George*), Patinkin has no equal on the present-day Broadway stage for connecting with an audience or for getting into the pith of a song. He can be tenderly intimate one second and then out-wail Al Jolson, Anthony Newley, or any rocker the next. But what works so unforgettably in a theater can frazzle the eardrums in a medium designed for home listening. In Patinkin's first solo album, released last year, his penchant for building almost every song to a ram-it-home, over-the-top dramatic climax eventually brought on an "Enough!" reaction.

This time around, he's reined in the excesses in at least half the numbers, including touching versions of *I'm Talking to My Pal* (cut from the original *Pal Joey*), *Mr. Arthur's Place, Bein' Green*, and a medley (with Bernadette Peters) from Stephen Sondheim's score for the forgotten 1966 teleplay *Evening Primrose*. That restraint, in turn, gives greater impact to the songs in which he can't resist cutting loose at least momentarily,



Van Morrison: into the mystic again

such as *Being Alive, On the Atchison, Topeka, and the Santa Fe*, and his swinging wrap-up, *Hollywood Medley* (mostly Fred Astaire songs). Throughout, his choice of material is first-rate—as are the arrangements, especially the big, Broadway-like charts of Bill Byers and William Brohn.

Patinkin may be too nakedly expressive a singer-actor for some tastes. But whether he's crooning softly or letting go with his sometimes shrill emotional outbursts, there's no doubt he really sings the hell out of everything. *R.H.*

TODD RUNDGREN: *2nd Wind*. Todd Rundgren (vocals); Roger Powell (key-

boards); Prairie Prince (drums); other musicians. *Change Myself; Love Science; Who's Sorry Now; The Smell of Money; If I Have to Be Alone; Love in Disguise*; and four others. WARNER BROS. © 26478-2 (54 min), © 26478-4.

Performance: *Uneven*
Recording: *Okay*

Is Todd Rundgren too facile for his own good? He clearly gets bored if a solo album is merely a collection of new songs carefully performed by select musicians. His solo projects have included one-man-band tours de force, exact cover versions of famous tunes, and a *capella* arrangements that sounded like a full band. Now comes "2nd Wind," derived from a series of sessions in front of a live audience in San Francisco.

The stunt might work if "2nd Wind" had first-class songs, but the material is wildly uneven. The first three tunes—*Change Myself, Love Science*, and *Who's Sorry Now*—are strong additions to the Rundgren songbook, showing his characteristic blend of sentimental melody and neohippie philosophy. They're followed by a trio of songs written for an off-Broadway musical, *Up Against It*, which are bewildering outside their orig-

inal context. The final four tunes hop from reminiscence to explicit political commentary to implicit environmental advocacy to murky sociocultural observation.

What we have here are the three faces of Todd—an album with multiple personalities. Some of the songs may stand alone, but the album as a whole falls apart. *R.G.*

GEORGE THOROGOOD AND THE DESTROYERS: *Boogie People*. George Thorogood (guitar, vocals); the Destroyers (vocals and instrumentals). *If You Don't Start Drinkin' (I'm Gonna Leave); Long Distance Lover; Mad Man Blues;*

Boogie People; Can't Be Satisfied; and five others. EMI © E21Z-92514 (40 min), © E41J-92514.

Performance: *Endless boogie*
Recording: *Good*

This album couldn't be more generic if it came in a plain white cover with the word BOOGIE stamped across it in



George Thorogood: boogie monster

black letters. George Thorogood may be one of the better bar-band guitarists ever to roll a slide across steel strings, but he displays so little variety from album to album that you may want to think twice about dropping fifteen bucks on his latest CD. Thorogood's main problem is material; either he's recycling overfamiliar chestnuts from the blues vaults (the 10,000th version of *Born in Chicago*) or he's sawing through fair-to-pedestrian originals. His songs are populated with booze-guzzling party animals whose dissipated lives are set to pile-driving blues-rock changes. In *If You Don't Start Drinkin' (I'm Gonna Leave)*, he growls, "Budweiser, Budweiser, Miller Lite/ Take a little nip, baby, it's alright"—lyrics that seem glaringly out of step with the times. On the plus side, *Mad Man Blues* grinds with John Lee Hooker-style fever, *Hello Little Girl* is a hard-charging rocker worthy of Lynyrd Skynyrd, and Thorogood's bluesy recasting of the trucker's anthem *Six Days on the Road* will surely see some jukebox action. But overall, this album suffers from boogie overkill. P.P.

ABBEY LINCOLN: *The World Is Falling Down*. Abbey Lincoln (vocals); Clark Terry (trumpet, fluegelhorn); Jackie McLean, Jerry Dodgion (alto saxophone); Alain Jean-Marie (piano); Charlie Haden (bass); Billy Higgins (drums). *The World Is Falling Down; First Song; You Must Believe in Spring and Love; I Got Thunder (and It Rings)*; and four others. VERVE © 843 476-2 (49 min).

Performance: *Curiously refreshing*
Recording: *Good*

Years ago—in the early Sixties, I believe—the front page of New York's *Daily News* carried a rather large photo of angry protesters in front of the United Nations building. None were identified by name, but there, right up front, stood Abbey Lincoln and Max Roach, seemingly mad at the world, or at least at those who would run it. I don't recall what prompted that particular protest, but Lincoln's social conscience is still very much intact, and her music continues to reflect it. "The World Is Falling Down" features Lincoln with an all-star sextet in a program that includes four of her own songs. If you recall her work in the albums "Straight Ahead" and "Freedom Now Suite," you have an inkling of her style here—especially when she sings her own material, like the title tune, *I Got Thunder (and It Rings)*, or *First Song* (written with bassist Charlie Haden). These are not conventional ballads, but if you don't exactly go home humming them, you might at least remember the messages. Lincoln is a more conventional lyricist in *When Love Was You and Me* (which is the Thad Jones tune *Summery*), and you will certainly recognize *How High the Moon*, although Lincoln sings it in French, slower than usual, and in 3/4 time!

