SPECIAL TAPE ISSUE

CASSETTE RECORDINGS: How to make them better
CASSETTE DECKS: A guide for buyers

Julian Hirsch looks at THE NEW CASSETTE TAPES
David Ranada listens to THE NEW PRERECORDED TAPES

EQUIPMENT TEST REPORTS:
- MXR Model 140 System Preamplifier
- NAD Model 3140 Integrated Amplifier
- Sony Model PS-X75 Turntable
- Tandberg Model 3001 FM Tuner
- Wharfedale Laser 100 Speaker System

DISC SPECIALS:
John Lennon/Yoko Ono • Michael Wycoff • Neil Young • Roy Acuff
Charles Mingus • Earth, Wind and Fire • Billy Burnette

HANDEL: a moving new Messiah
LUCIANO: verismo arias
SHOSTAKOVICH: Symphony No. 13
GOLDMARK: Queen of Sheba
HAYDN: Theresienmesse
Conventional kazoo has paper cone.

WHAT'S GOOD FOR A KAZOO IS BAD FOR A SPEAKER.

Blow into a kazoo and what do you hear? A buzzing noise you'd expect from a toy that costs about fifty cents. But just as the paper cone in a conventional kazoo creates a buzzing noise, the paper cone in most conventional speakers creates distortion.

The reason? Paper cones flex. As they alter their shape, they alter your music.

Pioneer's HPM speakers have cones made of Polymer Graphite instead of paper. This amazing material reduces speaker distortion up to three-fold. Which means instead of listening to your speakers you can listen to a lot more of your music.

What's more Polymer Graphite
Conventional speaker has paper cone.

is lightweight and non-resonant. So it doesn't add any of its own sound to your music.

So why buy a conventional paper speaker and limit your system's high fidelity, when you can buy a Pioneer HPM Polymer Graphite speaker and improve it.

Pioneer's speaker has polymer graphite cone.

PIONEER
We bring it back alive.

Pioneer HPM Polymer Graphite.
WE DON'T GO TO EXTREMES. BUT OUR TAPE WILL TAKE YOU THERE!

We don't need wind machines, shattered glass or expensive endorsements to tell you about SUPERTAPE. It's the high-performance tape we make right here in the USA and it speaks for itself in your deck.

If you haven't already, try it today at $1 savings! We can't promise it'll knock a robot off a chair. But doesn't it seem logical that the cassette that respects your intelligence is also the most intelligent one to use?

SUPERTAPE CHROME
For greater dynamic range "headroom" without noise.

SUPERTAPE METAL
For higher output at both frequency extremes and lowest possible noise level.

SUPERTAPE GOLD
For wider frequency response and increased output.

CHROME. Lower noise and extended dynamic range — brings out the best from any deck with high bias position. Precision jam-proof housing with non-abrasive cleaning leader. Our customers say it's THE tape for car players! In 60 and 90-minute lengths.

METAL. State of the art! Coated with fine-grain particles of pure iron for solid bass, sparkling highs and greatest possible headroom — provides superb reproduction that rival's open-reel! For critical live recordings and transcribing audiophile discs. 60-minute length.

GOLD. High output and wide frequency response — it's the ultimate ferric tape for normal bias! Precision housing cuts wow and flutter and a non-abrasive head-cleaning leader assures top performance with every play. Ideal for taping from discs or FM. In 45, 60, 90 and 120-minute lengths.

Save $1.00 on SUPERTAPE
This coupon entitles you to $1.00 off the regular price of any one SUPERTAPE cassette. Offer is good at participating Radio Shack stores and dealers through 6/30/81. Not redeemable by mail. Void where prohibited by law.
The Equipment

NEW PRODUCTS
Roundup of the latest audio equipment and accessories

AUDIO QUESTIONS AND ANSWERS
Laser-read LPs, Tangential Tracking, Videodisc Problem

TAPE TALK
Cassette Compatibility, Comparing Specs, Add-on Dolby, Tape Salvage

AUDIO/VIDEO NEWS
Prerecorded Cassettes for Audiophiles

TECHNICAL TALK
Improving Cassette Tape

EQUIPMENT TEST REPORTS
Hirsch-Houck Laboratories test results on the MXR Model 140 system preamp, NAD Model 3140 integrated amplifier, Sony Model PS-X75 turntable, Tandberg Model 3001 FM tuner, and Wharfedale Laser 100 speaker system

HOW TO MAKE BETTER-SOUNDING CASSETTE RECORDINGS

CASSETTE-DECK FEATURES: A GUIDE FOR BEGINNING BUYERS
Features are the key to performance and price

The Music

ROUSON'S KEYBOARDS

BEST RECORDINGS OF THE MONTH
A New Handel Messiah
Michael Wycoff, "Come to My World"
Neil Young, "Hawks and Doves"

CLASSICAL MUSIC
Goldmark: The Queen of Sheba
Haydn: Theresienmesse
Beethoven and Brahms Trios

POPULAR MUSIC
John Lennon/Yoko Ono, "Double Fantasy"
Two Country Couples
Chet and Doc: "Reflections"

The Regulars

BULLETIN
SPEAKING OF MUSIC
LETTERS TO THE EDITOR
GOING ON RECORD
ADVERTISERS' INDEX

COVER: Design by Borys Patchowsky; photo by Bruce Pendleton.
Record Care, Part 2: A Record Life Study

How long will your phonograph records last? How many times can you safely play records without degrading sound quality? Using quality playback equipment, the factors of Record Longevity are twofold and closely interrelated: the record must be kept free of contamination, and the stylus must be kept clean during playback.

Scanning electron microscopy clearly shows the need and contribution of both record cleaning and stylus care.

Exhaustive research shows that with proper record/stylus care, an entire “life span” of 200 play events will not damage record surface quality or fidelity. (Most albums are played a total of 50 times or less.)

200 Plays Without Record Cleaning

- Pit from dust abrasion.
- Ground-in microdust.
- Prominent dust abrasion.
- Prominent stylus path from abrasive-coated diamond face.
- Vinyl particles welded by contaminated upper area of stylus.

200 Plays Without Stylus Care

- Right stylus path due to uncontaminated diamond face.
- Cleaned stylus leaves no welded-in particles.

Results of D4 Record Care:
- Clean central radius due to capillary attraction of D4 Fluid into D4 pad fabric.
- Microdust-free stylus path due to exclusive D4 “spiral fiber” particle holding.
- No wall-slurry of “lubricant” products.

Results of SC-2 Stylus Care:
- Reduced wall abrasion due to uncontaminated diamond face.

There is no substitute for the valid research you get with Discwasher products. Ask for them where better dealers take interest in a longer “life span” for you.
HOME TAPING RESULTS IN LOST SALES of up to 100 million prerecorded tapes and discs annually, according to CBS Records, a loss to the record industry of $700 to $800 million at list prices. CBS research shows that sales of blank tape are increasing and that buyers of tape are copying more records than ever. The heaviest buyers are in the age range of 26 to 40 and are equally divided between men and women. Rock and pop is the favorite music of 30 per cent of them. Country music is favored by 15 per cent, and classical and jazz by 15 per cent.

COMPOSER VIRGIL THOMSON, 84, when asked why he did not attend the presentation of Stereo Review's 1981 Certificate of Merit to his colleague Aaron Copland, snapped: "I am far too old to go to parties where awards are given to other people!"

