

# Stereo Review®

JANUARY 1985 ● \$1.75

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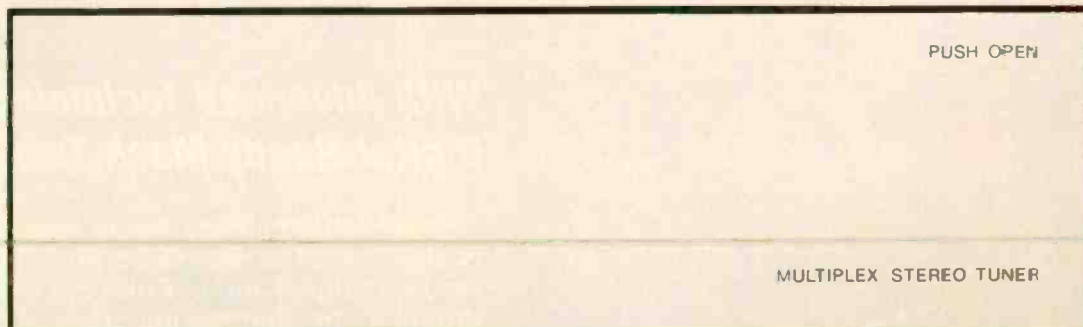
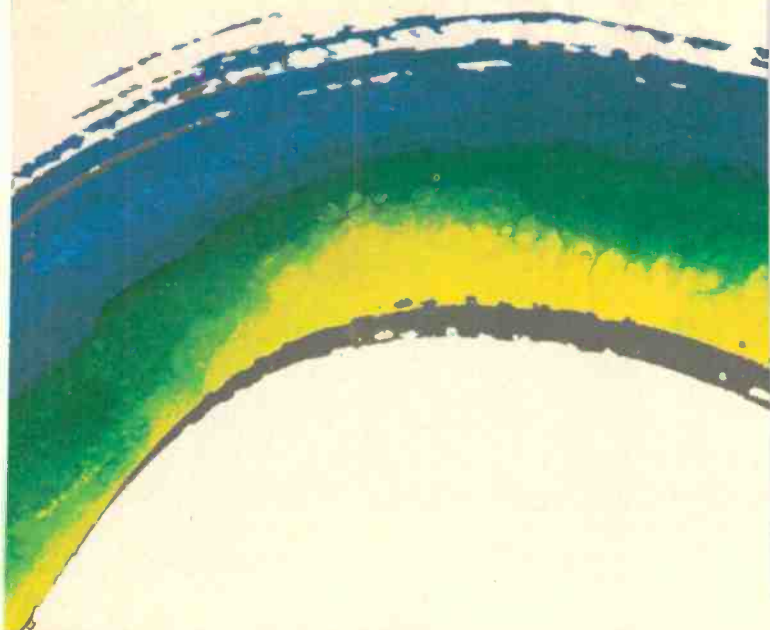
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Cover: Linn Sondek LP12 turntable with Linn Ittok tone arm and Asak cartridge

Vol. 50 No. 1 January 1985 (ISSN 0039-1220)

Cover: Design by Sue Llewellyn, Photo Roberto Brasan

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Hitachi	x860	Yamaha Electronics	x861

by Gordon Sell and Christie Barter

## DIGITAL DISC RECORDER

Nakamichi has demonstrated its new industrial, magneto-optical, digital, erasable record/playback system that can be used to record any kind of digital data, including digital audio. The eight-inch, CD-like discs contain a vertically polarized magnetic material, which reflects light differently depending on which pole is "up." To record, the disc is magnetized in one direction and an opposite magnetic bias is applied that is not quite strong enough to flip the poles. A laser writes the data on the disc by heating the material and reducing its resistance to change enough for the bias field to flip it over. The Model OMS-1000 recorder/player costs a mere \$80,000, but machines in the under-\$2,000 range can be expected in a few years.

## CENTURY NOTES

The celebration of the 400th anniversary of the birth of Heinrich Schütz and the tricentennials of Bach, Handel, and Scarlatti in 1985 should not obscure the 100th anniversaries of Viennese opera composer Alban Berg and the American Jerome Kern, who wrote scores for Show Boat, Roberta, and many other musical shows and movies.

## NEW STATUS FOR STERN

CBS has honored violinist Isaac Stern with the newly created title of Artist Laureate, marking his forty years on the Masterworks label. He has been granted a lifetime contract, and a special seal will be placed on his records.

## CD SIGNALS

PolyGram is preparing to introduce a "maxi-single" CD with a playing time of about sixteen minutes. With simpler packaging than the full-length Compact Disc, the new CD's

are expected to sell for under six dollars....Columbia has begun releasing two-record sets from its catalog on extended-play CD's. The first artists represented in the "2 for 1" format include George Jones, Journey, and Bob James.... The Wagner Ring cycle on CD that has been available as a Eurodisc import (reviewed in this magazine last month) has just been released in the United States by RCA....A Compact Disc club offering CD's on virtually all major labels by direct mail has been launched by RCA Direct Marketing. For enrollment information call 1-800 428-1928 or write c/o P.O. Box 91412, Indianapolis, Ind. 46291....The CD version of Paul McCartney's recent recording "Give My Regards to Broad Street" is unique in that it is the first new pop album by a major artist to use the Compact Disc's capacity for longer playing time. The McCartney CD has two more songs than the LP.



## TECH NOTES

VH-1, the new MTV rock-video cable TV channel for baby boomers, will distribute stereo sound to its affiliates in digital form using Dolby Labs' ADM (Adaptive Delta Modulation) system, which reduces the bandwidth requirements....Mark Levinson Audio Systems has gone into Chapter Seven bankruptcy, and its assets are being liquidated. But don't be too surprised if its operations and products become part of a new company under the name of Madrigal Laboratories. Mark Levinson, who founded the company that was named for him but had not been involved in its management for the past four years, says he is starting a new high-end audio company called Cello Ltd.

by William Livingstone



With cartoonist Charles Rodrigues (left)

## Name Dropping

**O**BVIOUSLY, my job with this magazine has made it possible for me to meet some very important people in the audio industry. They include Roy Allison, Amar Bose, Robert Carver, Avery Fisher, John Koss, Paul Klipsch, Saul Marantz, and Walter Stanton, founders of companies that still bear their names.

In the music world I have been privileged to spend time with many of the artists who have thrilled me with their performances and recordings. James Taylor came to our office once, and I've met Carly Simon several times at parties. The late Mabel Mercer was a friend of mine, and I once sat next to Tony Bennett at dinner. In Las Vegas I interviewed Vikki Carr, and at Regine's in New York I had a drink with Bette Midler. I've been photographed with Patti Smith, Lou Reed, and Wynton Marsalis.

Billions of notes had been played by Arthur Rubinstein and Vladimir Horowitz by the time I got to shake hands with them. I've been able to chat more freely with such younger pianists as Ruth Laredo, Alicia de Larrocha, Alfred Brendel, John Browning, and Jorge Bolet.

Conductors I've talked with formally or informally include Erich Leinsdorf, Neville Marriner, Michael Tilson Thomas, Zubin Mehta, and Carlo Maria Giulini. They include big maestros from Antonio de Almeida to David Zinman.

I once ate two slices of a lemon pie baked by the Brazilian soprano Bidú Sayão, and a couple of times I've been treated to pasta cooked by Renata Scotto. I've visited the home of baritone Sherrill Milnes to inspect his very impressive hi-fi installation. Roberta Peters and Régine Crespin have been among my colleagues on the Metropolitan Opera Quiz, and the great tenors I've talked to include both Plácido Domingo and Luciano Pavarotti.

Who do you suppose my friends and acquaintances ask me about the most? None of the above. Our cartoonist Charles Rodrigues is the one most people are curious about. They want to know how he works and how he got such insight into the world of hi-fi.

So what can I tell you? Of Portuguese-American descent, Rodrigues is a middle-aged World War II veteran who lives on Cape Cod with his wife, two daughters, and five cats. In private life many humorists are melancholy souls, but Charles manages to smile a lot as he views the decline and fall of practically everything. He has never worked in an audio salon. He sleeps during the day and draws at night, usually listening to classical music on FM.

Charles was represented in Volume 1, Number 1, of this magazine in February 1958, and he has continued to supply us with cartoons. Since February 1965 I've been the magazine's contact with him, and in twenty years I have not been able to discover how he thinks up the situations he draws or the gags he uses. But I do know that he does not work with other people's ideas.

When readers submit suggestions for Charles, we pass them on to him, but they do not result in cartoons. For those of you who would like to collaborate on a Rodrigues cartoon, however, we are prepared to work it the other way around. We have asked Charles to make a drawing which we are printing without a caption, and we will have a contest to see which reader can supply the funniest gag line to go with the drawing. To see the cartoon and read the rules of the contest turn to page 27. If you submit the winning entry, celebrity awaits you. We'll be dropping *your* name into the pages of STEREO REVIEW. □

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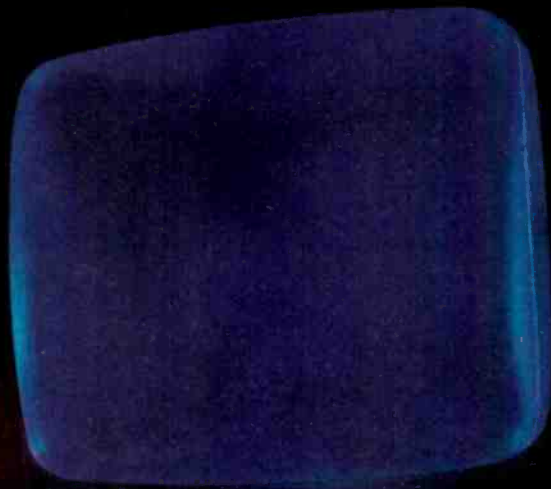


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# LETTERS

## Supporting Simels

Is it "Stick It to Steve" time again (October "Letters")? I hope not. For more than eight years I have been enjoying the work of Steve Simels. I haven't always agreed with his reviews, but I have always agreed with his insight and sense of humor. I have sorely missed his old column, "Simels Live." Thanks, Steve.

DALE L. HOUSELY  
Torrey, Utah

## Nailing Nash

STEREO REVIEW seems to be suffering from an identity crisis. Articles such as the one in October on the band Exile have no place in an audiophile publication. It is also unfortunate that the editors trust the musical taste of Alanna Nash. It is invariably bad.

TROY JOHNSON  
Blaine, Mont.

## Knifing Blades

I disagree with a remark in William Livingstone's October review of Rubén

Blades's "*Buscando América*." That cheap and vulgar piece of garbage *can't* be taken as an example of "authentically Latin" music! No way, José!

C. SANTIAGO  
Ponce, Puerto Rico

## Digital Quad

At last someone has touched upon something I have been asking the silent majority for months: "What about four-channel CD's?" Out of the world of myriad concentric rainbows comes Myron Berger's article "Enhancing Digital Sound" (September) with three or four paragraphs about four-channel sound (I can understand his reticence). But is the public ready for another four-channel white elephant? After all, once quadro-quirked, twice imaged, right? Wrong. I know what their devious 88K-sampling minds are up to! "You want sonic space that surrounds both performers and listeners? Well, you got it: sixteen discrete channels with additional jacks for future expansion."

Oh yes, dear reader, we've unleashed a monster. Why couldn't we have stayed in our belt-drive vs. direct-drive

euphoria? Wasn't life simpler then? Are we destined for a world chrome shortage? Aren't you hurting your dog's ears with all that high end? Will someone please regulate those myopiated eastern human silicon chips before 3D television strikes? (Nothing personal, mind you.) It's enough to make one long for a "Mr. Microphone" commercial. Well, on second thought, maybe not.

ALAN S. PROCTOR  
Uxbridge, England

## Beatles on CD

I have been a subscriber to STEREO REVIEW for almost a year and *honestly* wait in anticipation for the next issue, especially any news about CD's since I have a CD player. At present I own about eighty-five CD's and enjoy them all. I wonder, though, when, if ever, they will come out with the Beatles' albums on CD's. I think that would really help this new medium take off.

R. LEASE  
Aurora, Colo.

*The EMI labels, including Capitol, have been slow to issue CD's of all types of*

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## LETTERS

music, not just the Beatles. As far as we know, the only Beatles CD so far is a Japanese issue, probably a pirate, of "Abbey Road."

### Turntable Feedback

I was amazed to see an article on turntable feedback in the October issue. I too had a major feedback problem, so bad that at high volumes the woofers would reverberate. I was told about heavier mats and isolation bases, but none of these methods seemed to work. It was then that a fellow audiophile told me to set the table on a pair of cinder blocks. When I did, the density of the turntable's platform increased so dramatically that there is now no trace of audible feedback. Cinder blocks seem to be the most sensible and inexpensive solution to the problem.

RON LONDON  
Newark, Dela.

### Jacksons' Tons

Regarding Mark Peel's review of the Jacksons' "Victory" album (October): Did the group really travel with 50,000

tons of sound equipment? That is roughly equal to the weight of the German battleship *Bismarck* in World War II. Seems a bit like, uh, overkill.

CHUCK PETZEL  
Dutch Harbor, Alaska

*They didn't let us put the gear on the scales, but it seemed like a good guess.*

### Getting the Bass

Thanks for the article "Where's the Bass?" by Julian Hirsch (September). I've owned a pair of good three-way speakers for years, and I was never happy with the imaging. After reading the article, I became fascinated with the idea of getting big sound from a subwoofer and two small satellites. I decided to try it in a small way, with a 12-inch single woofer from a mail-order discount house and two mini speakers from Radio Shack. I hooked up my \$270 do-it-yourself three-piece system, and I was amazed at the sound. The subwoofer provides good, deep bass, and the little speakers belie their big sound. Best yet, the imaging is all I could ever expect.

I sold my \$1,000 three-way speakers and "upgraded" to a better system at one-fourth the cost. The money from the sale of the speakers will buy me a Compact Disc player.

NORM GUILBERT JR.  
Greenwich, Conn.

### Moving-Coil Forever

In response to Daniel Sweeney's November article on "Esoteric Phono Cartridges": I am sated and totally bored and, more important, amazed by the so-called "experts" who *still* debate the pros and cons of moving-coil pickups. I couldn't care less if a non-moving-coil model is made of plutonium or 24k gold, *there is no comparison between a cartridge and a superb moving-coil pickup.* Period!

THEODORE MEYER  
Chapel Hill, N.C.

### Erratum

Through an oversight, we failed to credit the calligraphy on pages 46-53 of the December issue. It should have been credited to Don Grimes Design.

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## Technics

Technics has three new low-priced Compact Disc players with varying degrees of programming and operating flexibility. All three have the same audio specs as previous Technics CD players.

The top model, the SL-P3, has more sophisticated cueing abilities than the other two. The remote control can change the volume level of the player, which can also be done with a control on the unit. A switch selects timer play, auto pause, or auto cue. Timer play allows use with a separate timer for automatic operation, the auto-pause control briefly delays the start of play at the beginning of each selection, and auto cue locates the beginning of the music on each track and activates a cue-standby indicator when it is ready for play. Price: \$600.

The lowest-priced model, the SL-P1, offers fifteen-step random-access programming, direct access to any track or index number, repeat, high- and low-speed search, and a skip key. It has fluorescent displays for track number, index number, minutes, and seconds. Price: \$400. The SL-P2 adds amenities such as wireless remote control, auto music scan, more repeat functions, and a headphone jack with volume control. Price: \$500.

For all three players, rated frequency response is 4 to 20,000 Hz  $\pm 0.5$  dB, dynamic range 96 dB, and total harmonic distortion less than 0.003 percent; wow-and-flutter is unmeasurable. Technics, Dept. SR, One Panasonic Way, Secaucus, N.J. 07094.

**Circle 120 on reader service card**

## Kinergetics

The Kinergetics KBA-200 power amplifier has a dual-monophonic design that is said to eliminate hysteresis distortion. Each completely separate channel has a complementary pair of amplifying stages; according to the manufac-

turer, the second stage in each pair "generates hysteresis distortion exactly equal to that created in the first stage, but in the opposite direction," thus canceling out the distortion overall.

The KBA-200 is rated for 200 watts per channel. A cascode input extends the power bandwidth to 400 kHz. Headroom is rated at 3 dB, and the slew rate is greater than 100 volts per microsecond. The amplifier measures 19 inches wide, 7 inches high, and 18 inches deep. Price: \$1,495. Kinergetics, Dept. SR, 6029 Reseda Blvd., Tarzana, Calif. 91356.

**Circle 121 on reader service card**



## Fuji

The new Fuji high-bias FR II cassette tape, which has smaller and slimmer fine-grain magnetic particles than earlier formulations, is said to have a greater dynamic range and increased high-frequency maximum output level for dubbing Compact Discs and other PCM-encoded digital material. Rated frequency response is 2 dB higher at 10,000 Hz. The shell comes with honeycomb liner sheets, a high-precision pressure pad, a loop-prevention guide, and a tension-stabilizer guide. A large window makes the tape hubs easily visible. Price: C-46, \$3.95; C-60, \$4.35; C-90, \$5.95. Fuji U.S.A., Dept. SR, 350 Fifth Ave., New York, N.Y. 10118.

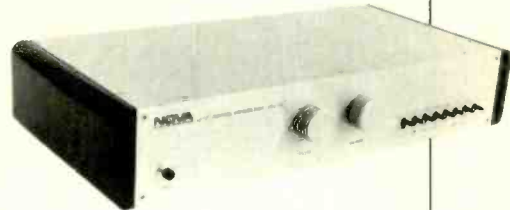
**Circle 122 on reader service card**



## Monster Cable

A new moving-coil cartridge from Monster Cable, the Alpha 2, joins the Alpha 1, which was introduced last year. The "micro-ridge" stylus maintains a constant tip radius that is said to result in better inner and outer groove tracing with low distortion. The sapphire cantilever is a hollow tube. The Alpha 2 is said to use a "magnetic feedback control circuit" similar to that in the Alpha 1. Prices: Alpha 1, \$475; Alpha 2, \$650. Monster Cable, Dept. SR, 101 Townsend St., San Francisco, Calif. 94107.

**Circle 123 on reader service card**



## Nova

The Nova CPA-100 preamplifier uses discrete solid-state devices instead of integrated circuits. It has metallized polypropylene capacitors and contains an oversized toroidal power transformer for high efficiency and low radiated field hum. The input and output jacks are gold plated. There is an absolute-phase switch to correct out-of-phase material, a 20-dB mute switch with loudness contour, and a tape-enable switch that disconnects the tape outputs when not in use.

Frequency response for the phono input is given as 20 to 20,000 Hz  $\pm 0.15$  dB; for the other source it is 0.1 Hz to 200 kHz  $+0, -3$  dB. Total harmonic distortion is rated at less than 0.01 percent. The CPA-100 has a brushed aluminum front panel with side panels in walnut or oak. Price: \$1,695. Nova Electro-Acoustics, Dept. SR, P.O. Box 25488, Los Angeles, Calif. 90025.

**Circle 124 on reader service card**

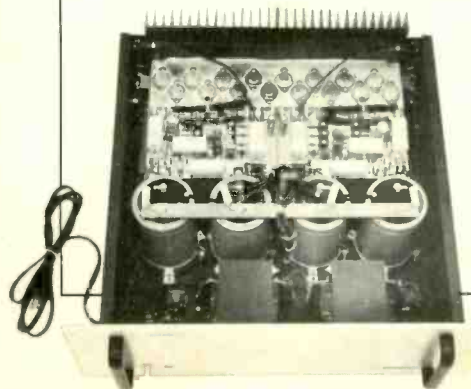


## Jensen

Two new models of car speakers from Jensen feature an equalization circuit to compensate for the limitations of the speaker itself and the vagaries of car acoustics. One of three equalization settings can be selected. The speakers have input-level and thermal-overload protection circuits. They can handle 100 watts and are rated at 4 ohms impedance. Both models require 2 inches of mounting depth.

The P/EQ-1 has a rated frequency response of 55 to 20,000 Hz and a sensitivity of 93 dB sound-pressure level with a 1-watt input. Price: \$134.95 per pair. The frequency response of the P/EQ-2 is 45 to 20,000 Hz, and its rated sensitivity is 94 dB. Price: \$154.95 per pair. Jensen Car Audio, Dept. SR, 4136 North United Pkwy., Schiller Park, Ill. 60176.

**Circle 125 on reader service card**





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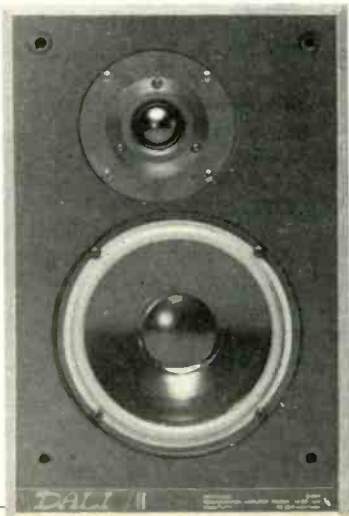
## NEW PRODUCTS

### Dali

Built in Denmark, the Dali II (shown) is the smallest of a line of four loudspeakers. Its 6½-inch woofer has a laminated-pulp and polyvinyl-acetate cone. The 1-inch soft-polypropylene dome tweeter has a ferrofluid-filled gap for cooling and centering the voice coil. The crossover is a third-order Butterworth design. Recommended amplifier power is 10 to 60 watts. The frequency response is given as 60 to 20,000 Hz and distortion as 0.6 percent or less. The tweeter is placed slightly off-center for better imaging and depth perspective. Optimum positioning is 20 to 40 inches above the floor. Finished with black front and rear baffles, the cabinet has walnut side and top panels. The Dali II measures 14 x 9 x 9½ inches and weighs 14 pounds. Price: \$120 per pair, plus \$10 shipping.

The top-of-the-line Dali 10 is also a two-way speaker. The bass-reflex cabinet contains a 6½-inch pulp-cone woofer surrounded by a soft rubber gasket that is concealed between a wood plate and the front baffle board to dampen resonances and eliminate vibration. The ¾-inch cloth-dome tweeter has a perforated magnet, and its rear output is damped by a foam-filled chamber. Hexagonal-shaped wire is used in the voice coils of both drivers. The crossover is a fourth-order acoustical Bessel design. Rated frequency response is 38 to 20,000 Hz within 3 dB. Sensitivity is given as 90 dB sound-pressure level with a 1-watt input measured at 1 meter. Distortion is 0.3 percent or less. The cabinet is finished with walnut veneer, and steel speaker stands are included. The Dali 10 is 29 inches high, 16½ inches wide, and 7 inches deep, and it weighs 50 pounds. Price: \$319 per pair, plus \$33 shipping. Danish American Limited, Dept. SR, P.O. Box 55386, Valencia, Calif. 91355.

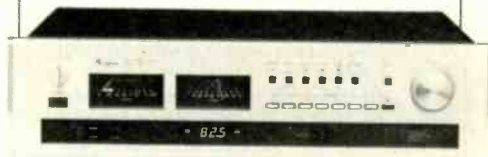
Circle 128 on reader service card



### Audio Research

The Audio Research D-115 power amplifier uses vacuum tubes instead of the more commonly used transistors to amplify the audio signal. The circuitry in the amp is cross-coupled and fully balanced. On the front panel is the power switch, with fuses for line voltage and screen grid voltage to protect the tubes from burnout. The power output is given as 115 watts per channel into 16 ohms from 20 to 20,000 Hz with less than 1 percent total harmonic distortion. Input sensitivity is 1.1 volt rms for rated output, and noise is 90 dB below rated power, broadband unweighted. The amplifier is 19 inches wide, 7 inches high, and 16.5 inches deep. Price: \$2,995. Audio Research, Dept. SR, 6801 Shingle Creek Parkway, Minneapolis, Minn. 55430.

Circle 129 on reader service card



### Accuphase

The T-106 AM/FM digital synthesis tuner from Accuphase makes use of an optical pulse generator attached to a hefty rotary knob to preserve the "feel" of a variable capacitor knob. The tuner has a newly developed differential gain linear FM detector and IF filters with flat group delay. A synchronous detector in the AM section is designed to reject interference and minimize distortion. There are fourteen station presets. Next to the signal strength meter is a peak modulation meter that also functions as a multipath detection meter. The stereo 50-dB quieting sensitivity is rated at 37 dBf, signal-to-noise ratio at 79 dBA, and 1,000-Hz total harmonic distortion at 0.04 percent. The tuner is 17½ inches wide, 5 inches high, and 14½ inches deep. Price: \$1,050. Madrigal Ltd., Dept. SR, P.O. Box 781, Middletown, Conn. 06457.

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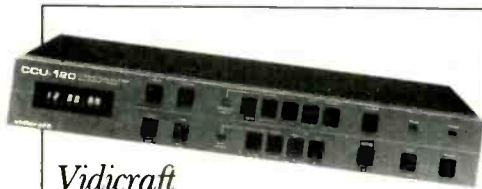
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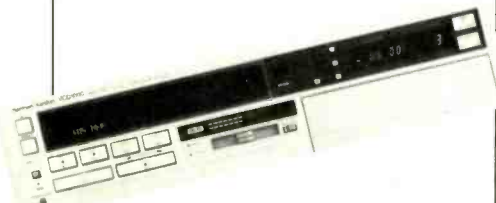
# AUDIO/VIDEO NEW PRODUCTS



## Vidicraft

Connected to a compatible wireless remote-control video-cassette recorder, the Vidicraft CCU-120 can direct the VCR to edit out interrupting commercials by recording the continuing program over them. The CCU-120 commercial cutter and event timer uses its two microprocessors to scan the audio and video signals for the transition from program to commercial, which is signaled by a dip to black with silent audio. Then it orders the VCR to back-scan to the beginning of the recorded commercial and record over it when programming resumes. An average of 98 percent of all commercials can be eliminated, according to the manufacturer, with accidental program cuts, averaging less than 60 seconds each, only about once in every 50 recording hours. The timer on the CCU-120 allows programming twelve events over nine weeks. Price: \$399. Vidicraft, Dept. SR, 0704 SW Bancroft St., Portland, Ore. 97201.

Circle 131 on reader service card



## Harman Kardon

Circuitry to decode stereo TV broadcasts is included in Harman Kardon's VCD-1000 VHS Hi-Fi audio/video-cassette recorder. The deck employs discrete, fully complementary circuitry with wide bandwidth and low negative feedback in each stage. There is a four-event, fourteen-day timer. Operating features include still-frame and picture search in forward and reverse modes. The VCD-1000 operates in SP, LP, and EP modes. A panel conceals secondary controls when they are not in use. Displays show time, date, tape length, and play time. There is an audio level meter and an audio level control. The 105-channel cable-ready tuner uses Zenith/dbx decoding for stereo TV broadcasts and S.A.P. programming. A wireless remote control duplicates the front-panel controls and sixteen station presets. Price: \$1,250. Harman Kardon, 240 Crossways Park West, Woodbury, N.Y. 11797.

Circle 132 on reader service card

## Canon

Canon's VR-40A four-head VHS Hi-Fi video-cassette recorder plugs into the top of the Canon VT-50A tuner/timer for home use; no cable connections are required, and the recorder section detaches for portable use. Audio information is recorded by frequency modulation with rotating audio heads. Audio frequency response is given as 20 to 20,000 Hz. Dynamic range is better than 80 dB, and wow-and-flutter is 0.005 percent. The deck operates in SP, LP, or SLP modes. An LCD display on the front panel shows the selected mode, tape speed, battery condition,



and remaining time. Horizontal resolution is more than 230 lines. The VR-40A is 8<sup>7</sup>/<sub>16</sub> inches wide, 3<sup>1</sup>/<sub>16</sub> inches high, and 10<sup>3</sup>/<sub>8</sub> inches deep. It weighs 7.3 pounds with its internal battery pack. Price: \$1,030.

The VT-50A frequency-synthesis video tuner is 8<sup>3</sup>/<sub>16</sub> inches wide, 4<sup>7</sup>/<sub>8</sub> inches high, and 14 inches deep. It can record eight different programs over fourteen days and features one-touch recording. There are fourteen station presets. Price: \$570. Canon U.S.A., Dept. SR, One Canon Plaza, Lake Success, N.Y. 11042.

Circle 133 on reader service card

## Revox

Revox has introduced a new line of compact speakers designed to be used with stereo televisions. The smallest model, the Piccolo, is a two-way speaker with a 4<sup>1</sup>/<sub>16</sub>-inch woofer and a <sup>3</sup>/<sub>4</sub>-inch dome tweeter. The crossover frequency is 1,800 Hz, and rated frequency response is 80 to 22,000 Hz. Nominal impedance is 4 ohms. The Piccolo can be used with amplifiers producing from 20 to 40 watts. It measures 8<sup>1</sup>/<sub>16</sub> inches high, 5<sup>1</sup>/<sub>2</sub> inches wide, and 5<sup>3</sup>/<sub>4</sub> inches



deep, and it is finished in flat black, with a perforated metal grille. Price: \$198 per pair. Other models in the line cost up to \$498 per pair. Studer Revox America, Dept. SR, 1425 Elm Hill Pike, Nashville, Tenn. 37210.

Circle 134 on reader service card



## ADC

One of a series of ADC video enhancers and processors, the V-400 video sound processor contains Dynamic Noise Reduction to reduce tape hiss and background noise. The V-400 creates a stereo signal from a mono input, and its expander is said to recreate the sound of a live performance. Noise reduction is rated at -9 dB with CCIR/ARM weighting, and harmonic distortion without synthesizer, DNR, or expansion is 0.1 percent.

The V-400 video sound processor measures 10 inches wide, 2<sup>1</sup>/<sub>8</sub> inches high, and 6 inches deep. Price: \$129.95. Other products in the series, all at the same price include a video stabilizer, a video enhancer, and a video color processor. ADC, Dept. SR, Route 303, Blauvelt, N.Y. 10913.

Circle 135 on reader service card

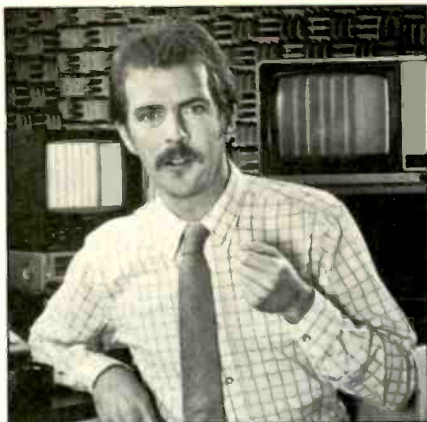


## Akai

The Interactive Monitor System in the Akai VS-603U VHS Hi-Fi video-cassette recorder displays operating instructions on the TV screen. The tuner has sixteen station presets and scan functions. There is an eight-event, four-week timer and a sleep timer. The VHS Hi-Fi system supplements the four video heads with two rotating audio heads that record the audio signal beneath the video signal on the tape. The resulting dynamic range is greater than 80 dB, and wow-and-flutter is given as 0.005 percent wrms. There are two video speeds, SP and SLP. A wireless remote control is included.

The VS-603U is approximately 17<sup>1</sup>/<sub>2</sub> inches wide, 4 inches high, and 14<sup>1</sup>/<sub>2</sub> inches deep. It weighs 22 pounds. Price: \$1,195. Akai America, Dept. SR, P.O. Box 6010, 800 West Artesia Blvd., Compton, Calif. 90224.

Circle 136 on reader service card



# Getting the most from compact discs.

Can your system really keep pace with digital audio?

by J. Robert O'Connell

Recording Engineer



As an audio enthusiast, you've probably read many articles on compact discs. Most have stressed the dynamic range available, and the consistent sound quality, play after play. Both of those topics are important. But what also must be considered, and is all too often ignored, is the impact of this new format on your present audio system.

## DYNAMIC RANGE: THE COMPACT DISC EDGE

**Peak Output.** The top two curves on the graph at right show the same piece of music played from a conventional LP and a compact disc. The peak output heard from a disc is substantially greater than that available from the LP, provided the rest of your system can reproduce it.

**Noise Floor.** As can be seen from the three lines at the bottom of the graph, the noise floor of the compact disc is below that of a common listening room, while a conventional LP is above it. This demonstrates that compact discs are so quiet that other factors (such as the room noise and the quality of the rest of your audio system) limit the softest sounds you can hear.

**Dynamic Range.** Since the compact disc exhibits both increased peak output and decreased noise floor, the dynamic range (difference between the softest and loudest sounds) is extended. But this extended range is only experienced if the rest of your audio system is physically capable of handling it.

## IMPACT ON YOUR AUDIO SYSTEM

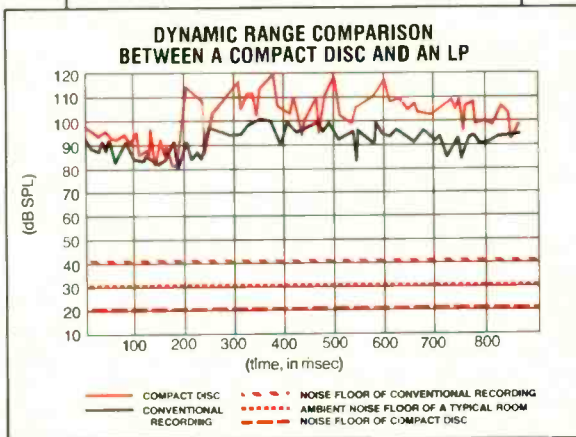
Increased dynamic range and decreased noise floor places new demands on your audio system. Remember that each 3 dB of additional dynamic range requires *double* the amplifier power

speaker if the result will be "blown" tweeters rather than a more enjoyable experience. Finally, and perhaps most importantly, the speaker must be able to create the lifelike impact and flawless clarity captured by the disc.

At Bose®, we've invested 20 years developing Direct/Reflecting® speaker systems to deliver spacious, lifelike sound. We've also designed them to meet the demands of lifelike recordings, such as the compact disc. So, our 901® Series V system, for example, is rated for unlimited power handling. But the only way to evaluate our speakers, or anyone else's, is to listen to them. For help in properly evaluating speakers, we refer you to article #2 in this series, "Why didn't they sound like that in the showroom?" by John Carter, Chief Engineer.