As in most of her past albums, Lincoln surrounds herself here with topnotch players, including Clark Terry, Jackie McLean, and Jerry Dodgion. The rhythm section is headed by the Guadeloupan pianist Alain Jean-Marie, who plays politely with much help from Charlie Haden and Billy Higgins. Overall, a treat. C.A.

BOBBY LYLE: *The Journey*. Bobby Lyle (keyboards); vocal and instrumental accompaniment. *Struttin'; Reach Out for Love; Love Eyes; Othello; Fly Away Spirit*; and five others. ATLANTIC JAZZ © 82138-4, © 82138-2 (54 min).

Performance: *Pummeled pop*
Recording: *Good*

I don't know what this album is doing on the Atlantic Jazz label. Sure, there are a few jazz licks here and there, but you'll find such things on just about any middle-of-the-road pop release these days. With one exception, this is laborious,

Jazz

uneventful music that plods along with lots of keyboard input from leader Bobby Lyle and the obligatory anemic saxophone. The next to last number, however, *Blues for Dexter*, which features a quartet with bassist Andrew Simpkins, drummer Michael Baker, and tenor saxophonist Stanley Turrentine, is a good jazz track, and Lyle performs very well on it. He also comes across fairly well in *It Never Entered My Mind*, a piano solo, but his keyboard style is otherwise a chameleonic cross between Jose Iturbi and Peter Nero, with a dash of McCoy Tyner. Lyle's own compositions (again with that one exception) are faceless, button-generated affairs that go to make this album seem an endless "Journey" to nowhere. C.A.

CAROL SLOANE: *The Real Thing*. Carol Sloane (vocals); Phil Woods (alto saxophone, clarinet); Mike Renzi (piano); Rufus Reid (bass); Grady Tate (drums). *I Can't Believe That You're in Love with Me; The Real Thing; Just A-Sittin' and A-Rockin'; Early Autumn; I Wish I Knew; Makin' Whoopee/The Glory of Love*; and six others (seven others on CD). CONTEMPORARY © CCD-14060-2 (54 min), © CC-14060, ● C-14060.

Performance: *Gratifying*
Recording: *Very good*

Essentially a pop singer with jazz leanings, Carol Sloane entered the big-time professional arena in 1958, as vocalist with the Les and Larry Elgart Orchestra. A brief flurry of activity followed in the early Sixties, but it was not enough to build a substantial career. Now, after two decades of "retirement," Sloane is again seeking a broader audience. Her new album, "The Real Thing," is an enjoyable step toward that goal. Backed by a superb quartet led by saxophonist Phil Woods, the singer is in full control, bopping and weaving her comfortable, sultry voice through a program as familiar as your mother's face. Sloane does not have much range, but she does very well from her lower register, compensating for her limitations with good timing and intonation. Jazz fans will note that her style leans further their way than before, but that is only natural given the sterling accompaniment. Woods, pianist Mike Renzi, bassist Rufus Reid, and drummer Grady Tate know just when to slither into a crack and fill it with glorious instrumental asides. Tate, who has also enjoyed considerable success as a singer, joins Sloane vocally in a skillful medley of *Makin' Whoopee* and *The Glory of Love*. I particularly recommend the CD version of this album, which has a wonderful 4-minute bonus track, *Maybe You'll Be There*, in which Sloane proves beyond a doubt that she belongs in the spotlight. C.A.

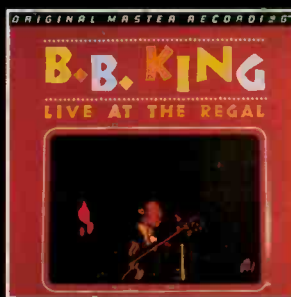
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by Maryann Saltser & Robert Ripps

WHEN James Levine records an opera these days, he insists on working with singers and orchestral players who are familiar with the material and with whom he has established an artistic rapport. One need look no further than Sony Classical's



Millo as Aida

new *Aida*, the label's first recording with the conductor and his extraordinary Metropolitan Opera Orchestra and Chorus, to see this principle put into practice. The title role is sung by soprano Aprile Millo, who opened the Met's 1989 season in the part. *Aida* is Millo's first complete opera recording, and it is fitting that this most famous of all Verdi heroines is her vehicle. Both at the Met and abroad, as well as in a 1986 EMI/Angel recording of arias, Millo has

proved herself to be what might qualify as an endangered species—a true Verdi soprano.

Millo is joined in Levine's *Aida* by two other members of his Met cast, the mezzo-soprano Dolora Zajick and the tenor Placido Domingo. America's two most famous basses, James Morris and Samuel Ramey, are also featured. Future recording plans for Millo and the Met forces on Sony Classical include Verdi's *Luisa Miller*, again with Levine and Domingo.

THE multi-Platinum British rock group Queen has found a new home in Hollywood—that is, on the Walt Disney Company's new rock label, Hollywood Records. "Innuendo," Queen's first Hollywood album (its eighteenth overall) entered the charts at a higher number than any other Queen album in more than a decade. To mark the label debut of the tireless rockers, currently celebrating twenty years in the music business, Hollywood Records is reissuing Queen's entire back catalog on newly remastered CD's. The discs will be released over the course of a year in four installments. The first batch, out in March, includes "Sheer Heart Attack," "A Day at the Races," and "News of the World." Following the example set by Rykodisc with its David Bowie reissues, Hollywood promises that all the reissues will

Queen: hooray for Hollywood



The Knack: they're back!

have extensive liner notes, deluxe artwork, and remixed bonus tracks. The second batch, due this month, includes "Jazz," "The Game," and "Queen," the group's debut album.