STYX, THE MOST POPULAR ROCK GROUP in America, according to a recent Gallup Poll, has embarked on a tour that may become the largest in the history of U. S. rock-and-roll. Called the Paradise Theater Tour after Styx's January release "Paradise Theater" on A&M, it includes 140 concerts before a total audience expected to exceed 1.5 million people. Previous records have been held by ZZ Top, which was seen by 1.2 million people in its Worldwide Texas Tour, and Fleetwood Mac, which reached 1.3 million in a world tour.

IN 1980, 8,062 NEW LISTINGS were added to the Schwann catalogs--4,631 LPs and 3,431 tapes. These included 2,655 stereo classical listings (up from 2,420 in 1979), and 5,191 new nonclassical entries (down from 5,894 last year). New digital recordings (mostly classical) totaled 157. The classical composers with the most new listings in Schwann this year were Mozart, Beethoven, and Bach--just like last year. Neville Marriner and Herbert von Karajan were the classical artists with the most new entries, also unchanged from 1979. Popular performers with the most new records were Styx and Donna Summer--five each.

LITTLE NIPPER MEETS SECRET AGENT 007 on RCA's SelectaVision videodiscs. In what is thought to be the biggest home video deal to date, RCA has bought the rights to eleven of the James Bond films for a whopping $2 million. This may turn out to be a bargain when you consider that the films have grossed more than $1.5 billion at the box office. Not available as part of the initial SelectaVision disc catalog, the Bond films will be available by mid-1981.

NPR'S PRESTIGIOUS "JAZZ ALIVE" SHOW this month features guitarists Philip Catherine and Egberto Gismonti (March 1), Toshiko Akiyoshi (March 8), fusion jazz from Montreux (March 15), pianist Tete Monoliu, Supersax, and duos by Frank Morgan on alto sax and George Cables on piano (March 22), and Chicago Jazz Heritage, Ellingtonia, and the Doc Cheatham All-Stars (March 29). Check National Public Radio stations for time in your area.

MUSICAL TV SHOWS of special interest on PBS this month include Texaco's Live from the Met telecast on March 2 of Donizetti's L'Elisir d'Amore. The cast is headed by Luciano Pavarotti and Judith Blegen. Nicola Rescigno conducts. On March 21, a three-hour special, "The 50s: Moments to Remember" will salute non-rock music of the 1950s. Arthur Godfrey is the host, and performers include Rosemary Clooney, Mitch Miller, Frankie Laine, and others. Check local PBS stations.

PRIZES AND AWARDS: The Grand Prix of the French Académie Nationale du Disque Lyrique has been awarded to soprano Christiane Eda-Pierre for her performance in the Philips recording of Mozart's The Abduction from the Seraglio. Also honored was Philips' recording of Schoenberg's Gurrelieder with Jessye Norman, Tatiana Troyanos, and James McCracken....The Saint Paul Chamber Orchestra's 1980 Composers Competition was won by Stanley Funicelli, 32, of Salt Lake City. He received $2,500 and a world première of his winning composition Scintillae.
THE VIDEO DIMENSION

The only thing permanent is change, says the wry realist, but that doesn't keep some of us from wanting it otherwise. Several readers and at least one prominent manufacturer who wrote to me of their dismay at detecting a change in direction with our January-issue feature Video for Audiophiles, finding it an unsettling portent of our modern world. My old-school conservatism in everything from haircuts to tennis shoes is a matter of common gossip, so I am naturally sympathetic. But since I am also a card-carrying, gung ho member of the Society for the Elevation of Television to the Level of Moderately Civilized Discourse, I find the coming together of audio and video formats not only natural and inevitable, but a consummation worth rooting for. Why?

First of all, for a simple technological reason: if there is any single thing that has characterized change in entertainment technology, audible or visible, during this century, it is an ever-increasing information density. In the tape sphere (see the visual metaphor on this month's cover) we have gone from 15 to 7½ to 3½ ips speeds in the open-reel format, to 1½ ips in the cassette, and now to 1½ ips in the nifty micro-cassette format that will shortly be welcomed into the hi-fi category thanks to metal tape. In film we have gone from silents to talkies, from black-and-white to color, to wide screen, even to experiments with 3-D and holography. Changes in the disc format have been even more remarkable: from 14 to disc, from 78 to 33½ rpm, from mono to stereo, and, briefly, to quad. It could, of course, be argued that none of this was really necessary, but Necessity had as little to do with it as Goodness had to do with Mae West's diamonds. If Everest is climbed because it's there, a technological feat will be accomplished because it can be, and video and audio, color and stereo, can be accommodated—densely—on a disc.

Second, for anyone with mental aspirations above the level of the third grade, commercial TV is an unmixed bore that will soon be carrying nothing but news, weather, sports, soaps, and giveaway shows. This should not bother us too much, because it is merely the natural outcome of the unending search for the lowest practical common denominator in all commerce—and because the videodisc will soon offer at least temporary refuge for those with other tastes. Third, public broadcasting, despite its virtues, cannot do all that needs doing, and cable TV's current flyer in culturally responsible "narrowcasting" will peter out as soon as a temporary lust for respectability comes up against the permanent chase after profits. The example of what happened in FM radio springs to mind: audience quantity comes before program quality.

And finally, there is the example of what is happening to video in Japan, where 70 per cent of the country is already receiving TV in stereo—and upgraded sound as well. TV "components"—separate tuner and picture monitors—are all over the market, and the trend is toward a modular system of tuner, screen, decks, turntables, amplifier, and speakers capable of handling any kind of signal, whether broadcast, tape, or disc, in both audio and video. I find the prospect fascinating, and though I won't be spending much time "watching a symphony," as one correspondent snidely puts it, I'll certainly be reveling in the now-missing visual dimension in recorded operas, ballets, and musicals. Bring on the revolution!
Only the new Blaupunkt 3001 has Remote Control Station Scanning and Illuminated Controls

Here is a sophisticated AM/FM Stereo Cassette that incorporates two of the latest Blaupunkt advances in car stereo. Blaupunkt engineers have found a way to minimize the aggravation of searching out a station while you drive. The 3001 has a built in microprocessor that, among other things, relieves you of twiddling with knobs and fine tuning dials to isolate the station you want to enjoy.

Scan manually or by remote control
When you want to scan the AM or FM spectrum, you simply press a knob and the microprocessor orders an automatic signal scanner to do the rest. It will lock in each station, crystal clear and with no interference, for five seconds. Then it automatically advances to the next frequency, station by station, until you hear what you like. Just press the knob once more to lock in the station of your choice.

To carry convenience a step further, Blaupunkt furnishes you with a remote control device which you can mount on your dash or your steering column. This device lets you perform the above scanning operation without even touching the radio.

Illumination for night driving
Convenience is not the only concern of Blaupunkt engineers. To improve the margin of safety during night driving, the essential controls on the face of the 3001 are fully illuminated. You can expect other car stereos to incorporate this feature sooner or later. At Blaupunkt we're used to that.

The essential controls are fully illuminated.

Because of its compact chassis plus adjustable shafts it will fit easily into the dash of just about any car, domestic or import.