For reprints of article #2, as well as more information on Bose products, please write: Bose Corporation, Dept. SR, 10 Speen Street, Framingham, MA 01701.

J. Robert O'Connell is manager of Bose Audio Visual Services.



to reproduce it. So, compared with conventional recordings, compact discs require higher amplifier power. But amplifier power is only one of the criteria which determines the quality of compact disc sound reproduction.

Extended dynamic range also places previously-unheard-of demands on your speakers. And, after all, speakers, more than any other component, determine the quality of sound you actually hear from a compact disc. The higher the speaker's sensitivity, for example, the less the necessary amplifier power to reproduce the peaks in source material captured by a disc. Further, to reproduce the incredible dynamic range available from compact discs, a speaker must also have high power handling capability. There's no sense feeding a higher level signal to a



# PANASONIC CQ-S934

by Julian Hirsch and Christopher Greenleaf



SOMETIMES less is more in car stereo as in other areas. Once a system has the basic features needed to operate it effectively and to adapt it to the user's particular listening patterns or tastes, additional specialized controls and winking displays may be more distracting than helpful. An astute music lover seeking to balance cost and performance in car stereo equipment will welcome Panasonic's CQ-S934, which dispenses with unnecessary features and presents a well-organized control panel that is very easy to use.

The CQ-S934 includes a tape player, an AM/FM receiver, and a small integral amplifier able to drive one or two pairs of speakers. The line-level preamplifier outputs also permit use of an outboard amplifier for greater power. The fader control does not affect the line-level outputs.

The autoreverse tape player has a fixed, four-gap head rather than a flip-head setup. Tape direction can be reversed at any time during play by tapping the tuning knob. The back-lit LCD display panel shows the tape direction during play but not in either fast-winding mode. A three-choice button selects Dolby B, dbx, or no noise reduction; indicator lights show which system is in use. Another button selects either normal (120- $\mu$ s) or metal/chrome (70- $\mu$ s) playback equalization. Tapes are ejected by a firm push on a large protruding button next to the fast-wind buttons. Turning off the car's ignition does not automatically eject a tape, but it does disengage the pinch-roller.

The electronic tuner includes a permanently engaged circuit that attenuates the high treble and narrows the stereo separation of an FM signal as reception deteriorates. There is no mono button.

The five presets for each band store station frequencies in a novel and very convenient way. You tune in a desired station manually with the tuning knob, then hold down the chosen preset button for a few seconds. When the frequency display blinks, the button is set. No more dashing clumsily around the control panel to find and release a memory button! In the tuner mode, the CQ-S934 always displays the time (with a.m. and p.m. indicated) except when the FREQUENCY button has just been pushed or a station has just been tuned in. (In the tape mode, you can select either time or tape-status display; whichever is chosen remains on view until you change the selection.)

The fader, balance, treble, and bass controls have no detents. While this is reasonable for the first two, since their optimal settings will vary considerably with the listener position and the placement and/or efficiency of the speakers, the treble and bass controls really should have a nominal flat position indicated. There is no loudness button.

The one unusual feature of the CQ-S934 is its Daily Priority Station timer. You can set it to switch the tuner automatically to a particular band and frequency (the one stored on the first preset) at the same time each day. If you are playing a tape at that time, the display panel will flash for five seconds to

alert you that your program has begun.

The chassis of the Panasonic CQ-S934 measures 6 $\frac{3}{4}$  inches wide, 6 inches deep, and 2 inches high; the nosepiece is 4 $\frac{1}{8}$  by 1 $\frac{3}{8}$  inches. The suggested retail price is \$429.95. Panasonic, Dept. SR, One Panasonic Way, Secaucus, N.J. 07094.

## Lab Tests

Testing the Panasonic CQ-S934 was quite easy since none of its audio power amplifiers are "bridged" and the speaker returns and the chassis share a common ground. These features also tend to simplify installation.

In the absence of detents on the tone controls, we had to make a number of trial frequency-response measurements to establish the flat-test settings. Once this was done, the radio's overall frequency response, from antenna input to speaker outputs, measured quite flat over the audio range, within  $\pm 1$  dB from 45 to 18,000 Hz.

*The CQ-S934 is an attractive, basic car stereo unit that's about as simple and easy to operate as it could be.*

The FM tuner's signal-operated channel-blend circuit results in essentially mono operation when the signal level falls below 30 or 35 dBf (about 20 microvolts across the receiver's 75-ohm antenna input), although the stereo indicator comes on at much lower levels. At stronger signal levels (above 50 dBf, or 100 microvolts) the separation was quite good, typically about 27 dB.

The tape frequency response at high frequencies was quite different for the two directions of play, indicating a head-gap alignment problem or slight tape slewing. On our test sample, the reverse direction gave a more extended high-end response, though this may not be the case on all production units. In respect to its S/N, flutter, and speed characteristics, the tape deck in the CQ-S934 was typical of today's automobile tape players.

The AM section sounded much

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NATIONAL LAMPOON'S VACATION *	6039022	KING KONG (Original)	5502022	EDUCATING RITA *	1593012
STAR WARS *	0564162	JANE FONDA'S WORKOUT CHALLENGE	5260042	STIR CRAZY *	1594002
DIRTY HARRY *	6017082	STAR 80 *	6041082	NEVER CRY WOLF *	5305012
CADDYSHACK *	6023022	NEVER SAY NEVER AGAIN *	6042072	ADVENTURES OF ROBIN HOOD *	0526392
CASABLANCA	0507082	TRON *	5263012	THE COMANCHEROS	0762242
RISKY BUSINESS *	6033082	SPLASH *	5304022	TWO OF A KIND *	0877002
DUMBO *	525*052	THE LONGEST DAY *	0577032	CHRISTINE *	1580062
THE WAY WE WERE *	1529002	STRIPES *	1513082	THE MAN WHO LOVED WOMEN *	1624042
ON GOLDEN POND	0523082	ROMANCING THE STONE *	0894092	ROOSTER COGBURN	1018082
THE BIG CHILL *	1527022	THE AFRICAN QUEEN	0511022	TWILIGHT ZONE - The Movie *	6034072
THE MAGNIFICENT SEVEN *	0534212			ARTHUR *	6024092

the same as any of the other car receivers we have listened to. In our bench tests, the DPS feature worked as claimed, as did the various other features of the radio. Except for the criticisms already stated, the overall FM and tape performance of the CQ-S934 was quite satisfactory, with no areas of poor or substandard quality.

It is probably worth mentioning that this was one of the very few car radios we have tested whose measured usable sensitivity matched the manufacturer's ratings. It also presented an attractively distinctive and functional appearance, with the orange-lit LCD display seeming to be more easily interpreted than the usual fluorescent readout. *J.H.*

## Road Tests

As we have tested more and more car stereo equipment, certain qualities have come to stand out in our minds. For me, simplicity and ease of operation—or their opposites—are the first things I notice about a new piece of hardware after it's installed in my car. Novel approaches to the problem of fitting numerous controls and indicators in a limited space abound, of course, but it rarely seems that simplicity is valued quite as highly by the designers as it is by those of us who use their creations.

The Panasonic CQ-S934 is an attractive unit that's about as simple as it could be. All the controls are easy to operate, and they have just enough firmness to the touch to inspire confidence. I often try out a new model without reading the instruction manual first just to see how self-explanatory the controls are. The CQ-S934 passed this test so well I forgave the lack of a loudness button.

Since my Volvo test car has a built-in outboard power amplifier and four speakers, I tested the Panasonic unit with its preamplifier output connected directly to the power amp's line-level input. Although the CQ-S934 has a small built-in amp, somehow I can't imagine driving four speakers with a total of 6 watts unless their sensitivity is up in the Klipschorn range, which certainly can't be said of mine. On the other hand, this would be a good starter

piece for a system since you could easily add a booster amp later.

On FM and with cassettes the CQ-S934 produced smooth, clear, and powerful sound that appeared neither to add to nor to detract from the original source. Tapes recorded with no noise reduction sounded open and clear, and using Dolby B or the even quieter dbx system gave virtually noiseless, accurate playback even of tapes recorded at a low level. (I'm always surprised how relatively hissy Dolby B playback sounds after listening to a dbx-processed tape, but the difference is apt to be more audible before you start the motor than while you zip down the highway.) The AM sound had strong though indistinct bass, but it lacked clarity and refinement in the treble.

I'm usually able to dodge peak commuter hours. When I do find myself on the road at 5 p.m., though, it's easy to miss tuning in the start of my favorite news program, NPR's "All Things Considered." So I found Panasonic's Daily Priority Station feature (oh well, they had to call it something) quite useful. During tape listening, however, the 5 seconds of flashing on the display panel might not be enough to get the driver's attention. A couple of beeps or a buzz tone over the speakers would work better, especially in daylight.

The FM tuner's resistance to multipath, outside electrical-impulse noise, and the constantly varying signals of normal mobile reception was a pleasant surprise. There were few audible problems even as my Volvo lurched through the metal-

fenced streets and steel-girdered buildings around the old Brooklyn Navy Yard. All FM tuners come to grief to some degree at the foot of the Brooklyn Bridge, where City Hall is (appropriately) a kind of nexus of crackling atmospherics and confused signals. The CQ-S934 performed admirably here, coughing or making small hashy sounds only in the very worst spots. Distant FM reception was average to good, with a nice selection of listenable stations all along the dial. The range of receivable AM stations was not as great as it might have been, but what could be received sounded clear except for the rather murky treble.

Tape handling was smooth. The mechanism was apparently incapable of damaging even such fragile audio travesties as my trusty old C-120. I've had it since 1971, and it will undoubtedly crinkle and jam some day, but not in the CQ-S934. High-frequency performance was slightly better in reverse play, but the difference was audible only with very high-quality program material played at high volume.

To label the CQ-S934 an excellent basic car stereo is to underestimate this well-rounded piece of equipment. Unless you listen mostly to AM, you should find it an accurate, very easy-to-use head unit that plays music well and without fuss. The inclusion of dbx noise reduction opens up a whole new section of the tape library for car use, as well as facilitating transfer of CD's and other low-noise sources that might otherwise stay on your listening-room shelves. *C.G.*

## HIRSCH-HOUCK LAB MEASUREMENTS

**FM mono usable sensitivity** (75-ohm input): 19 dBf (2.5  $\mu$ V)

**Mono 50-dB-quieting sensitivity** (75-ohm input): 25 dBf (5  $\mu$ V)

**Stereo 50-dB-quieting sensitivity** (75-ohm input): 46.5 dBf (58  $\mu$ V)

**Tuner signal-to-noise ratio** at 65 dBf: 64 dB

**Tuner distortion** at 65 dBf: 0.76%

**FM frequency response** (-3-dB limits): 34 to 18,500 Hz

**Stereo separation** at 100, 1,000, and 10,000 Hz (at 65 dBf): 24, 27, and 19 dB

**Capture ratio** at 65 dBf: 3.7 dB

**AM rejection** at 65 dBf: 70 dB

**Alternate-channel selectivity**: 54 dB

**Adjacent-channel selectivity**: 4.5 dB

**Image rejection**: 60 dB

**Tape-playback frequency response**

(standard BASF test tapes, -3-dB limits): 120- $\mu$ s EQ—35 to 8,500 Hz forward, 34 to 11,000 Hz reverse; 70- $\mu$ s EQ—36 to 7,100 Hz forward, 34 to 14,000 Hz reverse

**Tape signal-to-noise ratio** (referred to 250 nWb/m at 315 Hz, 120- $\mu$ s EQ): unweighted, 45 dB; Dolby B and CCIR/ARM weighting, 56.5 dB; dbx and CCIR/ARM weighting, 78 dB

**Flutter**:  $\pm$ 0.2% CCIR-weighted peak; 0.13% JIS-weighted rms

**Tape speed accuracy**: start of tape, +0.5% forward, -0.25% reverse; finish of tape, +0.3% forward, -0.1% reverse

**Fast rewind time** for C-60: 96 seconds

**Tone-control range**: +8.5, -11.5 dB at 100 Hz; +9.5, -13 dB at 10,000 Hz

**1,000-Hz clipping power output** into 4 ohms: 3.8 watts

A white horse with dark legs is running in a field. The horse is captured in mid-stride, with its front legs lifted and its back legs pushing off. The background is a soft, out-of-focus landscape with green grass and a hazy sky. The overall tone is warm and natural.

**The spirit of Marlboro  
in a low tar cigarette.**



# Marlboro



A man wearing a white cowboy hat and a bright yellow jacket is riding a brown horse through shallow water. The horse is galloping, splashing water. The man's right arm is raised, and he is holding the reins with his left hand. The background is a blurred, natural setting.

# ro Lights

Warning: The Surgeon General Has Determined  
That Cigarette Smoking Is Dangerous to Your Health.

11 mg "tar," 0.7 mg nicotine av. per cigarette, FTC Report Mar.'84

by Larry Klein



## Buyer's Guides

**Q** After checking every newsstand in the city, I still can't find your Stereo Buyers Guide for 1985. How can I get a copy? Also, does STEREO REVIEW publish other buyers' guides?

HOLLY EMMA  
New York, N.Y.

**A** There will be four STEREO REVIEW buying guides for 1985. The *Stereo Buyers Guide* went on sale in September and the *Video Buyers Guide* in November. The *Car Stereo Buyers Guide* will be out in March 1985, the *Tape Recording Buyers Guide* in June. If you can't find a newsstand copy, you can order one directly. Send a check or money order for \$4.95 for each guide (\$4.50 for the tape edition) to Stereo Review Guides, Box CN 1914, Morristown, N.J. 07960. Do not order the 1985 car stereo or tape guides more than a month in advance of the publication dates given above.

## Amorphous Tape Heads

**Q** Several manufacturers have been advertising that they use "amorphous" heads in their tape machines. According to my dictionary, the meaning of "amorphous" is "shapeless." Perhaps they meant "amorous"—signifying that the tape tends to hug the heads for best response?

CARL ARMSTRONG  
Parsippany, N.J.

**A** Good guess, but wrong. Oddly enough, the manufacturers mean just what they said. In the early Sixties, researchers stumbled on a way to produce metal alloys that, like glass, have a jumbled—that is, amorphous—atomic structure (most metals have orderly crystalline structures). These glassy,

amorphous alloys are harder, more corrosion-resistant, and easier to magnetize than conventional metals, all of which makes them ideal for a variety of electromagnetic components, particularly tape heads.

Amorphous alloys are still expensive—three to five times as expensive as the standard metals found in transformers and electromagnetic transducers—so components using them won't be taking over the marketplace in the immediate future. In time, however, the word "amorphous" will become an ordinary part of any audiophile's electronic vocabulary.

## Leadout-groove play

**Q** I have a fully manual turntable in my system. It's not always convenient for me to pick up the tone arm at the end of the record and the stylus continues to ride the leadout groove for a time. Will this create problems with my records or stylus?

BILL LAFFOND  
Worcester, Mass.

**A** No problem—leadout-groove play is likely to cause far more wear and tear on your ears than on your stylus or records. At one time there were four or five brands of semiautomatic end-of-record tone-arm lifts available that could be fitted to any manual turntable, but most of these seem to have gone off the market. Perhaps those audiophiles who want total control over the recording process prefer to keep their manual players as manual as possible. If you are interested in a lifter, however, it's worth checking around.

## Voltage conversion

**Q** I bought two components overseas that are designed for 220-volt a.c. lines. I now want to operate the equipment on U.S. line voltage and don't know whether I should get a step-down transformer or send the equipment back to the company for conversion. Which would be more feasible?

KEVIN D. FRANK  
FPO, New York, N.Y.

**A** Some of the 220-volt audio equipment manufactured in the U.S. and overseas has dual-winding power transformers. In such cases, conversion from 220- to 120-volt operation (or back again) involves nothing more than resoldering four wires and replacing a fuse with one of a different value. Any technician with the proper instructions should be able to do the job for you in 30 minutes or less. In any case, your best bet is to check with the manufacturer's local authorized service center for further instructions. □

# Finally, compact discs at a compact price. \$7.99.

Sony® brings you a compact disc offer that's music to your ears and an ode to joy for your wallet. Compact discs for no more than you'd pay for an ordinary LP or cassette tape. Just \$7.99\* each.

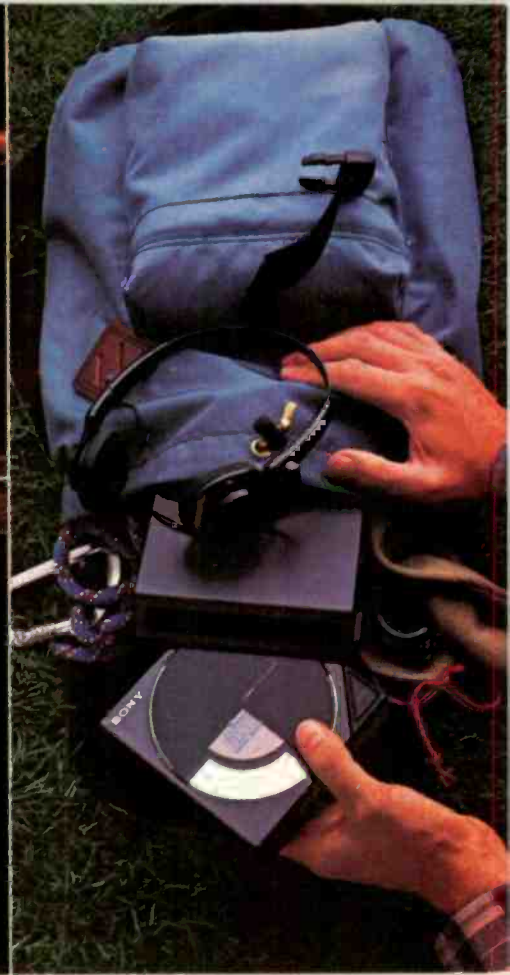
For a limited time only, Sony in cooperation with CBS is offering 30 of the most popular titles at a great low price. If you purchase any Sony home, car, or portable Compact Disc Player between Nov. 1, 1984 and Feb. 28, 1985, you can choose any or all of these great CBS titles:

ARTIST	TITLE
Bruce Springsteen	Born in the U.S.A.
The Jacksons	Victory
Scandal	Warrior
Cyndi Lauper	She's So Unusual
Footloose	Soundtrack
Billy Joel	Innocent Man
Willie Nelson	Always on My Mind
Journey	Escape
Kenny Loggins	High Adventure
Miles Davis	Decoy
Jeff Beck	Wired
Meatloaf	Bat out of Hell
Bruce Springsteen	Bark out on the Edge of Town
Dan Fogelberg	Phoenix
ELO	Discovery
Billy Joel	Glass Houses
Toto	Turn Back
Men at Work	Business as Usual
The Jacksons	Triumph
John Williams	Rodrigo: Concierto de Aranjuez
Yo-Yo Ma/ Lorin Maazel	Lalo: Cello Concerto
Pinchas Zukerman	Mozart: Violin Concerti Nos 3&5
Zubin Mehta	R. Strauss: Ein Heldenleben
Leonard Bernstein	Prokofiev: Symphony No. 5
Placido Domingo	Perhaps Love
Glenn Gould	Bach: Goldberg Variations
Wynton Marsalis	Haydn: Trumpet Concerto
Stevie Ray Vaughan	Couldn't Stand the Weather
Elvis Costello	My Aim Is True
Bob James & Earl Klugh	One on One

To take advantage of this great offer, just return a copy of your sales receipt and owner's registration card along with the special order form available only at a participating Sony CD Dealer. Payment must be made by check, money order, MasterCard or Visa before April 30, 1985.

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THE LEADER IN DIGITAL AUDIO™

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# Sony revolutionizes the compact disc revolution.

If there are still a few among you who have any lingering doubts as to who the leader in digital audio really is, consider the following:

On October 1, 1982, Sony\* set the music industry on its ear with the creation of the world's first compact digital audio disc player.

Today, with over 30 companies joining the revolution, Sony is starting two others. The Car Compact Disc Player and the Portable Compact Disc Player.\*

Combine that with the fact that the CDP-111, shown above, represents another addition to the world's largest family of

home compact disc players, and one thing should become abundantly clear:

While other companies are claiming advanced circuits, Sony has taken a somewhat different course.

Advanced products.

**SONY**  
THE LEADER IN DIGITAL AUDIO™

\*Initial supplies may be limited © 1984 Sony Corp. of America. Sony is a registered trademark of the Sony Corporation, 1 Sony Drive Park Ridge, NJ 07656. Optional headphones and battery pack case may vary where purchased.

CIRCLE NO. 74 ON READER SERVICE CARD

## TECHNICAL TALK

by Julian Hirsch



### Can Analog Records Match Digital?

**A**CTUALLY, the answer to the question of whether the sound of an LP can match the sound of a CD depends largely on who gives it. It is hardly a secret that a segment of the audio world, small but highly vociferous, is disturbed (sometimes to the point of apoplexy) by the very existence of digital-audio techniques and media. I don't want to get too involved with the more emotional aspects of this question, which may never be settled to everyone's complete satisfaction. Although I have my own views (digital is a giant step forward, with many more pluses than minuses), they are not the point of this discussion, which concerns the results of an interesting listening test.

I don't know how many people have conducted or participated in well-controlled A-B comparisons between digital and analog sound sources *originating from the same master recording* (a critical requirement unless you are one of those rare individuals who claim to have perfect recall of sounds heard in the distant past). Until recently, I had not had the opportunity to make such a comparison, without which

almost no valid conclusions about the sonic limitations of either the digital or analog medium (as distinguished from recording techniques, etc.) can possibly be drawn.

Not long ago, a phono-cartridge manufacturer introduced a new product whose performance presumably represented the current state of the art in analog-record reproduction. Rather than make such a claim directly, the company decided to let its cartridge speak for itself, as it were. A group of audio journalists and reviewers was invited to hear an A-B comparison of the new cartridge and a Compact Disc player. Fortunately, the necessary source material was available in the form of a Sheffield direct-to-disc LP record and a Sheffield CD, both derived from the same original performance (the CD having come from an intermediate stage of digital tape recording).

A switching system was constructed that channeled the output of either the phono preamplifier or the CD player to the power-amplifier section of a high-quality integrated amplifier. The levels of the two sources were matched very closely, and every part of the system following the input selector was common to both sources. Signal lights identified the selected program.

It was only slightly surprising to me that the LP and the CD sounded virtually identical—after all, the cartridge manufacturer would hardly have bothered with this demonstration if it had shown his product significantly inferior to the digital disc. I expected the overall frequency response and balance of the two sources to be very much alike, but I thought I'd be able to identify the LP by what I presumed would be a higher noise level. With one minor exception, however, I could not differentiate between the two sources

because of noise level. I had also anticipated some difference in clarity as the result of the various forms of tracing distortion, IM distortion, and other nonlinear distortions that are inherent in the analog record-playing process but are essentially absent from digital recordings. Again, no such effects were audible to me (or, I believe, to the other listeners) in this comparison.

I said that the analog and digital systems sounded *virtually* identical. There *was* a difference, sometimes (but not always) audible depending on the program material. One of the two sources had what I can only describe as a "warmer" sound, which I would guess to be the result of a frequency-response emphasis in the lower midrange or upper bass. This low-end rise was most apparent on vocal passages, and was *very* slight. Again, purely as a guess, I would expect a difference in frequency response of less than 1 dB, over an octave or two of the frequency range, to produce such an effect.

The earlier reference to a noise-level difference concerns a couple of very faint "clicks" during the first few seconds of the comparison, which I heard on only one of the sources. This was a "giveaway" to the identity of that source, which was (of course) the LP record. Most LP's exhibit some such noises near their outer diameters, no matter how quiet their surfaces may be elsewhere (and Sheffield records have earned an enviable reputation for quiet surfaces). On the other hand, even the most ardent critics of the CD concede its total silence when the disc is made from a well-recorded digital master tape.

While the "warmer" of the two sources was the LP, *I would not characterize it as "better" or "worse"* but merely as very slightly different. The reason for the effect is not easy to determine. There are simply too many differences in the processing, manufacturing, and playback stages of analog and digital discs for anyone to be dogmatic about the causes of a slight tonal difference. Even the time-honored comparison against the master tape is impossible here, since the LP was a direct-to-disc recording and had no "master tape," while the digital

### Tested This Month

Stanton Epoch II HZ9S and LZ9S Phono Cartridges  
Sansui TU-D99X Tuner  
Baby Advent Loudspeaker  
Pioneer SX-V90  
Audio / Video Receiver

disc was presumably a bit-for-bit duplicate of the digital master tape.

Of course, the real "winner" of this demonstration was the cartridge, whose sterling qualities could not be open to question after this most impressive performance. Even so, I have no way of knowing whether other top-quality cartridges could have done as well. I suspect that some could have, but I do not wish to detract in any way from the achievement of this one and the confidence of its developer in its ability.

So, what was proved by this exercise? First, of course, the manufacturer demonstrated that his cartridge is indeed excellent in respect to all the usual performance criteria and perhaps in others less well defined or understood. Moreover, the listening comparisons showed that when a state-of-the-art analog record is played by a similarly advanced cartridge, the result can be for all practical purposes (except noise levels) indistinguishable from the output of a digital Compact Disc.

It was demonstrated that the various distortions inherent in the analog system, all of which are from ten to a thousand times greater than any of the distortions in the CD playback process, do not seem to be as glaringly obvious as one might expect, even in a careful A-B comparison. And the supposedly deleterious effects of the sharp cutoff filters used in digital recording and playback, including their large phase shifts, are probably no more audible than the many flaws in the LP-record system.

Finally (and, to me, the most important point to remember), these tests proved that the skill of the recording engineer and others involved in the original recording and its duplication are much more important to its ultimate quality than whether it is ultimately produced in analog or digital form. Sheffield LP's are *good*, and most of them will sound better on *any* system than the typical mass-produced record. Still, after some years of use, wear, and dust, even they will lose some of their sonic perfection. But a CD should go on forever with no degradation of sound quality. □

## Announcing the RODRIGUES CARTOON CAPTION CONTEST

**W**HAT are they talking about in the drawing below? What is crotchety old Mr. Tweakingham saying to his faithful retainer Manchester? you decide. Our faithful artist Charles Rodrigues has drawn the cartoon, and *Stereo Review* is holding a contest to discover who can supply the funniest caption for it.

The winner will receive the original signed drawing shown here, a cash prize of \$100, and the glory of seeing his or her name published in this magazine along with the winning caption when the results of the contest are announced.

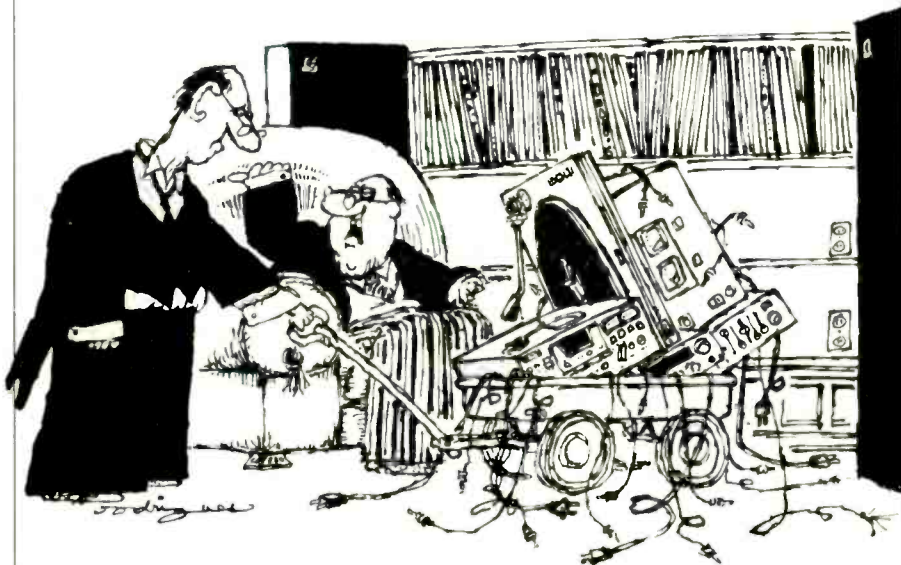
Anyone may enter, and there is no limit to the number of times you may enter, but each caption submitted must be on a separate sheet of paper that also contains the clearly legible name and address of the person who enters it. Entries with more

than one caption per page will be disqualified. All entries must be received by *Stereo Review* no later than March 1, 1985.

The panel of judges will include members of the editorial staff of *Stereo Review* and Rodrigues himself. Entries will be judged on the basis of originality, appropriateness, and humor. The decision of the judges will be final, and we will engage in no after-the-fact discussions of our IQ's, ancestry, qualifications, or individual and collective sense of humor.

The winning caption (and a selection of near misses) will be published in the June 1985 issue. The usual restrictions and disclaimers are printed below. Send entries to:

Rodrigues Cartoon  
STEREO REVIEW  
One Park Avenue  
New York, N.Y. 10016



No purchase is necessary. Anyone may enter except the staff of *Stereo Review* and its parent company (and their immediate families). All entries become the property of *Stereo Review* and none will be returned. If you wish to be notified of the results of the contest by mail, send a stamped self-addressed envelope to the above address.

In the unlikely event of duplicate entries, the one first received will be considered the winning entry. The names of the winner and a dozen runners-up

will be published in *Stereo Review* and may appear in promotional literature for the magazine. Submitting an entry will be deemed consent for such use.

*Stereo Review* will arrange the delivery of the prize; any tax on it will be the responsibility of the winner. The judges have every intention of reaching a decision in time for the publication of the results in the June 1985 issue, but *Stereo Review* reserves the right to delay the announcement until July if the response is overwhelming.

# Supreme Extremes with TDK.



The classic problem with recording classical music is faithfully reproducing an enormous spectrum of sounds. Some audio cassettes give you improved highs. Some, improved lows. Others, improved in-betweens.

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And to assure a standing ovation play after play, our specially-engineered Laboratory Standard mechanism provides a smoother tape transport and better tape-to-head contact for total reliability and trouble-free performance.

You'll also get incredible performance from our other three TDK Pro

Reference cassettes: MA-R metal, HX-S metal particle high-bias, and AD-X Avilyn-based normal bias.

Each is designed to deliver pure listening pleasure and long-time reliability...backed by our Lifetime Warranty.

Maximize the performance of your musical library. Pick up TDK Pro Reference cassettes today.

We go to extremes to improve your listening pleasure.

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THE MACHINE FOR YOUR MACHINE.  
CIRCLE NO. 48 ON READER SERVICE CARD

## STANTON EPOCH II HZ9S AND LZ9S CARTRIDGES

*Julian Hirsch, Hirsch-Houck Laboratories*



### FEATURES

- Moving-magnet construction with samarium-cobalt magnet (for low mass) and symmetrical coils (for greater separation)
- User-replaceable stylus assembly
- Tubular aluminum cantilever coated with sapphire for stiffness and low moving mass
- Cantilever electrically grounded through its stabilizing tie wire to drain off electrostatic charges
- Stereohedron II line-contact stylus
- Recommended tracking force: 0.75 to 1.5 grams
- Weight: HZ9S, 4 grams; LZ9S, 3.8 grams
- Recommended load impedance: HZ9S, 47,000 ohms, 275 picofarads; LZ9S, greater than 100 ohms, capacitance not critical

**T**HE Epoch II series of moving-magnet phono cartridges from Stanton Magnetics combines several new design concepts with styling strikingly different from the company's previous cartridges. The Epoch II cartridges have low-mass bodies that are ideally suited to today's light tone arms.

Two versions of the cartridge body are available: a conventional "high-impedance" model, designed to drive the 47,000-ohm moving-magnet phono input of a preamplifier, integrated amplifier, or receiver, and a "low-impedance" version suitable for use with a typical moving-coil-cartridge input termination of 100 ohms or more. In combination with three different replaceable (and interchangeable) stylus assem-

blies, these options provide the Epoch II line with six models in all, covering a broad price range and suitable for use with a variety of music systems. This mix-and-match approach also makes it possible to upgrade any of the lower-priced models simply by installing the appropriate replacement stylus.

The stylus used in the higher-priced Epoch II cartridges is a diamond with an improved Stereohedron II extended-line-contact shape. Its radii are 0.2 and 3 mils, and it is said to touch the groove wall over 80 percent of the groove's nominal depth. One of the lower-priced cartridges uses a Stereohedron I tip with 0.3- and 2.8-mils radii, and the least-expensive Epoch II model is fitted with a 0.2 x 0.7-mil elliptical stylus.

Earlier Stanton cartridges have also offered low-impedance, low-output coils that make them "moving-coil equivalents." As the manufacturer points out, this approach provides the acknowledged advantages of a moving-coil design (principally its independence of loading interactions and extended high-frequency response thanks to the elimination of the low-pass filter formed by the coil inductance and load capacitance) without the drawbacks of a moving-coil's typical fragility and (usually) nonreplaceable stylus. Since the Epoch II LZ models have the low output voltage of a typical moving-coil cartridge, they are completely compatible with any MC preamplifier input or can be used with a head amplifier or transformer.

For this report, we tested the top-of-the-line Epoch II cartridge, the HZ9S, and we also made limited tests of the LZ9S low-impedance model, which uses the same stylus as the HZ9S. Each of these cartridges is priced at \$250, with replacement styli available for \$90. The least-expensive Epoch II cartridge, the HZ6E, is only \$95, and its stylus is priced at \$40. Stanton Magnetics, Dept. SR, Terminal Dr., Plainview, N.Y. 11803.

### Lab Tests

The two cartridge bodies were installed in plug-in shells for a low-mass tone arm that is compatible with the low mass of the Epoch II cartridges. The compliant styli resonated at 7 to 8 Hz in this arm, which caused no problems in tracking warped records, but it is obvious that for best results the Epoch II series cartridges should not be installed in massive tone arms.

We made complete tests of the HZ9S, and we measured the output, frequency response, and channel separation of the LZ9S by installing the stylus from the HZ9S in the other body. This approach allowed us to assess differences resulting from the LZ's low coil impedance without having to allow for the effects of normal stylus variations. For both measurements and listening tests with the low-impedance body, we used a high-quality MC transformer whose response is very flat and

# CAMEL LIGHTS

It's a whole new world.