IT'S been over a decade since the Knack's debut album (and hit single, *My Sharona*) topped the pop charts. After a period of relative obscurity, the band—founding members Doug Fieger, Berton Averre, and Prescott Niles, along with newcomer Billy Ward—is back with "Serious Fun," its first album on Charisma. The Knack's metamorphosis from best-selling teen idols in 1979 to a Trivial Pursuit answer a year later didn't figure into the decision to make a new album, Fieger said. Rather, "the question was really whether we had anything to say in the present."

The new album was produced by Don Was, one half of Was (Not Was) and the producer behind critically acclaimed albums by Bob Dylan, Iggy Pop, and Bonnie Raitt (including Raitt's Grammy-winning "Nick of Time"). Friends since grade school, Fieger and Was first worked together on the debut Was (Not Was) album, for which Fieger wrote one song. For "Serious Fun," Fieger says, Was was "the perfect producer. He left us alone in ways we needed to be left alone and

exerted an iron hand when we really needed reining in."

WHEN sopranos Kathleen Battle and Jessye Norman gave their first joint concert last year, they offered a program of American spirituals to a packed Carnegie Hall audience. Now a live recording of this very special event is available on CD and cassette from Deutsche Grammophon. Battle and Norman are accompanied by members of the New York Philharmonic and Metropolitan Opera Orchestra, conducted by James Levine, and a seventy-voice chorus originally formed for the Met's production of *Porgy and Bess*. There are also notable contributions by the jazz flutist Hubert Laws and the harpist Nancy Allen. Highlights of the program include Norman's majestic *Ride On, King Jesus*, Battle's joyful



Norman, Battle, Levine: spiritual

rendition of *Oh Glory*, and their playful duet in *Scandalize My Name*. DG also plans to release the concert on laserdisc and VHS videotape.

RHINO Records has released "Tame Yourself," an all-star compilation album benefiting People for

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the Ethical Treatment of Animals (PETA), the world's largest animal-rights organization. The fourteen songs on the record, all original compositions addressing animal-rights issues, include *Don't Kill the Animals*, a duet by Nina Hagen and Lene Lovich, and *I'll Give You My Skin*, by the Indigo Girls and R.E.M.'s Michael Stipe. Also featured are performances by ex-Go-Go's Jane Wiedlin and Belinda Carlisle, Howard Jones, Pretenders, the B-52's, and actor River Phoenix's band Aleka's Attic. Raw Youth, discovered last year at PETA's "Rock Against Fur" concert, provides the title track, which is also the album's first single and video.

A MERICAN conductor Hugh Wolff's first recordings since signing exclusively with Teldec will be released next month. The two discs feature Wolff with the St. Paul Chamber Orchestra, of which he is principal conductor, and demonstrate his wide musical range: Haydn's Symphonies Nos. 85 and 86 on one recording and Copland's *Appalachian Spring* on the other.

After next season, Wolff will step down from his other major post, music director of the New Jersey Symphony. There has been no announcement of another appointment,

JACK MITCHELL



Wolff: so long, New Jersey



Lovich, Hagen (left) and Raw Youth (above): animal lovers

but he is making his debut with the San Francisco Symphony this month and will appear at the Caramoor Festival this summer with the pianist André Watts. His next batch of Teldec recordings will include the Dvořák serenades (due this fall) and Haydn's six "Paris" symphonies, all with the St. Paul Chamber Orchestra.

B ob Dylan turns fifty this month, and to celebrate Columbia is releasing "Bob Dylan: The Bootleg Series Vols. 1-3 (Rare & Unreleased) 1961-1991." The highly anticipated three-CD/three-cassette boxed set comprises fifty-eight previously unreleased, digitally remastered songs spanning Dylan's entire career, including demos, live performances, alternate studio versions, and outtakes. The newest track, *Series of Dreams*, is an unreleased original song from last year's "Oh Mercy" album sessions. Other highlights include *Hard Times in New York Town* (from the often-bootlegged 1961 Minnesota hotel tapes),

Like a Rolling Stone in 3/4 waltz time, and the original version of *Tangled Up in Blue*. Guest artists pop up here and there, among them the Band, Jennifer Warnes, and George Harrison, and the set is packaged with a seventy-two-page booklet featuring rare photos and extensive notes. "The Bootleg Series" comes on the heels of the Lifetime Achievement Award presented to Dylan at this past February's Grammy ceremony.

G RACENOTES. Teldec's first classical videodiscs are filmed late-Sixties performances featuring the pianist Daniel Barenboim and the legendary cellist Jacqueline du Pré (his wife until her death from multiple sclerosis). The discs include complete versions of the Elgar Cello Concerto and a Schubert "Trout" Quintet with Itzhak Perlman (violin), Pinchas Zukerman (viola), and Zubin Mehta (double-bass). . . . Rhino has rereleased "Best of" CD compilations featuring cult-rocker Alex Chilton and sultry Fifties jazz singer Julie London. The



Dylan: legal bootlegs

London set of the works he positively could not live without, arranged chronologically and packaged with specially prepared notes. The CD's are also available singly. □

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BEETHOVEN: *Clarinet Trio in B-flat Major, Op. 11; Septet in E-flat Major, Op. 20.* Nash Ensemble. VIRGIN © 91137-2 (61 min), © 91137-4.

Performance: *Delightful*
Recording: *Exemplary*

When the Nash Ensemble recorded the Beethoven Clarinet Trio more than a dozen years ago, on CRD, Antony Pay was the clarinetist and Clifford Benson the pianist; they are replaced here by Michael Collins and Ian Brown, respectively, playing with the same cellist, Christopher van Kampen, one of the group's original members. It is a charming performance of a charming work, and so is the presentation of the septet. The earlier recording of the septet by members of the Vienna Octet shows greater finesse (and it is paired now on a mid-price London CD with nothing less than a superb performance of the Mendelssohn octet), but if you find the Viennese players a little *too* smooth in this early, good-natured work, you will surely be delighted with the piquant, rustic quality the Nash players bring to it. The horn playing by Frank Lloyd stands out among the numerous special joys, as do the contributions of Van Kampen, and the recording itself is a model for future endeavors in the realm of chamber music. R.F.