Blaupunkt 3001 Features
- 4 x 15W (4 separate channels)
- 12 Electronic Station Presets
- Electronic Station Scan
- Remote Control Scanner
- Illuminated Station Controls
- Digital Frequency/Clock Display
- Local/Distance Switch
- Stereo/Mono Switch
- ASU (Automatic FM Noise Suppression)
- *Dolby Noise Reduction Circuit
- Autoreverse Cassette
- Pushbutton Locking Fast Forward and Rewind
- Sendust Head
- Separate Bass and Treble
- Separate Fader and Balance
- Tape Bias Compensation Switch
- Power OFF Eject
- *Dolby is a registered trademark of Dolby Laboratories.

Blaupunkt 3001 sells for $630* and is part of a complete line of AM/FM stereo cassettes priced from $250.

To see and hear the remarkable Blaupunkt 3001, consult the Yellow Pages under Automobile Radios for your nearest Blaupunkt Dealer. He'll be glad to give you a free demonstration.

*Suggested retail price exclusive of installation and speakers.
Digitally mastered and audiophile recordings have added an exciting new dimension to the state of the audio art. Sonus cartridges are exceptionally well-suited to realize the full sonic potential of these new recording techniques.

This is especially true of the new Sonus Dimension 5. Its unique phase-coherent, integrated, stylus construction enhances still further the exceptional purity and integrity of reproduction found throughout the Sonus range of high compliance cartridges.

We believe upgrading your system by replacing your present cartridge with a Sonus will provide the greatest improvement in sound quality per dollar.

The finer your records the greater the difference a Sonus will make.

LETTERS TO THE EDITOR

Operatic Columbus
- I enjoyed "Classical Music Briefs" in January, but the item on Luciano Pavarotti was incorrect in stating that Darius Milhaud is the only composer to have written an opera about Christopher Columbus. Jacques Offenbach also wrote one, and I believe Pavarotti could do justice to the lead role since it is for a tenor.

Geraldine Segal
Randallstown, Md.

Muppet Mixup
- Browsing through the December Stereo Review, I came upon the mistake of the century (or at least of the year) in the article on Christmas records. I couldn't believe my eyes: there in black-on-pink print, with the review of John Denver and the Muppets' "A Christmas Together," was a photograph captioned, "John Denver and Kermit." To the layman the mistake might not be obvious, but the frog pictured with Denver is not Kermit but Robyn, Kermit's nephew! If you ever have trouble again determining the difference between Robyn and Kermit, just remember that Robyn has round pupils and Kermit does not. I feel that you should send letters of apology to both of them.

Chris F. Lyon
Mt. Vernon, Iowa

Renaissance Boys
- I'm writing in response to William Anderson's January editorial, "Renaissance Boys." How can I be silent while someone posed with a pencil in one hand and his glasses in the other—as if that were the way an intellectual should look—refers to the music of the quarter-century Elvis Era as totally without intellectual content and as "jolly undifferentiated racket"? Anyone who would make such an extremely broad and unvalidated statement obviously has not been paying attention. Most likely, the only times Mr. Anderson encounters the music he speaks about is when he changes between his own favorite radio stations.

Music must be looked upon as an art form, and, as with any art form, it must warm the souls of those it reaches out to touch. No single piece of art will be appreciated by everyone, but for someone to take all rock music, even the Beatles, and just toss it out the window is intolerable.

Timothy Howard
Bloomington, Ill.

- Compliments on the Editor's January editorial. It is about time someone took issue with the musical junk we have had to put up with for the past ten or fifteen years. I love good music, but what we have today is not in any way refreshing or to any degree listenable. Noisy, yes, but tuneful, no. Then, too, when one of our so-called singers today is performing, the noise in the background has no relationship to what the singer is rendering. "Renaissance Boys" made me want to stand up and cheer. I would very much like to start buying records again, but not those offered today.

L. E. Winfield
Mattoon, Ill.

- I could not agree more with most of the January editorial, "Renaissance Boys." I too believe that much of current rock-and-roll rules out that "little intellectual sustenance" in favor of mass appeal and commercialization. However, I think that there is at least one notable exception, one that has been around now for fifteen years: the Grateful Dead. There is something in their lyrics and music that really makes you think. As Bill Graham said, "The Dead are not only the best at what they do, they're the only ones who do it."

Patrick Connolly
Dallas, Tex.

I enjoyed William Anderson's "Renaissance Boys" in spite of what I consider several cheap shots. The "Rebirth of the Great American Musical" that he predicts is a consummation devoutly to be wished.

David Irwin
Maryville, Tenn.

- I couldn't agree more with William Anderson's discerning comments in January's (Continued on page 10)
Teac's new look in hearing aids.

The sound you get is only as good as the recording you make. So TEAC engineers have pulled all stops to create a cassette deck that helps you make the most distortion-free recordings you've ever heard. It's called the V-9.

It all starts with our revolutionary new metering system. Color-coded, peak reading, incandescent lamps, the likes of which you've never seen. Bigger. Faster. Easier to read. Any level over 0 triggers a red lamp at the speed of light. So your eyes can tell you what your ears miss. And at the push of a button, you can set the metering system for metal tape. There's no more guesswork.

Just crisp, clean, distortion-free recordings.

Next, put our new transport through its paces. Three motors. Full IC logic. The softest, lightest, quickest transport controls you've ever touched. And a totally new technology that connects those controls directly to the motors to eliminate solenoids. It's fast, efficient, smooth, silent and extraordinarily reliable.

From its silky smooth, damped cassette compartment, to its motorized head-loading system, the V-9 is a recordist's delight. Visit your TEAC dealer and give one a try. You'll see why we're introducing a totally new look in hearing aids.

V-9 3-Motor Cassette Deck

©1981 TEAC Corporation of America, 7733 Telegraph Road, Montebello, CA 90640
CIRCLE NO. 46 ON READER SERVICE CARD
Real-Time Spectrum Bar-Graph Auto-Scan-Alyzer, $449.

EQ defeat ± 16/12dB octave gain
EQ Tape Record  Tape Monitor
System  Two Zero-Gain controls

You can dramatically improve your system through fast, accurate and continuous analyses with this 10 state-of-the-art Real-Time Frequency Analyzer. The Auto-Scan-Analyzer also provides 0.1dB Read-Out patent-

Your stereo component system can sound even better when you add-on a performance-engineered Equalizer, Analyzer, Preamplifier or Amplifier from Soundcraftsmen. Separate add-on components, made in the U.S., and designed specifically to improve and enhance your already fine stereo component system. Our slogan has always been, and remains, "guaranteed to improve and enhance any fine stereo component system!"

The Equalizer you buy should have all 10 of these features:

- Real-Time Frequency Analyzer Test
- Record  Computone-Chart Memory System
- Two Zero-Gain controls
- EQ Tape Record  Tape Monitor
- EQ defeat: ± 16/2dB octave gain
- S/N: 105dB  THD = 0.01%
- Cabinet included

The Editor replies: I would only caution readers Irwin, Laberge, and others to note the use of the word "rebirth" and not "return." We will not be revisiting Rodgers, Porter, and Kern but will be entertained by a new generation of musical writers, a new kind of musical whose shape and content are impossible to predict from this vantage point. We can be sure of only one thing: they will be viewed as musical outliers by the "senior citizens" of the rock era.