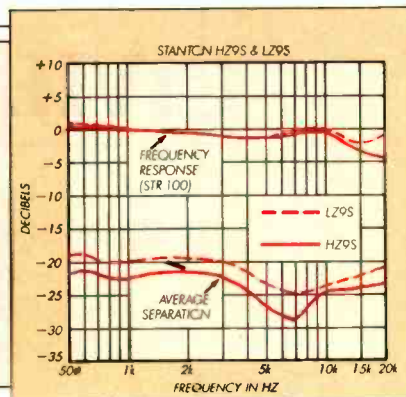
Today's  
Camel Lights,  
unexpectedly mild.

Warning: The Surgeon General Has Determined  
That Cigarette Smoking Is Dangerous to Your Health.



## HIRSCH-HOUCK LAB MEASUREMENTS

**Frequency response** (with CBS STR 100 test record): HZ9S, 40 to 20,000 Hz +0.5, -3 dB referred to 1,000-Hz level; LZ9S, +0.5, -2 dB  
**Channel separation:** HZ9S, 22 dB at 1,000 Hz, 24 dB at 10,000 Hz; LZ9S, 20 dB at 1,000 Hz, 23 dB at 10,000 Hz  
**Output voltage** (at 3.54-cm/s groove velocity, 1,000 Hz): HZ9S, 3.4 millivolts; LZ9S, 0.15 mV  
**Channel imbalance:** HZ9S, 0.6 dB; LZ9S, 1.28 dB  
**Vertical stylus angle:** 22 degrees (both models)  
**Optimum load:** HZ9S, 47,000 ohms in parallel with 360 picofarads; LZ9S, greater than 100 ohms, capacitance not critical  
**Tracking ability** (at 300 Hz with German HiFi #2 test disc): 80 micrometers at 0.75 gram, 100  $\mu$ m at 1 gram  
**IM distortion:** less than 3% with groove velocity between 7 and 22.5 cm/s; 5% at 27 cm/s  
**Tone-burst distortion:** less than 1% with groove velocity between 1.5 and 30 cm/s



extends well beyond the range of the cartridge and test records.

We used a 1-gram force for most of our tests, and frequency-response measurements with different load capacitances showed that this was not a critical factor, although higher values made a slight improvement. We used 360 picofarads.

The frequency response of the HZ9S with the CBS STR 100 test record had a slight, well-damped peak at 10,000 Hz, dropping off slightly at higher frequencies. It varied over a  $\pm 2$ -dB range from 40 to 20,000 Hz. The two channels had virtually identical response and channel-separation characteristics. Substituting the LZ9S body, we found a similar response up to 10,000 Hz and beyond, but the output remained stronger above that frequency and did not appear to be rolling off above our 20,000-Hz measurement limit.

The tracking ability of both models was outstanding. At 0.75 gram they tracked the 30-cm/s tones of the Fairchild 101 test record, the high-level 32-Hz tones of the Cook 60 record, and the 80-micrometer level of the German HiFi #2 record. At 1 gram, the last disc could be tracked without difficulty at its maximum level of 100 micrometers, an impressive achievement for any cartridge. The only time a higher force was needed was in the musical tracking tests of the Telarc "Omnidisc" record; at their higher levels, the cannon shots in the 1812 Overture required a force of about 1.25 grams to keep the stylus in the groove. Anyone who is familiar with the "Omnidisc" album will appreciate the unusually good tracking ability shown by the Epoch II cartridges.

Conventional tracking-distortion measurements revealed little about

the cartridge (this is becoming a common problem, since the test records we normally use no longer tax the tracking abilities of the best of today's cartridges). The response to the 1,000-Hz square-wave bands on the CBS STR 112 test record

*The Epoch II approach provides the acknowledged advantages of moving-coil designs without the drawback of typical moving-coil fragility.*

showed a single low-level and well-damped overshoot cycle corresponding to the 10,000-Hz response peak but was otherwise about as good a square wave as we have seen from this disc. The LZ9S's square-wave response was so close to that of the HZ9S that we would consider them essentially equivalent in this as well as all other substantive respects.

### Comments

We played the Epoch II cartridges in our regular music system, using the MC transformer when the LZ9S was installed. The two cartridges both sounded excellent and, as far as we could tell, the same. This is hardly surprising, since the only measurable difference in their frequency responses was above 15,000 Hz. In any event, we cannot attribute any special sonic quality to either version, since they sound about as neutral as any cartridge we know of. And that is how a cartridge should sound!

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## SANSUI TU-D99X TUNER

*Julian Hirsch, Hirsch-Houck Laboratories*



### FEATURES

- Digital-synthesis tuning
- Eight AM and eight FM station presets
- Preset scan samples memorized stations in sequence at 4-second intervals
- Selectable i.f. bandwidth and distant/local reception
- Connectors for 300- and 75-ohm (coaxial) FM antenna cables
- One unswitched a.c. outlet

**S**ANSUI'S TU-D99X digital-synthesis AM/FM tuner offers the full array of modern tuner features, together with good performance, in an attractive "low profile" package at an equally attractive price. On the front panel of the all-black unit, large fluorescent numerals show the tuned frequency, the frequency units (kHz or MHz), and the band (AM or FM). The desired band is selected by alternate pushes of a button to the right of the display. To the left is a set of colorful tuning and signal indicators. These indicate signal strength, stereo reception, wide or narrow i.f. bandwidth settings, and local/distant reception.

Each of the eight station memories of the TU-D99X can be assigned to both an AM and an FM station. Like most digital tuners, it is tuned by pressing a button that shifts the frequency up or down either in single steps or in a scanning mode, depending on whether the

switch is set for AUTO or MANUAL. The tuning intervals are set at 100 kHz for FM and 10 kHz for AM on units sold in the U.S. Other small buttons control the operating modes of the TU-D99X. The FM MODE button selects stereo or mono FM reception (the muting is disabled in mono), and the NOISE CANCELLER blends the stereo channels at high frequencies to reduce noise on weak signals. The REC CAL button replaces the program audio with a 400-Hz tone whose level corresponds to 50 percent FM modulation (6 dB below a station's legal maximum output level), a con-

nience for setting tape-recording levels.

The Sansui TU-D99X, finished in black to match other Sansui components, is 17 inches wide, 12 inches deep, and 2 1/4 inches high. Optional wood side panels add 1 3/8 inches to the overall width. A detachable AM loop antenna is supplied. Price: \$350. Sansui Electronics Corp., Dept. SR, 1250 Valleybrook Ave., Lyndhurst, N.J. 07071.

### Lab Tests

The measured performance of the Sansui TU-D99X ranged from fair to excellent. Although its sensitivity was not particularly impressive, its noise and distortion were both low, the stereo channel separation was exceptional, and the image rejection of 101 dB was at the limit of our measurement capability. Although the AM rejection at 65 dBf was rather low, it improved dramatically at lower input levels (opposite to the behavior of most FM tuners). Most other test results could be classified as good to excellent.

### Comments

The Sansui TU-D99X is not only a very compact and attractive tuner, but its actual performance in a music system is far better than some of our test results might suggest. Obviously, it may not be the best tuner for fringe-area reception where extreme sensitivity is needed. In urban and suburban locations, however, its outstanding image rejection and choice of moderate or high selectivity (using the IF BAND control), combined with more than adequate distortion and noise performance, should make the TU-D99X not only the equal of most tuners with more impressive numerical ratings but quite probably superior to many of them. And if your location, like ours, is in a fairly strong signal area but close to major air-traffic routes, the qualities of this tuner look very attractive.

**Circle 141 on reader service card**

### HIRSCH-HOUCK LAB MEASUREMENTS

<b>Usable sensitivity</b> (mono): 17.9 dBf (4.3 $\mu$ V)	<b>Stereo threshold:</b> 27.5 dBf (13 $\mu$ V)
<b>50-dB quieting sensitivity:</b> mono, 20.8 dBf (6 $\mu$ V); stereo, 42 dBf (70 $\mu$ V)	<b>19-kHz pilot-carrier leakage:</b> -78 dB
<b>Signal-to-noise ratio</b> at 65 dBf: mono, 75 dB; stereo, 71 dB	<b>Hum:</b> -72 dB
<b>Distortion</b> (THD + noise) at 65 dBf (1,000 $\mu$ V): mono, 0.16%; stereo, 0.14%	<b>Rec Cal</b> output accuracy: -6.5 dB (referred to 100% FM modulation at 413 Hz)
<b>Capture ratio:</b> 2.3 dB at 65 dBf	<b>Frequency response</b> (referred to 1,000 Hz): 30 to 15,000 Hz +1, -0.2 dB
<b>AM rejection:</b> 49 dB at 65 dBf	<b>Stereo channel separation:</b> 100 Hz, 44 dB; 1,000 Hz, 46 dB; 10,000 Hz, 47 dB. (With noise canceller on, 25 dB at all three test frequencies.)
<b>Image rejection:</b> 101 dB	<b>AM frequency response</b> (-6 dB points): 30 to 2,800 Hz
<b>Alternate-channel selectivity:</b> wide i.f., 45 dB; narrow i.f., 79 dB	
<b>Adjacent-channel selectivity:</b> wide i.f., 5.9 dB; narrow i.f., 13.2 dB	

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CIRCLE NO. 12 ON READER SERVICE CARD

AIWA SX-12

## BABY ADVENT SPEAKER

*Julian Hirsch,  
Hirsch-Houck Laboratories*

**T**HE Baby Advent is the first speaker bearing the Advent name we have tested since the company's acquisition by Jensen. We were pleased to find that the qualities for which Advent speakers have been noted in the past are present in full measure.

As its name suggests, the Baby Advent is a small and lightweight speaker. Indeed, since it is only 16½ inches high, 11 inches wide, and 6¾ inches deep, and it weighs only 13 pounds, it is smaller and lighter than most "bookshelf" speakers.

The Baby Advent is a two-way system with a newly designed 6½-inch acoustic-suspension woofer that crosses over at 2,500 Hz to a 1¾-inch cone tweeter. The woofer's "deep" magnet, long voice coil, and highly compliant suspension give it a bass response and power-handling ability beyond what might be expected of such a small driver. The tweeter's magnetic gap is filled with Ferrofluid, which provides damping and improved heat transfer for operation at high power levels. The efficiency of the Baby Advent is typical of small acoustic-suspension speakers, and it can be used safely with amplifiers capable of delivering at least 50 watts of average power (with peaks to 150 watts).

It is a handsome speaker, with the rounded sides of its black cloth snap-on grille merging smoothly with the black-finished fiberboard cabinet. The cabinet is symmetrically capped at top and bottom by walnut-colored solid hardwood panels whose rounded edges harmonize with the grille contours. The speaker can be installed either vertically or horizontally without degrading its performance or appearance (although the fixed nameplate on the grille cloth appears to favor vertical installation). The insulated



*The Baby Advent is a small, handsome loudspeaker that can be installed either vertically or horizontally without degrading its performance or appearance.*

spring-loaded input connections on the rear of the cabinet have holes to accept the stripped ends of speaker cables. The Baby Advent is sold in pairs. Price: \$198 per pair. Advent, Dept. SR, 4138 North United Parkway, Schiller Park, Ill. 60176.

### *Lab Tests*

Our IQS FFT analyzer's quasi-anechoic response measurements of the Baby Advent revealed an un-

usually flat and extended response in the middle- and high-frequency ranges. The axial output varied only +3 dB from 2,000 to beyond 20,000 Hz. A sharp, deep notch was present at 1,500 Hz under most FFT-measurement conditions, although at certain angles and distances it disappeared, suggesting an interference effect in the crossover region. The overall frequency-response contours remained fairly constant through a ±45-degree angle from

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the forward axis up to about 12,000 Hz, above which they diverged somewhat. This represents very good polar response from a 1¾-inch-cone tweeter.

A close-miked measurement of the woofer output also showed a deep notch at 1,500 Hz, with a smoothly rising output from 700 Hz down to a maximum at 70 to 80 Hz and the expected 12-dB-per-octave drop below the latter frequency. The maximum output in this measurement was 11 or 12 dB above that of the response plateau between 1,000 and 2,000 Hz.

*The Baby Advent had quite exceptional bass performance considering its 6½-inch woofer and small cabinet. The bass we heard was solid and clean down to 40Hz.*

Averaged room-response measurements confirmed the speaker's smooth response from middle to high frequencies. The close-miked woofer response, with a sweeping sine-wave test signal, reached its maximum at 100 Hz, where it was about 10 dB above the level in the crossover region. When this curve was spliced to the room-response curve, the composite curve showed

## HIRSCH-HOUCK LAB MEASUREMENTS

**Frequency response:** 46 to 20,000 Hz  $\pm$  5 dB

**Impedance:** 5.5 ohms minimum from 20 to 20,000 Hz; 21 ohms at system resonance (77 Hz); 35 ohms maximum at crossover frequency (2,500 Hz)

**Sensitivity:** 86 dB SPL at 1 meter with 2.83 volts input (1 watt into 8 ohms)

**Bass distortion** (measured at input

level needed for 90-dB SPL output at 1,000 Hz): 2.8% at 100 Hz; 3.3% at 50 Hz; 7.5% at 40 Hz; 22% at 35 Hz

**Group-delay variation:**  $\pm$  1 millisecond from 2,500 to 20,000 Hz

**Power-handling ability:** 100 Hz, 56 watts into 8 ohms; 1,000 Hz, 177 watts into 11 ohms

a slight high-frequency rise and a more prominent low-frequency rise, with excellent overall smoothness (the 1,500-Hz "hole" was barely detectable in this measurement). The speaker's impedance was exactly as rated, and its measured sensitivity was also close to the manufacturer's rating.

We measure bass distortion at a constant drive level corresponding to a 90-dB SPL at 1,000 Hz, which in this case required an input of 4.5 volts, or about 2.5 watts. The Baby Advent had quite exceptional bass performance considering its 6½-inch woofer and small cabinet. The bass sound we heard was solid and clean down to 40 Hz.

The peak power-handling ability of the Baby Advent was measured with tone-burst signals, typically a few cycles in duration, at frequencies of 100 and 1,000 Hz (a limited test was also made at 10,000 Hz, though we hesitate to push a tweeter to its limits, having burned out several in the process over the years). At 1,000 Hz the speaker's acoustic output waveform began to shift

from a sinusoidal to a triangular shape at about 177 watts input (based on the speaker's 11-ohm impedance at that frequency). At 100 Hz the maximum power input was set by the woofer cone's reaching the limits of its suspension travel, at which

point a rasp could be heard at each burst.

### Comments

Initially we placed the Baby Advent speakers against the wall for our listening tests (before making any measurements). The bass response was obviously excellent, but it seemed to dominate the rest of the spectrum, and the overall sound was "dead" and lacking in spaciousness. After our measurements, we tried listening again. With the advantage of "20/20 hindsight," we could correlate what we heard with what we had measured.

Clearly, the Baby Advent has ample highs, but it needs its low end tamed to give it some balance. To do this, we placed the speakers on stands about 3 feet from the wall and 2 feet from the floor. The improvement was dramatic. Not only did the frequency balance improve, but the sound acquired the feeling of space that was so lacking in our first trial of these speakers. Simply using a bass control will help in a bookshelf installation.

Advent's installation instructions are rather general, although they do advise the user to experiment with different speaker placements. We agree wholeheartedly since these speakers seem to be more affected than most by their relationship with room boundaries (specifically, the wall behind them). Their sound was changed from depressingly dull to spacious, open, and beautifully balanced simply by moving them a few feet forward. So placed, the Baby Advent is one of the best-sounding speakers in its price class. It can give serious competition to some considerably more expensive speakers. It is good to see the Advent name again, especially on such a fine product.

**Circle 142 on reader service card**



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## PIONEER SX-V90 AUDIO/VIDEO RECEIVER

*Julian Hirsch, Hirsch-Houck Laboratories*



### FEATURES

- Digital-synthesis AM/FM stereo tuner
- All-electronic tuning, volume, and balance controls
- Memories for ten AM and ten FM stations plus two volume settings
- Connections and switching for two audio tape decks
- Controls for an infrasonic filter, an external signal-processing accessory, wide/narrow FM i.f. bandwidth, moving-coil/moving-magnet phono cartridge, balance, loudness, mono, audio muting, auto/manual tuning
- Connections and switching for two VCR's and a video-disc player
- Switchable DNR for one VCR's audio signals
- Simulated-stereo control for mono video sources
- Connections and switching for two pairs of speakers
- AM-stereo output jack for an external adaptor
- Pre-out/main-in jacks joined by removable jumpers
- Switchable FM de-emphasis (50/75  $\mu$ s)

**P**IONEER'S SX-V90 receiver is a nearly complete control center for a home audio/video entertainment system. It is basically a conventional, full-featured AM/FM stereo receiver (though a rather powerful one by today's standards). In addition, however, it is equipped to control the operation and interconnections of several video components, including two VCR's, a video-disc player, and a TV receiver and/or video monitor. Another video source, such as a video game or a home computer, can be substituted for the second VCR. About the only video-oriented features the SX-V90 lacks are a TV tuner (which would normally come with a VCR) and some provision for stereo TV

broadcasts (which are perhaps better served by a separate stereo TV tuner anyway).

Audio and video signals from the video components are selected by three front-panel push-plate controls, which switch both the video signals and (where applicable) the VHF signals from a TV antenna. Below the video switches are two small buttons; one provides simulated stereo sound from a mono source, and the other controls an audio Dynamic Noise Reduction (DNR) circuit that is usable with one of the VCR inputs.

The rest of the front panel is devoted to more familiar stereo-receiver functions. Like many modern digital-synthesis receivers, the Pioneer SX-V90 has no rotary knob

controls. Except for two horizontal-slider tone controls (center-detented), all the operating controls are pushbuttons or flat plates. Although there are more than forty (!) such controls on the panel, the status of each is clearly shown, either by a red light glowing in the center of the button when it is engaged or on the large, colorful, and informative visual display that occupies much of the receiver's front panel.

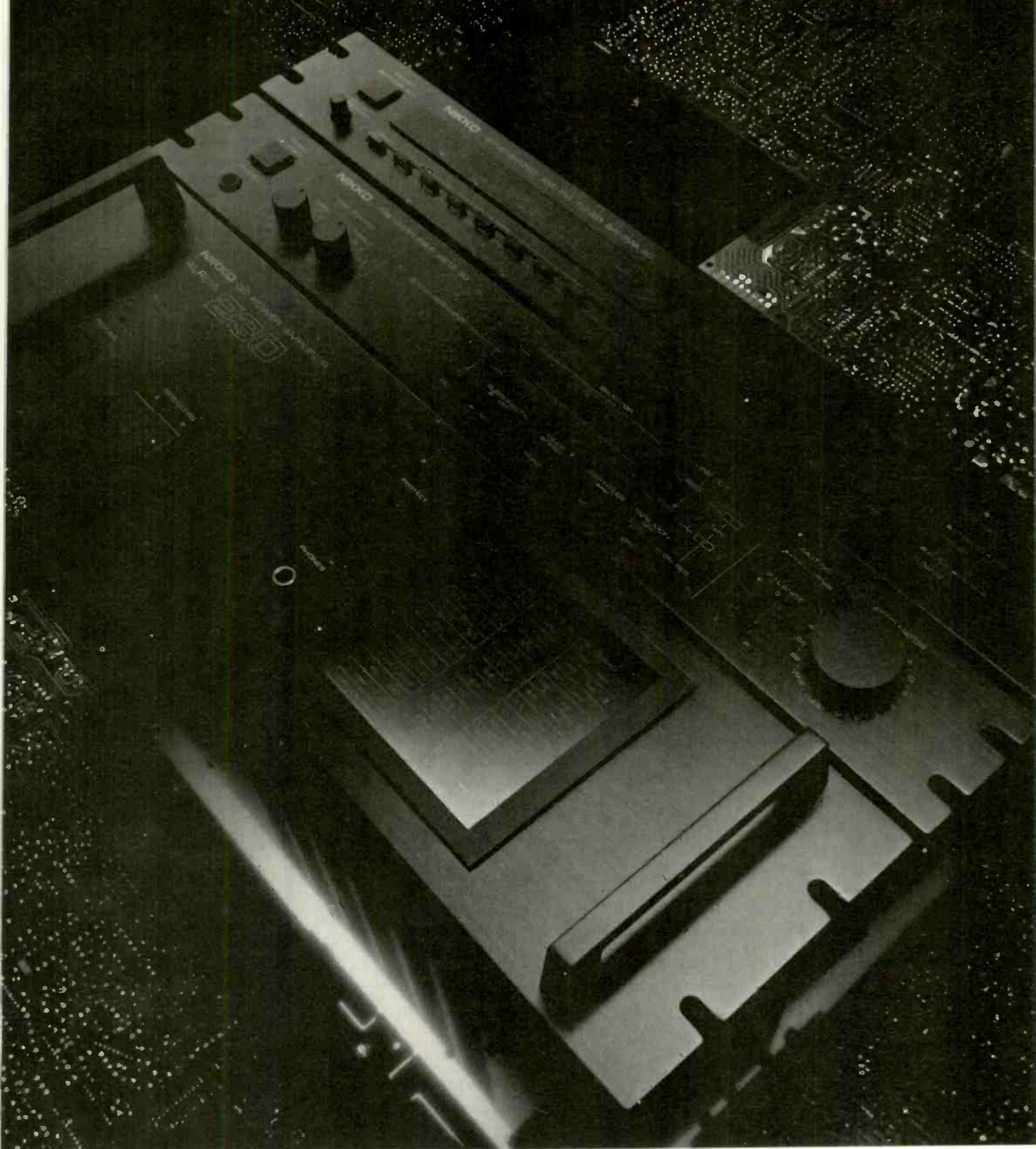
Among the displays are the tuner's digital frequency readout, a group of illuminated line segments that indicate the received signal strength, and a rather elaborate fluorescent audio-output display. Both volume and channel balance are adjusted electronically by pressing on their control buttons, but a single horizontal row of illuminated segments shows the status of both controls, perhaps even more clearly than did the knob index marks formerly used for that purpose.

The tuner section has ten station-preset buttons, each usable for one AM and one FM station. The SX-V90's memory can also store and recall two different volume settings, including the selected settings of the muting and loudness switches.

It is hardly possible to describe fully the capabilities and features of this unusual receiver in a test report. Fortunately, the instruction manual is comprehensive and easy to follow (the SX-V90 is sufficiently different from other receivers that few users will be able to exploit all its capabilities without a careful study of the manual). Some idea of the potential of the SX-V90 can be gathered from its power rating: 125 watts per channel into 8-ohm loads from 20 to 20,000 Hz with no more than 0.005 percent total harmonic distortion. This suggests a rather large and heavy unit, and so it is (though smaller and lighter than one might expect considering how far its measured performance surpassed its ratings in our lab tests).

The Pioneer SX-V90, finished in satin silver with dark gray accents, is about 16½ inches wide, 17¼ inches deep, and 5⅞ inches high. It weighs just over 33 pounds. Price: \$799.95. Pioneer Electronics (USA), Inc., Dept. SR, 5000 Airport Plaza Dr., P.O. Box 1720, Long Beach, Calif. 90801.

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# AUDIO/VIDEO TEST REPORT

## Lab Tests

We tested the audio and tuner sections of the Pioneer SX-V90. Despite its extensive control functions, the receiver was easy to operate and completely free of unwelcome surprises either on the test bench or while playing music.

The receiver's distortion specifications clearly distinguish between its power-amplifier and preamplifier sections. Although the two sections can be separated by removing jumpers on the rear apron, we chose to test the audio section as a unit since that is the way it would normally be operated. The distortion was typically between 0.03 and 0.1 percent—a level that is inaudible, completely insignificant, and hardly worthy of comment except for being many times the amplifier's rated 0.005 percent! We briefly checked the power amplifier alone, through its separate input jacks, and found its distortion to be typically less than 0.0036 percent at outputs of 125 watts or lower. Obviously, the power-amp section's distortion rating is quite conservative, though somewhat unrealistic under normal operating conditions.

The SX-V90 is not rated for use with load impedances lower than 8 ohms, but we were pleasantly surprised and impressed by its huge current-output capability as shown by the output into 4 and 2 ohms at clipping. Furthermore, the distortion was not affected significantly by either frequency or load impedance (a fortunate by-product of its origin in the preamplifier section). At no time in our high-power tests did the amplifier's protective circuits operate, nor was it damaged in any way, and it was stable with reactive loads.

The preamp section's tone-control response curves were conventional. The loudness compensation boosted both low and high frequencies at reduced volume settings, but only to a moderate degree that

did not produce an unnaturally heavy sound quality. At a maximum volume setting, the response rolled off at high and low frequencies (perhaps a property of the electronically controlled volume circuit), but it was flat at all usable settings. The "subsonic" filter was certainly misnamed, since its -3-dB frequency was a definitely "sonic" 90 Hz!

The FM tuner section of the SX-V90 had adequate though not unusual sensitivity, either by the "usable sensitivity" criterion of 3 percent distortion or by the 50-dB quieting signal level. Since the i.f. bandwidth is switchable for wide or narrow, we made most measurements using both settings. As expected, the channel separation and selectivity were most affected by this control, which automatically selects the narrow bandwidth when the receiver is turned on.

The FM frequency response was almost perfectly flat, and channel separation was almost constant with frequency over most of the audible range. The AM frequency response was wider and flatter than we have measured on most receivers, but its sound quality, although clean and listenable, was not significantly better than that of most other AM tuners.

The SX-V90's "simulated stereo" feature, on which we made no meas-

urements, does a convincing job of spreading a mono program across the area between the speakers so that only a careful and critical listener would be likely to detect the deception. The DNR also worked well, slightly reducing noise on video-derived audio signals, although we would have liked to see the DNR circuits switchable into the normal audio signal path to reduce noise from audio cassettes and discs.

## Comments

At first glance, the Pioneer SX-V90 might seem to be a bit "too much" of a receiver, presenting a formidable front-panel control and indicator array (matched by the number and variety of connectors on its rear apron). However, for anyone who wants integrated audio and video entertainment facilities, without a rat's nest of cables, connectors, adaptors, and switchboxes, this receiver may well be the most cost-effective and tidy choice.

If the SX-V90 compromised any operational characteristic for the sake of flexibility, it might not be such an appealing product. On the contrary, however, it is an excellent AM/FM stereo receiver (there is even an "AM Stereo" output jack for driving a suitable adaptor when such products become available). Its power-amplifier section is noteworthy for sheer power and low distortion.

Even those people for whom video compatibility is unimportant may find this receiver a good choice for a music system. It is not unduly expensive, and its operation is not difficult once the control functions have been learned. Use of its video-switching capabilities can be reserved for future expansion of your home-entertainment system without in any way limiting its present-day audio usefulness. The Pioneer SX-V90 is certainly a lot of receiver by any standard.

**Circle 143 on reader service card**

## HIRSCH-HOUCK LAB MEASUREMENTS

### ■ Audio Amplifier

**1,000-Hz output power** at clipping: 149 watts into 8 ohms, 210 watts into 4 ohms, 244 watts into 2 ohms

**Clipping headroom** (relative to rated output): 0.76 dB (8 ohms)

**Dynamic power output:** 156 watts into 8 ohms, 297 watts into 4 ohms, 265 watts into 2 ohms

**Dynamic headroom:** 0.96 dB (8 ohms)

**Harmonic distortion** (1,000 Hz, 8 ohms): 1 watt, 0.025%; 125 watts, 0.086% (see text)

**Slew factor:** 2.7

**Sensitivity** (1-watt output): phono (MM), 2.6 mV; phono (MC), 18  $\mu$ V; aux, 17.5 mV

**Phono (MM) input overload:** 136 to 195 mV

**A-weighted noise** (referred to 1 watt): phono (MM), -78 dB; phono (MC), -63 dB; aux, -75 dB

**Phono input impedance:** 47,000 ohms and 175 picofarads (MM)

**RIAA phono equalization error:**  $\pm$ 0.5 dB from 70 to 20,000 Hz, +2 dB at 20 Hz, unaffected by cartridge inductance

### ■ FM-Tuner Section

**Usable sensitivity** (mono); 16.3 dBf (3.6  $\mu$ V)

**50-dB-quieting sensitivity:** mono, 19 dBf (5  $\mu$ V); stereo, 37 dBf (41  $\mu$ V)

**Signal-to-noise ratio** at 65 dBf: mono, 77.3 dB; stereo, 70.5 dB

**THD + noise** at 65 dBf (1,000  $\mu$ V): mono, 0.094%; stereo, 0.125%

**Capture ratio** at 65 dBf: 1.1 dB (wide i.f.); 1.6 dB (narrow i.f.)

**AM rejection:** 80 dB at 65 dBf

**Image rejection:** 61 dB

**Alternate-channel selectivity:** 85 dB (narrow i.f.); 24 dB (wide i.f.)

**Adjacent-channel selectivity:** 6.6 dB (narrow i.f.); 2.8 dB (wide i.f.)

**Stereo threshold:** 29 dBf (15  $\mu$ V)

**19-kHz leakage:** -72 dB

**Hum:** -80 dB

**Stereo channel separation:** wide i.f.—47 dB at 100 Hz, 46 dB at 1,000 Hz, 38 dB at 10,000 Hz; narrow i.f.—34 dB at 100 Hz, 34 dB at 1,000 Hz, 33.5 dB at 10,000 Hz

**AM frequency response** (-6-dB points): 28 to 4,500 Hz

9 mg. "tar", 0.8 mg. nicotine av. per cigarette. FTC Report FEB. '84.



Warning: The Surgeon General Has Determined That Cigarette Smoking is Dangerous to Your Health.

# VANTAGE. THE TASTE OF SUCCESS.

Great Taste  
with Low Tar.  
That's Success!



© 1984 R. J. REYNOLDS TOBACCO CO.

*Should you choose a turntable with belt drive or direct drive? Both systems have advantages and disadvantages.*

# DRIVE

*by Peter W. Mitchell*

**I**N the words of the old song, "The music goes 'round and 'round, and it comes out here." To play an LP, the phono cartridge has to follow the spiral groove around the record from beginning to end while the stylus traces its microscopic undulations. Taking this description literally, we might imagine a record player consisting of a phono cartridge mounted in a small toy car running on batteries and dragging the stylus behind it. The stationary LP disc would be placed on a flat surface and the cartridge would drive around the record, following the groove like a farm tractor following the furrows in a plowed field. Implausible as it may seem, Sony actually built a toy record player, the Soundwagon, that worked this way.

We can only speculate about how well this approach might work if it were refined. All of the other record-playing systems in the century-long history of the phonograph have taken the opposite approach, holding the phono cartridge in a semi-fixed position while causing the groove to pass beneath it on a turntable. Upon closer examination this turns out to involve three distinct, if interrelated, tasks.

(1) The cartridge must be "semi-fixed"—it must be precisely tangent

to the groove and rigidly fixed longitudinally (along the direction of the groove), yet it must have enough lateral freedom of motion to follow the average position of the groove as it spirals in from the edge toward the center of the disc, plus enough vertical freedom to maintain a constant height above the disc and exert a constant downward force on the stylus despite surface irregularities and warps. But since the tone arm and cartridge have mass and are supported by the compliant cantilever suspension (a spring), they form a resonant mechanical system that has an unavoidable tendency to vibrate.

(2) The groove must pass beneath the cartridge at absolutely constant (and correct) speed, despite any variations in driving force, drag, and so on. Most of the jargon of turntable design is related to how this function is performed—and, more important, to how well it is performed.

(3) In modern microgroove records (unlike the 78-rpm shellac

discs of yore), significant audio modulations may involve groove-wall undulations as small as a wavelength of light. The stylus assembly must respond to such small motions and transform them into a usable electrical signal. While we would like the stylus to vibrate only in response to the engraved modulation in the groove walls, the cartridge is an exquisitely sensitive detector of vibrations of all kinds. Any separate motion of either the record or the cartridge will tend to stimulate tone-arm/cartridge resonance. And from the point of view of the stylus, any vibration of the disc or cartridge appears to be just another waveform that must be traced—one that may intermodulate with the desired audio signal. Therefore, control of external vibration is the "hidden agenda" that every turntable designer must cope with, whether he does so willingly or not.



# SYSTEMS

In principle, a turntable platter could be rotated by any of the methods that have been used to power clocks and mills throughout history—hand cranks, foot pedals, the tension of a wound-up spring, the pressure of water falling against paddles, falling weights (as in a grandfather clock), etc. In modern times, of course, virtually all clocks and turntables are powered by electric motors. In fact, some turntables actually employ motors that were designed and mass-produced for use in clocks. The principal differences among turntables today have to do with whether (and how) the motor's speed is regulated, how its torque is coupled to the platter, and what means are used to suppress unwanted vibration.

Not many years ago a turntable was a simple product. Typically its electrical part consisted only of an a.c. power cord, a motor, and a

switch to turn the motor on and off. The rest of the turntable was mechanical: bearings, pulleys, a rubber belt or idler wheel to rotate the platter by friction, and an assortment of springs, levers, and gears providing whatever automation was desired.