BRAHMS: *Alto Rhapsody; Four Songs* (see Collections—Janet Baker)

BRAHMS: *String Quartet No. 2; Clarinet Quintet in B Minor* (see Best of the Month, page 70)

BRAHMS: *Symphony No. 1, in C Minor, Op. 68.* Chicago Symphony Orchestra, Günter Wand cond. RCA © 60428-2-RC (46 min), © 60428-4-RC.

Performance: *Solidly Classical*
Recording: *Good live document*

This recording of the Brahms First Symphony comes from the series of Chicago Symphony concerts in January 1989

Explanation of Symbols

- Ⓢ = Tape cassette
- = LP record
- Ⓢ = Compact disc (timings are to the nearest minute)

marking the German conductor Günter Wand's American debut (in his seventy-seventh year). Though it documents a special occasion, we are mercifully spared applause. Wand's way with the score recalls that of Felix Weingartner, with whose interpretations I grew up in the Thirties: solid and Classically oriented to the core. The somber introduction is treated briskly and as being of a piece with the main body of the first movement (without the exposition repeat) and its recurring three-note germ motive. The middle movements are both tender and elegant—no sentimentality here. The opening pages of the finale make a most impressive impact. In the main portion of the movement, however, some may wonder at the deliberate pacing of the big tune and then the sudden shifting of gears for the *allegro* proper. Balances and inner voices are handled impeccably throughout.

The recorded sound is full and clean, with what seems like a fairly close microphone pickup. The bass line is somewhat attenuated compared with the norm for recordings in Chicago's Orchestra Hall. How much of this is due to the presence of an audience and how much to Wand's balancing of the orchestra is hard to determine. At all events, those who want a Classical approach to the Brahms First Symphony with state-of-the-art sonics will find it here. D.H.

BRAHMS: *Variations on a Theme by Paganini* (see LISZT)

BRITTEN: *Serenade for Tenor, Horn, and Strings, Op. 31* (see Best of the Month, page 68)

HANSON: *Symphony No. 3; Symphony No. 6.* Seattle Symphony Orchestra, Gerard Schwarz cond. *Fantasy-Variations on a Theme of Youth.* Carol Rosenberger (piano); New York Chamber Symphony, Gerard Schwarz cond. DELOS © DE 3092 (69 min).

Performance: *Passionate*
Recording: *Resplendent*

This second installment of Gerard Schwarz's Howard Hanson cycle offers a fascinating study in stylistic contrasts. The Third Symphony (1937-1938) finds Hanson at his most uninhibitedly epic-Romantic: Imagine an amalgam of Rachmaninoff and early Sibelius. Still, it's marvelously effective in a quasi-cinematic fashion. The brass chorale motto heard initially in the opening movement haunts the mind. The slow movement rivals Rachmaninoff at his most lush. The opening and closing pages of the scherzo pay unabashed homage to the Dvořák of the *New World* Symphony, even to the characteristic syncopated figures. The finale, combining material

from the earlier movements, does not come off quite as convincingly. The orchestration is gorgeous, however, which makes the Third Symphony a great showpiece both in the concert hall and on topnotch playback equipment.

Hanson's Sixth Symphony is terse in utterance though cast in six movements—all less than 5 minutes in length. The work reveals a superb mastery of passing dissonance and is held together by a three-note opening figure. The first movement is chantlike, the second, with



Wand: solid Brahms

its antiphonal snare-drums, something of a *danse macabre*, the third tenderly lyric but not sentimental, the fourth fierce and protesting, the fifth a kind of *arioso* recitative that passes into an emphatically affirmative finale. The performances of both the Third and the Sixth by the Seattle Symphony are superbly executed, with passionate conviction, and the recorded sound is excellent.

As a kind of appendix, we have the oddly poignant 1951 *Fantasy-Variations on a Theme of Youth* for piano and string orchestra. As in the Sixth Symphony, the structure is tight, and the treatment ranges from dark to bright in harmonic coloration, with the solo piano being almost more *obbligato* in character than flamboyantly soloistic. The pianist, Carol Rosenberger, gives her usual fluent performance, and the New York Chamber Symphony is in good form. The close studio acoustic, however, is somewhat lacking in warmth. In sum, though, I

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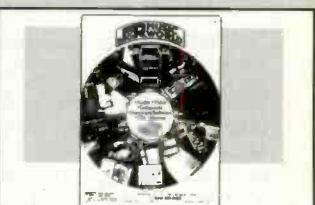


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would just say to Schwarz and Delos, "Keep up the good work!" *D.H.*

LISZT: *Grandes Études de Paganini*. **BRAHMS:** *Variations on a Theme by Paganini*. Abbey Simon (piano). VOX UNIQUE VU 9004 (54 min).

Performance: *Virtuosic*
Recording: *Beautiful*

Liszt is the hot number here—six hot numbers, in fact. Early on, Liszt modeled himself on Paganini, and his *Grandes Études*, based on six of the Paganini violin caprices, are a perfect, brilliant homage. Abbey Simon's career as a Neoromantic virtuoso is in the Lisztian mainline, and he carries it all off perfectly—even adding improvisational flourishes. Liszt, who never played a piece the same way twice, would have approved.

The Brahms, much more intellectual and in many ways more difficult, is far less rewarding. Simon has the technical mastery, but the poetry is elusive, and the larger structure, antidramatic at best, ends up feeling repetitious. Part of the problem is Brahms, but Simon has only partial solutions. On the other hand, the Liszt-Paganini is all his. Beautiful piano sound. *E.S.*

KNUSSEN: *Symphony No. 3* (see Best of the Month, page 68)

MAHLER: *Symphony No. 6, in A Minor ("Tragic")*. **ZEMLINSKY:** *Six Maeterlinck Songs, Op. 13*. Jard van Nes (mezzo-soprano); Royal Concertgebouw Orchestra, Riccardo Chailly cond. LONDON © 430 165-4 two cassettes, © 430 165-2 two CD's (104 min).