Digital Fiedler

Steve Simels’ December review of the Boston Pops’ "Pops in Space" album (page 77) erroneously called it the Pops’ first digital recording. When Crystal Clear made a direct-to-disc recording of Tchaikovsky’s Capriccio Espagnole and Capriccio Italian with the Pops under Arthur Fiedler shortly before his death, they also taped the sessions digitally. The record (7003) is now available in both direct-to-disc and digitally mastered versions. The digital one is also available with dbx encoding and is an incredible-sounding disc. (Now, if only Telarc would go dbx . . .)

Jay L. Rudko
APO Seattle, Wash.

Missing Slash

I received my January STEREO REVIEW in the mail yesterday, and to my horror that neat little red slash on the spine was gone. I really missed it. What a pleasure it was to line up all my magazines in sequence and discover that there was a system involved there: as the number of issues in a given volume increased, the little red slashes would progress steadily and faithfully down the spine until a new volume was started, and then they would start all over again from the top. Wha’ happen? I won’t be able to show off my collection from the back anymore. Rats!

Jim Bienemann
Parkville, Md.

Well, maybe one could line them all up and paint in a neat red stripe on the bias after the fact.

Donald Lambert

We were very glad to see our releases of two recordings by Harlem stride piano master Donald Lambert favorably reviewed by Chris Albertson in the December STEREO REVIEW. Unfortunately, there was an error in the zip code given for us, and we understand that many inquiries were routed around the country before finally coming to rest in our post office. Our correct address is P.O. Box 7963, Miami, Fla. 33155.

Bob Hilbert
Pumpkin Productions, Inc.
Miami, Fla.

"Renaissance Boys" on the mediocre quality of the material of many superstar performers who think they can compose music, write lyrics, and sing with equal success. However, Mr. Anderson seemed to imply that a singer-songwriter’s musical offering could not be on par with songs written by a separate lyricist and composer—a method he made sound like the only "civilized" approach to modern music making. This seems like downgrading a form that has existed in all cultures and eras.

Singer-songwriters as different as Joni Mitchell, Randy Newman, Kate and Anna McGarrigle, and Van Morrison (the list could go on) are in no way mediocre or inarticulate. McGarrigle, and Van Morrison (the list appears in all cultures and eras.

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"...an outstanding product on any absolute scale of measurement without regard to price." -STEREO REVIEW

Read more of what Stereo Review magazine had to say about the Yamaha CR-840 receiver:

"The harmonic distortion of the CR-840 was so low that without the most advanced test instruments it would have been impossible to measure it."

When speaking of the OTS (Optimum Tuning System), an easy-to-use Yamaha feature that automatically locks in the exact center of the tuned channel—for the lowest possible distortion, Stereo Review said, "The muting and OTS systems operated flawlessly."

Among Yamaha's most significant features is the continuously variable loudness control. By using this control, the frequency balance and volume are adjusted simultaneously to compensate for the ear's insensitivity to high and low frequency sound at low volume settings. Thus, you can retain a natural-sounding balance regardless of listening level. As Stereo Review states, "...another uncommon Yamaha feature."

And there's more. Like the REC OUT/INPUT SELECT feature. These separate controls allow you to record from one program source while listening to another program source. All without disturbing the recording process. Stereo Review's comment was, "...the tape-recording functions of the CR-840 are virtually independent of its receiving functions." One could not ask for greater flexibility.

In summing up their reaction to the CR-840, Stereo Review said, "Suffice it to say that they [Yamaha] make it possible for a moderate-price receiver to provide performance that would have been unimaginable only a short time ago."

And the CR-840 is only one example in Yamaha's fine line of receivers. For instance, High Fidelity magazine's comment about the Yamaha CR-640 receiver: "From what we've seen, the Yamaha CR-640 is unique in its price range."

And Audio magazine has remarks on the Yamaha CR-2040 receiver: "Without a doubt, the Yamaha CR-2040 is the most intelligently engineered receiver that the company has yet produced, and that's no small feat, since Yamaha products have, over the last few years, shown a degree of sophistication, human engineering, and audio engineering expertise which has set them apart from run-of-the-mill receivers."

Now that you've listened to what the three leading audio magazines had to say about Yamaha receivers, why not listen for yourself? Your Yamaha Audio Specialty Dealer is listed in the Yellow Pages.

To obtain the complete test report on each of these receivers, write: Yamaha International Corp., Audio Division, P.O. Box 6600, Buena Park, CA 90622.

Quotes excerpted from June 1979 issues of Stereo Review, High Fidelity and Audio magazines. All rights reserved.
TDK sets the metal standard for most metal deck manufacturers. With good reasons. Superior high frequency MOL for extended response. Up to 8 dB greater MOL at high frequencies than any high bias tape. High coercivity and remanence for superior sensitivity and additional recording headroom.

This unsurpassed sound comes housed in two different cases. In the case of the MA-R, there is a unique TDK die-cast metal frame. Its unibody construction creates perfect integrity between sides A and B. This insures against signal overlap, channel or sensitivity loss from one side to the other. The Reference Standard Mechanism assures a lifetime* of superior performance. TDK MA has a computer-molded cassette shell. Like MA-R, it's specially designed for the best interfacing with the 3-head metal deck. And its Laboratory Standard Mechanism assures years of pure metal sound.

Now in both cases, TDK gives you a choice of 60- or 90-minute lengths. Whichever you choose, you'll hear how TDK makes a perfect case for metal.

*In the unlikely event that any TDK cassette ever fails to perform due to a defect in materials or workmanship, simply return it to your local dealer or to TDK for a free replacement.

TDK Metal.
Now you can have ninety minutes in either case.
The 200-watt-per-channel Yamaha B-6 cord and program selectors, switching for orientation is 0.08 per cent in mono, 0.02 per cent. The tuner section has 45 dB at the tuning knob. An integrated-circuit FM de-modulator provides a high FM signal-to-noise ratio (specified as 82 dB). Stereo separation is given as 45 dB at 1 kHz; distortion is 0.08 per cent in mono, 0.02 per cent in stereo. The DA-R7 has detented controls for bass, treble, and balance, separate record and program selectors, switching for two pairs of tape decks and two sets of speakers, a mono switch, loudness compensation, and an FM muting switch. Price: $950.

The Yamaha A-760 is an integrated amplifier using the same technology as the B-6. Among its controls are a "disc-priority" switch that bypasses all other source inputs to provide a direct signal path from the phono section and a switch that bypasses all tone-control and filter circuitry. Also incorporated is a head amplifier for moving-coil cartridges. The power rating of the A-760 is 80 watts per channel with no more than 0.01 per cent total harmonic distortion from 20 to 20,000 Hz. Signal-to-noise ratio is 70 dB at the moving-coil phonograph input, 86 dB at the standard magnetic input. The unit measures 17 1/8 x 4 1/4 x 14 3/8 inches and weighs 20 pounds. Price: $390.

The Soundcraftsmen ST6001 AM/FM digital-synthesis, quartz-controlled, phase-locked-loop tuner has fourteen-station preset programming and a five-digit station readout for world-wide operation and possible channel-spacing changes. A back-up memory system allows the station presets to be retained for years. The LED signal-strength meter also serves as a multipath indicator for establishing optimum antenna orientation. The unit has a variable output-level control, a mono/stereo switch, a high-frequency-blend switch to reduce noise on FM stereo broadcasts, a 19-inch rack-mount panel, and walnut-veneer wood end panels for non-rack installations. Specifications include 10.8 dBf IHF usable sensitivity (1.9 microvolts), a 73-dB signal-to-noise ratio in stereo, 0.09 per cent total harmonic distortion, and 45 db separation. Price: $449.