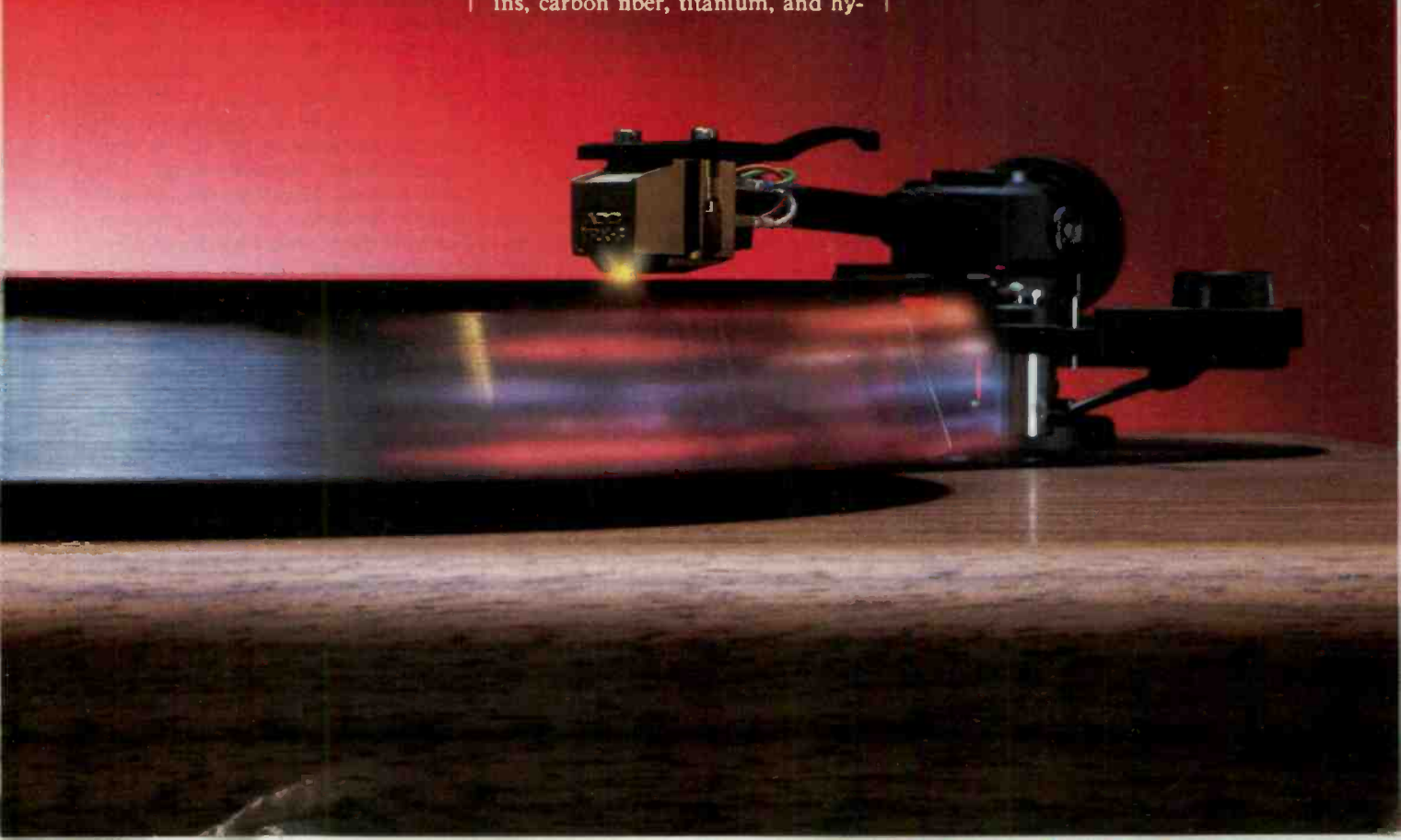
A few turntables today—including some of the highest-performance models—still fit this description. But in recent years the great majority of turntables have been transformed by a massive infusion of high technology. In today's record players you can expect to encounter such exotica as Hall-effect magnetic sensors, phase-locked-loop feedback control, quartz-crystal oscillators, optical servos, CMOS logic IC's, in some cases as much electronic circuitry as in a typical FM tuner—all to achieve the ideal of perfectly uniform and accurate rotation. And in place of the simple materials of yesteryear (aluminum, wood, stainless steel, and a bit of rubber) you will find fiberglass, Delrin, Teflon, calcium carbonate, acrylic-butadiene-styrol resins, carbon fiber, titanium, and hy-

drodynamic suspensions—all selected for their low friction, low weight, high rigidity, or effective suppression of vibration.

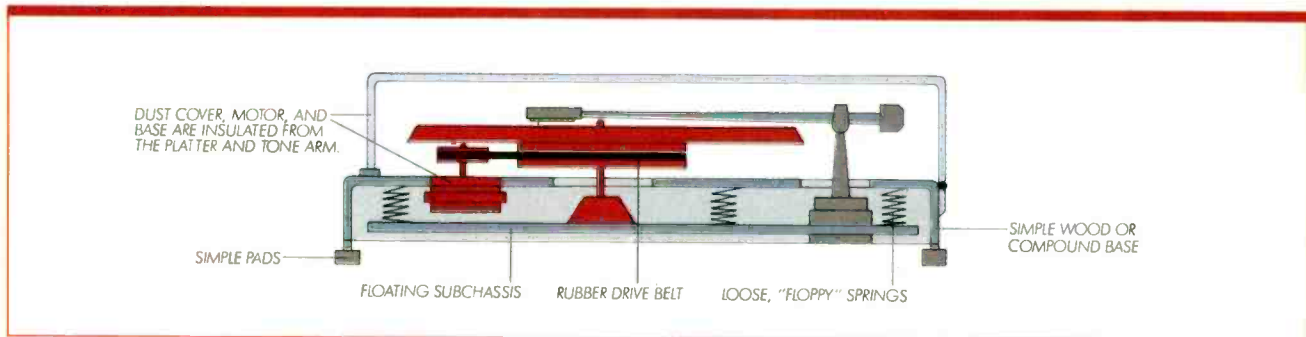
**W**HILE many means of transferring the motor's torque to the platter can be imagined, only two are common today. In a belt-drive unit a motor spinning at several hundred rpm is mounted in the turntable's base and is connected to the platter by means of a pulley and a thin rubber belt. Usually the belt runs around an inner platter or sub-platter that has a circumference precisely nine times that of the pulley; this ratio provides the required step-down of speed from a typical 300-rpm motor to the 33 $\frac{1}{3}$ -rpm platter.

In a direct-drive turntable, the platter rests directly on the motor. The turntable's central spindle is actually the motor's main shaft, so the motor must run at 33 $\frac{1}{3}$  rpm, less than one revolution per second.

PHOTO OF ACOUSTIC RESEARCH TURNTABLE BY PETER ANGELO SIMON



*Belt drive. In a typical high-quality belt-drive turntable, the platter and tone-arm assemblies are well isolated from the motor, the base, and the dust cover, which are sources of vibration.*



The decade-long advertising battle is finally over between adherents of these two techniques for making the platter turn. Neither technique is the clear winner: excellent and mediocre turntables can be produced—and have been!—using either kind of drive system. Each has its strengths and weaknesses.

### *The Belt Drive*

The belt drive has the advantage of simplicity, meaning that a belt-drive unit can be made at very low cost without having to sacrifice performance. Using a synchronous clock motor allows consistent, accurate speed without the need of any costly speed-regulation circuitry in the turntable; the designer simply relies on the fact that electric utility companies maintain the average frequency of the a.c. power line precisely at 60 Hz.

The thin rubber drive belt serves as an efficient mechanical filter to prevent the motor's vibration from reaching the platter. Thus even a budget-priced belt-drive turntable can have a low rumble level.

Perhaps the greatest advantage of the belt drive is the ease with which good isolation from external vibration can be obtained. Since the motor is coupled to the platter by a naturally flexible linkage (the belt), there is no need for any rigid linkage between the platter and the rest of the turntable mechanism or its base. The platter can be mounted on a separate subchassis within the base, floating on soft springs, immune from whatever vibrations may be reaching the base from any source—the turntable's own motor, acoustic feedback from the speakers, etc.

A turntable's plastic dust cover (which is large, thin, and stiff) tends

to act as a sensitive microphone diaphragm, vibrating when struck by sound waves from the speakers. This airborne acoustic feedback is a significant source of coloration in many turntables, but in belt-drive floating-subchassis designs the dust cover's vibration is coupled into the turntable base and never reaches the platter and stylus.

The belt-drive system does have some disadvantages, however. A belt drive has no rigid connection between the motor and platter; it operates only through the friction of the belt passing around the pulley. Therefore, it cannot apply the large amount of starting torque that would be needed to accelerate the platter quickly. (Attempting to apply more torque, by using a larger motor in place of the usual low-power clock motor, will only result in belt slippage.) Typically it takes from 2 to 10 seconds for a belt-drive turntable to get up to speed after it is turned on.

Even when operating at speed, the belt can slip if there is any drag on the platter. Many belt drives will immediately stall if a record-cleaning brush is applied to the disc while it is turning. The friction of the stylus in the groove produces a slight retarding drag that varies with the musical signal and may slow the platter by a measurable, though not audibly significant, degree. (Some belt-drive turntables are designed to run about 0.2 percent fast when unloaded, so that the drag of the stylus will bring them down to exact speed when playing a record.)

It is possible to design a belt-drive turntable with a servo system that constantly adjusts the motor speed to maintain exact platter speed, but only a handful of relatively expensive models have been built this

way. Most belt drives are "free-running," relying wholly on a synchronous motor (running in step with the power-line frequency) and a precision-ground belt to obtain correct platter speed.

In some floating-subchassis designs the frequency of the suspension resonance is below 5 Hz. While this provides excellent isolation from acoustic feedback and normal vibrations, it can make the turntable more susceptible to groove-jumping when people walk or dance on a springy wood floor.

### *The Direct Drive*

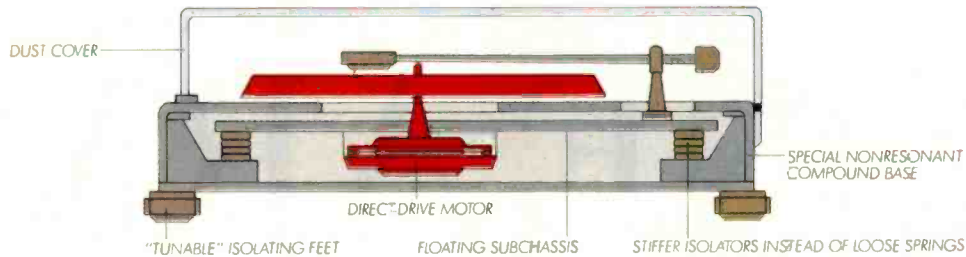
Not surprisingly, some of the advantages of a direct drive are the converse of the belt drive's disadvantages. For example, since a direct-drive system doesn't have the frictional losses of slipping belts, it can be designed to get up to exact speed almost instantly when it is switched on. This (and not any presumed difference in sonic performance) is the reason why direct-drive turntables are almost universally used in radio stations for air play.

Direct-drive turntables usually employ electronic circuitry for speed regulation rather than depending on the power-line frequency. Once the speed-regulation circuitry is present, further refinements can easily be added—such as a quartz-crystal oscillator for absolutely exact speed, a variable-pitch control to fine-tune the speed, or a servo system to measure platter speed and automatically correct any variations in speed that may occur during play.

Since the direct drive relies mainly on electronic rather than mechanical parameters to achieve correct speed, consistently excellent per-



*Direct drive. A good direct-drive turntable isolates the platter, motor, and tone arm on a separate subchassis. Lower-priced units often rely only on shock-absorbing feet for platter isolation.*



formance is routinely achieved in production with very little sample-to-sample variation. Direct-drive turntables usually have very precise speed control and are able to maintain it despite the drag of disc-cleaning devices.

Perhaps the greatest practical advantage of the direct drive is the design freedom that it accords the manufacturer—facilitating the development of record players that stand vertically on edge, “clam-shell” record players no larger than an LP jacket, mini-size turntables with a slide-out platter in a drawer, and so on. And with electronic control it is relatively easy (and inexpensive) to implement additional convenience features such as push-button operation, wireless remote control, and synchronization with a tape deck for dubbing.

But a direct-drive system also has its disadvantages. In any electric motor the spinning rotor tends to jump from one magnetic pole to the other, delivering its torque in a series of pulses rather than a smooth flow of power. Without a flexible belt to isolate the vibration from the platter, a direct-drive motor requires sophisticated engineering to minimize this “cogging” and the associated vibration that would be picked up as a rumble by the stylus. In practice this means that good direct-drive motors are expensive to manufacture, with their large and elaborately interleaved copper windings, precisely machined rotor, and complex control circuitry. As a result, direct-drive turntables tend to cost more than belt drives that have comparable performance and features.

A direct-drive turntable could be designed with a highly compliant suspension to isolate it from exter-

nal vibration, but very few have been built this way; on the average, therefore, direct-drive turntables tend to be more susceptible to acoustic feedback than floating-subchassis belt-drive systems.

### *The Vibration Problem*

Regardless of the pros and cons discussed above, belt and direct drives both work so well that in most turntables the platter drive system has no direct effect on sonic performance. It seems likely that the most important practical difference among turntables is not the drive system itself but the methods taken to control and suppress unwanted vibration from internal and external sources.

Unfortunately, this aspect of performance is very difficult to generalize about. For example, one popular and effective method of reducing a turntable’s vibration sensitivity is to make it very heavy. But lightweight models are not necessarily inferior; some, such as the classic Acoustic Research turntable, are among the best ever produced.

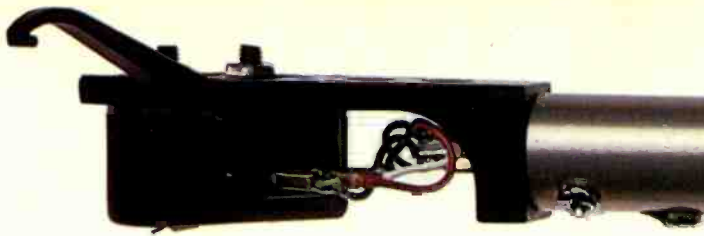
Every turntable has a compliant suspension that is intended to function as a mechanical filter, isolating the platter and stylus from troublesome external vibrations. Theoretically the ideal approach is to mount the platter and tone arm on a softly-sprung floating subchassis so as to isolate the platter and stylus from the motor, base, and dust cover as well as from the outside world. But that makes it wobbly, and it can even lead to groove jumping if you have a springy floor.

In nearly all direct drives and in budget-priced belt drives, the usual practice is to fasten the platter and turntable mechanism solidly to a

dense base and then to support the entire system on compliant feet consisting of springs encased in rubber. In principle this is less effective than a floating subchassis, since the natural resonant frequency of the feet is typically around 15 Hz instead of the 4 Hz of a floating subchassis. This implies that a broader spectrum of vibrations will pass through the feet into the turntable—yet some turntables made this way have been among the most vibration-resistant on the market.

There is a relatively simple way to evaluate the vibration resistance of any particular turntable. Set the amplifier’s volume control slightly higher than normal, then place the stylus in the groove, turn off the turntable to stop the rotation of the record (in some models this can be done only by unplugging its power cord), and lightly tap the shelf the turntable is resting on. The weaker and briefer the resulting thud from the speakers, the better the turntable’s resistance. (If you use this test to compare turntables, you really should use the same cartridge in each one, since the result is influenced by arm/cartridge resonance.)

It may be an ear opener to try the test on your current turntable even if you have been totally satisfied with its performance. If you’ve owned it for quite a few years, try to listen with a more critical ear. You may be hearing things from your turntable that aren’t on the records you play. And if you get a substantial boom from the speakers in this test (or, worse yet, a sustained roar), then you definitely need to install more compliant feet or an isolating sub-base beneath the turntable. Or maybe you just need to start shopping for a better turntable . . . □



# TONE ARMS

*In principle, the tone arm's job is a simple one, but real records present real problems to both pivoted and linear-tracking arms.*

by E. Brad Meyer

OVER the past four years we have seen an increase in the number of integrated turntables equipped with straight-line-tracking (SLT) tone arms. Sometimes called a "linear" or "radial" arm, the SLT moves in a straight line across the record. The front end follows the stylus in the groove, while the back end rides either on a low-friction bearing or, more commonly, on a carriage driven by a servo-controlled motor. SLT arms used to be complex, delicate, and very expensive, and current add-on versions are still high-end items, ranging in price from \$600 to \$2,800. But improvements in design and manufacturing technology have made possible integrated turntables equipped with linear arms for much less—under \$300, some for as little as \$110.

Even with more efficient manufacturing, though, an SLT arm still costs more than a pivoted arm of comparable materials and construction. Why should you pay extra for one? The answer is that often the linear arm simply sounds better, with tighter bass, a more stable stereo image, improved tracking, and greater immunity to warps and vibration. And, because the arm is controlled by a servo, it's easier to add convenience features such as programmable selection of individual cuts.

There are two common explanations for the sonic merits of SLT arms, both relating to the way in which they position the cartridge on the record. Except under certain unusual conditions, however, both these explanations are *wrong*. The SLT's real virtue lies in the dynamic properties of the design. Other things being equal, an SLT arm is shorter, stiffer, and lighter than its pivoted counterpart.

To understand the difference between SLT and pivoted arms, we must examine them from two viewpoints. The first of these is geometrical. The dimensions and shape of a tone arm determine the position of the cartridge as it moves across a record, at least under theoretically ideal conditions: the record is perfectly flat,

the grooves are concentric with the center hole, and the entire record-playing system is free of externally induced vibration.

In the real world, though, records are warped, their grooves are eccentric, and vibration is always a problem. So we must also look at the complex mechanical system formed by the arm and cartridge together to determine how closely the system approximates its theoretical performance.

Figure 1 shows a hypothetical arm constructed of modern materials but with the geometry of a typical acoustical phonograph built before World War II. The stylus and the transducer that takes the place of a modern cartridge are aligned with the axis of the arm. We would like the transducer to be tangential to the groove at the stylus; if it isn't, the waveform picked up from the groove will be distorted. As you can see from the drawing, the arm's axis parallels the tangent to the groove at just one point, shown here near the inside of the recorded area. At the outside edge, there is a large *horizontal tracking error* equal to the angle ( $\phi$ ) between the axis of the arm and the tangent to the groove.

Figure 2 shows a modern pivoted arm. Note that the stylus contacts the groove to the right of the point at which the arm's axis is tangential to it. The cartridge is mounted at an angle, called the *offset angle*, that makes up for the arm's extension beyond this point of tangency. The reason for doing things this way is that when the arm is bent just the right amount and mounted at just the right distance from the center spindle, the stylus describes an arc that keeps the cartridge very nearly tangent to the groove at all points. This deceptively clever design, together with the equations for calculating the optimum arm length, offset angle, and mounting point, were first published about forty years ago—though some of today's arm designers still seem unaware of them.

Notice that we just said the stylus stays "very nearly" tangent to the groove. Even with the op-

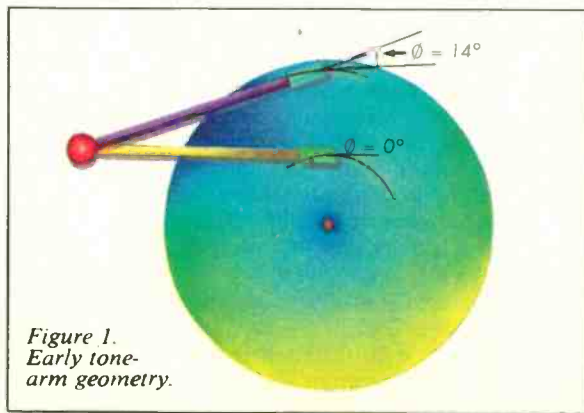
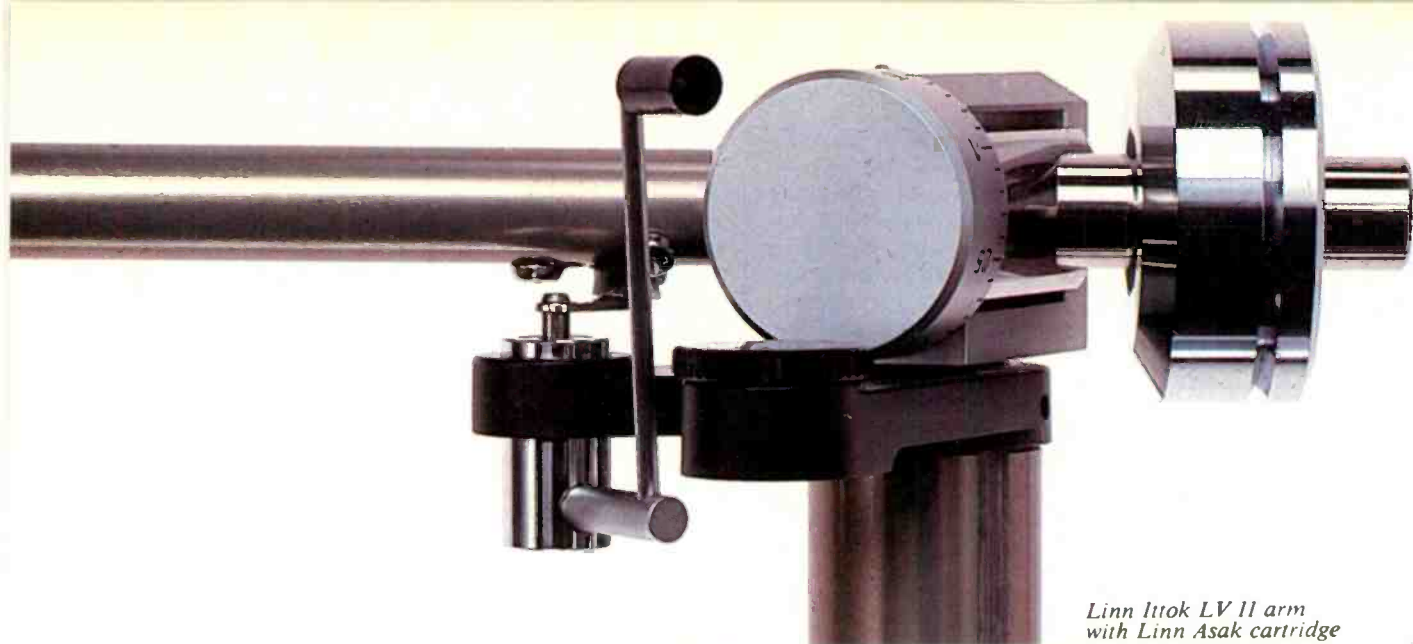


Figure 1. Early tone-arm geometry.



Linn Ittok LV II arm  
with Linn Asak cartridge

timum setup, there is some residual error in the horizontal tracking angle. In a properly designed arm this error is greatest near the beginning of the record (where the alignment is least critical), at which point it amounts to about 2 degrees. It changes constantly as the arm moves inward, actually reaching zero at two different groove radii and finally increasing to about 0.8 degree near the center. The horizontal tracking error can be seen in the figure.

Now look at Figure 3, which shows an SLT arm. The crucial question in any SLT design is how to get the back of the arm to follow the stylus across the record. One very expensive model has a tiny arm tube mounted on a low-friction, zero-tolerance ball bearing; in others the arm doesn't touch its guide at all but rests on a thin cushion of air supplied by a remotely mounted pump. In all the new integrated SLT turntables the carriage is driven along a track by a small motor.

If all records were cut with a single standard groove spacing, or "pitch," an SLT arm's drive motor could run at a constant speed and maintain perfect tangency all the way across the disc. But real records are cut with variable pitch, so that the adjacent groove walls are close together in soft passages and spread out to allow for greater excursion when the music gets loud. To make sure the back of the arm doesn't lag behind the front, the drive motor must be able to move it fast enough to follow the loudest passage on any record. But that's fast enough to overrun the stylus during soft passages, so the motor must be able to switch itself on and off as needed.

The result is that while the front end follows the groove, the back end moves forward in short spurts. First it lags slightly behind the front, then it overspeeds briefly, then it stops and waits for the cartridge to catch up. Typically, the difference between where the arm motor cuts in and where it shuts off amounts to about 1 degree of horizontal angle, meaning

that instead of maintaining zero tracking error, the arm will cycle between +0.5 degree and -0.5 degree. This is distinctly less than the pivoted arm's error near the outside of the disc, but it is not really very different in the crucial inner portion.

In fact, *horizontal tracking error is not a source of significant audible distortion in either type of arm*—as long as both the designer and the cartridge installer have done their jobs correctly. For some mysterious reason, many mass-produced pivoted arms still do not conform to the basic design equations that have been around for decades. And even in a correctly designed arm, a carelessly installed cartridge can double or triple the tracking error. The mounting of the cartridge is just as critical in the SLT arm. (Some recent cartridges come with special hardware to ensure correct mounting. If yours didn't, you should buy or borrow a separate alignment gauge and follow its instructions rather than those of the turntable manufacturer.)

One respect in which most tone arms, SLT or pivoted, are in error—and for which the equations have also been known for decades—is the location of the arm's *vertical* pivot. For the least wow, the vertical pivot point should be as close as possible to the plane of the record. Ideally, the record and the pivot point should be at the same height from the turntable base. While this is relatively simple to achieve with a horizontally pivoted arm or a long SLT arm, almost all turntables, surprisingly, have their arms' vertical pivots in the wrong place (too high, usually). Designs employing short SLT arms, less than a record radius in length, cannot have their vertical pivot points in the plane of the record without some complex mechanical trickery that has never been implemented in any arm I know of.

A second supposed advantage of the SLT arm is that it generates no *skating force*. In the pivoted arm, the offset position of the stylus means that the force of the friction between stylus and groove

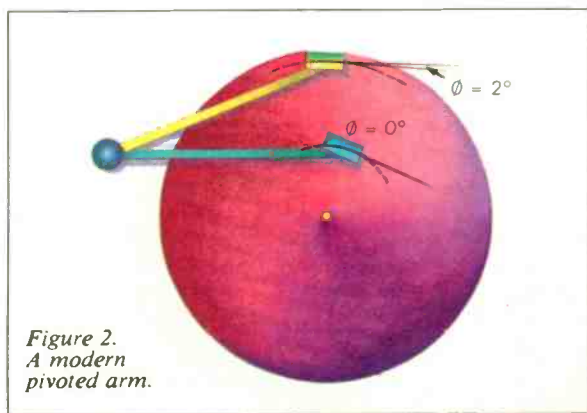


Figure 2.  
A modern  
pivoted arm.

PHOTO: ROBERTO BROSAN

isn't aligned with the arm's pivot point. It therefore produces a torque around the pivot—the skating force—that tends to pull the arm inward. Unless the skating force is counterbalanced, the stylus will consequently be deflected slightly *outward*, increasing distortion. No simple mechanism can perfectly balance this skating force, which varies according to the level and frequency content of the music and decreases steadily as the arm moves inward.

The SLT arm, tracking along one disc radius, generates no skating force. And many SLT's seem to be able to track certain violently cut records better than most pivoted arms. But, here again, intuition must yield to careful measurement and calculation. The skating force on a pivoted arm varies between about 7 and 15 percent of the vertical tracking force. Adjusting the antiskating compensation for equal distortion in the loudest passages of a special test record—which is the best way to do it—will balance the arm so as to produce even stylus pressure and optimum cantilever deflection during the most difficult passages. The few remaining milligrams of imbalance during softer portions won't produce significant distortion.

The clincher in the skating-force argument is that the best arms of either type will track the toughest records about equally well, while inferior designs, linear or pivoted, have trouble. There is something else afoot, and to find out what we must turn our attention from static properties to dynamic ones.

The tone arm's job is in principle a simple one: to hold the cartridge in position over the groove with just the right downward force on the stylus and to move it across the record in response to the groove's inward spiral. Since the stylus assembly—meaning the stylus itself and the little shaft, called the cantilever, that holds it—is small and delicate, it makes sense that the bearings that support the arm should have very low friction. At first glance, it might seem that once this requirement is met, the arm designer's job is done.

But a closer look reveals—surprise!—various complications. Since it is the relative motion of the stylus with respect to the cartridge body that produces the electrical signal, we want the cartridge to hold still while the stylus moves. Since the arm has very low friction, it must be inertia that keeps it from following the motion of the stylus and canceling out the signal. So the arm and cartridge need to have a certain minimum weight—or, more accurately, sufficient *effective mass*—to do their job properly.

But real records and turntables suffer from warps, eccentricity, and external vibration. The groove over which the cartridge is supposed to remain "stationary" is doing a dance of its own. Now it appears that the mass we were counting on to keep things under control has become a liability, because we want the cartridge to follow the center-line of the groove like a skillful partner in the dance. We've got conflicting requirements.

To find a way out of

this predicament, we must first notice that the arm and cartridge form a mass that sits on a spring formed by the cantilever suspension. A mass sitting on a spring will, if perturbed, tend to vibrate at a certain resonant frequency. That frequency is determined by the mass and the amount of give, or *compliance* (the opposite of stiffness), in the spring. The higher the mass or the higher the compliance, the lower the resonant frequency; the lower the mass or compliance (that is, the stiffer the spring), the higher the frequency.

This is the key to the system's behavior: *below* the resonant frequency, the cartridge, arm, and stylus move together as a unit, producing no output; *well above* the resonance, the cartridge holds still while the stylus moves, producing an accurate replica of the musical waveform; *at* the resonance, the arm actually moves farther than the stylus, producing a peak in the response.

Now, given that the arm and cartridge are going to resonate at *some* frequency, where do we want it to be? The resonance should fall below 20 Hz, to keep the frequency-response peak from affecting the music, and above the region from 2 to 5 Hz, where record warps can cause serious flutter. Of the two possible kinds of error, too low a resonant frequency causes more obvious problems. A rise of a few decibels at 20 Hz will matter little with most speakers, but flutter and groove-skipping are always audible.

Cartridges themselves often contribute almost enough mass for correct system performance, and modern moving-magnet models tend to have very high compliance for improved tracking. (Modern low-compliance moving-coil cartridges are a special case, requiring a slightly heavier arm for best results.) In practice the arm designer generally wants to minimize the mass of the arm as far as possible consistent with adequate stiffness; a metal arm tube that flexes too easily may be plagued by internal resonances well into the midrange.

Now—finally—the straight-line-tracking arm's true advantages emerge. Most regular arms are about 9 inches long from stylus to pivot, but the SLT arm can be 6 inches, the radius of the record—or even shorter if the arm assembly can be lowered over the turntable after the record is in place. (This is one advantage of the "clamshell" type of turntable that has the entire arm mechanism mounted on the inside of the dust cover.) A shorter arm can offer a better combination of low mass and high rigidity. The tracking of warps is good, the arm is free of internal resonances, and it is relatively immune to external vibration, allowing higher playback levels without acoustic feedback. As we noted earlier,

however, short SLT arms will have vertical pivots that are higher than optimal. You can't have everything.

When all is said and done, you may well find that an SLT arm works best in your system—not because it tracks the record the way it was cut or because it has no offset, but because it is both light and rigid without being expensive. □

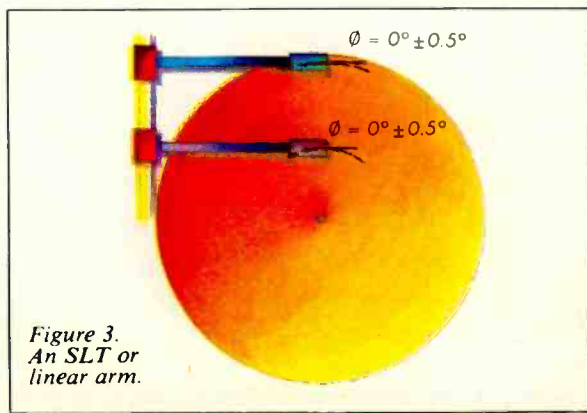


Figure 3.  
An SLT or  
linear arm.

What you need to know to minimize

# RECORD WEAR



by *Julian Hirsch*

**F**ORTY or fifty years ago only the most dedicated discophiles were much concerned with record wear. In fact, the highly abrasive shellac 78-rpm discs then in use could reduce a steel or sapphire stylus to a stump in very short order. Most users were properly more concerned with stylus wear than with record damage.

The introduction of the vinyl LP in 1948 changed that situation radically. Since vinyl is a relatively soft material, even though tracking forces were lowered from several ounces to several grams, serious listeners began to be concerned with disc wear too. Today, with the introduction of the digital Compact Disc system, LP record wear is more important than ever. Few of the performances now available on LP will ever gain the permanence of a laser-read CD pressing. You should be

concerned with record wear because you may not be able to buy a replacement copy for a worn or damaged LP in the future.

There are many interrelated factors in record/stylus wear. These include the basic interaction between a diamond stylus and soft vinyl grooves, the stylus shape, stylus wear, stylus tracking ability, and, last but not least, tracking force. Let's take them in turn.

The basic cause of record wear is the work that must be done by the groove to move the stylus. The stylus is required to trace abrupt changes in the direction of a wildly undulating groove, sometimes at such high rates that the stylus's acceleration is on the order of several thousand times the acceleration of gravity, an acceleration comparable to that applied to a high-velocity shell or missile. Even the most ordi-

nary recorded material can subject the stylus to accelerations of tens or hundreds of "g's."

The power for this acceleration ultimately comes from the turntable motor, and the force to move the stylus must be applied through the soft vinyl groove wall. The vinyl material is deformed by the pressure of the stylus as the disc turns, but the actual pressure on the groove wall depends on many factors. Some of the deformation disappears as soon as the pressure is removed, so that one can visualize the stylus as passing over the surface of a jelly-like substance, causing a temporary depression that follows the stylus path like a ripple along the groove surface.

If this were the only deformation, and no permanent change resulted from the passage of the stylus, there would be no record-wear problem.

ILLUSTRATION: ROBERT PASTERNAK

Unfortunately, in practice the vinyl is permanently (if only slightly) deformed by the pressure, even if the stylus is ideally shaped and unworn. A deformed groove results in an increase in noise and distortion. When this becomes audible, the record can be considered worn even if it is listenable.

About thirty-five years ago, Professor F. V. Hunt of Harvard published a paper in which he concluded that the critical tracking force, below which no permanent vinyl deformation would occur, was about 0.25 gram. While I do not recall his specific assumptions concerning stylus shape and dimensions, the message is that *all* of today's cartridges, even the most refined, almost certainly exceed the elastic limits of the vinyl and cause some permanent deformation of the groove wall. Since no cartridge available will track properly at 0.25 gram, there's simply no way around record wear.