Performance: *A bit rigid*
Recording: *Breathtaking*

MAHLER: *Symphony No. 6, in A Minor ("Tragic")*. City of Birmingham Symphony Orchestra, Simon Rattle cond. EMI/ANGEL © 54047 two CD's (86 min).

Performance: *Searchingly poetic*
Recording: *Very good*

Both Riccardo Chailly and Simon Rattle offer valid and often moving interpretations of this most gnarly and bitter—and most Classically constructed—of the Mahler symphonies. The Royal Concertgebouw Orchestra has been steeped in the Mahler tradition from the start, and it has for a recording locale an auditorium that yields its own special amalgam of tonal warmth and sense of space. The London production team spared no effort to use these qualities to full advantage in the Chailly recording. As interpreter, Chailly stresses the adamant aspects of the opening movement, with its often brutal march cadence and the recurrent major-minor chord sequence that serves as motto, but the effect, carried through a span of 25½ minutes, finally creates a rather disturbing sense of rigidity.

Chailly stresses the kaleidoscopic col-

oration of the bizarre and phantasmagoric scherzo. The same holds for the slow movement, with its echoes of the *Kindertotenlieder*. It is in the complexly textured tripartite finale that Chailly's stern pacing works best. The fateful hammer blows that mark the ultimate catastrophe are rendered by a bass drum that comes through like the crack of doom, as does the shattering A minor chord at the close. In contrast, the eerie coloration imparted to the opening pages of the finale might best be described as hallucinatory. From a purely sonic standpoint, this is the most impressively detailed and powerful statement of the Mahler Sixth that I have experienced on records.

The choice of Zemlinsky's Six Maeterlinck Songs (1910-1913) for a filler seems oddly incongruous, even if they do display affinities with Mahler's *Das Lied von der Erde* on the one hand and Schoenberg's *Gurrelieder* on the other. The texts are of much the same hothouse variety as that of Maeterlinck's *Pelléas et Mélisande*, and Zemlinsky's scoring, for the most part delicately pastel, with striking use of harmonium, suits them to perfection. Mezzo-soprano Jard van Nes sings with great warmth and with sensitivity for the fine points of the poetry (in German translation).

While Simon Rattle by no means slights the drama in Mahler's "Tragic" Symphony, my impression of the interpretation as a whole is of one that seeks to probe the lyrical-poetic element to its uttermost. This holds true particularly for the slow movement, which is a full 2 minutes longer than Chailly's. Rattle runs counter to the general trend of recorded performances in choosing to reverse the order of the middle movements, playing the slow movement before the scherzo, as Mahler is reported to have done when he conducted the première of the work in 1906. I will confess a preference for the familiar order, not only because of the motivic elements shared by the first movement and scher-

Rattle: poetic Mahler



zo, but also because the final pages of the slow movement seem to blend logically into the unearthly opening of the finale.

On the whole, however, Rattle's reading has more of an organic ebb and flow than Chailly's, and if the City of Birmingham Symphony Orchestra is not in quite the same class as the Royal Concertgebouw, its violinists produce a purer and sweeter tone both in the slow movement and in the lyrical pages of the finale. The recorded sound from Watford Town Hall is clean, bright, and powerful, but no match for what London achieved in the Concertgebouw. *D.H.*

MENDELSSOHN: *Infelice; Psalm 42* (see Collections—Janet Baker)

SCHUBERT: *Fierrabras*. Cheryl Studer (soprano), Florinda; Karita Mattila (soprano), Emma; Thomas Hampson (baritone), Roland; Robert Gambill (tenor), Eginhard; Josef Protschka (tenor), Fierrabras; Robert Holl (bass-baritone), Charlemagne; László Polgár (bass), Boland; others. Arnold Schoenberg Choir; Chamber Orchestra of Europe, Claudio Abbado cond. DEUTSCHE GRAMMOPHON © 427 341-2 two CD's (144 min).

Performance: *Exciting, theatrical*
Recording: *Good live job*

Schubert's *Fierrabras*? After the success of Weber's *Der Freischütz*, the Kärntner Theater in Vienna commissioned a new German opera by Weber and, for good measure, a "heroic-romantic" one from Schubert, with a libretto by Josef Kupelwieser, general manager of the theater. Unfortunately, *Euryanthe* (the new Weber) was a disaster. Kupelwieser quit, German opera was dropped, and *Fierrabras* was never performed. Rediscovered only many years later, it was first staged in 1897, and then not much after that. A recent performance at the Vienna Festwochen with a first-rate cast and the young Chamber Orchestra of Europe under Claudio Abbado stirred up a lot of new interest in the piece. Here it is, live from Vienna, courtesy of Deutsche Grammophon.

A major rediscovery? In a way it is. *Fierrabras* is a Romantic epic on a grand scale. The model is *Fidelio*: a serious *singspiel* with spoken dialogue (mostly omitted here), melodrama (that is, spoken lines over musical underscoring), and arias, ensembles, and choruses. There is a heroine who tries to rescue the love of her life from a certain fate and even a trumpet call to announce the arrival of the cavalry. The music is surprising, largely because—with the exception of some exquisite turns for our heroine, Florinda—the lyric element is overshadowed by the dramatic. The score storms and roars like one of those dark, pseudo-medieval paintings of the period; there are rage arias, alarums and excursions, ignorant armies clashing by night. This is strong, exciting stuff, well suited to these performers and to the temperament of Maestro Abbado.