The company's "Lady Bug" FM transmitter will plug into any electronic guitar or other instrument with a standard 1/4-inch jack and broadcast its output to any nearby FM receiver. For the professional musician, such a transmitter will eliminate the need for amplifier cables onstage. The unit is powered by a 9-volt battery and housed in a nickel-plated brass case measuring 2 1/2 x 2 x 3/4 inches, weight is 4 ounces. The transmitting antenna is a 14-inch flexible wire. Price: $79.95. Lady Bug, Inc., Dept. SR, P.O. Box 569, St. Joseph, Mich. 49085.

Transcriber's "Classic I" and "Cylinder" Sound Saver record-care products offer an alternative to wet cleaning systems. The company's Micro Stor system is claimed to allow a slight humidity to help dissipate static charge, thus enabling the velvet bristles of the cleaning brush to lift off dust and dirt. The Classic I has a simulated wooden handle; both models come with a 1/4-ounce bottle of Cleaner One fluid. Prices: Classic 1 kit, $15; Cylinder, $6.95. Transcriber Co., Inc., Dept. SR, P.O. Box 478, Attleboro, Mass. 02703.
moving-iron phono cartridge from sonic research

sansui receivers with digital-synthesis tuning, spectrum analyzer

phase-aligned speaker from siare

discount dividend certificates
dividend gifts—every shipment is redeemable immediately for extra discounts.

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happenings in the world of music, concerts, critiques, new releases...special super-sale listings at discounts of up to 73%.

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diamond needles, cloths, tape cleaners, etc. discount music club is your one-stop music and accessory buying service.

quick service
same day shipping on many orders...rarely later than the next several days. partial shipments always made in the event of unforeseen delay...all at no extra cost to you.

100% iron-clad guarantees
on all products and services. Everything is guaranteed factory fresh and free of defects or damages of any sort. Your total satisfaction is unconditionally guaranteed.

discount music club is a no-obligation membership club that guarantees tremendous discounts on all stereo records and tapes and lets you buy what you want...when you want...or not at all if you choose.

these are just a few of the money-saving reasons to write for free details. you can't lose so why not fill out and mail the coupon below for immediate information.

(continued on page 16)
The Polks “At their price, they are simply a steal!”

At their price, they are simply a steal!

Incredible Sound/Affordable Price

“Our advice is not to buy speakers until you’ve heard the Polks.”

Musician Magazine

Polk Tri-Laminate Polymer Driver
For Life-Like Clarity and Detail

Reviewers and Critics Agree Polk speakers will give you the highest sound quality and the most listening pleasure for your money. They will deliver amazingly life-like, boxless, three dimensional sound with breathtaking clarity and detail in your listening room from your hi-fi system.

"Polk speakers (are) so vastly superior to the competition ... a remarkably well integrated and coherent sound that adapts itself ideally to all kinds of music ... the kind of open, uncolored, perfectly imaged sound we thought began at twice the price ... Sound quite magnificent with a good mid-powered popular brand receiver ... They make the popular speakers in their price range seem dim, colored, boxy and just plain insufficient.”

Musician Magazine

“Exceptionally pleasing sonic balance ... Polk’s key design goals have definitely been realized ... transient response is absolutely first rate ... hemispherical dispersion is superb ... Open, boxless, three dimensional quality ... frequency response covers the entire audible range with commendable flatness ... sensitivity is adequate for use with a 10 watt amplifier, yet it could absorb the full output of a 200 watt amplifier without damage ... certainly a very fine speaker.”

Stereo Review

CIRCLE NO. 32 ON READER SERVICE CARD

Better sound in your home Polk Audio loudspeakers will give you more listening pleasure and greater long term satisfaction from your music, your records and your hi-fi system. They offer the best sound for the money available on the market and are affordably priced from less than $125 each to less than $400 each.

Simply use the free reader service card to receive detailed information, copies of the expert’s rave reviews and the location nearest you for auditioning the incredible, affordable Polks.

Polk Audio, Inc. 1205 S. Carey St., Balt., Md. 21230

Incredible Sound/Affordable Price
Realism.

ALLISON: ONE® loudspeakers were used by Diversified Science Labs in reviewing nine "audiophile discs." The reviews were published in a special section of the Winter, 1980 issue of Stereophile magazine. Here are some excerpts:

"Stereo imaging has excellent width and depth and is rock stable. What we heard was as real a piano as we have ever heard on a recording. . . . percussion is crisp and clean and even the triangle stands out clearly in the presence of the full orchestra. Brass is excellent in all registers; cellos and basses are clearly defined. Undoubtedly, this is one of the most sonically thrilling recordings we've ever heard. . . . super-solid kick drum, magnificent transients, scintillating cymbals. . . contains a truly perfect transcription of the sound of a bass drum. . . . The imaging, dynamics, and accuracy are so perfect that the three musicians seem to be performing in your living room."

These words are from record reviews. But the sounds described were not created by the recording itself. The imaging, dynamics, and accuracy are so perfect that the three musicians seem to be performing in your living room.

The loudspeakers were Allison One systems, with the Electronic Subwoofer to extend response flat to 20 Hz.

One reason why Allison® systems reproduce original sounds so accurately is that they have flat bass power response in real rooms. Conventional loudspeaker systems are affected by reflections from room surfaces; Allison Room-Matched design avoids these effects. A series of technical papers on the room-boundary problem and its solution is available, along with our catalog and other literature, free on request.

Sanyo's Low-cost Metal-compatible Cassette Deck

- The RDS-20 from Sanyo has a three-position tape-type selector for normal, CR9, or metal tape, soft-touch transport controls, and Dolby noise-reduction circuits. Frequency response is given as 30 to 16,000 Hz, signal-to-noise ratio (Dolby circuits) as 62 dB, wow and flutter as 0.05 percent. The deck also has two microphone inputs and a headphone output. Price: $129.95.

New Two-driver Bookshelf Speaker From KEF

- The KEF Model 103.2 is a two-way bookshelf loudspeaker system employing a 71/4-inch Bextrene-cone low-frequency driver in an acoustic-suspension enclosure together with KEF's T33 high-frequency driver. The enclosure is designed for upright use at a height that places the bottom of the cabinet about 3 feet above the floor. Electronic overload protection is incorporated to prevent damage by fault conditions. Visual indication of overload is provided by a LED. Available finishes include walnut, teak, and rosewood veneers as well as black ash. The removable grille is black.

Frequency range is given as 60 to 20,000 Hz ± 3 dB at a 2-meter distance (−10 dB at 37 and 30,000 Hz). This response is held within 1 dB up to 10,000 Hz for ±20 degrees horizontally off the design axis. Sensitivity is 86 dB sound-pressure level (SPL) measured at 1 meter with a 1-watt input. Maximum output is a 106-dB SPL at program peaks under typical listening conditions. Third-harmonic distortion is less than 1 percent from 50 to 20,000 Hz. Nominal impedance is 8 ohms. Dimensions are 20 x 101/2 x 9 1/4 inches. Weight is 19 pounds. The Model 103.2 is sold in matched pairs only. Price: $900 per pair.