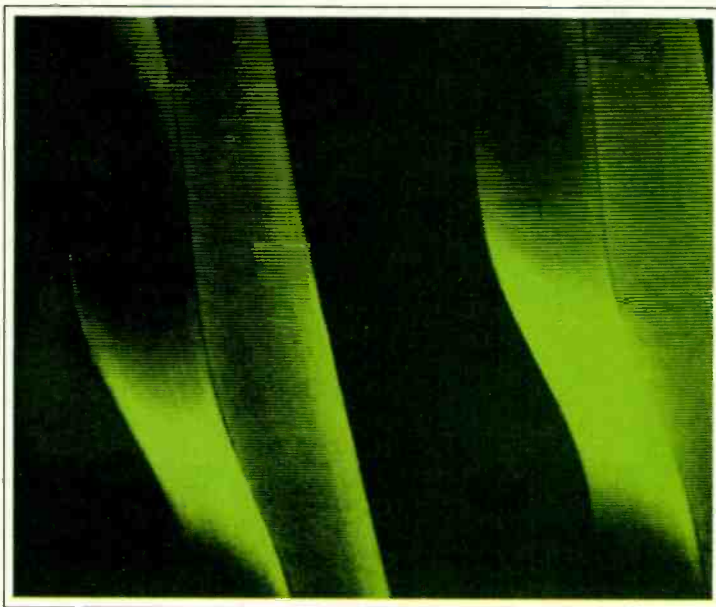
### Stylus Shape

Groove deformation is proportional not just to the tracking force, but, more accurately, to the total amount of pressure exerted on the groove wall in the area of its contact with the stylus. Because of a groove's shape, the force exerted on a groove wall is about 40 percent greater than the total tracking force. Furthermore, this force is applied over a microscopic area whose size is a function of the stylus shape and the way it contacts the groove.

A groove may actually experience a pressure in the range of tons per square inch, even if the cartridge tracking force is only a gram or two. This effective force is greatly multiplied if (as is normally the case) the groove is modulated. Picture the stylus essentially "running into" the undulations of the groove; the points of greatest acceleration as the stylus "turns a corner" are those receiving the highest instantaneous pressure.

A conical or spherical stylus has a roughly circular contact patch (footprint) on the groove wall. The popular elliptical stylus shape applies an ovaloid footprint, with the contact

area being narrower (than that for a conical stylus) in the direction of groove travel. This is desirable for low-distortion tracking of high-frequency signals. At the same time, an elliptical stylus extends its contact area upward along the side of the groove, at right angles to the direction of groove travel, resulting in a relatively large overall footprint. Therefore, with an elliptical stylus the actual force exerted per unit area can be less than that of a conical-



Clean groove with one-channel test tone

shaped stylus having comparable high-frequency performance.

A number of stylus shapes are even more "extreme" than the elliptical type. Many of these were first developed in the days of CD-4 discrete quadrasonic discs, which required a frequency response extending to 40,000 Hz or higher. Although these advanced styli vary in their specific dimensions and shapes, and each carries the name of its designer or manufacturer, they share the quality of being extensions or exaggerations of the basic elliptical shape. As a class they are often referred to as "line-contact" styli. All of them decrease the footprint size in the direction of groove travel (for better high-frequency performance) and increase it vertically over the groove wall (for decreased pressure on the groove).

Elliptical and line-contact styli, though superior from a record-wear and audible-performance standpoint, do require careful attention to manufacturing details and to mounting in the tone arm. The angular orientation of the stylus's

contact surfaces relative to the two groove walls is a potential problem with any stylus shape other than conical. If the two contact faces of the stylus are not aligned along the same record radius, they do not simultaneously trace the corresponding portions of the two channels. The result is a phase shift between the stereo outputs of a cartridge, as well as a possible degradation of frequency response and higher distortion. This condition can occur if the stylus is mounted incorrectly in its cantilever, if the cartridge is mounted incorrectly in the tone arm so as to produce an excessive lateral tracking error, or if there is a significant vertical-tracking-angle error from either design or installation. In sum, for decreased record wear, use an elliptical or line-contact stylus, but make sure it is mounted properly in the tone arm.

### Stylus Tracking

In addition to the shape of the stylus, other factors of cartridge design can have a significant effect on record wear, though in these cases it should be called record damage. Chief among these is tracking ability, the ability of the stylus to stay on and in the groove regardless of the violence of its modulations. If the cartridge has poor tracking ability, if the vertical tracking force is too low, if the antiskating force is set improperly, or if the pickup/tone-arm damping is inadequate, the stylus may not remain in continuous contact with the groove. This "mistracking" is—aside from scratches, dust, and dirt—the most damaging thing that could happen to a record groove.

Bernard Jacobs of Shure Brothers makes the distinction between two different types of uncontrolled stylus motion during mistracking. One is where the stylus "bounces" from point to point along the groove wall. The other is where the stylus is forced up and out of the groove, but not necessarily into a neighboring groove, because of a disc warp or a low-frequency cartridge/tone-arm resonance. Both situations can damage the groove in two ways.

First, a crashing, careening stylus can actually gouge out deformations in the groove walls. These can sometimes be heard as a horrendous increase in distortion as the damage is being done and afterward as added clicks or pops. Second, a stylus going its merry way along a groove may alter the groove to suit. This can account for a "mellowing" of the sound of some records after they have been played several times with a poorly tracking stylus. All the "hard parts" have been smoothed out. Mistracking damage is irreversible.

The solution, of course, is never to let the stylus get out of control. Aside from using a cartridge with superior tracking ability, the best way to keep the stylus on and in a groove is to use the right amount of tracking force, *but not too little*. Never operate a cartridge below its minimum recommended tracking force in the mistaken belief that you are reducing record wear. You are simply inviting mistracking. It's better to err on the high side. On the other hand, you should also choose a cartridge with as low a recommended tracking force as possible. Below 2 grams is good, and at or below 1.5 grams is better still.

Groove damage can also stem from a worn or chipped stylus. This area also has some unexpected facets. For example, a stylus that has been worn down by playing only an "easy" unmodulated "silent groove" is potentially more damaging to a normal music disc than a stylus worn down by a series of music recordings. The former stylus's "flats," the portions where the diamond has been worn off by the groove, have sharp edges. A stylus worn by music recordings has had its flats burnished and rounded by the varying groove shape.

The best way to detect stylus wear is by an examination of the tip under a microscope (a 40× model will do). Unfortunately, it takes a little training and experience to get the stylus and light angles just right to see any flats, and it takes even greater experience to tell whether the locations and degree of wear are

significant. The second best way to detect stylus wear is to listen for increased levels of distortion and a greater tendency to mistrack. But by the time you might notice something wrong, the damage has already been done.

Preventive maintenance is the best solution here. If you play discs for one hour each day (a higher-than-average figure), you should have your stylus checked by a competent technician twice a year. You



A groove containing a complex music signal

should also consider replacing the stylus assembly (or, if necessary, the entire cartridge) after every 1,000 to 2,000 hours of playing time, whether you can actually hear any signs of stylus wear or not.

### Other Factors

Foreign abrasive material (dust, dirt) on the record surface can be ground into the groove wall by the stylus pressures, which, as you recall, can be enormous. Once the vinyl has acquired these foreign objects—and the noise and distortion they contribute—it may not be possible to remove them by any cleaning method; the disc can be considered permanently damaged. Even if you can get some of the dirt out, the holes it leaves behind will be an audible reminder of their presence. The vast number of accessories marketed to clean LP's should be an indication of how important cleanliness is for disc longevity.

A number of manufacturers of high-quality phono cartridges emphasize another potential source of

record wear: the polish of the stylus's diamond surface. Only under a rather powerful microscope can this be seen, and (as with stylus shape and orientation) there is little the consumer can do but take the word of the manufacturer about the care with which his styli are polished and mounted in their cantilevers. If the stylus surface pressing into the groove has any roughness, it is certain to carve its initials (so to speak) into the grooves of every record it plays. In the time needed for vinyl to wear off the imperfections of the stylus, many records can be prematurely aged. After all, one can hardly imagine two materials more unlike each other in hardness than diamond and vinyl!

### The Bottom Line

It should be apparent that if you play your records you can't eliminate record wear. About all you can do to minimize it is to use a good cartridge from a manufacturer who takes the trouble to finish his styli properly and mount them accurately. Try to choose a

cartridge that can track at a force of less than 2 grams, but *never* try to operate it below the manufacturer's rated minimum force.

Take care to install the cartridge properly in the tone arm to derive the benefits of the precision stylus alignment the manufacturer has presumably built into it (and for which you have paid, often considerably). Set the antiskating compensation of the tone arm correctly (failure to do this will create unnecessary wear on one side of the groove). Have your stylus checked periodically. Keep your records *and your stylus clean*.

And, as a final note of optimism, think about how many times you are likely to play any given record. I would guess that few discs are played more than a couple of dozen times, especially if you have a large collection—who has the *time* with only twenty-four hours in a day? That means that you are unlikely to wear them out in your lifetime. The diamond of your stylus will certainly wear out sooner. "Diamonds are forever" applies only to jewelry. □

# WHAT ARE YOUR OPTIONS?

*Unusual turntable features for special needs and desires*

*by William Burton*



**T**he granite platter and the granite substructure of Entec's Granite turntable make this a heavyweight contender in the high-end arena. The gross weight of the floating substructure is 110 pounds, with a total weight (including stand) of 180 pounds. The base measures 24 inches square, the turntable itself 16 x 20 inches. Price is \$5,000 without tone arm, dust cover, or any other accessories.

**Y**OU have to make many choices when you are shopping for a turntable. You must choose between belt drive and direct drive, a pivoted or linear-tracking arm, and manual, semiautomatic, or automatic operation. And then you must select the turntable that will work best in your system, basing your selection on features, specifications, and performance. Test reports, manufacturers' literature, and directories such as STEREO REVIEW's *Stereo Buyers Guide* can provide information, but they can't make any of these choices for you.

You don't have to do much research on turntables to discover that there are more ways to spin a record and hold a cartridge than you might

have imagined. The options in turntables include a wide range of sizes, weights, tone-arm types, chassis designs, and unique features.

The size and weight of a turntable, and particularly of the platter that supports the record, are important because greater mass increases stability. A massive turntable can resist mechanical and acoustic feedback, and the inertia of a heavy platter smooths out speed variations. Thus we have turntables with names that express their solid substance, such as Entec's "Granite" and Elite's "The Rock."

Even when the tone arm comes with the turntable, variations on the basic theme exist. There are turntables with two or more tone arms (so you can shift from one cartridge to another in seconds), and the new

Yamaha turntables have twin-tube instead of single-tube arms. The unique floppy tone arm on the NAD 5120 turntable is designed to flex at inaudibly low frequencies for improved isolation.

Records are round, but the bases of most record players are rectangular. As you might expect, round-chassis turntables do exist. These include the Walker CJ61, the Dunlop Systemdek II, and the Canadian Ariston RD40. Denon's DP-80 and DP-75 are also round, with bases whose beveled sides make them resemble flying saucers.

If you are overwhelmed by the range of options available in turntables, don't despair. Just think of the even larger range of options you have when you're choosing the records to play on them.





**C**alled a "fine, upstanding turntable," the Technics SL-V5 gives you a new angle on playing records. The vertical design lets the

unit stand on narrow shelves or ledges where other turntables fear to track. To play a record, you open the hinged front door, put the disc on the platter, close the door, and press PLAY. Except for its orientation, the turntable is not terribly out of the ordinary, with automatic operation, linear-tracking tone arm, and compatibility with P-mount cartridges. The direct-drive motor has a combination rotor/platter designed for stable rotation, and the low-friction, low-mass tone arm has a gimbal suspension. The turntable determines the correct motor speed and where the cartridge should set down automatically. The controls are mounted on the slanted panel at the bottom of the chassis. The turntable measures about 12½ inches wide, 14⅝ inches high, and 7¼ inches deep. Price is \$220.

**D**espite its unassuming appearance, Sansui's direct-drive XP-99 is quite unusual. Below the regular drive motor and rotating record platter there is an identical second motor with a flywheel that has the same rotational inertia as the platter but rotates in the opposite direction. The two motors are synchronized—thus the feature's name,



*Silent Synchronotor System—and the effect is to cancel vibrations caused by torque variations as the main drive motor's speed is changed in response to commands from the servo-control system. The tone arm is dynamically balanced and controls vibrations in the arm itself and in the cartridge. Price of the XP-99 is \$400. The Silent Synchronotor System is also available in the more elaborate XR-Q7 turntable, priced at \$500.*



**T**he Sony PS-Q3 turntable measures only 8½ inches wide and 2⅜ inches high and weighs 8 pounds, 3 ounces, but it plays full-sized LP's. It is also unusual because it includes a phono-preamp section and a volume control for use with headphones

or amps that have only line-level inputs. The fully automatic belt-drive turntable is available as part of two of Sony's micro-component systems or separately, with moving-magnet cartridge, for \$150.



**W**orks in a drawer"—slip a disc onto the platter in the sliding drawer of this turntable, the Pioneer PL-88FS, touch a button, and the record and platter disappear into the chassis. The drawer-loading design enables the turntable to

be stacked with other components, so you don't have to make space on the top of your rack. Once the disc is loaded, the turntable can be programmed for playback of tracks in the order you want to hear them, with index-scan and repeat func-

tions. The turntable also features a quartz phase-locked-loop Stable Hanging Rotor motor for wow and flutter of 0.025 percent. Rumble is rated at -78 dB (DIN-B weighted). List price is \$400, which includes a moving-coil cartridge.



**N**akamichi makes cassette decks that turn the tape over for you, but this turntable—the Dragon CT—does not play the flip side automatically. Instead, it compensates for center holes that are not in the center of the record, eliminating wow caused by eccentric rotation. The turntable does this with two platters—an aluminum main platter, weighing 1.4 kilograms, and a variable-position glass search platter on top of it that weighs 550 grams. After you place a record on the glass platter, pressing the Center Search Start switch begins the search for the absolute center of the record. The Center Search Rod varies the position of the Center Search platter relative to the main platter while a sensor arm measures groove eccentricity and deter-

mines when complete error correction has been achieved, at which point the Absolute Center Search Indicator lights up. The Dragon CT's price is \$1,740.

**T**he SOTA Star Sapphire holds an LP to its 11-pound platter with a low-level adjustable vacuum to reduce the effects of warps, acoustic feedback, and resonances. Three access holes provide vacuum suction near the spindle to pull the record to the platter mat. An outer lip on the mat and a small spindle cap over the center hole create a seal that maintains the difference between the air pressure above the record and below it. The subchassis



weighs 22 pounds for maximum isolation. Unlike many other high-end turntables, the Star Sapphire hangs the subchassis from the main

chassis from four, not three, suspension points. With an oak finish, price is \$1,450; in koa wood, it's \$1,600.



**K**yocera (the name comes from Kyoto Ceramic) makes the platter and base of its PL-910 turntable from ceramic materials for stability and isolation from mechanical feedback. The dual-

suspension subchassis with the 11-pound platter rests on four points, and the cutout for the tone arm is on the back right of the subchassis. The belt-drive manual turntable lists for \$2,000.



**T**he two tone arms in Sharp's RP-117/C allow you to play both sides of a record without having to remove it from its sliding drawer and flip it over. The autoreverse linear-tracking, belt-drive turntable features an Automatic Programmable

Music Selector for up to fourteen cuts on sides A and B or automatic full play of side A, side B, or both. The turntable changes sides and sets the cartridges down at the right points automatically. Price is \$250.

# JAPAN

## AUDIO FAIR

*A special report from Tokyo by Bryan Harrell*

The recording head drum of a hi-fi VCR played a large role in the display of one exhibitor. The costume of the model, we're told, shows "laser consciousness."



THE largest annual exposition of audio products on earth, the Japan Audio Fair is where the big swords of the Japanese electronics industry battle for the favor of consumers in one of the world's most sophisticated audio markets. Despite attendance of more than 300,000 people at this year's thirty-third annual fair, there was considerably less razzle and dazzle than in previous years. As it to say, "The future is already here," exhibits of developments in progress were rare. Instead, manufacturers played hardball with extensive "hands-on" displays to pitch their popularly priced products just appearing on the Japanese market.

Instead of the guest-of-honor status it has enjoyed in the past, digital audio was treated as a family member who could be expected to help clean up after the fair. At a special all-about-CD exhibit, Compact Disc pressing equipment was on display, and visitors could operate and listen (through headphones) to about fifty CD players. A huge panel that ran nearly the width of the pavilion displayed the covers of approximately 3,500 CD titles.

On the same scale, an exhibition of analog record cutting occupied one end of the opposite pavilion. A Georg Neumann rec-

ord cutter was shown in use, and an Audio-Technica T-11 professional-use turntable was on hand for auditioning the freshly cut lacquer discs. This display seemed to generate more interest than the CD display, which indicates the Japanese audiophile's continuing fascination with analog discs of fine quality.

The Imported Audio Show, held last year as a separate event, became part of the official schedule this year. It featured displays of equipment by such noted manufacturers as Bose, dbx, Electro-Voice, Infinity, JBL, Klipsch, Koss, Linn, Mark Levinson, McIntosh, Nitty Gritty, Quad, Shure, Tannoy, Thorens, and others. Demand for high-end audio gear in Japan is surprisingly large. There is also much interest in designs from the Fifties and Sixties.

### 音 CD Players

Though there were plenty of interesting new developments in Compact Disc players, this year's showstopper was Sony's D-50 [identical to the D-5 tested for December's STEREO REVIEW], the world's smallest and lightest CD player. Now known as the Discman, the player is barely larger than a CD's box and less than 1¾

inches high. It requires a separate battery pack or a.c.-to-d.c. adaptor for operation, however. The D-50 was made possible by a specially developed unitized, ultra-thin laser pickup, a floating damper said to be resistant to shock and vibration, a flat brushless, slotless PWM drive motor, and a new IC that incorporates almost all the player's electronics. Its most remarkable asset was its tentative price of 50,000 yen, or about \$210. The world's smallest is also (for now) the world's cheapest.

The component CD-player market seems to be undergoing stratification into three price categories: low (around 80,000 yen, or \$335), medium (around 140,000 yen, or \$585), and high (over 180,000 yen, or \$750). Price determinants are primarily the number of playback features, the (perceived) quality of the D/A (digital-to-analog) conversion circuitry, and the type of laser tracking system. [Prices are approximate, and we've used a rate of exchange of 240 yen to the U.S. dollar.—Eds.]

Hitachi's DAD-4000 and Sharp's DX-100 were both priced at about \$335 while Yamaha undercut everyone (except Sony!) with its \$290 CD-X2, a compact model (13½ inches wide) with a three-beam laser pickup. Other new low-priced models included the Pioneer P-DX700 (\$375), the Sony CDP-102 (\$375), the Luxman D-105 (\$410), the Technics SL-PJ2 (\$415), the Onkyo DX-20 (\$415), the JVC XL-U3 (\$375), the Mitsubishi DP-105 (\$415), and the NEC CD-607 (\$460).

At the other end of the scale, Nakamichi introduced its first CD players, the OMS-70 (\$1,115), with remote control and ten-key operation, and the OM-50, which has fewer operating features. Both have that distinctive clean, black Nakamichi styling and are claimed to deliver improved performance through the use of separate left and right D/A converters, digital filters that provide quadruple oversampling, and highly simplified analog circuitry. Hitachi suggested a possible trend in high-end players with a prototype two-component system consisting of the DAP-001 player and the HDA-001 digital processor. The player has a newly developed LSI for "5-times (quintuple) error correction," which is claimed to be accurate to "one miss every 20 million years."

However, there was still considerable action in the middle price range. Sony's CDP-520ES (\$625) boasts a button-studded front panel that includes a twenty-key track selector, a wireless remote control (also with a twenty-key track selector), and a "shuffle play" function that plays the selections on a disc in random order until stopped. Teac showed its new PD-500 (\$575) with a ten-key wireless remote control. The Technics SL-P3 (\$540) comes with a wireless remote control that boasts twenty-four operation keys including volume control.

Several multiple-disc CD changers were shown this year. Toshiba's XJ-1000 was the only one that looked something like a jukebox; the others resembled data-processing equipment. Sharp's HK-500 holds 100 CD's and can be programmed to play up to nine songs at a time. (It's a coin-operated machine, and the specs indicate it holds approximately 1,000 coins, in case you were wondering.) Aiwa, Denon, Hitachi, and Sony also had models on display. They are currently gaining popularity in Japanese drinking places as "karaoke" (sing-along) machines.

Nearly all makers showed prototype players that team the CD system with computers and video equipment for the display of stationary images (such as song lyrics). There were also some car CD players on display, among them Sony's CDX-5 and CDX-7 (with FM tuner) players and two new models from Pioneer, the CDX-1 and the smaller CDX-E1 (both \$405). Of note was Yamaha's new cartridge system for Compact Discs, which uses a carrier with a small opening (much like that on computer floppy discs) through which the player's laser "reads" the disc. Advantages were said to be ease of storage and protection against dust and scratching. Alpine had a prototype car CD player on display.

## 像 Digital Audio Tape

Digital audio tape recording, or DAT, was the subject of two scheduled seminars at the fair. Standards are being proposed, various companies are now testing and developing prototypes, and insiders predict the release of the first wave of equipment in 1986. [Last year they said 1985—Eds.] One proposed system, S-DAT, calls for stationary-head machines with a 48-kHz sampling rate, 16-bit quantization, a tape speed of either 4.37 or 4.76 cm/s, and twenty-track recording on a cassette measuring slightly larger than a standard audio cassette. R-DAT is a system proposed for rotating-head machines. With fairly much the same specs (except for the number of tracks), it is designed for use with a cassette that is somewhat smaller than a standard audio cassette. With Compact Discs and the collision of high-quality audio and video reproduction creating a multitude of new sales possibilities, it seems the manufacturers are in no hurry to confuse and fragment the market further with DAT equipment.

## 革命 The Audio / Video Revolution

The audio industry's long and persistent efforts at creating audio/video consciousness among Japanese consumers are finally getting results and have already started the abacuses clicking in retail stores throughout Japan. Hundreds of new outlets specializing in music-video "software" have opened across the country. Nowadays, if



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you tell an average young Japanese you're interested in "audio" without also saying the word "video," he'll darkly suspect you're an old codger who listens to classical music through a dusty tube amplifier and a set of ancient Electro-Voice speakers.

There was big news at the show in the form of a new type of player developed by Pioneer that reads normal LaserDiscs, LaserDiscs recorded with digital sound, and digital audio Compact Discs. The Pioneer CLD-9000, Sony Lasermate LDP-250CD, and Teac Lasermate LU-5000DS all cost about \$1,040 and look virtually identical, leading many seasoned reporters in the Japanese electronic press to "suspect" that the players are all made by a single entity!

They have three-beam pickup systems, a full array of playback features, wireless remote control, and stepped loading drawers that accept either type of disc. Of particular note are a subcode output and I/O port on the back panel which will enable a personal computer to interface with the players. Sony and Teac have also introduced conventional video-disc players using the Pioneer/Philips LaserDisc format: Sony's Lasermate LDP-150 and Teac's Lasermate LU-1000, priced at \$835.

A newcomer to the Hi-Fi VCR category was Denon, which showed its new VA-75 (\$950), a handsome VHS deck with a built-in stereo FM tuner (for simulcasts and cable stereo), two heads for sound, five for video, and a one-year/eight-program memory. Another newcomer in the VHS faction was Teac, with its MU-1000 (\$1,240). Other new VHS Hi-Fi models were the Hitachi VT-87, with a built-in FM tuner and five heads, the Akai VS-X10 (\$950), with an Interactive Monitor System that guides operation right on the TV screen, the NEC VC-N70 (\$910), the Sharp VC-F2, and the new Matsushita NV-870HG (\$915). Both Marantz and Harman Kardon of Japan displayed prototype models that were claimed to have very high-quality audio circuits, which could mark the start of "high-end" VCR's.

On the Beta side of the ring were Aiwa's new 13-inch-wide AV-7M, with a built-in tuner, Toshiba's V-L70, with a CCD comb filter for clearer picture quality, and Sony's SL-HF335 (\$825) and SL-HF77 (\$1,245).

## 台 Conventional Components

New developments were sparse in top-end cassette decks, although the latest "middle-price" models received a lot of play. It seems that nearly every company has at least one deck with dual transport/head mechanisms for high-speed tape dubbing. The king of these models was possibly the Technics RS-B66W (\$395), which has Dolby B, Dolby C, and dbx noise-reduction systems and can copy tapes six times faster than normal playing time. Frightening.

Alpine/Luxman's new "Brid" series LV-

105 (\$495) and LV-103 (\$330) integrated amplifiers are hybrid tube/transistor designs. On both amplifiers, two small vacuum tubes are visibly mounted flush on the front panel. Sansui went to considerable expense in producing a glossy magazine-style handout on the story of its X-balance amplifier circuitry. And Akai's new SS-V20 (\$499) is an advanced audio/video controller that has a 4.5-inch color monitor on the front panel and connections for three VCR's and three other video sources in addition to the usual audio sources.

Despite last year's big turnout of new turntables and cartridges, things were oddly quiet in those categories this year. Among the exceptions were two new turntables from Denon, the DP-59M (\$330) and the similar DP-59L (\$375), which have liquid-crystal speed displays, and the Technics SL-M3 (\$415), an unorthodox (in Japan, anyway) model with a hefty wood cabinet and a linear-tracking tone arm. It's interesting to note that despite the company's huge linear-tracking reputation, the top-of-the-line Technics SL-1000 MK3D (\$2,710!) sports a pivoted tone arm.

There were several new phono cartridges, including the deluxe Grace F-14, a moving-magnet model that is constructed with such materials as ceramic, ruby, sapphire, beryllium, boron, aluminum, and more, making it an ad copywriter's dream product.

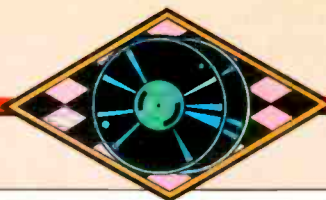
## 録音 Speakers

Each of Aiwa's new AFBS mini-speakers has a built-in microphone that sends a corrective signal back to the amplifier input. Aiwa claims surprisingly rich and full bass reproduction as a result. Sony's low-priced APM-22ES speakers (\$330 a pair) put the APM design in what Sony calls an "acoustically rounded enclosure" that's said to deliver better sound linearity. Sawafuji showed new flat-wave speakers with an open-baffle design, and company chairman Tadashi Sawafuji himself proudly manned the display. Sawafuji also showed some experimental SF-1 headphones, which incorporate special etched-coil flat diaphragms that are claimed to have a response from 10 to 100,000 Hz (within 5 dB to 60,000 Hz).

Many of these products have already been introduced in the United States or soon will be, although some of the features, names, and model numbers will change. There are some products, such as karaoke machines and the VHD video-disc system, that will probably remain unique to Japan, but sooner or later almost everything else finds its way into the U.S. marketplace. An overview of the Japan Audio Fair is, then, something of a glance into American audio's immediate future—and maybe, considering the air of settling down to business that was evident at this year's fair, that future *is* already here. □



# 協会



by Christie Barter  
and Steve Simels

**R**EUNITED in the studio for the first time in well over a decade, we find songwriter **Burt Bacharach** and songstress **Dionne Warwick**. The Bacharach and Warwick team had one of the longest (and most publicized) strings of hits in contemporary pop, starting with 1963's *Walk On By* and including such by-now standards as *Alfie* and *Do You Know the Way to San Jose?* (those goodies, and more, by the way, have just been collected on a terrific two-disc "Best of" anthology on Rhino). Here, the duo is working on a track for



Warwick-Bacharach: back

Dionne's forthcoming Arista album. That's producer **Luther Vandross** and lyricist **Carole Bayer Sager**, left. □

**M**OST symphony orchestras are lucky to have one principal guest conductor, but the Los Angeles Philharmonic has two: the American **Michael Tilson Thomas** and his British co-principal **Simon Rattle** (shown at the top of the page). Thomas has often been honored in his own land, and Rattle, who has won a following here with his Angel recordings, is becoming better known as he makes more appearances east of California.

In November, Rattle conducted the Cleveland Orchestra, and in January he is conducting some of the Los Angeles Philharmonic's tour concerts on the East Coast. He makes his Carnegie Hall debut on January 18, the eve of his thirtieth birthday.



Rattle: on tour and carrying the field

Rattle's repertoire on the tour includes two works with which he is closely associated, Mahler's Tenth Symphony and the Sibelius Second, both of which he has recorded for EMI/Angel. Reviewing Rattle's recording of the Mahler Tenth with the Bournemouth Symphony, David Hall wrote in these pages that it "carries the field in terms of dramatic impact."

Principal conductor of the City of Birmingham Symphony since 1980, Rattle has molded that orchestra into one of England's finest. His new recordings with it include Mahler's *Das klagende Lied* and Sibelius's Second Symphony, both January releases from Angel Records. □

**I**N November, country singer **Hank Williams, Jr.**, celebrated his twentieth anniversary as a recording artist by cutting his fiftieth career album. A hunting expedition in September could have stopped him with only forty-nine, however, when he slid down the side of a 7,500-foot mountain while stalking sheep on the Alaskan range.

Williams: lucky



Williams, 35, who had his face literally torn off in a similar accident on Montana's Ajax Mountain in 1975, was luckier this time, ramming the fiberglass stock of his rifle in the loose rock to break his fall. "I was hanging from the mountainside, and I thought, 'Here I am again,'" Williams says. "I panicked for about five minutes, and then I prayed for about five more." When calls for help went unanswered, Williams rescued himself by digging steps in the cliff with his hunting knife. Says the otherwise fearless Williams, "I think I'll hunt swamp creatures after this."

Meanwhile, Williams continues to bag gold and platinum albums. His latest album release, "Major Moves," quickly went to number one on the *Billboard* country chart. A.N.

**O**PERATIC soprano **Renata Scotto** and tenor **Luciano Pavarotti** have indulged in some monumental squabbles, one of which, in 1979, led to a public feud in San Francisco when they sang together in a televised performance of *La Gioconda*.

When Pavarotti's autobiography, *My Own Story*, was published by Doubleday in 1981, Scotto's name was mentioned only once in the discography. But when Doubleday brought out Scotto's autobiography, *More Than a Diva*, in October, Pavarotti's name was nowhere to be found.

That did not stop Scotto, however, from detailing her difficulties with "a certain Tenor" in the San Francisco *Gioconda*. She also reports that she was given an Emmy

Award for her *Gioconda*. "I looked at that award not just as a tribute to a fine opera performance," she wrote, "but as a reward for my professionalism, for all the suffering I had to put up with in order to sing and act that night. I deserved that Emmy." □

**W**HO'S the best-selling classical recording artist? Record companies tend to guard their sales figures carefully, but if you believe the charts of best-selling records published by *Billboard* magazine, you could make a good case that the top-selling classical instrumentalist is the French pianist and composer **Claude Bolling**.

*Billboard* recently published a chart of best-sellers in the "classical crossover" category, and the top two were Bolling albums on CBS Masterworks. Number 1 was his recent "Suite for Cello" on which he is joined by Yo Yo Ma. Number 2 was an album Bolling made years ago with the flutist Jean-Pierre Ram-



Bolling: hot

pal, "Suite for Flute and Jazz Piano." At the end of the year the cello suite had been on *Billboard*'s regular classical chart for more than forty weeks, and the flute suite had been there for a phenomenal 464 weeks, just shy of nine years!

Although Bolling refers to himself as a "jazzman," in this country he is treated as a classical composer and performer. And although his latest album is titled "*Jazz à la française*," it is being treated as a classical record by CBS Masterworks. Considering Bolling's sales records, it is sure to be treated as a very hot property. □



by Christie Barter and Steve Simels

**T**HE five well-mannered young people posed against the simply lovely wallpaper are, of course, some of the members of Talking Heads (that's leader and conceptual honcho David Byrne in the hat). The occasion? A party celebrating the dance-hall premiere of the group's new concert film *Stop Making Sense* at the Ritz, a



*The Talking Heads at film debut*

Manhattan night club. Directed by Melvin and Howard's Jonathan Demme, the film has already been described by more than one critic as the best thing of its kind since Scorsese's *The Last Waltz*. Sources close to the band declined to comment on when the flick will be available for home viewing, but given the unseemly speed with which Warner Brothers rushed out Prince's *Purple Rain* for home-vid formats, our spies report it may well be by spring. Stay tuned. □

**A**WARD-WINNING music-video clips in the first International Music Video Festival held late last year in Saint-Tropez, were the Cars' "You Might Think" (Elektra/Asylum), Paul McCartney and Michael Jackson's "Say Say Say" (Epic/Gasp! Productions), and, of course, Jackson's "Thriller" (Epic). □

**O**N January 8 Elvis Presley would have been fifty years old. To mark the occasion, MGM/UA Home Video is releasing a "collector's treasure" of Presley

films new to the home video market. Titles include *Double Trouble*, *Harum Scarum*, *It Happened at the World's Fair*, and *Speedway*. The special suggested list price, effective through March 1, is \$39.95. □

**T**HE American folk singer Bill Crofut and English baritone Benjamin Luxon have toured widely with a program of songs sharing Anglo-American traditions. The popular entertainment, under the title *Two Gentlemen Folk*, will be aired as a one-hour special on the PBS network on Christmas Day. □

**V**IENNA'S traditional New Year's gala, a concert of waltzes by the Strauss family performed by the Vienna Philharmonic, will again be televised live, on January 1, on an international hookup. It will be carried in the U.S. by the PBS network. Lorin Maazel will once again conduct, despite the troubles he has encountered with Vienna's music establishment during the past year.

For a purely orchestral program, live or not, the V.P.O.'s New Year's celebration on TV must set some kind of record: in recent years it's been known to reach an estimated worldwide audience of 750 million viewers.