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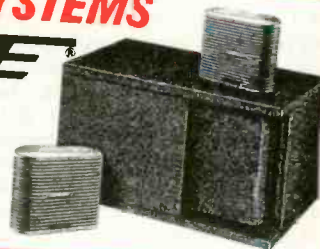
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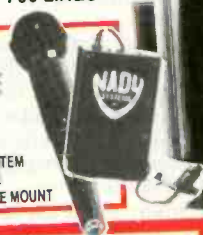
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The big trouble with the piece is that it has the quintessentially idiotic opera libretto. The medieval subject comes from the story of Roland, with attendant knights, infidels, lovelorn maidens, conflicting loyalties, questions of honor, and other tedia. As a Sicilian puppet show it might be charming; as serious grand opera it skirts self-parody.

Forget theater; as a recording, *Fierrabras* is lots of fun. The excellent cast is led by Cheryl Studer as Florinda, Thomas Hampson as Roland, and Robert Gambill as Eginhard. The Romantic spirit is here in its first incarnation, sentiment as yet unsoftened by sentimentality, and the ensemble catches this freshness. The strong performance and recording are not ultrapolished, but the spirit and style are completely convincing. The set is a notable addition to our repertory of Romantic opera from an unexpected quarter—and something of a vindication of Schubert's much-maligned dramatic talent. *E.S.*

SCHUBERT: *Symphony No. 9, in C Major (D. 944, "The Great")*. Royal Concertgebouw Orchestra, Leonard Bernstein cond. DEUTSCHE GRAMMOPHON © 427 646-2 (50 min).

Performance: *Warmhearted*
Recording: *Very good*

In this 1987 concert performance of Schubert's Ninth Symphony (which has been available in Europe since late 1989 and now makes a belated arrival on these shores), Leonard Bernstein does not surprise us with startlingly slow tempos the way he did in his late recordings of the Tchaikovsky "*Pathétique*" and of Elgar's "Enigma" Variations. He hews pretty closely to the pacing we're accustomed to in standard big-orchestra readings, except for some uncomfortable gear shifting at the close of the first movement. There is no lingering or overt exaggeration in phrasing, even where the *molto espressivo* approach is dominant, as in much of the slow movement. The scherzo has splendid bite and drive, and the handling of the finale is notable for subtle dynamic shading. In keeping with the big-orchestra manner, repeats are kept to the allowable minimum. The Royal Concertgebouw is in top form, and the recorded sound is lovely in its bloom, body, and sense of space. *D.H.*

VERDI: *I Vespri Siciliani*. Cheryl Studer (soprano), Elena; Chris Merritt (tenor), Arrigo; Giorgio Zancanaro (baritone), Monforte; Ferruccio Furlanetto (bass-baritone), Procida; others. Chorus and Orchestra of La Scala, Riccardo Muti cond. EMI/ANGEL © CDCC 54043-2 three CD's (200 min).

Performance: *Stirring*
Recording: *Very good*

Recorded live at La Scala, this performance takes on the excitement invariably evoked by the presence of an enthusiastic audience. At the same time, the

album is relatively free of intrusive applause, and I detect no coughs, program rustlings, or other distractions.

The cast gives itself up to a willing suspension of disbelief and spins out with persuasion a libretto nearly as improbable as *Il Trovatore*'s. What quality, then, lends the opera its impelling excitement? Simply Verdi's music, which soars with melodies that can only be described as grandly beautiful, supported by throbbing and frequently highly original orchestration. If Verdi's score makes the pedestrian revenge tragedy gripping, it is Riccardo Muti, as his exponent, who achieves an ongoing pulse and passion in the performance. His chorus and orchestra sing and play with exact ardor; the orchestral passages, princi-



Studer: from Schubert to Verdi

pally the opening sinfonia and the celebrated Ballet of the Four Seasons, are rendered with sumptuous tone. The recording is effective because Muti's intensity, precision, and dedication to the work infectiously communicate themselves to all concerned.

Cheryl Studer sings Elena with ease, conviction, and frequently great tonal beauty. I particularly recall the passage in Act IV beginning, "*Arrigo! ah, parli ad un core,*" wherein her voice is meltingly sweet and Verdi's melodic line is indeed seamless. No question that Studer is emerging as a major artist—if she has not already arrived at that pinnacle. Chris Merritt brings to Arrigo the stalwart vocalism of his previous recording with Muti (*Giuglielmo Tell*, in which he sings Arnoldo) and of his recent Metropolitan Opera performances. He copes well with the part's wide range and high-lying *tesitura*. Much of his performance, however, moves between *forte* and *più forte* with little musical or dramatic nuance.

As Monforte, Giorgio Zancanaro is a solid vocal performer and achieves a moving balance between the character's

aspects of tyrant and of a father discovering his most intractable enemy to be his lost son. Ferruccio Furlanetto pours out "*O tu, Palermo,*" the opera's most celebrated aria, with organ-like tone. His singing throughout is of high order, and, like his colleagues, he brings fervor to every scene in which he appears. *R.A.*

WALTON: *Symphony No. 2* (see Best of the Month, page 68)

ZEMLINSKY: *Six Maeterlinck Songs* (see MAHLER)

Collections

ASHKENAZY IN MOSCOW 2 (see Best of the Month, page 68)

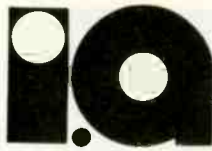
JANET BAKER. Brahms: *Alto Rhapsody, Op. 53*. Janet Baker (mezzo-soprano); London Symphony Chorus; City of London Sinfonia, Richard Hickox cond. ***Four Songs, Op. 17***. Frank Lloyd, Stephen Sterling (horn); Rachel Masters (harp); London Symphony Chorus. **Mendelssohn: *Infelice, Op. 94; Psalm 42, Op. 42***. Janet Baker (mezzo-soprano); London Symphony Chorus; City of London Sinfonia, Richard Hickox cond. VIRGIN © 91123-2 (63 min), © 91123-4.