Note: All product descriptions and specifications quoted in these columns are based on materials supplied by the manufacturers, who will respond directly to reader requests for further information.

Domestic inflation and fluctuations in the value of the dollar overseas affect the price of merchandise imported into this country. Please be aware that prices quoted in this issue are therefore subject to change.
THE QUIET REVOLUTION IN RECORD CARE

The newest in Record Care Programs from one of the oldest names in audio.

Pickering cartridges have built an outstanding twofold reputation—excellence in sound along with protection of record longevity through exact tracking tolerances, low tracking weight and careful stylus design. A natural extension of this concern is in the field of record care itself.

Pickering introduces RC4 Record Cleaner together with a companion Stylus Cleaning Kit to provide the ultimate in modern record protection. RC4 removes microdust particles without adding residual noise—even reducing surface noise of mint new recordings. The Stylus Cleaning Kit adds assurance that your stylus always delivers to its maximum capability.

RC4 together with the Pickering Stylus Cleaning Kit. Complete! Effective! It's the Quiet Revolution in Record Care!

For further information write to Pickering & Co., Inc., 121 Sunnyside Blvd., Plainview, N.Y. 11803

CIRCLE NO. 41 ON READER SERVICE CARD
SIMPLY INCREDIBLE
Sophistication without complication. Performance without bulk. It's not a dream. It's the incredible Aiwa M-501 mini-component system. An audio system whose technology is so advanced, size is immaterial. Only efficiency counts.

Instead of trying to impress you with oversized, overcomplicated components, the Aiwa M-501 system leaves you with just one impression: awesome performance.

All the Aiwa M-501 components together measure less than many single components, but their specifications measure up to and often beyond conventional hi-fi systems.

And with Aiwa, technology doesn't quit with performance. It just begins.

Nearly every function in the Aiwa M-501 mini-component system can be activated by Aiwa's unique infrared remote control. In fact, the M-501 system shown here is so advanced it can be programmed to turn on by itself, record by itself, even change up to 6 preset tuner channels by itself. Just about all you have to do, is buy it.

The incredible Aiwa M-501 mini-component system —preamplifier, quartz synthesizer tuner, metal-capable cassette deck, digital quartz timer, infrared remote control and DC stereo power amplifier with 50 watts minimum RMS, both channels driven, into 8 ohms from 20–20000 Hz. With no more than 0.02% total harmonic distortion.

**AIWA® SIMPLY ADVANCED**

CIRCLE NO. 3 ON READER SERVICE CARD
It sounds like music.

Interface:C Series II is the fulfillment of our six-year association with optimally-vented speakers based on the theories of A.N. Thiele — speaker designs first introduced by Electro-Voice in 1973. The Interface:C offers you a unique combination of high efficiency and high power capacity — the only way to accurately reproduce the 120+ dB peak sound pressure levels found in some types of live music.

The SuperDome™ tweeter, an E-V exclusive, and the VMR™ vented midrange driver, the first to apply optimally-vented design to mid-frequencies, ensure your music is reproduced without the coloration normally found in other high-efficiency drivers. An honest 30 Hz low end totally eliminates the need for expensive subwoofer assemblies.

When you spend $1,000 for a speaker system, get your money's worth. Audition the Interface:C Series II at your nearest interface dealer. If you want a speaker that sounds like music, the Interface:C Series II is the one you'll buy.

By Larry Klein

Technical Director Klein admires part of the enormous collection of antique phonographs at Audio-Technica's Japan headquarters.

Laser-read LPs?

Q. I have an extensive library of classical and opera LP records which for financial reasons I could not replace with digital or dbx discs. Is there any possibility that a playback system for standard records will be developed using twin laser beams reflected from the groove walls and perhaps tracking with a stylus riding ahead of the beam? If feasible, wouldn't this minimize surface hiss, ticks, and pops? And give full recorded frequency range?

H. A. Roddick Yakima, Wash.

A. Assuming that the technical problems of having a laser “read” the groove walls of a conventional 33 1/3-rpm LP record could be solved — and I believe such a system has been demonstrated experimentally — I do not see it as a feasible commercial product. Laser beams, the inevitable high expense of such a system, there’s good reason to believe that, at its best, it would not provide benefits either in the areas of record playback fidelity or longevity. Surface hiss, ticks, pops, and other Rice-Krispy noises result from defects in the vinyl material, in the groove walls, or from debris that has accumulated in the groove. Laser beams, if they are to respond to sometimes very subtle groove undulations that embody the musical material, will also necessarily respond — for better or worse — to everything else that is in or part of the groove.

True, some cartridge/ tone-arm combinations tend to emphasize certain record defects, but, in general, the best of today’s cartridges, when optimally loaded and set up, sound very much alike. I wouldn’t expect a laser “cartridge,” if it were working optimally, to sound any different.

All this has nothing to do with the upcoming laser-read digital audio discs. Their particular sonic virtues derive from the digital encoding and playback rather than the use of laser groove scanning.

Tangential Tracking

Q. I am tempted to buy one of the new tangential-arm turntables since I understand it has advantages over a pivoted arm. However, I am concerned about a technical matter. I have noticed that the spacing of the record grooves varies from disk to disc; the longer the playing time, the closer the groove spacing. How is the speed of the tangential tone arm, as it travels inward toward the center of the record, adjusted to compensate?

Anthony L. Martins Westin, Ontario

A. There are several confusions in your letter; I’ll take them in order. First, all tone arms operate tangentially to the groove — or at least try to most of the time. (Refer to your high-school geometry: a right angle drawn to a radius of the record will produce a tangent to the groove.) A perfectly straight pivoted tonearm would arc across the record surface and therefore have perfect tangency at only one point, hence all pivoted tone arms have offset heads that provide correct tangency at two points and close-to-correct tangency over most of the playing surface of the disc.

Since the theoretical distortion generated by a given degree of incorrect tangency (otherwise known as lateral tracking error) is worst at the inner grooves — because of their tight arc — the geometry of the tone arm is usually arranged so that one of the points of perfect tangency appears fairly close to the center of the record; this means that the other point of tangency has to be somewhere near the outer grooves. Incidentally, the longer the tone arm, the shallower the arc traveled across the record and the lower the overall tracking error achieved — assuming optimum geometry. (Arms longer than 9 inches or so, however, are likely to suffer from resonances and excessive mass, and hence any advantages in lateral tracking that a longer arm might provide are negated.)

The theoretical advantage of radial-tracking tone arms, if they are designed and operating properly, is that they will preserve perfect tangency over the entire record surface, can have very low mass (because of their short length), and do not need antiskating compensation. A radial-tracking tone arm is never driven across the record independently of the position of the record groove. Most such

(Continued on page 22)
Now that other tonearms are finally going straight...

It’s evident that other turntable manufacturers are learning what we’ve been stressing for many years. Curved tonearms contribute nothing to record playback except more mass and instability.

But there’s more to tonearm design than the shape of the tube. Much more.

There's the pivot and bearing system. Settings for balance, tracking force and anti-skating. Resonant frequencies and amplitudes. The range of cartridges to be accommodated. Total effective mass. All these affect the accuracy with which the stylus tracks the record groove.