Domestic viewers can treat themselves a couple of days later (January 3) to a Live from the Met/PBS telecast of Verdi's *Aida*, with Leontyne



*Price as Aida*

Price in the title role and James McCracken as Radames. James Levine conducts. The Texaco Philanthropic Foundation underwrites. □



*Britain's Iron Maiden on an SRO tour of Eastern Europe*

**N**O POLISH JOKES, PLEASE. Yes, that's really Iron Maiden, the veteran British heavy-metal band, in Warsaw, at the beginning of their recent tour behind the Iron Curtain (shows in Poland, Hungary, and Yugoslavia). Although all the concerts were completely sold out, in venues ranging from 10,000 to 18,000 seats, the band made little money from the performances because of low ticket prices controlled by the various governments. Still, lead singer Bruce Dickenson apparently enjoyed the experience, noting, "Polish audiences are some of the best I've ever seen. I think it's because they're so starved for Western entertainment." Some of you may not call what Iron Maiden does entertainment, but for those who do, the entire tour was filmed for an hour-long documentary recently broadcast on MTV and slated for home-video release sometime this year. □

cific Arts tapes follow the release of a two-record album produced by Deutsche Grammophon and reviewed in these pages exactly a year ago (STEREO REVIEW, January 1984).

The first Huberman video was released last fall and featured as violin soloists such giants of the instrument as



*Violinists in Tel-Aviv*

Isaac Stern, Pinchas Zukerman, Shlomo Mintz, and Itzhak Perlman in a performance of Vivaldi's *The Four Seasons*, with Zubin Mehta conducting. The second release, offering the Tchaikovsky concerto and more Vivaldi with Henryk Szeryng and Chaim Taub as soloists, appears this month. Subsequent releases will present violinists Ida Haendel and Ivry Gitlis in works of the masters from Bach to Bartók. The cassettes are available in VHS Hi-Fi and Beta Hi-Fi utilizing PCM digital transfer, and the suggested list price for each cassette is \$39.95. □

**T**HE Huberman Festival was a week-long series of concerts held in Tel Aviv in December 1982 to celebrate the 100th anniversary of the birth of the violinist Bronislaw Huberman, founder of the Israel Philharmonic. "The Huberman Festival" is a series of eight cassettes, being released by Pacific Arts Video on a month-by-month basis, documenting that extraordinary event—extraordinary for bringing together several of the world's leading violinists in performances of repertoire classics. The Pa-





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## SILVERSTEIN'S UTAH DEBUT: FULFILLING

**J**OSEPH SILVERSTEIN'S new recording of Mendelssohn's E Minor Violin Concerto is a sleeper. Every top virtuoso violinist in the business has recorded the work, of course, but Silverstein, performing in the dual capacity of soloist and conductor of the Utah Symphony in this Pro Arte release, gives all those gilt-edged versions a real run for the money.

For over twenty years the Boston Symphony's concertmaster and for thirteen its assistant conductor, Silverstein recently became the Utah Symphony's music director, and in his first recording with the orchestra he gives us a performance of the Mendelssohn concerto that is just about ideal. The opening theme is meticulously articulated, leading into a first movement that is beautifully paced throughout. The same is true for the slow movement, and the finale, though set forth with a light hand, has a compelling vigor and vitality.

But the attractions of this disc don't stop with the concerto. The program is filled out with the overtures to *Ruy Blas* and *A Midsummer Night's Dream* along with the *Hebrides* concert overture. And on the evidence of Silverstein's readings of this familiar music, his prowess as a conductor is considerable indeed. Anyone who can breathe new life into that old chestnut *Ruy Blas* has my utmost respect. It is enough to say that Silverstein has matched Beecham in this regard (though Sir Thomas pulled off the feat twice on records).

The overture to *A Midsummer Night's Dream* is a delight. Silverstein does not allow the brass and timpani to overwhelm the strings in the expository passages for full orchestra, and in the slow bit just



Conductor/violinist Joseph Silverstein: a nearly ideal Mendelssohn concerto

before the recapitulation he adds a delicious element of mock pathos. *The Hebrides* may not have the sweep here of Karajan's with the Berlin Philharmonic, but the lyricism of the score is set forth by Silverstein with the utmost poetic feeling, and the fanfare figures passed about among the winds are spun out deftly and to great dramatic effect.

Two factors seem to me to be responsible for the astonishingly lovely musical quality of this recording. First, as a one-time session producer myself, I sense that this was a situation where everything "worked," where there was the utmost rapport between Silverstein, the Utah Symphony, and producer Tom Frost—the sort of thing you

more commonly encounter in a chamber-music recording. Second, there is the modest scale of the recording locale—a hall that I would guess from the sound to be about the size of the Leipzig Gewandhaus, in which Mendelssohn himself conducted. Add to these a flawless job of microphone placement and a beautiful DMM pressing, and you have a recording that is in every way fulfilling. *David Hall*

**MENDELSSOHN: *Violin Concerto in E Minor. Overtures: Ruy Blas; A Midsummer Night's Dream; The Hebrides.*** Joseph Silverstein (violin); Utah Symphony Orchestra, Joseph Silverstein cond. PRO ARTE ● PAD 187 \$10.98, © PCD 187 \$10.98; © CCD 187, no list price.

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## BLUES IN MANY SHADES FROM JOE WILLIAMS

I HAVE heard Joe Williams sing so badly that it made me cringe, and I have also heard him give superb performances. But rarely have I enjoyed listening to the former Count Basie vocalist more than I have on a recording from Delos called "Nothin' but the Blues." Running a generous fifty-nine minutes (on Compact Disc), the set also owes much of its success to the accompanying sextet of stellar players. Led by saxophonist Red Holloway, the group is magnificently enhanced by the presence of altoist Eddie "Cleanhead" Vinson (himself a superb blues vocalist), organist Jack McDuff, guitarist Phil Upchurch, Ray Brown's solidly swinging bass, and drummer Gerryck King, a relative newcomer who holds his own admirably in this impressive company.

Digitally recorded, presumably with CD release in mind from the beginning, this fine album does full justice to the technology, but that would have little meaning if the material weren't of equally fine caliber. Holloway's robust tenor is particularly effective on Vinson's *Hold It Right There*. The composer himself adds the vocal on this one, but his alto shines elsewhere on such numbers as Lowell Fulson's *Please Send Me Someone to Love* and *Sent for You Yesterday*, the album's rousing finale. Ray Brown

Williams: inspired



RAY AVERI/DELLOS RECORDS

is, of course, featured on the *Ray Brown's in Town* track, and guitarist Phil Upchurch hits the proper groove on Leroy Carr's *In the Evening*. Whether playing piano or organ, Jack McDuff is a delight throughout.

In short, the album is simply crammed with a delicious assortment of blues, in a variety of shades, and Williams is clearly inspired by his backing. *Chris Albertson*

**JOE WILLIAMS: *Nothin' but the Blues*.** Joe Williams (vocals); Red Holloway (tenor saxophone); Eddie "Cleanhead" Vinson (alto saxophone, vocals); Jack McDuff (organ, piano); Phil Upchurch (guitar); Ray Brown (bass); Gerryck King (drums). *Who She Do: Just a Dream; Hold It Right There; Please Send Me Someone to Love; Going to Chicago Blues; Ray Brown's in Town; In the Evening/Rocks in My Bed; Alright, OK, You Win; Sent for You Yesterday; Mean Old World/Wee Baby Blues; The Comeback; Tell Me Where to Scratch.* DELLOS ● DMS 4001 \$9.98, © DPR 4001 \$9.98; © DCD 4001, no list price. (The last three titles above are omitted from the LP.)

## BAD MANNERS ADVANCES U.S. SKA REVIVAL

IN spite of the best efforts of the American rock-music press, the Ska revival has remained largely a British phenomenon. Of the two-tone (mixed-race) bands, Madness has probably made the greatest impact in the States, though a decidedly modest one. The Specials and Fun Boy Three captured the attention of America for about half an hour back in 1981. And that's been it. Bad Manners, one of the best and funniest of the Ska bands—a very amusing and entertaining lot—hasn't even had a U.S. release until now, some four years after the peak of the Ska movement. But better late than never.

"Forging Ahead," with which Bad Manners makes its album debut here, is a raucous delight, a full-steam-ahead blowout. Actually a reissue of the group's 1982 British album of the same name, with one new song, *That'll Do Nicely*, it rep-



Bad Manners: rude

resents Ska at its best—a pulsing bass beat pitted against the frantic counterpoint of rhythm guitars stroked on the upbeat, all punched to a frenzy by a chorus of heaving saxophones. This smoking ensemble is fronted by Fatty "Buster" Bloodvessel, an immense, 240-pound mass of pink flesh whose lead vocals are cockney-inflected bellows of irresistible charm.

"Forging" slips and slides from reggae to r-&-b, all delivered with maximum verve and minimum fuss. Highlights include two racing instrumentals—one a cover of an obscure Van Morrison oldie, *What's Up Crazy Pup*, and the other a Ska-style version of the theme from the movie *Exodus*. Listening to both, you'll swear you're in some vast, Fifties high-school gymnasium scoping out the dance floor for a hot pair of bobbysox. There's also a dub version of Millie Small's bubble-gum classic, *My Boy Lollipop*, and a slew of feisty originals: *Got No Brains* (the band's apt theme); *Salad Bar*, which sounds like the Animals meet Sam the Sham; and *That'll Do Nicely*, a sort of dub debate on the merits of capitalism vs. socialism.

With its erratic British sense of the offbeat, Bad Manners is a welcome breath of rude air you don't have to be a skinhead to enjoy. I'll say it one more time: Wise up, America. *Mark Peel*

**BAD MANNERS: *Forging Ahead*.** Bad Manners (vocals and instrumentals). *That'll Do Nicely; Salad Bar; Tonight Is Your Night; Samson and Delilah (Biblical Version); Exodus; Got No Brains; My Girl Lollipop; Falling Out of Love; Seventh Heaven; Educating Marmalade; What's Up Crazy Pup; Your.* PORTRAIT BFR 39413, © BFT 39413, no list price.

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323170-393173. Beethoven: **Symphonies Nos. 5 and 6 (Pastoral)**—Ashkenazy and Philharmonia Orch. (Counts as 2—*Digital*—London)

252874. Beethoven: **Symphony No. 9 (Choral)**—Ormandy and the Philadelphia Orch. (Columbia)

325654-395657. Beethoven **Piano Concertos Nos. 1 & 5 (Emperor)**—Brendel, piano; Mehta and Boettcher, cond. (Counts as 2—Vox)

263293. **Bolling: Suite For Flute and Jazz Piano**—Rampal. Bolling (Columbia)

307884. Brahms: **Double Concerto**—Zukerman, violin; Harrell, cello; Mehta and New York Philharmonic (Columbia)

328039. Brahms: **Symphony No. 3; Haydn Variations**—Mehta, New York Phil. (CBS Masterworks)

246843. Chopin: **Mazurkas, Etudes**, etc.—Vladimir Horowitz, piano (Columbia)

326439. Copland: **Rodeo; Dance Symphony; El Salon Mexico; Fanfare for Common Man**—Dorati, Detroit Sym. (*Digital*—London)

191874. Debussy's **Greatest Hits**—*Clair de lune, Afternoon of a Faun, Reverie*, etc. Bernstein, Ormandy, etc. (Columbia)

326454. Dvorak: **Cello Concerto**; Bruch: *Kol Nidrei*—Lynn Harrell, cello; Vladimir Ashkenazy and Philharmonia Orch. (*Digital*—London)

187112. Gershwin's **Greatest Hits**—*Rhapsody in Blue* (Bernstein, piano); *An American in Paris* (Ormandy, Phila. Orch.); many more (Columbia)

318295. Gershwin **Liveli**—Sarah Vaughan sings *The Man I Love*, etc. Thomas, Los Angeles Phil. (CBS)

319004. Glass, Philip: **The Photographer**—"Some of his best music to date" —*Time* (CBS)

316018. Glass, Philip: **Glassworks**—"moving, exciting and profound!" —*The N.Y. Times* (CBS)

201665. Grote: **Grand Canyon Suite**—Ormandy, Phila. Orch. (Columbia)

323543. Handel: **Royal Fireworks Music; Oboe Concertos 1-3**—Karl Munchinger, Stuttgart Chamber Orch. (*Digital*—London)

326561. Haydn: **3 Favorite Concertos**—Cello in D (Yo-Yo Ma); Violin in C (Cho-Liang Lin); Trumpet in E Flat (Wynton Marsalis) (CBS Masterworks)

321190. Liszt: **Hungarian Rhapsodies 1, 4, 6; Rakoczy March**, etc.—Boskovsky, Phil. Hungarica (Angel)

321208. Liszt: **Hungarian Piano Concerto No. 4**; *Mephisto Waltz*—Willi Boskovsky, London Phil. (Angel)

314369. Mahler: **Symphony No. 1 (Titan)**—Maazel, Orch. Nat'l de France (CBS Masterworks)

305730. Mendelssohn: **Symphony No. 4 (Italian); Overtures**—André Previn, London Symphony (Angel)

294264. Mozart: **Piano Concerto No. 21 (Elvira Madigan)** and No. 17—Ashkenazy plays, conducts Philharmonia Orch. (London)

325365. Mozart: **Eine Kleine Nachtmusik; Symph. No. 40**—Casals, Marlboro Festival Orch. (CBS Portrait)

309492. Mussorgsky: **Pictures At An Exhibition; Night On Bald Mountain**—Bernstein, New York Phil. (CBS Great Performances)

310698. Offenbach: **Gaite Parisienne; Saint-Saens: Danse Macabre; Dukas: Sorcerer's Apprentice**—Maazel, Orch. National de France (Columbia)

318246. Orff: **Carmina Burana**—Muti, Philharmonia Orch. & Chorus (Angel)

318691. Prokofiev: **Love For Three Oranges Suite; L. Kije Suite**—Thomas, L.A. Phil. (CBS Masterworks)

245043. Rachmaninoff: **Piano Concertos Nos. 1 & 2**—Ashkenazy, Previn, London Symphony (London)

313767. Ravel: **Sonatine, La Valse, Miroirs**, etc.—all played by Arias Ruth Laredo (CBS Masterworks)

324822. Ravel: **Boleero; La Valse**; others—Lorin Maazel, Orch. National de France (*Digital*—CBS Masterworks)

324533. Respighi: **Feste Romane; Pines & Fountains Of Rome**—Dutoit, Orch. de Montreal (*Digital*—London)

318436. Rimsky-Korsakov: **Scheherazade**—Svetlanov, London Symphony (Angel)

325100. Saint-Saens: **Carnival of the Animals**—also works by Debussy, Satie, Philip Jones Brass Ensemble (*Digital*—London)

317677. Schubert: **Symphony No. 8 (Unfinished); Rosamunde Overture and Ballet Music**—von Karajan, Berlin Philharmonic (Angel)

225888. Smetana: **Moldau, Bartered Bride Overture, Dances; Dvorak: Carnival Overture**—Bernstein, N.Y. Phil. (Columbia)

310870-390872. Johann Strauss: **Greatest Waltzes** Ormandy, Szell, Bernstein (Count as 2—Columbia)

320424. Richard Strauss: **Ein Heldenleben**—Dicterow, violin; Mehta, N.Y. Phil. (*Digital*—CBS Masterworks)

281493. Stravinsky: **Rite Of Spring**, Zubin Mehta, N.Y. Phil. (Columbia)

308874. Tchaikovsky: **Piano Concerto No. 1**—Gavrilov; Kitaenko cond. Moscow Radio/TV Sym. Orch. (Col./Melodiya)

329169. Tchaikovsky: **Symphony No. 4**—Lorin Maazel, Cleveland Orch. (CBS Masterworks)

245399. Tchaikovsky: **Symphony No. 6 (Pathétique)**—Ormandy and Phil. Orch. (Columbia)

231563. Tchaikovsky: **Swan Lake and Sleeping Beauty Ballet Suites**—Ormandy, Philadelphia Orchestra (Columbia)

289207-399204. Tchaikovsky: **The Nutcracker (complete)**—American Ballet Theatre Production directed by Baryshnikov (Counts as 2—Columbia)

293191. Tchaikovsky: **Violin Concerto; Meditation**—Stern, Rostropovich, National Sym. (Columbia)

321844-391847. Verdi: **La Traviata—Original Motion Picture Soundtrack**. Stars Domingo, Stratas (Counts as 2—Elektra)

326447. Verdi: **Overtures**—*La Forza del Destino, I Vespri Siciliani, Nabucco*, etc. Chailly, National Philharmonic (*Digital*—London)

324897. Vivaldi: **The Four Seasons**—Lorin Maazel and Orch. National de France (*Digital*—CBS Masterworks)

324525. An Isaac Stern **Vivaldi Gala: Concertos For 2 and 3 Violins**; etc. Stern, Zukerman, Perlman, others (CBS Masterworks)

323733. Wagner: **Orchestral Music from "The Ring"**—*Ride of the Valkyries*, etc. Mehta and New York Phil. (*Digital*—CBS Masterworks)

311472. Placido Domingo **With John Denver**—Perhaps Love. Also: *Annie's Song; Yesterday*, etc. (CBS)

328856. Placido Domingo —**Always in My Heart**. Spanish songs by Lecuona: *Malaguena*, more (CBS)

326553. Placido Domingo —**Great Love Scenes**. With Kiri Te Kanawa, Ileana Cotrubas, Renata Scott (CBS Masterworks)

282582. **Greatest Hits Of 1970**. Includes Pachelbel: *Kanon*; Mouret: *Rondo (Theme "Masterpiece Theater")*; etc. Richard Kapp, Philharmonia Virtuosi of NY. (Columbia)

323247. **Marilyn Horne—Live At La Scala**. Music by Granados, Handel, Copland, etc. (CBS Masterworks)

289520. **Vladimir Horowitz Encores**—virtuoso fireworks! Rachmaninoff, Chopin, more (Columbia)

323493. **Mormon Tabernacle Choir—Gloria Vivaldi: Gloria; Faure; Sanctus**; etc. (*Digital*—CBS Masterworks)

311720. **Luciano Pavarotti Premieres Verdi Arias**—"Lost" gems from *I Vespri Siciliani*, etc. (Columbia)

323097. **Luciano Pavarotti—Mattinata**. Songs by Tosti, Bellini, Gluck, etc. (London)

303453-394353. **Pavarotti's Greatest Hits**. Works by Bellini, Franck, Puccini, Schubert, Verdi, others (Counts as 2—London)

280610. **Jean-Pierre Rampal Greatest Hits**—Debussy's *Girl With The Flaxen Hair*; Handel's *Largo*; etc. (Columbia)

319582. **Jean-Pierre Rampal Plays Scott Joplin**. *The Entertainer*, etc. (CBS)

311647. **Isaac Stern 60th Anniversary Celebration**—master violinist is joined by Zukerman, Perlman, Mehta, etc. (Columbia)

316570. **The Tango Project**—*La Cumparsita; Adios Muchachos*, etc. William Schimmel, accordion, etc. (*Digital*—Nonesuch)

324772. **Kiri Te Kanawa—Songs of the Auvergne** (by Canteloube), English Chamber Orch. (*Digital*—London)

320887. **Kiri Te Kanawa—Verdi and Puccini Arias**. Pritchard, London Phil. (*Digital*—CBS Masterworks)

319848. **Andre Watts—Live in Tokyo**. Works by Ravel, Brahms, Debussy, Haydn, etc. (*Digital*—CBS Masterworks)

320895. **Portrait of John Williams—Theme from "The Deerhunter"; "Fool On The Hill**, etc. (CBS Masterworks)

320085. **John Williams—The Guller Is The Song**. Folksong collection; *Scarborough Fair*; etc. (CBS)

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by *Ralph Hodges*



## *Back to the Source*

**W**ITHIN the audio community there is a history of home-brew tape recorders that, in some respects, is genuinely thought-provoking. As recently as the 1960's many hi-fi enthusiasts bought tape recorders (open-reel, of course) in kit form, and only a short time before that you could buy naked tape transports and combine them with whatever electronics you liked or could put together yourself. The typical result would be embarrassed by the meanest of today's cassette decks, but this hobbyist activity inspired a fine and fearless tradition of setting one's own standards as to how a tape recorder should work and assembling a deck accordingly.

Some of the latest fruits of this tradition can actually be bought by consumers, as in the case of the Mark Levinson ML-5, and others can at least be heard on releases on several audiophile labels. Among the latter, none is as radically distinctive as the brainchild of inventor Keith Johnson, which is used principally at present for many of the offerings from Reference Recordings (P.O. Box 77225-X, San Francisco, Calif. 94107), an esoteric record label that Johnson credits with honing much of his sensitivity for high-end concerns.

Johnson came to tape at the age of

seven, constructed a stereo machine in junior high school, learned to build heads at Ampex, taught at Stanford, where he accrued live-recording experience, and had his recorder in essentially final form by about 1960. It is a conspicuous example of what professional-level analog tape machines could have been like today if industry thinking had gone a little differently during those critical years.

Johnson's first concern was equalization, to combat noise at low recording levels and distortion at high ones. "As an experiment," he recalls, "we put two ordinary recording channels in series, operated one at very low levels and the other at very high ones, and listened critically to the combination of the two, representing the worst of both the noise and distortion worlds. Being able to hear the problems clearly and authentically, we adjusted equalization independently on the two channels until the combination suggested a single characteristic that seemed to sound best. It turned out to be considerably different from what has become the industry standard, but it was what we elected to use in the final machine."

To optimize results using this equalization characteristic, the Johnson team needed a hedge against high-frequency tape satura-

*The hobbyists' activity inspired a tradition of setting one's own standards as to how a tape recorder should work and assembling a machine accordingly.*

tion. This took the form of a special record head that focuses the very-high-frequency bias (3.5 MHz at present) in a tight field pattern, enabling the tape to pass out of the bias-influence region before the impinging audio is weakened significantly. Additional benefits include a more strictly defined effective position for the record gap and vastly reduced sensitivity of the entire recording system to bias-strength fluctuations. Focused-field technology

was neither new nor completely unutilized even in 1960, but Johnson's work appears to take it to its most sophisticated form.

Cleaning up the high frequencies naturally brought low-frequency deficiencies to the foreground. "Fortunately," says Johnson, "topologies permitted by solid-state electronics let us wrap feedback around the

*"We adjusted equalization independently . . . until the combination suggested a single characteristic . . . considerably different from what has become the industry standard."*

—Keith Johnson

heads themselves in a way that permitted useful control of the dynamic range—particularly large for low frequencies—the electronics had to pass. Largely for preservation of phase integrity, we made the present machine flat within 1 or 2 dB down to 3 or 4 Hz, and it is free of noticeable head-contour effects without resorting to resonant circuits."

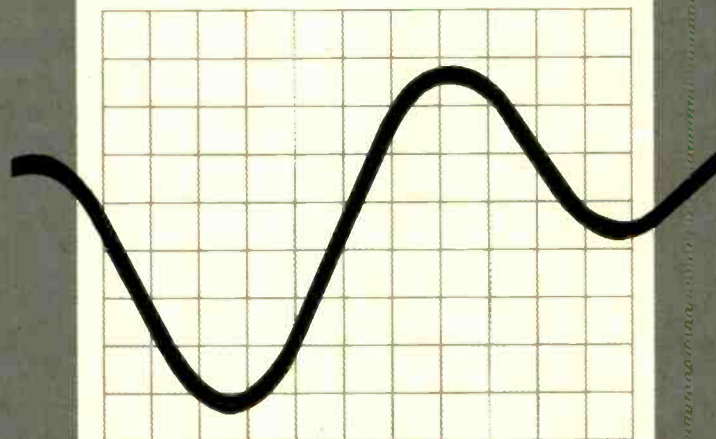
There are other novelties in Johnson's recorder—such as exceptionally narrow tape tracks ("Wider tracks would bring on severe alignment headaches for, at best, a 3-dB S/N improvement more appropriately obtained elsewhere") and a 15-ips speed limit ("Faster only aggravates head-contour effects")—that have fascinating and intricate implications. In sum, the device brings many old and some new ideas together in a machine that, in detail, almost amounts to a new species of tape recorder. And the technology is, in general, also applicable to home recorders.

Listening to what this machine can do is the only way of determining whether it represents what analog tape recording should have been. My own exposure to it has given me great cause to wonder how much better analog recording might be today if it had evolved along the same lines as Keith Johnson's machine did. □



S T E R E O

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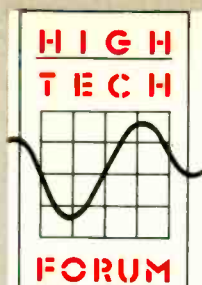


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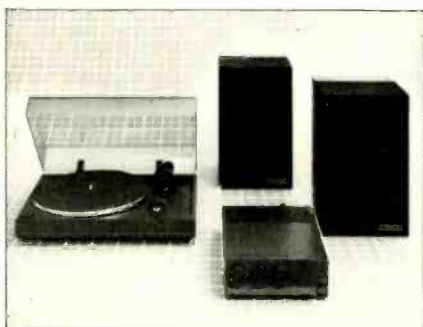


## Mission...in the service of Music.

Mission Electronics is one of those increasingly rare companies whose technological expertise is totally dedicated to the service of music. It is our intention—our mission, if you will—to raise the science of sound reproduction to the highest possible level. In working toward that end, Mission has in its short history become well established as a manufacturer of truly state-of-the-art products. Based in Huntingdon, England, Mission has achieved a formidable reputation in Europe that is only now reaching the United States.

### DESIGN DIVERSITY.

Most audiophile equipment manufacturers have earned their reputations by concentrating their efforts on a particular component. Mission's reputation, however, is based not only on our superb loudspeaker systems, our phono cartridges, tone arms, turntables, and amplifiers are held in equally high esteem by knowledgeable audiophiles throughout the world. It should be understood that it was not merely the urge to have our fingers in a multiplicity of technical pies that drove us to such a wide range of equipment.



It is our position that without an in-depth technical and philosophical understanding of the problems of music reproduction, no single component can be optimally designed...and in any case, components are best designed as part of an overall system. The full explanation of our approach, which involves stage-by-stage bandwidth optimization, impedance matching, elimination of interface distortions, and so forth, is unfortunately more complex than can be covered in the limited space available.

### THE 70 MK. II SYSTEM.

An example of our special approach to product design is provided by the new Mk. II version of our smallest loudspeaker, the Mission 70. Our design objective was to produce a very compact system that was capable of handling the frequency range and dynamics of live music without requiring an excessive amount of amplifier power. Satisfaction of that goal automatically assures the ability to reproduce digital master tapes, while remaining linear at all listening levels.

It is not generally appreciated that, for several reasons, it is far more difficult to design an excellent small speaker system than an excellent large one. A small enclosure's limited internal volume and high internal acoustic pressures demand special construction techniques. These are needed to suppress reflections or resonances occurring both in the air mass inside the cabinet and in the cabinet walls themselves.

#### SPECIFICATIONS MISSION 70 MK. II

Frequency range:	40 Hz-20kHz
Frequency response:	60 Hz-20kHz $\pm$ 3db
Impedance, nominal:	8 ohms
Recommended power:	20-75 w/ch
Sensitivity:	89dB (1W/1m)
Tweeter, dome:	3/4" Polymer
Woofers, cone:	7" Plastiflex
Crossover freq.:	2.2 kHz
Cabinet (h $\times$ w $\times$ d):	14 $\times$ 8 $\frac{1}{2}$ $\times$ 8 $\frac{1}{2}$ "
Finish, grille:	Walnut, black

### RESONANCE CONTROL.

If not properly controlled, enclosure resonances blur transients and impart a nasal, muddy, or boomy quality to upper-bass notes and male voices. In the Mission 70, internal resonances and standing waves are absorbed by special Mission-developed open-cell acoustic-foam blocks that occupy most of the enclosure's internal volume. Special construction techniques were employed in the 70's cabinet to achieve the desired acoustical characteristics without the need for heavy panels and internal bracing. We used a three-layer construction, thin panels of high-density composition board sandwiching a specially developed visco-elastic material. This arrangement provides an optimum combination of structural

rigidity, internal damping, and low mass.

Most manufacturers take their cabinet construction for granted—with the expectation that their customers will also. We have discussed assembly details simply to illustrate the depth of our concern for every aspect of design that affects the sonic performance of our products. But, of course, the main determinant of a speaker system's performance is the quality of its drivers and crossover.

### THE DRIVERS.

The 70 employs a 7-inch woofer with a unique Plastiflex cone crossed over at 2.2 kHz to a 3/4-inch Ferrofluid-damped polymer dome tweeter. The critically designed six-element crossover network operates in conjunction with Mission's inverted driver geometry to provide a startlingly realistic stereo sound stage.

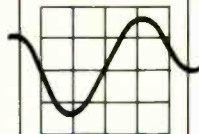
Among the performance parameters detailed in the specification chart at left there is one whose significance is not universally appreciated. A loudspeaker's sensitivity specification indicates its efficiency in converting an amplifier's electrical output into acoustic energy. Every 3 dB increase in speaker sensitivity halves the amplifier power needed for a given acoustic output. The logical answer, therefore, to the wide dynamics of digital program material is *not* more powerful amplifiers—although Mission is prepared to supply them. Instead, we prefer to design loudspeaker systems that can deliver digital peak levels without requiring enormous power inputs.

At this point, a critical listening session at your Mission dealer is worth far more than anything we could add. Of course, there is much more to the Mission Electronics story, and we would be pleased to make it available to you either by mail...or better yet, at your nearest Mission dealer. We would very much appreciate the opportunity to *demonstrate* the qualities that we've been telling you about.



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H I G H  
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F O R U M

## Unique Flat Wave Speaker Systems from SFI

You may be reading about SFI for the first time. Actually, SFI has been involved in loudspeaker driver design through its brother company in Japan, Sawafuji, since 1922. SFI's continuing research into transducer technology has led to a number of international patents and an enviable reputation among equipment manufacturers as a high-quality design and manufacturing source. Sawafuji-produced ribbon tweeters, flat-diaphragm headphone elements, and other transduction devices are found in respected high-end audio components throughout the world.

SFI recently successfully completed a research program dedicated to the development of a new generation of flat wave loudspeaker transducers. The result: a series of high- and low-frequency drivers with dramatically improved sound quality.

### PROBLEMS AND SOLUTIONS.

To appreciate what SFI has achieved, it's necessary to understand the essential problems that have troubled conventional loudspeakers for almost 60 years. Conventional diaphragms tend to store energy, buckle, and break up into resonant modes under the impact of the large forces applied in a small area by the voice coil. This results in distortions in phase, amplitude, frequency, and dispersion—which covers just about everything that goes wrong in a loudspeaker.

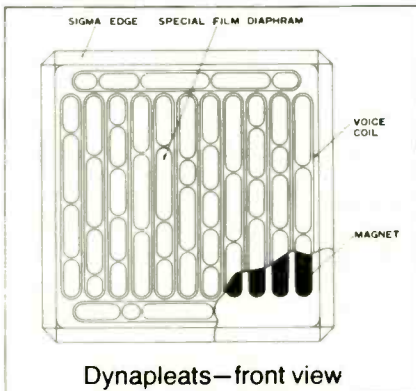
The solution to all these problems is a driver with a very low-mass, non-resonant diaphragm that is linearly driven over its entire radiating surface. However, the practical realization of such a planar speaker system is certainly not easy—as previous and current producers of such designs have discovered. The challenge is to combine the transient response, definition, and openness of an electrostatic transducer with the reliability, dynamic range, bass performance, and non-problematic drive requirements of a standard electromagnetic cone transducer.

### SFI'S DRIVERS.

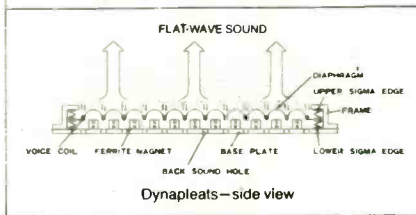
In 1922, Sawafuji's engineers abandoned the conventional cone and cylindrical voice coil. Instead they developed a flat voice coil etched on the entire surface of

a Polysolpon™ film diaphragm. The diaphragm, which is only a few thousandths of an inch thick, is immersed in an intense magnetic field. When used as a headphone element, the flat-wave ribbon tweeter has a smooth response extending from 10 Hz to 100 kHz. And, as a tweeter in a speaker system, its performance is equally impressive.

Applying the distributed-drive, voice-coil principle to a low-frequency transducer required an enormous amount of engineering time. Bass reproduction demands large air movements which, in turn, require large diaphragm excursions; a difficult task for a flat wave transducer. Sawafuji engineers persevered, and the Dynapleats transducer emerged from their laboratories.



Dynapleats—front view

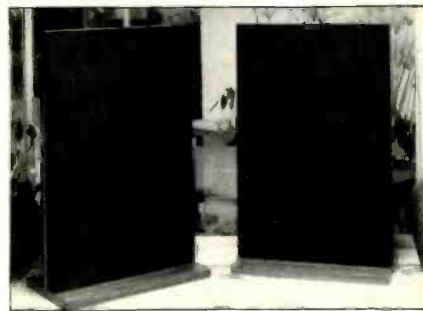


Dynapleats—side view

The diaphragm of the Dynapleats, 6½ x 6½ inch, low-frequency driver utilizes a Polysolpon™ diaphragm that is aerodynamically pleated with the voice coil integrated into the entire surface of the driver. (See side-view diagram.) An array of high-energy strontium bar magnets set within the ridges interacts with the distributed voice coil, and a unique high-compliance, long-excursion Sigma edge suspension supports the diaphragm perimeter. This proprietary arrangement ensures thermal stability and ruggedness, wide dynamic range, and extended bass response.

### SFI SYSTEMS.

The state-of-the-art SFI systems, the Digital Reference, employs an array of sixteen 6½" x 6½", low-frequency drivers, four 6½" x 6½" midrange drivers and eight ribbon tweeters installed on a handsome 35 x 56 x 3-inch dipolar radiating baffle. The low-frequency array has far more "cone" surface than an 18-inch woofer while simultaneously providing the resonance-free fast rise time of light-weight diaphragms. Crossover is at 600 Hz to the four midrange drivers arranged in a vertical line-source configuration for wide, but controlled, dispersion. The eight tweeters, crossed over at 5,000 Hz, form another vertical array for enhanced dispersion. The SFI systems, with their flat wave drivers, are inherently phase accurate. And the wide operating range of the Dynapleats drivers allows the use of simple, inductorless high-pass networks as crossovers.