Performance: *Moving*
Recording: *Well-balanced*

There is an honesty, both musical and interpretive, in Janet Baker's performances that makes hearing them a particular pleasure. She has always had a forthright, craftsmanlike approach to her art; her singing is imbued with intelligence and sincere feeling, but there is none of the peripheral display or "temperament" often associated with the prima donna. This recording is no exception. If her voice is less limpid than it once was, her singing is more expressive.

Baker's performance in the Brahms Rhapsody for Alto, Male Chorus, and Orchestra is among the most satisfying I know. The work is followed here by the rarely heard Four Songs, Op. 17, for women's chorus, two horns, and harp. Admirably sung by the London Symphony Chorus and well played by Frank Lloyd, Stephen Sterling, and Rachel Masters, it represents Brahms at his lyrical best. The two pieces by Mendelssohn are also unfamiliar musical fare, which gives added interest to the album. *Infelice*, Op. 94, a 10-minute concert aria for soprano and orchestra, depicts an abandoned mistress who is at once befeared and vengeful; Dame Janet brings conviction to the piece as well as fine-schooled singing. The Psalm 42, for soprano, chorus, and orchestra, effectively communicates the suffering of the psalmist feeling separated from his God. Chorus and orchestra perform commendably throughout under Richard Hickox's direction, and the recording itself is very good. *R.A.*

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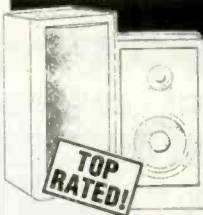
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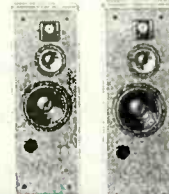
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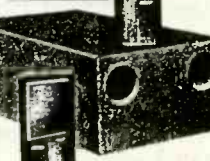
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“The Magic Flute”

MOZART'S *Magic Flute* is such a mixed-up, cockeyed, crossover piece of work that it is hard to get a handle on it. Sarastro and the Queen of the Night are grand *op-er-a seria*, Tamino and Pamina are operetta ingenues à la Nelson Eddy and Jeanette MacDonald, and Papageno, Papagena, and Monostatos are straight musical comedy. Add a few elements from the reform operas of Gluck and mix them up with vaudeville and variety acts, fairy

teenth-century qualities to emerge. At least the Papageno and Papagena, Olaf Bär and Eva Lind, have a bit of gruff humor and fun about what they do. On the other hand, how odd to cast a Pamina who, however great a singer, sounds much more mature than her mother, the Queen of the Night. The production lacks theatrical urgency. Somewhat surprisingly, it also lacks feeling for performance practice (the notes are all like columns holding up the temple) or anything at all that might give the music a particular point of view, or flavor, or dramatic edge.

Armin Jordan's recording has one characteristic that makes it striking: It is consistently and superbly phrased throughout. The phrasing is so clearly the outstanding feature of the performance and so pervasive that it obviously originates with the conductor. The cast is younger and less well known than Marriner's (only Håkan Hagegård will be known to most Americans; he was the Papageno in Ingmar Bergman's film), and that is turned to advantage by a conductor with strong, attractive ideas about making the music come alive.

But, once again, there is no counterforce to the conductor as Sarastro, who controls everything with care. And the performance suffers even more than Marriner's from a lack of roots. There is almost no clod-hopping, Papageno humor left at all. The sublime Mozart is fine; the earthy stuff doesn't happen. This is an exceptionally untheatrical performance, and the dialogue—recorded separately by an almost entirely different cast of puzzled-sounding German speakers—is a complete loss. It is not quite clear what Marriner and Philips have done with *their* (quite different) version of the dialogue, but it seems to be a mixture of imported actors and some of the singers also reading lines; the result is somewhat more integrated and effective than the Erato version.

One of the best things in both recordings is the singing of the three boys, the little genies who lead our hero and heroine around and help get them out of

trouble and back together. Ironically, they are the same three singers in both recordings: Christian Fliegner, Markus Baur, and Christian Günther, billed as soloists of the Boys' Choir of Tölz. Their German is as excellent as their singing.

There is nothing obviously wrong with either of these versions; they both have many qualities to recommend them. What they lack is spontaneity, specificity, color, grittiness, personality—qualities that are as Mozartean as all the mumbo-jumbo Masonic uplift. And even the spiritual uplift would work better if we were actually being lifted up from something. *Eric Salzman*

MOZART: *Die Zauberflöte*. Samuel Ramey (bass), Sarastro; Cheryl Studer (soprano), Queen of the Night; Kiri Te Kanawa (soprano), Pamina; Francisco Araiza (tenor), Tamino; Olaf Bär (baritone), Papageno; Eva Lind (soprano), Papagena; José van Dam (bass), Speaker; Edmund Barham (tenor), First Priest; Harry Peeters (bass), Second Priest; Aldo Baldin (tenor), Monostatos; Yvonne Kenny (soprano), First Lady; Iris Vermillion (mezzo-soprano), Second Lady; Anne Collins (contralto), Third Lady; others. Ambrosian Opera Chorus; Academy of St. Martin in the Fields, Neville Marriner cond. PHILIPS © 426 276-2 two CD's (142 min).

MOZART: *Die Zauberflöte*. Franz-Joseph Selig (bass), Sarastro; Gösta Winbergh (tenor), Tamino; Alfred Muff (bass), Speaker, Second Priest; Hans-Peter Graf (tenor), First Priest, First Armed Man; Sumi Jo (soprano), Queen of the Night; Luba Organasova (soprano), Pamina; Charlotte Margiono (soprano), First Lady; Brigitte Baileys (soprano), Second Lady; Nathalie Stutzmann (soprano), Third Lady; Håkan Hagegård (baritone), Papageno; Martina Bovet (soprano), Papagena; Volker Vogel (tenor), Monostatos; others. Romand Chamber Choir and Pro Arte of Lausanne; Ensemble Orchestral de Paris, Armin Jordan cond. ERATO © 2292-45469-2 two CD's (138 min).