Anyone who has ever owned a Dual turntable knows exactly what we mean—and why the totally engineered Dual tonearm system convincingly outperforms all others.

ULTRA LOW MASS SYSTEM.

When a conventional (18 grams) tonearm and cartridge combination tracks a record with a 1 mm warp (barely visible), harmonic distortion reaches 11.5 percent. Dual’s exclusive ULM tonearm and cartridge system reduces harmonic distortion to only 0.012 percent. That’s an incredible—and audible—reduction of 998 times!

When you consider that just about every record manufactured today is warped, ULM is not just desirable—it’s essential.

TUNABLE ANTI-RESONANCE.

Another Dual exclusive. Dual’s tunable anti-resonance filter matches the ULM tonearm to the mass and compliance of any conventional 1/2-inch cartridge. Acoustic feedback and vibration sensitivity are reduced, tracking ability improved...and the sound is audibly cleaner.

GYROSCOPIC GIMBAL SUSPENSION.

The four-point gyroscopic gimbal centers and balances the tonearm exactly where it pivots. Tracking force remains constant and perpendicular to the record even if the turntable is not level.

In sharp contrast, tonearms that apply tracking force by moving the counterbalance—or some other weight—forward are actually unbalanced during play. Under typical playback conditions, tracking force cannot be precisely maintained.

DUAL’S LEGENDARY RELIABILITY.

At a time when “planned obsolescence” is an unhappy fact of life, it may be reassuring to know that Dual turntables continue to be produced with the same dedication and manufacturing precision that has made Dual so highly respected throughout the world.

Dual turntables are made in the legendary Black Forest where meticulous craftsmanship remains a way of life. But more than tradition is responsible for Dual’s leading position in a lineup of some fifty competitive brands. The performance provided by Dual’s precision engineering has always exceeded the demands of either the record or cartridge.

ONE FINAL THOUGHT.

It’s one thing to make a tonearm that’s shaped like a Dual. But that’s a long way from a tonearm that performs like a Dual.

And that’s telling it as straight as we can.

Write for our brochure describing all nine Dual ULM turntables. Prices start at less than $190.

United Audio
122 So. Columbus Ave.
Mt. Vernon, NY 10553
Our ADC Integra phono-cartridge’s overhang adjustment

As your tonearm sweeps a record, the angle the stylus makes with the record groove constantly changes. The result? Offset angle distortion. It’s an old problem. That’s why it took a new kind of cartridge to solve it—our ADC Integra. Unlike conventional cartridges, the ADC Integra is a carbon fibre integrated headshell/cartridge with overhang dimension adjustment. There are no more nuts, no more bolts and that means no more hassles. To minimize offset angle distortion all you do is release the adjustment locks. Adjust. Then re-lock. It’s incredibly simple.

We’ve even included a tracking angle gauge. So it’s also incredibly accurate. Because we know even an error as small as 2° can be more than double cartridge distortion! Impressed? We thought so. But the most impressive feature of our new overhang dimension adjustment is that it is available in three different ADC Integra models. One for every kind of budget. All for one kind of sound...devastating.

Our ADC Integra phono-cartridge’s overhang adjustment VS their nuts, bolts and hassles.

Videodisc Problem

Q I recently watched a demonstration of the Pioneer laser optical videodisc player. There was a fair amount of audible noise and the jerky appearance of occasional missed frames. The salesman claimed to see and hear no defects. The machine is touted as the way to enjoy near-perfect audio, but this demonstration puts a doubt in my mind. Is the buyer likely to get a great new audio/video experience—or just a headache?

A It appears that Mr. Kreiner was watching a good demonstration of a bad videodisc. I’m told that MCA had some technical production problems with its early discs. And, although the problems seem to have been solved, there are still enough of those early discs in circulation to keep giving headaches to everyone associated with the laser optical system. As far as the audio noise is concerned, some discs do seem to have a high level of hiss, which can generally be reduced or eliminated by switching in the high filter on the external amplifier. This problem also seems to occur on an intermittent basis and, I would suspect, depends to a great degree on the audio quality of the original soundtrack. As far as the video quality is concerned, some discs do seem to have a high level of hiss, which can generally be reduced or eliminated by switching in the high filter on the external amplifier. This problem also seems to occur on an intermittent basis and, I would suspect, depends to a great degree on the audio quality of the original soundtrack. The solution is for the videodisc producers to clean up their sonic acts before dubbing them onto videodisc.

Because the number of questions we receive each month is greater than we can reply to individually, only those letters selected for use in this column can be answered. Sorry!
INTRODUCING
A CASSETTE DECK WITH A MIND OF ITS OWN.

AKAI proudly announces the GX-F95. The future of recorded history.
A 21st century cassette deck for the audiophile who can't wait.

Within seconds after popping in a cassette, this incredible computerized sound machine will have accurately determined bias, equalization, sensitivity tuning and more — automatically. For virtually any tape on the market.

You'll also find sensor light full-logic solenoid controls, and switchable 24-section/2-color bar meters with peak hold.

And the specs on the GX-F95 are equally impressive.

Frequency response with metal tape is an amazing 25-21,000 hertz. And Signal-to-Noise with metal tape is 62dB (Dolby* on improves up to 10dB, above 5000 hertz). Harmonic Distortion less than .06%.

Add now, the 3-head performance and reliability of our exclusive Super GX Combo head, whose glass and crystal ferrite construction adds up to over 17 years of virtually wear-free performance — guaranteed.* Fantastic.

The latest addition to the longest all-metal cassette line around.

Remarkable as the GX-F95 is, it's only one of 11 superb AKAI cassette decks — two of which offer reversing record and playback capabilities.

All metal-capable, the line includes models from $189.95 to $1,195.00, with plenty of stops in between.

So if you're in the market for a great sounding cassette deck, look no further than AKAI.

Including the brand-new GX-F95 with its computerized brain. Maybe the most intelligent thing we've ever done.

AKAI, 800 W. Artesia, Compton, CA 90224.

*TM Dolby Labs, Inc.
**Limited Warranty

AKAI
YOU NEVER HEARD IT SO GOOD
"When the lights were turned out we could almost have sworn that we were in the presence of a real live orchestra."

Hal Rodgers, Popular Electronics.

"The effect strains credibility — had I not experienced it, I probably would not believe it... the 'miracle' is that it uses only the two normal front speakers."


"...seems to open a curtain and reveal a deployment of musical forces extending behind, between and beyond the speakers...terrific."

High Fidelity.

They're all raving about Sonic Holography.

Sonic Holography is only the most spectacular achievement of the Carver C-4000. The others are merely extraordinary.

Consider what you actually have in the C-4000:

- A full function stereo preamplifier
- A time-delay system with controllable reverberation mix
- A built-in 50 watt (total) power amplifier for time delay speakers
- The Autoconnector system that reduces noise up to 8 dB with any source material
- A peak limiter/downward expander that nearly doubles dynamic range
- And the Sonic Hologram system that aroused the quotes above.

Please write for the complete test reports, brochures and list of authorized Carver dealers. Then you can rave all you want about your own C-4000.

CARVER CORPORATION
PO Box 664, Woodinville, Washington 98072

A Little Knowledge . . .?

Q. I recently read a disturbing article in Chicago magazine (October 1980) in which the author claimed that the Philips cassette standards were being differently interpreted by deck manufacturers and test-tape manufacturers. He noted that "a recording made at 0 dB on one machine might read +5 or -3 when played back on another machine."