For a demonstration of the range of SFI systems currently available—all using the state-of-the-art SFI flat wave drivers—visit your SFI dealer. You will hear, for the first time, the solid bass and dynamic range of the best of the conventional systems, combined with the open, transparent qualities and superb definition of the finest electrostatics. This is achieved without the limitations of electrostatics, i.e., special amplifiers and limited bass responses. For more technical information on this speaker and other products, along with the address of your nearest SFI dealer, write to:

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## WHAT THEY'RE WATCHING



**ALISON AMES**  
*Vice President of PolyGram Classics; Head of Deutsche Grammophon, USA*

**W**HEN I got my Sanyo Beta Hi-Fi VCR, the first cassettes I bought were *La Traviata* with Placido Domingo and Teresa Stratas and 'Horowitz in London,'" says Alison Ames. She had seen the *Traviata* film in a movie theater and knew the Horowitz concert from RCA Records, but in some ways she preferred both programs in home video.

"In the theater some of the *Traviata* performances seemed overblown, but they were just right on the smaller screen. Both Stratas and Domingo were superb. The Horowitz concert may not have been his greatest performance as a pianist, but video offers a very interesting opportunity to watch this canny old entertainer work his charm on the audience—and on me.

"The sound on the Horowitz cassette is clear, sharp, and wonderful. It's very well done. Unfortunately, the sound on the *Traviata* is quite disappointing. If I can be excused for promoting my own company, I'd like to say that sonically the soundtrack—on both film and video—is far inferior to the Deutsche

Grammophon recording of *Traviata*, which coincidentally also stars Placido Domingo."

Ms. Ames's job requires that she spend many evenings at the opera or at concerts, but a VCR makes it possible for her to keep up with film, an art form she enjoys a great deal. "When I do get a free evening, I don't have the patience to stand in line for a movie, so I rent a couple at Tower Video on the way home. I'm not up for buying many new movies. You take too many chances. For example, *The Big Chill* is beloved of Yuppies, but I hated it and was glad I'd spent only \$2.50 to rent it."

Classic movies are something else, however, and Ms. Ames is building a collection that includes such things as *The African Queen*, *All About Eve*, and *Death on the Nile*. Recent acquisitions are Rainer Werner Fassbinder's *Despair* and Woody Allen's *Zelig*. "I don't care for Allen as a rule," she says, "but I liked him in this picture, which I found subtle and entertaining. Technically it's very well done."

Instead of taping movies off the air, she prefers the commercial product because the quality is so much better. She uses taping off the air toward completing her library of the TV series *The Honeymooners* ("I'm about half way there") and for timeshifting broadcast concerts ("Few are interesting enough to keep for second viewings").

Ms. Ames does not yet have a video-disc player. "Space is limited in New York apartments," she says, "and I'm waiting for a machine that will earn its keep by playing both Compact Discs and video discs."

Her next software purchase will probably be the movie *Jules et Jim*, a collaboration between the actor Oskar Werner and director François Truffaut, both of whom died recently. "I'm curious about the sound on Video Arts International's movie of *Rosenkavalier* conducted by Herbert von Karajan. It won't be as good as the sound of his new DG recording of that opera, of course, but VAI thinks it's good enough to release in Beta Hi-Fi. What I really long for in video is Karajan's film of *Madama Butterfly* with Mirella Freni and Domingo. I can't wait to get my eyes on that—and my ears too." *William Livingstone*

*Discs and tapes reviewed by*  
 Chris Albertson  
 Louis Meredith  
 Alanna Nash  
 Mark Peel  
 Peter Reilly  
 Steve Simels

**THE ANIMALS: *Rip It to Shreds/Greatest Hits Live!*** The Animals (vocals and instrumentals); other musicians. *It's Too Late; House of the Rising Sun; It's My Life; Don't Bring Me Down;* and six others. IRS SP 70043 \$8.98. © CS 70043 \$8.98.

Performance: *Uninspired*  
 Recording: *Sloppy*

Friends of mine who made it to the 1983 concerts by the temporarily reunited Animals came back raving, but on the basis of "Rip It to Shreds" it's hard to understand why. Mostly this seems like halfhearted stuff. The occasional updates of the arrangements are pointless, lead singer Eric Burdon shouts too much, and the band generally sounds weak in the knees. It's only fair to say, however, that this is a lousy live recording job—over-echoey and under-miked (guitarist Hilton Valentine's parts could have been phoned in)—so it's at least possible that the group was as exciting as my pals seemed to think. Or maybe you just had to be there. In any case, even if you're an Animals fan from way back, I'd pass on this particular party. S.S.

**BAD MANNERS: *Forging Ahead*** (see Best of the Month, page 68)

**CHARLES COCHRAN: *Haunted Heart***. Charles Cochran (vocals); Richard Rodney Bennett (piano); Steve LaSpina (bass); Teddy Tedesco (drums). *Street of Dreams; Make Me Rainbows; I Love You Again; Maybe September; Our Love Rolls On;* and seven others. AUDIOPHILE AP 177 \$7.98 (from Audiophile Records, 3008 Wadsworth Mill Place, Atlanta, Ga. 30032).

Performance: *Expertly stylish*  
 Recording: *Good*

Charles Cochran is a new name to me, but it is obvious that he's been around the business for a while. The kind of intelligent, direct, and graceful singing on this album doesn't just happen. It is

**Explanation of symbols:**

- = Digital-master analog LP
- Ⓢ = Stereo cassette
- Ⓢ = Digital Compact Disc
- Ⓜ = Monophonic recording

## TALKING HEADS LIVE

**N**o one needs to tell head Head David Byrne to "Stop Making Sense," which is the title of a new concert film by the Talking Heads and also of the group's second live album. Byrne is as bizarre and energized as ever. During the "event," he gives himself up to a series of elaborate dances (a "duck dance," a "jogging dance," a "knock-knee dance," a "wiggle dance," and so on) that are blocked and timed with Broadway precision. He also wears a very large, stiff white suit. Maybe it's a spoof on Giorgio Armani, I don't know.

Now, maybe you're getting a little tired of this kind of gratuitous oddity from the New Wave, but in this case, believe me, it won't matter: "Stop Making Sense" happens to be a great live performance. The recording is sharp and close up, the playing intense, even inspired. Byrne's vocals are characteristically mannered, but then it wouldn't be the Talking Heads if they weren't. The song selection is wide ranging (all the Heads' albums are represented), yet the record manages to achieve a consistent, unified feel. I think we could have

done without one more version of *Take Me to the River*, but electrifying versions of *Swamp*, *Slippery People*, and *Burning Down the House* more than make up for that.

Jerry Harrison's keyboard playing shoulders a terrific amount of the music with virtuosic ease, and the arrangements are given extra muscle by the addition of Bernie Worrel on keyboards, Alex Weir on guitar, and Steve Scales on percussion. The seemingly ubiquitous Scales, in particular, gives the music real bite.

So forget the big white suit and Byrne's contrived weirdness. "Stop Making Sense" makes all the sense good rock-and-roll has to make. It rocks.

Mark Peel

**TALKING HEADS: *Stop Making Sense***. David Byrne (vocals, guitar); Chris Frantz (drums, vocals); Tina Weymouth (bass, vocals); Jerry Harrison (guitar, keyboards, vocals); other musicians. *Psycho Killer; Swamp; Slippery People; Burning Down the House; Girlfriend Is Better; Once in a Lifetime; What a Day That Was; Life During Wartime; Take Me to the River*. SIRE 25121-1 \$8.98, © 25121-4 \$8.98.

DAVE FRIEDMAN/SIRE RECORDS

*David Byrne: as bizarre as ever*



the result of someone's studying and learning his craft to near perfection and then being able to relax within that knowledge and concentrate on communicating, lightly and deftly. The best example of this approach would have to be Fred Astaire. Cochran's own song, *I Love You Again*, is of particular interest, but there isn't anything here that isn't performed with enormous style and taste. More, please. P.R.

**PLACIDO DOMINGO:** *Always in My Heart (Siempre en mi corazon)*. Placido Domingo (tenor); Royal Philharmonic

Orchestra, Lee Holdridge cond. *Sibonay; Noche azul; Maria La O; La comparsa; Siempre en mi corazon*; and five others. CBS FM 38828, © FMT 38828, © MK 38828, no list price.

Performance: *Disappointing*  
Recording: *Overdone*

This recording by Placido Domingo is a major disappointment, at least for me. I've always been an admirer of Domingo and equally an admirer of Ernesto Lecuona's music. Unfortunately, this album serves neither of them well. Milt Okun's production is garish, Lee Hol-

dridge's arrangements are needlessly gimmicky and elaborate, and Domingo sings this insinuating, melody-drenched repertoire as if he were in training for his recent appearances in *Lohengrin*. The only really satisfactory Lecuona recording I've ever heard remains the composer's piano run-through of several of his songs on an ancient RCA release. P.R.

**MARK GRAY:** *Magic*. Mark Gray (vocals); vocal and instrumental accompaniment. *It Ain't Real (If It Ain't You); Wounded Hearts; Lean on Me; 'Til the Heartache Is Over; Left Side of the Bed; If All the Magic Is Gone*; and four others. COLUMBIA B6C 39143, © B6T 39143, no list price.

Performance: *Sleep-provoking*  
Recording: *Okay*

Mark Gray is a former member of Exile who left because he wanted to be a solo performer. Judging from this album, I'd say Gray apparently sees himself as a sort of blue-eyed soul brother, but his voice isn't very natural-sounding, and it has artificialities and colorations all through it. Like Exile, Gray comes from a copy-band background, but unlike his old pals, he hasn't moved much from it. Gray was the co-writer (with Exile's J. P. Pennington) of Alabama's big hits, "Take Me Down" and "The Closer You Get." But his lyrics on this album are so predictable that you can easily guess the next line. And as for the interpretations, well, he does nothing for Bill Withers's *Lean on Me*. He does hit all the notes squarely, but that's about the only thing that rings true on this debut LP. Otherwise, "Magic" sounds more like sleight-of-hand. A.N.

**TOM T. HALL:** *Natural Dreams*. Tom T. Hall (vocals); instrumental and vocal accompaniment. *Famous in Missouri; Before Jessie Died; They Captured the Outlaw Last Night; P.S. I Love You; Brand New Bartender; I See*; and four others. MERCURY 822 425-1 \$8.98, © 822 425-4 \$8.98.

Performance: *Laconic*  
Recording: *Very good*

There's something reassuring about most of Tom T. Hall's albums. Maybe it's the authoritative timbre of his corduroy-smooth baritone, or the familiarity of the dobro and the jingle-jangle guitar. The thing is, such amenities—combined with Hall's folksy, yet novelistic observations of life—tend to obscure the occasions when Hall is just bluffing. First, you're disarmed by the now-I'm-going-to-tell-you-a-story tone, and then by affecting word portraits ("A little dog on the side of the road/Long been dead and long been cold"). But when you start adding up the plots and the actual stories here, you come up with pretty slim pickings.

Every album doesn't have to be a full harvest, of course, but Hall's also starting to run the risk of formula on his albums—a couple of sensitive, forgot-

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ten-character songs, a song about getting drunk, and at least one or two irony-filled social-commentary tunes. Even when he's only running at half-speed, though, Tom T. is far more fascinating than most. And that dog image sure gets stuck in your mind. *A.N.*

**CHRIS HILLMAN:** *Desert Rose*. Chris Hillman (vocals, guitar, mandolin); vocal and instrumental accompaniment. *Why You Been Gone So Long; Somebody's Back in Town; Rough and Rowdy Ways; Running the Roadblocks*; and six others. SUGAR HILL SH-3743 \$8.98, © SH-C-3743 \$8.98.

Performance: *Sweet and simple*  
Recording: *Good*

On first listening, Chris Hillman's "Desert Rose" sounds like a picker's album without much picking. The presence of such sidemen as Byron Berline on fiddle, Glen D. Hardin on piano, and James Burton on guitar suggests long-stretch, showcase solos, but as on his last album, "Morning Sky," Hillman opts for ensemble sound most of the time, keeping the flash to a minimum. The record could have used a little more passion and raw energy, I think, but in the long run Hillman probably made the right choice, considering his mission—preserving the flavor and the authenticity of the old style through a contemporary blend of country, country/rock, and bluegrass. Overall, "Desert Rose" is a thoroughly satisfying mix of country and bluegrass classics and modern tunes done up in offshoot styles. The instrumental riffs don't stand out quite as much as I'd like, and the vocals are a little too far back to suit me, but this is still a honey of an album, the musical equivalent of bluebird wine on a warm afternoon. *A.N.*

**HUSKER DU:** *Zen Arcade*. Husker Du (vocals and instrumentals). *Something I Learned Today; Broken Home, Broken Heart; Never Talking to You Again; Chartered Trips; Dreams Reoccurring; Indecision Time; Hare Krsna; Beyond the Threshold*; and fifteen others. SST 027 two discs \$10.

Performance: *Mostly compelling*  
Recording: *Okay*

Husker Du has developed a reputation as the thinking person's hard-core band, and after listening to "Zen Arcade," which for sheer ambition and variety recalls nothing so much as the Beatles' "White Album" (without sounding like it, of course), it's fairly obvious why. A lyrically bitter, instrumentally stunning collection of songs ranging from the political to the personal, the album is a genuine tour de force.

I'm unconvinced by the concluding track here, a fourteen-minute instrumental that makes suitably industrial-strength noises but verges on Mahavishnu Orchestra territory, and the album's no-nonsense (read: cheapo) production comes off more as an affectation than a valid aesthetic or political

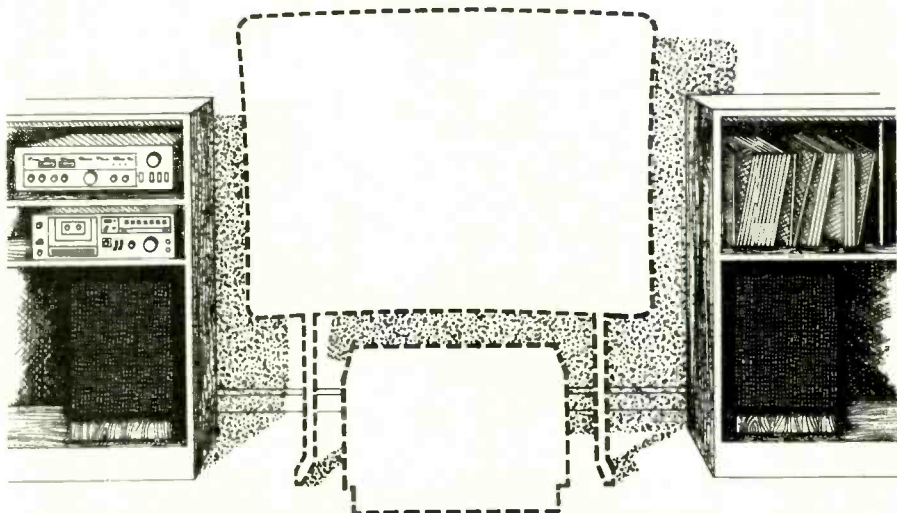
decision. Still, there's an astonishing amount of superior music here, and like the early Clash, which this stuff also in some way resembles, most of it should have a genuinely cleansing effect on ears polluted by the pabulum currently dominating the American airwaves. Passionate, raucous, great stuff, and highly recommended. *S.S.*

**JEFFERSON STARSHIP:** *Nuclear Furniture*. Jefferson Starship (vocals and instrumentals). *Layin' It on the Line; No Way Out; Sorry Me, Sorry You; Live and Let Live; Connection*;

and six others. GRUNT BXL1-4971 \$8.98, © BXX1-4971 \$8.98.

Performance: *Pretty good*  
Recording: *Very good*

Nearly twenty years after forming the Jefferson Airplane, Paul Kantner remains one of rock's great cranks, a fiery orator and passionate promoter of social and political upheaval. If his particular brand of proselytizing seems dated, all the more reason that I'm glad he's still around. "Nuclear Furniture" is by no means a great album. It is, in fact, quite standard, heavy-metal fare, a di-



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rection the Starship has followed for nearly ten years behind the histrionic guitar of Craig Chaquico. This version of the Starship also features European synthesizer maven Peter Wolf, who contributes a couple of forgettable songs but some powerful, end-of-the-world electronic fireworks.

"Nuclear Furniture" aims to be a polemic against nuclear weapons, but every time Kantner and Grace Slick warm up to their subject, along comes Chaquico or Pete Sears to dowse it in some pedestrian, heavy-metal paean to love. Given half a chance—or a whole side—this could have been another "Blows Against the Empire." As it is, there are still some incendiary moments, especially on side two, much of which traces the entwined tales of man's nuclear destruction and of a woman named Rose, who seems to be part flesh-and-blood heroine and part a symbol of the human will to survive. It's more convincing than I would have thought possible from the Starship and carried off with the anarchistic bravado—shouting, sloganeering, obscenities—that marked earlier diatribes like "Blows" and "Volunteers."

Unfortunately, most of side one and big chunks of side two are given over to the heavy-metal part of the show and, as such, can pretty much be written off. Still, how telling now to hear the Starship do a song, *No Way Out*, a guilty admission of infidelity that implies real despair and contrition, and then remember the skewed morality of *Triad* from "Crown of Creation" ("Why can't we go on living as three?"). Which goes to show that not only have the Starship's political values survived pretty much intact, their moral ones actually seem to be improving. *M.P.*

**BARBARA MANDRELL & LEE GREENWOOD: *Meant for Each Other.*** Barbara Mandrell and Lee Greenwood (vocals); vocal and instrumental accompaniment. *To Me; I'll Never Stop Loving You; We're a Perfect Match; It Should Have Been Love By Now; Soft Shoulder; Held Over*; and four others. MCA MCA-5477 \$7.98, © MCAC-5477 \$7.98.

Performance: *Energized*  
Recording: *Good*

Lately, record company executives have been putting duet teams together faster than Chicagoans have been buying lottery tickets, so it's not surprising that Barbara Mandrell and Lee Greenwood have decided they're "meant for each other." Oddly enough, as a duet team they probably are. Greenwood may be a newcomer next to the veteran Mandrell, but as an entertainer he's really her male counterpart. They both have an inherent huskiness to their voices, and in concert both performers beam a souped-up kind of energy, of the sort transferred to their performances here.

I imagine the egos involved were so big that the two singers had trouble fitting into the recording booth, but what-



ever it took to make it, this is a fairly good, very commercial album. Mandrell and Greenwood aren't exactly in competition here, but neither of them is about to let the other get the upper hand. Overall, "Meant for Each Other" turns out to be something extra, and quite possibly an award winner in next year's CMA awards. *A.N.*

**BOB MARLEY AND THE WAILERS: Legend.** Bob Marley and the Wailers (vocals and instrumentals). *Is This Love; No Woman No Cry; Could You Be Loved; Three Little Birds; Buffalo Soldier; I Shot the Sheriff; Exodus;* and seven others. ISLAND 90169-1 \$12.98, © 90169-4 \$12.98.

Performance: *Classic*  
Recording: *Good*

I don't envy the person who has to put together the "best" of anybody, especially someone like Bob Marley, whose career spanned more than a decade. But if I were putting together such a collection, this isn't the one I would have chosen. There are fourteen songs—in itself an indication of how hard it was to keep this project on a single disc—but five are from "Exodus," by no means Marley's best record, and there are none from what arguably was his best, "Natty Dread." (The version of *No Woman, No Cry* is from "Live.") Two other songs—*Stir It Up* and *I Shot the Sheriff*—were popularized by other artists (Johnny Nash and Eric Clapton, respectively). Altogether, I think the collection could have used a little more politics and a little less romance. *M.P.*

**HAROLD MELVIN AND THE BLUE NOTES: Talk It Up (Tell Everybody).** Harold Melvin and the Blue Notes (vocals); instrumental accompaniment. *Don't Give Me Up; I Really Love You; I Can't Let Go; This Is the Love;* and four others PHILLY WORLD 90187-1 \$8.98, © 90187-4 \$8.98.

Performance: *Shallow*  
Recording: *Very good*

Harold Melvin is generally acknowledged to be the man who first peppered the acts of singing groups with dance routines. He formed the nucleus of the Blue Notes in the late Fifties, but the group did not really catch on until the pre-dawn of the disco era, the early Seventies. "Talk It Up" bears witness to the durability of the group that spawned Teddy Pendergrass, but it lacks the excitement of earlier productions. Still, sentimental fool that I am, I find it hard to resist repeated plays of *Time Be My Lover* and *What We Both Need (Is Love)*, the two real tear-jerkers in this album. *C.A.*

**YOKO ONO: Every Man Has a Woman.** John Lennon, Harry Nilsson, Eddie Money, Rosanne Cash, Roberta Flack, others (vocals and instrumentals). *Every Man Has a Woman Who Loves Him; Silver Horse; I'm Moving On; Nobody Sees Me Like You Do; Goodbye*

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*Sadness*; and seven others. POLYDOR 823 489-1 \$8.98, © 823 489-4 \$8.98.

Performance: *Pointless*  
Recording: *Okay*

Yoko Ono's inadequacies as a songwriter are so deep and intractable that not even the combined forces assembled for "Every Man Has a Woman" can sustain the illusion that she has any business in a recording studio. Ono's music goes beyond primitivism to simple-mindedness. It is droning, aimless, and just plain ugly. Her lyrics are as banal and awkward as poems in a high-school lit-

erary magazine. Even an adolescent could be expected to do better than "Today is the first day of the rest of your life," yet, incredibly, there it is, in *Wake Up*. Indeed, Yoko's most persistent theme is "Get out of bed," a call to action so mundane and spiritless that you can easily believe that getting out of bed is a major problem in the Ono household.

Words and music both suffer from Ono's remarkably short attention span. *Silver Horse*, for instance, begins as greeting-card self-analysis, wanders into a fairy tale that goes absolutely no-

where, and winds up with the resoundingly inconclusive and unjustified "And that's the story of a dreamer." No, that's the story of an undisciplined mind that can't complete a thought. M.P.

**RED ROCKERS:** *Schizophrenic Circus*. Red Rockers (vocals and instrumentals); Ralph Shuckett (organ); other musicians. *Just Like You; Blood from a Stone; Shades of '45; Another Day*; and five others. COLUMBIA BFC 39281, © BFT 39281, no list price.

Performance: *One great track*  
Recording: *Suitably big*

This is a modest little album by a band that, in Winston Churchill's phrase, has much to be modest about. A perfectly respectable but essentially faceless mélange of everything from the Who to the Clash to the (gasp) Grass Roots, it's been beautifully produced by Rick Chertoff but fails to make much of an impression. There are two notable exceptions: *Burning Bridges*, which contains the ultimate trite Sixties rhyme ("change" and "rearrange") and thus earns points for nerve, and an absolutely astonishing remake of *Eve of Destruction*, a song I had never dreamed could be anything more than low-grade period camp. Here, however, with ringing guitars and haunting vocals, it sounds like the apotheosis of every great single the Byrds ever made, and I could listen to it forever. S.S.

**RICKY SKAGGS:** *Country Boy*. Ricky Skaggs (vocals, guitars, mandolin, fiddles); instrumental and vocal accompaniment. *Country Boy; Something in My Heart; Patiently Waiting; Two Highways; Wheel Hoss; Rendezvous*; and three others. EPIC FE 39410, © FET 39410, no list price.

Performance: *Energetic*  
Recording: *Good*

While Ricky Skaggs's last album, "Don't Cheat in Our Hometown," reflected his strong bluegrass background, his new LP, "Country Boy," almost shouts its musical orientation in the title. "Country Boy" doesn't disavow Skaggs's bluegrass heritage (Bill Monroe joins him on mandolin for a train-stopping version of Monroe's *Wheel Hoss*), but it is definitely played down in favor of the beehive-hairdo side of country music, as were Skaggs's first two Epic albums when he was trying to get a toe-hold in the country market.

As an *album*, though, or as just good rural *music*, Skaggs's new LP suffers not in the least. In fact, it is, as expected, a delightful, high-energy sampler of what smart country music can sound like—just old-fashioned-style country music delivered by one of the most dignified backwoods musicians going and accented by some of the most imaginative and deft pickers in the business. Bruce Bouton's steel playing on *Baby, I'm in Love with You*, for example, and Gary Smith's piano-noodling on *I'm Ready to Go* are pure, unadulterated joy. A.N.

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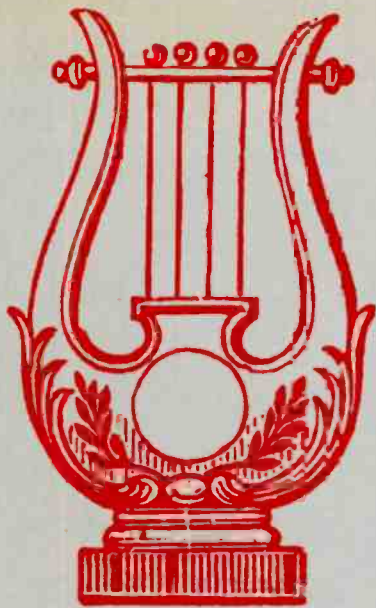
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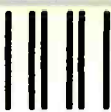
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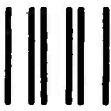


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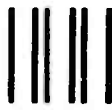


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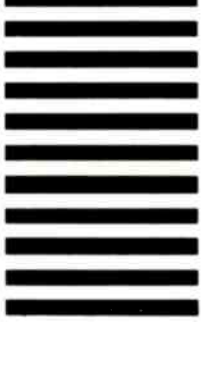
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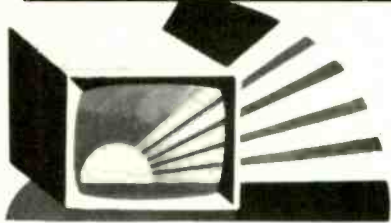
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# VIDEO



**HEIFETZ/PIATIGORSKY.** Wieniawski: *Polonaise*. Gluck: *Melodie*. Anton Rubinstein: *Romance*. Prokofiev: *Romeo and Juliet*; *Masques*. Other selections. Jascha Heifetz (violin); Gregor Piatigorsky (cello). KULTUR V1101 VHS and Beta \$59.95 (from Kultur, 1340 Ocean Ave., Sea Bright, N.J. 07760).

Performance: *Curious*  
Recording: *Period black and white*

"Heifetz/Piatigorsky" combines several black-and-white films from the late Forties and early Fifties. The first alternates between Heifetz rehearsing, performing, and doing such mundane chores as changing a tire; the second has him and piano accompanist Emanuel Bay playing Wieniawski's *Scherzo-Tarantelle* and one of Paganini's *Caprices* in concert. A third features Heifetz and Bay in an impromptu recital that forms the major body of music on this release: compositions by Brahms, Wieniawski, Gluck, Prokofiev, and Mendelssohn, concluding with the bravura *Hora Staccato*. The film devoted to cellist Gregor Piatigorsky has a perfectly awful storyline designed to accommodate several musical selections—by Bach, Chopin, Prokofiev, Tchaikovsky, and others—that save this part of the release from total disaster. C.A.

**RUBINSTEIN.** Chopin: *Waltz in C-sharp Minor*; *Polonaise in A Major*; *Polonaise in A-flat Major*. Mendels-

sohn: *Trio in D Minor*. Other selections. Arthur Rubinstein (piano); with Jascha Heifetz (violin) and Gregor Piatigorsky (cello) in *Trio*. KULTUR V1102 VHS and Beta \$59.95 (from Kultur, 1340 Ocean Ave., Sea Bright, N.J. 07760).

Performance: *Dated, but...*  
Recording: *Period black and white*

This ninety-minute collection of three films is at times unintentionally hilarious. No date is given, but they were clearly made thirty or forty years ago, when makers of commercial short films seemed to aim their work at simpletons. You'll love the scene where Arthur Rubinstein is approached by a film executive who wants to make the very footage you see here. And who can forget the dramatic moment when the man hired to write the film throws his script on Rubinstein's floor because he suddenly realizes that no script is needed? Unfortunately, his realization is but a part of a particularly awkward script that *wasn't* discarded on the floor.

So what are we left with? A lot of fine, if somewhat hackneyed music in a charmingly dated setting, making this more of a historical oddity than a musical experience. I love it. C.A.

**DONNA SUMMER: A Hot Summer Night with Donna.** Donna Summer (vocals); vocal and instrumental accompaniment. *MacArthur Park*; *Love Is in Control (Finger on the Trigger)*; *Unconditional Love*; *Romeo*; *Don't Cry for Me Argentina*; *On the Radio*; *Forgive Me*; and eight others. PIONEER ARTISTS LaserDisc EP PA-84-083 \$24.95.

Performance: *Slick*  
Recording: *Excellent*

Originally broadcast on HBO, this 1983 concert finds the Disco Diva in average form, running through a selection of her hits with somewhat less enthusiasm than you or I might give to dramatic readings from our tax returns. The package does, however, confirm that

Summer is now a certifiable Star, in the Ross/Streisand sense, which doubtless has something to do with the overpowering miasma of *Big-Time Show Biz* that hangs over this disc like a shroud. Yes, Summer's a great singer, and yes, she's capable (on record, at least) of making emotionally involving music. But here she seems much more interested in her costume changes than in the songs she's singing.

Some relief is offered by Musical Youth (reggae's answer to the original Jackson Five), but "A Hot Summer Night" is mostly just the usual Las Vegas Wax Museum stuff masquerading as entertainment. L.M.

**TWISTED SISTER: Stay Hungry.** Twisted Sister (vocals and instrumentals). *Introduction*; *The Kids Are Back*; *We're Not Gonna Take It*; *I Wanna Rock*; *Under the Blade*; and seven others. PIONEER ARTISTS LaserDisc EP PA-84-093 \$24.95.

Performance: *Silly*  
Recording: *Fine*

Yet another made-for-MTV rock concert achieves home-video immortality. This cultural event by Long Island heavy-metal mavens Twisted Sister is sure to gladden the hearts of teenage headbangers everywhere. Splitting hairs about the merits of heavy-metal bands is, of course, an exercise in futility akin to bailing out the English Channel with a teaspoon, but in fairness to these guys, it should be noted that their stuff is as good as the genre gets. They're fine players, with showmanship to burn, and, on the basis of the staged videos intercut with the live footage that forms the bulk of "Stay Hungry," they have a sense of humor.

The photography is nice, and the LaserDisc sound is, as usual, terrific. But, although the band goes through its routines with genuine aplomb, this kind of calculated adolescent silliness has long since outlived its usefulness. L.M.

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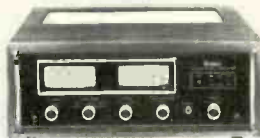
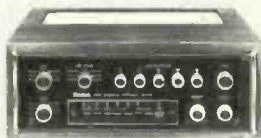
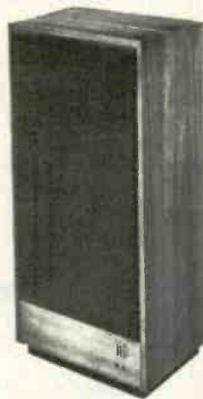
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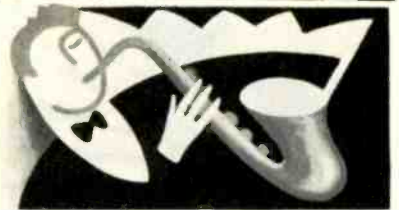
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## JAZZ



**THE GEORGIA GRINDERS: A Tribute to Roy Palmer.** Jim Snyder (trombone, vocals, whistle); the Georgia Grinders. *Nancy Jane; Sweet Feet; Endurance Stomp; Tiger Moan; Dirty Dozen's Cousins; South African Blues; Pleasure Mad; Shanghai Honeymoon;* and eight others. STOMP OFF S.O.S. 1068 \$9.98 (from Stomp Off Records, P.O. Box 342, Dept. L, York, Pa. 17405).

Performance: *Echoes*  
Recording: *Excellent*

Chicago trombonist Roy Palmer never became as well recognized as, say, Jack Teagarden or Kid Ory, but no moldy fig worth his or her copy of King Oliver's "Zulu's Ball" hasn't heard and thrilled at the sound of Palmer's earthy horn.

I won't say that I got the same thrill from listening to the Georgia Grinder's Stomp Off release, "A Tribute to Roy Palmer," but it is nevertheless a skillful, pleasant set of selections that are hardly ever performed. The sound, as good as you are ever likely to find on an analog disc, is characteristic of this small, dedicated label. C.A.

**KEITH JARRETT: Changes.** Keith Jarrett (piano); Gary Peacock (bass); Jack DeJohnette (drums). *Flying; Prism.* ECM Ⓞ 25007-1 \$9.98, Ⓞ 25007-4 \$9.98, Ⓞ 25007-2 \$15.98.

Performance: *Vocal pollution*  
Recording: *Excellent*

The phenomenal success of pianist Keith Jarrett's solo improvisations seems to have peaked, but the beat—or lack of it—goes on. Actually, there is an occasional beat to "Changes," a new album in which Jarrett is joined by bassist Gary Peacock and drummer Jack DeJohnette. The music is fine, but the extraneous noises generated by Jarrett, not unlike a pig's squeals, soon become annoying. The album's thirty-seven-minute running time is about a half-hour short of a CD's capacity, so some buyers of this format may feel short-changed, but there is clear compensation in the clean quality of the sound. Well, nearly clean. The standard vinyl issue just might obscure some of Jarrett's sound effects. C.A.

**CAROL LEIGH/JIM DAPOGNY: If You Don't, I Know Who Will.** Carol Leigh (vocals); Jim Dapogny (piano). *Slow and Easy Man; St. Louis Gal; My Papa Doesn't Two-Time No Time; Adam and Eve Had the Blues; Sweet*

*Man; He Likes It Slow; Changeable Daddy of Mine;* and six others. STOMP OFF S.O.S. 1064 \$9.98 (from Stomp Off Records, P.O. Box 342, Dept. L, York, Pa. 17405).