Armin Jordan: superb phrasing

tales and folk songs, symbolic rituals and slapstick humor, and you have, well, a great Mozart *mélange*. To top it off, *The Magic Flute* is—in the most charming and naïve way possible—sexist, racist, antidemocratic, and a few other not-so-nice things. It was the composer's biggest hit (though he did not live to enjoy the fruits of it) and remains just as wonderful and confusing now as then. No wonder nobody knows how to put it on!

Today *Die Zauberflöte* is always performed as an opera—by opera companies or with operatic casts and accompaniments. In line with the current trend toward authenticity, it is usually performed in German with non-actors or non-native-speakers struggling through chopped-up dialogue scenes. A wonderful piece of popular theater becomes awkwardly museumized.

Take the recent recordings led by Neville Marriner on Philips and by Armin Jordan on Erato. Neither one comes directly from an operatic performance (which would have at least imparted some stage values), but they were both cast and conceived as international operatic ventures. Both projects revolve around their conductors; even artists of the stature of Kiri Te Kanawa and Samuel Ramey have to behave themselves in the sacred groves of Sarastro, alias Sir Neville. Much as I admire Sarastro, sometimes I find myself rooting for the Queen of the Night.

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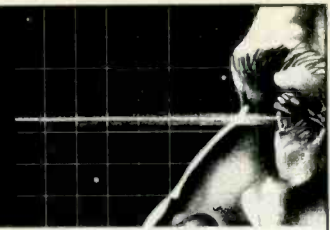
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M a y

THE HIGH END

by Ralph Hodges



The Music Changes

WHATEVER your present feelings about digital audio (and don't be afraid to change your opinion—mine flip-flops almost monthly), it cannot be denied that one anticipated benefit is gradually coming to pass: the release from storage vaults of old recorded material of great interest that has not been available in any form for many years, if ever. Bob Fine's often stunningly good engineering work for the Mercury Living Presence series is on its way back for another round. The vast Columbia Masterworks catalog, now in the hands of Sony Classical, has been largely rejuvenated and prepared for CD transfer, although the release dates for much of it have not yet been announced. Similar activity on the part of other labels is evident.

For many of these aging tapes, all this is happening in the nick of time. Print-through is advancing, splices are deteriorating, and in some cases sloppy or obscure filing systems have made materials almost unidentifiable. One recording engineer believes that, sooner or later, someone is bound to make a CD from a rejected take. In fact, he suspects it may already have happened and that he could have been responsible.

But, accidents aside, at least we are reclaiming a huge and largely intact chunk of our musical heritage. Or are we? In many instances where I have both the old LP and the new CD

version of a given performance, they sound different, often radically so. Is this where digital technology is taking us, to startling alterations of our past as well as our present? I have spoken to record-company executives who believe so and who attribute the creation of a new sound from an old source to the digital-transfer process. I have also spoken to engineers and producers who have executed the transfers. They chuckle at the idea. The CD versions sound different because they *made* them sound different, and they were usually quite glad to be given the opportunity to do so.

Typically, when first released, a recording by a major artist is a reflection of that artist's preferences in sound character and balances. This can be good. I have been to recording sessions where the principal performer has persistently disallowed take after take until the engineering team was finally able to deduce what he or she wanted. When they did, the results were often more pleasing (whether more accurate, only the gods can decide). On the other hand, an engineer acquaintance did a number of albums with a top female vocalist, and he could never get away from her demand that the recording immediately sound like a hit—that is, like AM radio. He pointed out that the recording would certainly be broadcast, and *then* it would sound like AM radio with no help from him. Didn't work. He had to turn on the compressor and eliminate much of the dynamic range.

John McClure, who was Leonard Bernstein's regular producer at both CBS and Deutsche Grammophon for many years, was recently given a rare opportunity: to remix virtually all the tapes he did with Bernstein and the New York Philharmonic. He freely admits that changes have been made. "Lenny," he says, "wanted presence and immediacy, the sound from the podium. On first playback, his comments were usually 'Where are so-and-so? They were sawing away like crazy. Why can't I hear them?' So we'd have to bring in the mikes a little closer, crank up the highs a little more, inevitably at the expense of a proper orchestral mix."

McClure's remixes for CD generally sound *very* different from the original

LP's, although he firmly states that nothing has been added to or extracted from the master tapes. The changes have been in equalization and, where appropriate or possible, in rebalancing the contributions of various tracks (a great many of the masters are three-track, so there are limits on what can be done). In loose terms, he has reduced the stridency of the upper strings, sought out the bass and brought it in more strongly, and found a perspective for the midrange that suits the rest of the spectrum. He anticipates a potential problem, however. His project was carried out with Sony's 16-bit processors, but now there has been an advance to 20-bit architectures. Since there are those who believe that digital techniques are responsible for the differences between the old sound and the new one, or who would just like to trumpet "20-bit processor" on the disc packaging, he fears he may be asked to do the whole job over again. "I don't know where I'll find the time to make revisions," he laments.

These anecdotes are presented not just to enlarge trivia files but to underscore a few vital points that can get lost when the passion for system upgrade sets in. First, no audio system can—or should—sound better than the recording it's playing. Second, the format of that recording, whether analog or digital, tape or disc, has no absolutely necessary bearing on the sound it provides. Some production people are comfortable with newer formats, but others have not quite gotten there yet. Third, if you're going to depend upon a recording as a standard of quality on which to make equipment judgments (as all of us ultimately must), the history of that recording, which might prove quite difficult to unearth, is vital information. For example, if McClure is finally asked to make a 20-bit conversion, and he can't fit the job into his schedule, someone else will be found to do it. In that case, the sound is likely to be altered again, perhaps to the point where you're surprised I bothered to take note of the change the first time.

So don't be surprised when recorded music you're familiar with changes. It's going to keep changing for a long while yet. □

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