Performance: *Considerate*  
Recording: *Excellent*

The so-called "classic" blues singers of the Twenties recorded an enormous amount of material in, roughly, a ten-year period that began in 1921. It wasn't all blues, and not every song was worth repeating, but many a good tune has lain more or less dormant since then. If Carol Leigh and Jim Dapogny have their way—as they do on "If You Don't, I Know Who Will"—many of these little gems will be polished up and displayed again. This album blends the truly obscure with material that has been kept alive by the mere fact that Bessie Smith recorded it, and there is not a dull measure in the forty-three-minute program. Leigh is appropriately zesty, and Dapogny, who has done so well with Jelly Roll Morton material, plays the way I wish Clarence Williams had played when he accompanied the likes of Bessie and Clara Smith. C.A.

**JUNIOR MANCE/MARTIN RIVERA:** *For Dancers Only.* Junior Mance (piano); Martin Rivera (bass). *Summertime; Harlem Lullaby; Come*

*On Home; Prelude to a Kiss; Run 'Em 'Round;* and two others. SACKVILLE 3031 \$9 (from Sackville Recordings, Box 87, Station J, Toronto. Ont.).

Performance: *Superb*  
Recording: *Excellent*

You don't hear much from pianist Junior Mance these days, at least not on records, so this new Sackville release is welcome. "For Dancers Only," on which Mance teams up with bassist Martin Rivera, shows the pianist off to great advantage. His playing is still a robust exercise in the ABC's of jazz, and his blues-drenched Chicago background remains an asset. To hear their tightly interwoven collaboration on *Summertime* is to understand why Mance and Martin have proved to be so durable. Let's hope for more. C.A.

**ABBEY LINCOLN:** *Talking to the Sun.* Abbey Lincoln (vocals); vocal and instrumental accompaniment. *The River; You're My Thrill; You and I; Prelude (A Wedding Song);* and three others. ENJA 4060 \$9.98.

Performance: *Disappointing*  
Recording: *Very good*

Abbey Lincoln claims full responsibility for "Talking to the Sun," her latest album. It is, she says, "finally my music." I am sorry to hear that because

it is a rather boring set and, more than any other I have heard, it reveals Lincoln's vocal limitations. *You're My Thrill* becomes *You're My ShriII*, and her own compositions are a disaster. I wish Abbey Lincoln would concentrate on her abundant acting talent or, at least, have someone with greater objectivity and musical taste supervise her recordings. C.A.

**OREGON.** Oregon (instrumentals). *The Rapids; Beacon; Taos; Arianna;* and four others. ECM 23796-1 \$9.98, 23796-2 \$15.98.

Performance: *Delicate*  
Recording: *Excellent*

I have always found Oregon's music pleasing, but it is not the kind of music that sustains my interest for much more than a half hour. Now this carefully executed fusion of contemporary acoustic jazz and chamber mood-music has found its way onto a digitally recorded Compact Disc, and the sound is, of course, sensational. This quartet is the perfect candidate for CD release, with its little tinkles and all. And, since the performance also happens to be one of the group's finer sets, it can be enjoyed equally in its black-vinyl edition. C.A.

**JOE WILLIAMS:** *Nothin' but the Blues* (see *Best of the Month*, page 68)



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**BARTÓK: *Piano Concerto No. 1.*** Vladimir Ashkenazy (piano); London Philharmonic Orchestra, Sir Georg Solti cond. ***Sonata for Two Pianos and Percussion.*** Vladimir Ashkenazy, Vovka Ashkenazy (pianos); David Corkhill, Andrew Smith (percussion). LONDON ① 410 108-1 \$11.98, © 410 108-4 \$11.98.

Performance: *Stunning*  
Recording: *Demonstration quality*

A few years ago Vladimir Ashkenazy and Georg Solti gave us a wonderful record of Bartók's Second and Third Piano Concertos. Their cycle has now been completed with an account of the First that is on the same high level and even more impressively recorded. In comparing this performance with that of Pollini and Abbado (DG 2530 901), I found more steely brittleness and sheer drive coming from the latter team, more warmth and a greater sense of folk roots from Ashkenazy and Solti, who benefit from a digital recording that is more vividly detailed and puts the orchestra more fully in the picture.

Still more impressive, perhaps, is the overside sonata, in which Ashkenazy is joined by his son. Although Solti is not listed as a participant in the performance of the sonata, he has contributed a reminiscence of his own early performances of the work—first as page-turner with Bartók and his wife as pianists and Ernest Ansermet conducting, and later as pianist with Géza Anda. In any case, this performance is one of the strongest the work has yet received, and it is unarguably the most splendidly recorded. It is demonstration quality on LP, and should be even more impressive when it appears on CD. R.F.

**BEETHOVEN: *Symphony No. 3, in E-flat Major, Op. 55 ("Eroica").*** Cleveland Orchestra, Christoph von Dohnányi cond. TELARC ① DG-10090 \$12.98; © CD-80090, no list price.

Performance: *Fleet*  
Recording: *True to life*

When Christoph von Dohnányi, the Cleveland Orchestra's new music director, was on hand in the early fall of 1983, the Telarc team managed to slot

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## MEDEE: REVIVAL OF A MASTERPIECE



Conductor William Christie

**A**LTHOUGH Lully has justly been dubbed the "father" of French opera, his unfatherly monopoly on the genre and the fanatical personal cult he fostered made it next to impossible for his talented contemporaries to break into the field. Upon his death in 1687, the doors of the Royal Opera were finally opened to other composers, and the suppressed dramatic genius of Marc-Antoine Charpentier came into full flower with *Médée*, his only *tragédie lyrique*.

Working with the librettist Thomas Corneille, the talented younger brother of the more famous Pierre, Charpentier produced an opera that is the equal if not the superior of any by Lully. But it was coldly received by Lully's followers, who considered it too Italianate, and it quickly fell into oblivion. The superb recording of this magnificent work by William Christie and Les Arts Florissants proves how mistaken Charpentier's contemporaries were and affords us the opportunity to savor its many beauties for ourselves.

Les Arts Florissants is an ensemble of experienced singers who are well versed in the early French vocal style and a group of instrumentalists who are equally experienced in the playing of early instruments. The result is a homogeneity of style and ensemble that is often breathtaking.

On first hearing Jill Feldman's light soprano voice in the title role, you wonder how she will manage the fury of the dénouement, but she does. Without forcing, she imbues the text with an underlying passion that moves from tenderness to rage in a slow, calculated crescendo of hate. The high point of the opera occurs in the last scenes of Act III, where *Médée* laments her fate, plots her cruel revenge, and invokes her demons.

Equally remarkable is Gilles Ragon as Jason. His voice is high and supple, capable of the tenderest love scenes with Créuse and snarling taunts to Médée. Agnès Mellon, as Créuse, is

sweetness and light, seemingly innocent of the havoc she raises. Even the final agony of her death is expressed in whimpers rather than the shrieks one would expect from being mortally burned by a poisoned robe.

Rage and madness are left to Créon as he is driven to suicide by Médée's spells. Jacques Bona portrays this conniving villain with all the virility and wiliness the part demands. The many lesser parts are also well handled, especially Catherine Bagnalet's melting performance of the Italian Air in the final *divertissement* of Act II.

The many *divertissements* with their dances and choral music are a repeated delight, and the orchestra's performance of the "angry" music is the embodiment of Baroque rage. The continuo of theorbos and harpsichords supports the recitatives with constant inventiveness. Finally, leader William Christie deserves the utmost praise for his tremendous work of editing and bringing to life this masterpiece of the French lyric theater. Charpentier's *Médée* cries out to be staged. Nothing could be more inspiring to that end than this recording. Stoddard Lincoln

**M.-A. CHARPENTIER: *Médée.*** Jill Feldman (soprano), *Médée*; Jacques Bona (bass), (Créon); Agnès Mellon (soprano), Créuse; Gilles Ragon (tenor), Jason; Philippe Cantor (baritone), Oronte; Sophie Boulou (soprano), Nérine; others. Les Arts Florissants, William Christie cond. HARMONIA MUNDI HM 1139/41 three discs \$35.94, © HM 40.1139/41 three cassettes \$35.94; © HM 90.1139/41 three CD's \$51.

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two days of recording at Severance Hall for the Schubert *Unfinished* and Beethoven's *Eroica* and Eighth Symphonies. The *Eroica* was done on the second day and seems to have benefited from adjustments made on the basis of playbacks from the earlier session.

For my taste, Dohnányi's reading of the *Eroica* falls just short of greatness. The pacing throughout is essentially the same as Toscanini's, but Dohnányi fails to bring to the opening movement the pointing of crucial phrases and sharpness of accent that made the Italian maestro's interpretation so revelatory. The music flows much too easily to achieve its intrinsic heroic stature. Matters take a far better turn in the *Marcia funebre*. The opening pages unfold in an atmosphere of hushed eloquence, and the later dramatic sequences are brought into sharpest relief. The scherzo is beautifully paced, with the horns in the trio sounding gorgeously brazen. The very opening is marred, however, by a slight but quite audible rhythmic bogging in the strings as they set the pulse. The finale goes with brilliance and brio through its variation patterns, and in the slow peroration Dohnányi achieves a true sense of summation.

Hearing the work uninterruptedly on CD, I was impressed by the way the recording captures the Severance Hall acoustics. The ambience is a mite plushy, but it provides impressive transient impact and tonal body. *D.H.*

**BRAHMS: *Violin Concerto in D Major, Op. 77.*** Uto Ughi (violin); Philharmonia Orchestra, Wolfgang Sawallisch cond. RCA • ARC1-5185 \$12.98, © ARK1-5185 \$12.98.

Performance: *Good*  
Recording: *Good*

Among the eighteen or so readings of the Brahms Violin Concerto currently listed in Schwann, this one has very much its own character. It lies chiefly in the contrast between the lyrical, Italianate tonal quality of the soloist and the decidedly middle-European, Romantic quality of the orchestral accompaniment. There is no fundamental incompatibility, but Uto Ughi's luminescent fiddling is set in sharp relief against the orchestral fabric.

Ughi displays his finest musicianship in the most lyrical passages, such as in the first-movement coda and throughout the slow movement, which sounds as achingly lovely here as I've heard it anywhere. Not that he is lacking in virtuoso fire: there is plenty of that in the rugged episodes of the first movement and in the dashing cadenzas.

As in the earlier RCA issues of his Mendelssohn and Bruch concerto performances, Ughi is spotlighted here by the engineering, but not obtrusively so. The Philharmonia's sound is properly full-bodied and bright. *D.H.*

**BRAHMS: *Clarinet Trio in A Minor, Op. 114; Horn Trio in E-flat Major, Op. 40.*** Peter Schmidl (clarinet); Günter

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Högner (horn); Andrés Schiff (piano); Erich Binder (violin); Friedrich Dolezal (cello). LONDON 410 114-1 \$11.98, 410 114-4 \$11.98.

Performance: *Superb*  
Recording: *Likewise*

Five or six years ago Andrés Schiff recorded the Brahms viola sonatas with Pál Lukács for Hungaroton. This launch of Schiff's chamber-music activity for London/Decca confirms the happy affinity for Brahms suggested on that earlier disc and encourages a hope for further recordings with his present colleagues, who are members of the New Vienna Octet and first-chair players in the Philharmonic. While both of these works have been given some distinguished presentations on records, I don't think either of them has come through more persuasively than here. The performances themselves are breathtakingly beautiful, in the most truly Brahmsian sense, and the recording is a model of clarity and balance. In short, superb on every count. R.F.

**COPLAND:** *Our Town, Three Pieces; Rodeo, Four Episodes; Piano Variations; Four Piano Blues; Danzón Cubano.* James Tocco (piano); Lukas Foss (piano, in *Danzón*). PRO ARTE 183 \$10.98, © PAC 183 \$10.98.

Performance: *Fluent*  
Recording: *Excellent*

Since only two titles—the *Variations* and the *Blues*—are duplicated, this package might be considered a sort of supplement to Leo Smit's otherwise definitive two-disc set of Copland's "Complete Music for Solo Piano" on CBS. James Tocco, who has already given us Bernstein's piano arrangement of Copland's *El Salón Mexico* in his collection of Bernstein's piano music on Pro Arte, fills out a whole side here with Copland's own transcriptions of other familiar orchestral fare. No matter how brilliantly played (and the playing here has brilliance to burn), the *Our Town* and *Rodeo* excerpts seem pale substitutes for the well-known orchestral originals. The two-piano version of the *Danzón Cubano*, which happens to be that work's original form, is given a persuasive reading with Lukas Foss on the second instrument. The really lifelike recording is further enhanced by the superb DMM pressing.

More for piano fans than Copland fans, I would think, but definitely first-rate in every respect. R.F.

**DEBUSSY:** *Chansons de Bilitis; Fêtes galantes.* RAVEL: *Histoires naturelles.* Jan DeGaetani (mezzo-soprano); Gilbert Kalish (piano). NONESUCH 78025-1 \$8.98, © 78025-4 \$8.98.

Performance: *Exquisite*  
Recording: *Excellent*

Jan DeGaetani and Gilbert Kalish are both consummate artists, and when the two work together, focusing on a single body of work, the result is perfection.

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French art songs, especially the songs of Debussy and Ravel, require particular awareness of style and exquisite technique, and this remarkable team has both. Here is an album to cherish. *S.L.*

**DONIZETTI: Lucia di Lammermoor.** Edita Gruberova (soprano), Lucia; Kathleen Kuhlmann (mezzo-soprano), Alisa; Alfredo Kraus (tenor), Edgardo; Renato Bruson (baritone), Enrico; Robert Lloyd (bass), Raimondo; Bruno Lazaretti (tenor), Normanno; Bonaventura Bottone (tenor), Arturo. Ambrosian Opera Chorus and Royal Philharmonic Orchestra, Nicola Rescigno cond. ANGEL ● DSCX-3951 three discs \$35.98, © 4D3X-3951 three cassettes \$35.98.

Performance: *Convincing*  
Recording: *No-nonsense*

Like Joan Sutherland, Edita Gruberova possesses a voice of stronger, more dramatic quality than the average coloratura soprano, and she throttles it down judiciously to achieve a degree of shading and an emotional palette that do not come spontaneously with such an instrument. Unlike Sutherland, she enunciates her lines in a forward enough manner that one can usually understand them, even though she is not a native Italian.

In this recording, Gruberova offers a middle-of-the road Lucia, neither flut-

tery nor unduly hefty. Though her voice lacks natural softness and sweetness, she is able to approximate these qualities by using it with skill, intelligence, and insight. The phrasing and rhythm are consistently alive, and, over the long haul, the interpretation is a very satisfying one.

Alfredo Kraus remains one of the wonders of the tenor world. Stylish, noble, and personable, he delivers an Edgardo who is at once a romantic hero and a musical paragon. The performance is close to the written text, with none of the traditional cuts and few traditional liberties. Nor is the final scene transposed down from the published key. Renato Bruson, more comfortable in *bel canto* repertoire than as a Verdi baritone, spins out Enrico's lines with haughty aplomb, and Robert Lloyd's ample bass makes the most of the hypocritical Raimondo, showing how so self-assured and pontifical a man can be a menace.

Nicola Rescigno surpasses his usual standard in pacing this performance, which has an ebb and flow and an evocative orchestral color that vibrantly enliven the score. Nothing sounds perfunctory; the supporting cast is as committed and capable as the principals, and the choral and orchestral forces likewise enter into the spirit.

Though there is nothing flashy or sin-

gular about it, this *Lucia* is one of the most solidly achieved and thoughtfully inflected *bel canto* operas on records. Angel-EMI's digital sound matches it for ease and atmosphere.

*John W. Freeman*

**HAYDN: Quartet in F Major, Op. 74, No. 2; Quartet in G Minor, Op. 74, No. 3 ("Horseman").** Salomon String Quartet. HYPERION ● A66124 \$13.98.

Performance: *Superb*  
Recording: *Excellent*


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**HAYDN: Symphonies: No. 26, in D Minor ("Lamentation"); No. 41, in C Major; No. 43, in E-flat Major ("Mer-**

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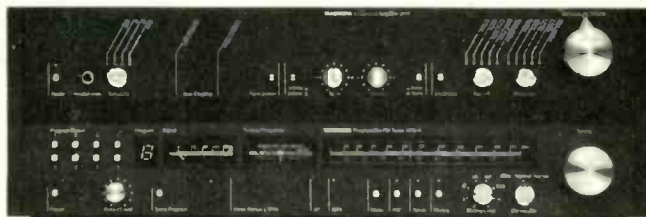
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cury"; No. 44, in E Minor ("Trauer"); No. 48, in C Major ("Maria Theresa"); No. 52, in C Minor. L'Estro Armonico, Derek Solomons cond. CBS 13M 39040 three discs, © 13T 39040 three cassettes, no list price.

Performance: *Brilliant*  
Recording: *Splendid*

Here's a wonderful album exploring Haydn's *Sturm und Drang* period with six powerful works that drive home the master's forward-looking originality. This is not the mellow old "Papa" Haydn, but the titanic youth out to change the world. Violinist Derek Solomons leads a group of some twenty musicians playing early instruments in strongly profiled performances that reveal Haydn's mastery of form and detail and re-create the somewhat spiny sound of the eighteenth-century orchestra with its "white" strings, penetrating woodwinds, and barking horns. Each instrument is strongly timbred, contributing to a tonal fabric in which the threads seem to pull in all directions only to prove their strength. This is real, no-nonsense Haydn, gruff, strong, and fascinating under Solomon's skillful direction. And the recorded sound is absolutely first-rate.

S.L.

MENDELSSOHN: *Violin Concerto* (see Best of the Month, page 65)

MENDELSSOHN: *Symphony No. 3, in A Minor, Op. 56 ("Scottish"); A Midsummer Night's Dream, Overture, Op. 21.* Bavarian Radio Symphony Orchestra, Sir Colin Davis cond. ORFEO 0 S 089841 \$13.98.

Performance: *Impressive*  
Recording: *Very good*

The Mendelssohn *Scottish Symphony* has not lacked for fine recorded performances; I would single out those by Karajan, Maag, and Bernstein from the currently available crop. Also in the top rank is the new one by Sir Colin Davis, who more than anyone I have heard thus far manages to bring something of an epic dimension to the work.

The opening pages are treated virtually as ballad narrative, and this tone persists throughout, reaching its apogee in a singularly gripping reading of the slow movement, followed by an *Allegro guerriero* that packs tremendous muscle. The solemn processional epilogue that concludes the work, and which is so often pompously anticlimactic, comes off here with utter conviction.

Davis recorded the overture and other excerpts from the *Midsummer Night's Dream* incidental music with the Boston Symphony back in 1976, and that performance, paired with the *Italian Symphony*, is still available on Philips. His new digitally recorded ver-

sion offers the same measure of verve and fantasy.

The recording as a whole is brilliant and full-bodied—a real asset for the symphony. I did have a small problem, even after a careful calibration check of my equipment, with an over-resonant timpani "E" in the allegro episodes of the overture, but this is a really minor reservation. Overall, the performance and recording are outstanding. D.H.

MOZART: *Piano Concertos No. 17, in G Major (K. 453), and No. 21, in C Major (K. 467).* Andrea Nemecz (piano); Budapest Symphony Orchestra, Árpád Joó cond. SEFEL 0 SEFD 5020 \$12.95, © 5020 CS \$12.95; © 5020 CD, no list price

Performance: *Cultivated*  
Recording: *Very good*

The young Budapest-born New York pianist Andrea Nemecz and conductor Árpád Joó deserve a lot of credit for boldness and derring-do in invading the Mozart piano-concerto territory staked out for recording by the likes of Murray Perahia, Vladimir Ashkenazy, and Rudolf Serkin. The musical result of their collaboration is thoroughly creditable if not blazingly inspired.

The solo-piano entry at the opening of the G Major reveals Nemecz's execution as elegant and precise, yet with

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ample warmth of phrasing and touch. She fares best in the slow movement, where Joó shapes the all-important wind parts lovingly. The final movement is taken a bit deliberately for my taste, but the concluding *presto* is a delight.

The C Major Concerto begins at an easy (perhaps too easy) pace and could use more edge in the attacks. The slow movement, fortunately, is not mooned over but flows with restrained eloquence. The finale crackles with the soloist's taut articulation of the main theme: a shade more poise might have

been in order, but such reservations are to a large degree matters of taste.

One point on which there can be no reservations is the virtually ideal recorded sound—clear and warm in surround, with flawless balance between piano and orchestra. No obtrusive spotlighting here. Kudos to producer Harold Lawrence. *D.H.*

**MOZART: Violin Concerto No. 4, in D Major (K. 218); Rondo in C Major (K. 373); Adagio in E Major (K. 261); Rondo Concertante in B-flat Major (K. 269).** Pinchas Zukerman (violin); St. Paul

Chamber Orchestra, Pinchas Zukerman cond. CBS M 37839, © MT 37839, no list price.

Performance: *Crisp and clean*  
Recording: *Intimate surround*

This disc completes the cycle of Mozart violin concertos that Pinchas Zukerman has been doing for CBS with the St. Paul Chamber Orchestra, of which he has been director since 1980. A decade and more ago he recorded the same repertoire for Columbia with Daniel Barenboim conducting the English Chamber Orchestra.

Zukerman as violinist now seems a bit more chaste tonally than he did in his earlier recordings, but the more intimate acoustics in St. Paul may contribute to this impression. The general atmosphere here is one of music making tailored for a spacious living room rather than a large concert hall, and thus the performance is in the Mozartian manner.

As for overall interpretation, I might question the deliberate pacing at the opening of the D Major Concerto's finale, though it could be justified as a more effective contrast in tempo between the slower and faster sections of the movement. It is good to have the three shorter concerted pieces laid out on the disc as a kind of miniature "concerto." There is a bracing briskness in Zukerman's pacing of the K. 373 Rondo, and, after extracting every bit of lyrical sweetness from the K. 261 Adagio, he brings a joyous bounce to the brilliant K. 269 Rondo Concertante. As noted, the sonics are intimate but crystal clear and full-bodied. *D.H.*

**MOZART: Die Zauberflöte.** Margaret Price (soprano), Pamina; Luciana Serra (soprano), Queen of the Night; Peter Schreier (tenor), Tamino; Kurt Moll (bass), Sarastro; Mikael Melbye (baritone), Papageno; Robert Tear (tenor), Monostatos; Maria Venuti (soprano), Papagena; Theo Adam, Speaker; others. Rundfunkchor Leipzig; Staatskapelle Dresden, Colin Davis cond. PHILIPS 411 459-1 three discs \$35.94, © 411 459-4 three cassettes \$35.94; © 411 459-2 three Compact Discs, no list price.

Performance: *Beautifully molded*  
Recording: *Crystalline*

My intimate association with Mozart's *Die Zauberflöte* dates from the summer of 1955 when I assisted Herbert Graf in staging the work at the Salzburg Festival. Wilhelm Furtwängler was to have conducted the performances, but he died the previous fall; his place was taken by Georg Solti. The settings and costumes were by Oskar Kokoschka.

Now, thirty years later, I have enjoyed the experience of studying the new Philips recording of this lovely score. The purity of the music, which illuminates the fairy-tale/allegory, is rivaled only by certain works of Handel and Bach. You feel, somehow, that you are a bigger person for having listened attentively to it.

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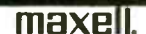
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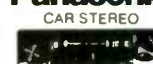
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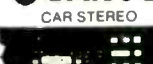
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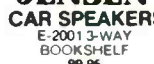
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Sir Colin Davis, with superior forces, has here achieved a "complete" *Zauberflöte*. Each role is strongly cast, and the singing throughout is of unusually high calibre. German actors substitute for the singers in the spoken dialogue, and they deliver their lines with conviction and humor. Together the two casts create the illusion of a live performance. The program notes are refreshingly informative and interesting; the English translation of the text by Robert A. Jordan is admirable.

Sir Colin's attention to details of orchestration, to balance, to bits of melody that are sometimes glossed over makes this performance a particularly rewarding one. Under his sensitive direction, the Staatskapelle Dresden plays not only with graceful accuracy but also with obvious dedication and devotion to the work at hand. The same may be said for the Rundfunkchor of Leipzig, which sings its passages with eloquence and fervor.

Among the fine soloists, Peter Schreier, Kurt Moll, and Mikael Melbye deserve, I feel, special praise. Luciana Serra sings her two impossibly difficult arias with precision and bravura, but I wonder (quibbling) if there exists today a voice of the weight and mobility we imagine Mozart wanted for the role. Last, Margaret Price sings with a tonal purity and an effortless line that remind

me of Elisabeth Grümmer, the nearly ideal Pamina of the 1955 Salzburg *Zauberflöte*.

By all means, for the continuing pleasure it will give you, add this recording to your library. *Robert Ackart*

**OFFENBACH/ROSENTHAL: *Gaîté Parisienne*.** Pittsburg Symphony Orchestra, André Previn cond. PHILIPS 0 6514 367 \$11.98, © 7337 367 \$11.98, © 411 039-2, no list price.

Performance: *A little tame*  
Recording: *Smooth*

**OFFENBACH/ROSENTHAL: *Gaîté Parisienne*.** GOUNOD: *Faust—Ballet Music*. Montreal Symphony Orchestra, Charles Dutoit cond. LONDON 0 411 708-1 \$11.98, © 411 708-4 \$11.98, © 411 708-2, no list price.

Performance: *Fizzy*  
Recording: *Big and bright*

Both of these new recordings offer *Gaîté Parisienne* absolutely complete. André Previn is stylish and persuasive in the sections that call for an insinuating sort of charm and sheer voluptuousness, but rather underanimated in the frothy overture (not so frothy here) and the other sections that call for sparkle and fizz. These are qualities Charles Dutoit supplies in abundance, with no shortage of voluptuousness or polish, and Lon-

don's big, bright recording suits the music better than Philips's clean but dryish and rather bottom-heavy one. Between the two, I'd certainly choose Dutoit.

The Ballet Music from Act V of *Faust* may remain a gooey bore, even in Dutoit's tasteful hands, but it is a substantial filler. Philips offers no second work, but does list the headings of the respective sections of *Gaîté Parisienne*; London doesn't even indicate how many numbers there are in either work. *R.F.*

**RACHMANINOFF: *Piano Concerto No. 3, in D Minor, Op. 30*.** Dimitris Sgouros (piano); Berlin Philharmonic Orchestra, Yuri Simonov cond. ANGEL 0 DS-38105 \$11.98, © 4XS-38105 \$11.98.

Performance: *A bit wild*  
Recording: *Luscious*

Boy wonder Dimitris Sgouros made his London debut at the age of thirteen in this most formidable and sophisticated of the Rachmaninoff concertos. A year later, at the ripe old age of fourteen, he undertook the present recording.

Speed and brilliance, verging on the hectic, characterize the opening movement working up to the larger of the Rachmaninoff cadenzas, which young Sgouros milks for all it's worth. Given

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
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this approach, it's not surprising that the slow movement should lack the necessary poise. To the finale Sgouros brings a prickly, nervous quality rather than the sense of fulfillment implicit in its musical substance.

Here, then, is "wow" technique *in excelsis*, fully aided and abetted by conductor Yuri Simonov and accorded luxurious, digitally recorded sound. It's a fascinating record, but it will be interesting to see whether in ten years, say, Sgouros can match the musicianship and poise of an Ashkenazy in this work. For the present, one thing is sure: nobody needs to worry about this lad's technical prowess! *D.H.*

**RAVEL: *Histoires naturelles* (see DE-BUSSY)**

**SCHUBERT: *Sonata in A Minor (D. 821, "Arpeggione"); Introduction and Variations on a Theme from Die Schöne Müllerin (D. 802); Serenade (D. 957)***. James Galway (flute); Phillip Moll (piano). RCA ● HRC1-5303 \$11.98, ● HRK1-5303 \$11.98.

Performance: *Suave*  
Recording: *Good*

There have been recordings of the *Arpeggione* Sonata on every instrument but the arpeggione, and collectors can now add a flute version to their hold-

ings. It works very well, as well it should, because the melodies are indestructible. The piece based on *Trock'ne Blumen* from the *Schöne Müllerin* cycle is legitimate flute music and one of the few major nineteenth-century works for that instrument. In both these works and the famous serenade (*Ständchen*), James Galway offers his usual silver tone and suppleness of line. There are many beautiful moments, but I would have preferred a little more articulation to the constant legato, which can be cloying. Phillip Moll is an excellent Schubert player and shines forth in his accompaniments, especially when the music allows him to take the lead. A fine album. *S.L.*

**SCHUBERT: *Winterreise, Op. 89 (D. 911)***. Hermann Prey (baritone); Philippe Bianconi (piano). DENON ● 38C37-7240 \$17.98.

Performance: *Excellent*  
Recording: *Outstanding*

**SCHUBERT: *Winterreise, Op. 89 (D. 911)***. Martti Talvela (bass); Ralf Gothóni (piano). Bis ● LP-253/254 two discs \$25.96.

Performance: *Very good*  
Recording: *Excellent*

Hermann Prey's recording of *Winterreise* with Karl Engel, made by Electrola

more than twenty years ago, circulated here briefly on Vox; the one he made later for Philips, with Wolfgang Sawalisch as his pianist, was apparently never issued here. His accompanist in this new recording, made by Denon in Hamburg in April of last year, is a very young French pianist, Philippe Bianconi, whose name will not be familiar to many of us but who has an obvious feeling for Schubert and proves to be a superb partner for Prey.

For his own part, Prey gives a distinguished account of these songs, mostly as straightforward and unheroic as Ernst Haefliger in his splendid recent recording for Claves. Prey's voice is a richer instrument, and he exploits a broader range of colors, but his emphasis, like Haefliger's, is always on musical values and textual sense. The emotional impact of the twenty-four songs gains appreciably in the cumulative effect made possible by having the entire seventy-four-minute sequence uninterrupted on Compact Disc. The documentation is especially fine, too: the CD, in its own container, shares a slipcase with a forty-four-page booklet containing readable texts, a substantial essay on the music by Karl Schumann, and biographies of the artists, all in German, English, French, and Japanese.

Haefliger's pianist, Jörg Ewald Dähler, plays an 1820 Viennese instru-



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ment; both Bianconi and Ralf Gothóni, who accompanies Martti Talvela in the Bis recording, favor modern Bösendorfers and sound no less idiomatic. Talvela's approach is in the same general style as Prey's. Both are a bit more expansive than Haefliger, but this was probably determined, at least in part, by the different nature of the voices themselves. Talvela uses his dark bass lightly, keeping it agile and limpid, avoiding ponderousness. This is another truly distinguished recording of *Winterreise*, beautifully realistic, as we would expect from Bis, and enhanced further by Direct Metal Mastering.

After listening to Prey, Talvela, and Haefliger, and sampling again the several recordings of *Winterreise* by Fischer-Dieskau and Hotter, the wonder of these songs is only magnified. All of these fine singers and pianists do honor to Schubert and draw us into his world. Consideration of sonic as well as musical excellence would have to give first place to Prey on CD, but I should not want to be without the unique poignancy of Haefliger's clearly articulated, almost understated performance on LP—and all the others mentioned here would be more than welcome for alternate listening. R.F.

**WEILL: Quartet in B Minor; Quartet No. 1, Op. 8.** Sequoia String Quartet.

NONESUCH • 79071-1 \$11.98, © 79071-4 \$11.98.

Performance: *Strong*  
Recording: *Fine*

Those familiar with Kurt Weill's *Three-penny Opera*, *Mahagonny*, or *The Seven Deadly Sins* will be pleasantly surprised to hear these two early string quartets. The B Minor Quartet of 1918 reveals a Weill well versed in the late-nineteenth-century Romantic idiom. The nominal First Quartet, Op. 8, of 1923, is more tightly woven, more stringent in its idiom, showing the composer's growth in mastering his craft. Both are fascinating works that deserve a place in the chamber-music repertoire.

The Sequoia String Quartet turns in strong performances, dramatically contrasting the long, sinuous chromatic lines of the music with its short, jabbing motivic passages. A welcome addition to the catalog. S.L.

### Collection

**CHO-LIANG LIN: Bravura. Falla: Suite populaire espagnole; La vida breve, Danse espagnole. Kreisler: Liebeslied; Liebesfreud; Tambourin chinois; Tempo di minuetto. Mozart: Serenade in D Major, Rondo. Schumann: Romance in A Major. Rachmaninoff: Vocalise. Wieniawski: Capriccio-Valse.**

**Sarasate: Introduction and Tarantella.** Cho-Liang Lin (violin); Sandra Rivers (piano). CBS • IM 39133, © IMT 39133, © MK 39133, no list price.

Performance: *Brilliant*  
Recording: *Very good*

Cho-Liang Lin offers us here a widely varied collection of musical lollipops, with the Spanish and Polish providing the most substance. The Falla comes off with great *élan* and color, and the Sarasate and Wieniawski pieces are played as the true dazzlers they are. The rather less-known Wieniawski is a considerable piece and well above the lollipop category.

While Lin plays the Schumann Romance with fetchingly lovely tone, the special magic in Fritz Kreisler's music, except the stately *Tempo di minuetto* and the picturesque *Tambourin chinois*, seems to elude him. Both *Liebesleid* and *Liebesfreud*, as well as the Mozart rondo transcription, need a kind of "tasteful schmalz" that is lacking here.

That aside, Lin shows himself to be a brilliant executant in total command of his technique and his instrument. It remains to be seen whether his musicianship will mellow as he attains mature years. The violin sound is crystalline in clarity and brilliance, and the piano is handsomely recorded within an appropriate perspective. D.H.

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11. I certify that the statements made by me above are correct and complete.

WILLIAM L. PHILLIPS,  
Assistant Treasurer

Prepared by David Stein

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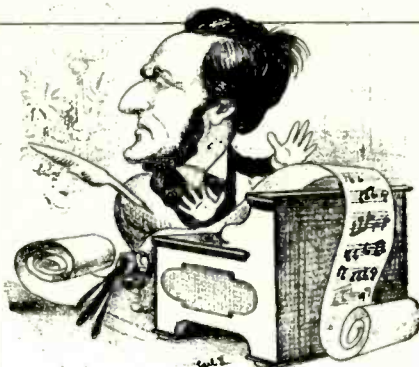
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