Is this true?

ROBERT HILLIARD
Evanson, Ill.

A. Scare stories, like scare headlines, usually result from a combination of overstatement and misunderstanding.

Regarding the claim you quote, however, the 8 dB (+5 to -3) level difference would certainly cause decoding errors in Dolby circuits if the meter characteristics were the same and if the "Dolby level" were, in fact, 0 dB, the probabilities are overwhelmingly against your having any audible difficulty with existing machines. The fact is that most meters — of whatever characteristics — have a "Dolby calibration" mark that has only an indirect relation to where the manufacturer chooses to mark "0 dB" on his scale but which he uses (as should you, if you have "user-adjustable" Dolby sensitivity controls on the front panel) to calibrate the Dolby system. If a Dolby-level test tape (or a tape you record yourself using a built-in Dolby tone) plays back at 0 dB on a tape head in a given machine, engineers on the standards committees in Asia, in Europe, and in America have for some years now been minimizing, not maximizing, compatibility problems.

Comparing Specs

Q. I am considering buying a high-quality cassette or open-reel deck, and I have read that the reference standards are not the same for cassette and open-reel. Is there any way for a consumer to compare specifications between the two formats?

STEVEN L. BASTA
Tulsa, Okla.

A. Buying a tape deck — cassette or open-reel — on the basis of published specifications alone is a dangerous business, for it's likely to penalize the conservative manufacturer whose "specs" are written by a "creative" copywriter.

In general, the more magnetic material you pull past a given tape head in a given time, the better the results are likely to be.

There are cassette decks using 21-mdm tracks and a 1½-ips tape speed that outperform some quarter-track open-reel decks operating at 7½ ips, but they are the exception rather than the rule.

It is impossible to rate a cassette deck's wow/flutter figure based on a weighted-rms measurement against a figure for an open-reel deck rated on the DIN peak-weighted standard. If both use the DIN measurement, however, the comparison is valid. If both units have signal-to-noise measurements based on 3 per cent third-harmonic

(Continued on page 26)
LIMITED EDITIONS FROM
THE ORIGINAL MASTERS

An Original Master Recording™ Lp or cassette, will challenge and improve the performance of any stereo system.

An original work by DaVinci is a masterpiece. So is an Original Master Recording™...a masterpiece of audio art.

Utilizing our exclusive half-speed mastering process, we return to the artist's original stereo master tape to capture every nuance of that original studio or concert hall performance...like it's never been captured before.

Each Limited Edition Lp is pressed on Super Vinyl for maximum clarity and custom packaged for total protection. Available at discriminating audio and record stores.

BRAND NEW! THE FIRST TRULY HIGH FIDELITY PRE-RECORDED CASSETTE.

Mobile Fidelity Sound Lab presents a technological breakthrough: Original Master Recording™ High Fidelity Cassettes.

You won't believe that pre-recorded cassettes could sound this spectacular. Our exclusive tape transfer process gives you a one-to-one (1:1) "real time" cassette taken directly from the original stereo master tape. We use state-of-the-art high bias Chromium Dioxide tape for maximum frequency response and minimal background noise. Our ultra-protective cassette shell will help prevent jamming, headwear, wow and flutter.

At last! You can now enjoy true high fidelity programming on your home, automobile and portable stereo cassette systems.


FREE! OUR NEW COLOR CATALOGUE. Write: Mobile Fidelity Sound Lab, (Dept. ST) P.O. Box 919, Chatsworth, CA 91311

CIRCLE NO. 29 ON READER SERVICE CARD
The ultra lightweight headset is MURA's model hs. It has • Rare earth (samarium cobalt) drivers • Tapered mylar speakers • A 4 ft. lightweight cord with a 3.5mm plug. The hs also features a foldable headband that permits compact storage and convenient carrying when not in use. MURA's HI STEPPER is perfect for today's on-the-go people. And that's just about everyone. It's the ideal take-me-along stereo companion.

With its outstanding features and suggested retail price of under $80.00, MURA's HI STEPPER is a big step forward in today's trend to high quality, personal stereo listening.

**MURA**

You'll be hearing from us.

---

**CIRCLE NO. 30 ON READER SERVICE CARD**

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**ADCOM, QUALITY IS THE PRINCIPLE... LOW COST THE DIVIDEND.**

As a matter of principle the new Adcom GFP-1 preamplifier avoids gimmicks, useless gadgetry and pinball machine illumination to concentrate on the things that really matter, genuine utility, outstanding performance and an affordable price.

To cite just a few of its more noteworthy features, the Adcom GFP-1 employs a super low noise FET phono input stage to minimize cartridge impedance interaction, a problem that many far more costly designs seem to overlook. To insure exceptionally high overload capability there's discrete phono and line circuitry. In place of a conventional volume control you'll find a true stepped potentiometer with precision trimmed resistor pads for accurate channel tracking. Another neat touch — genuinely useful tone controls with hinge points that correspond to RIAT channel tracking. Yet another neat touch is the HI STEPPER radio.

Add sophisticated switching, versatile dubbing facilities, vanishingly low distortion and exceptionally quiet operation and you truly have a preamplifier for all seasons.

One last thought. At a time when all too many companies have opted for increasingly exotic designs i.e. very expensive ones, Adcom has conscientiously sought to provide a demonstrably superior preamplifier at a price* that would still be within the reach of most discriminating enthusiasts.

Clearly, you owe it to yourself to audition this remarkable instrument. And at the same time, listen to its superb companion piece the Adcom GFA-1 amplifier. We think you will agree that they're as good as anything you have ever heard, regardless of price.

For additional information and the name of your nearest Adcom dealer write: Adcom, 9 Jules Lane, Silver Spring, Md.

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**SALVAGE JOBS**

My wife mistakenly placed a number of my open-reel tapes outside on our balcony last winter, and although they were in metal containers, the tapes now break whenever I try to play them. Can anything be done to save them?

JAMES E. HILL
Silver Spring, Md.

About forty of my cassettes, a few years old, were shipped to me in crates from Europe. When I try to play them now I hear a loud squealing as they go through the player. I suspect they've dried out. Is there any fluid I could apply to them to solve the problem (and how, since the cassettes are welded)?

RON SCHNEPPER
San Antonio, Tex.

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I receive a fair number of inquiries not only from readers Hill and Schnepner to which, frankly, there is no sure-fire good answer. When tapes have been damaged by some abnormal condition during storage or transportation, resuscitation efforts are usually in vain.

Tapes whose oxide coatings and/or backing materials have been "dried out" (sometimes becoming brittle) can occasionally be made temporarily playable—long enough to make a copy—by sealing them inside an airtight container together with some wet blotting paper for about 24 hours. Pipe and cigar smokers make use of the same principle in their humidors. That's my best suggestion.
If lately your favorite recordings sound like they're gradually unrecording, it could be the tape they're on.

You see the oxide particles on some tapes just aren't bound on very well. And when the oxide particles come off, your music could come off sounding faded and weak.

Maxell, however, has developed a unique binding process that helps stop those oxide particles from taking a hike. We also polish our tape to a mirror finish to reduce friction, the major cause of oxide shedding.

So with Maxell, even if you play a tape over and over, the music won't disappear before your very ears.
NOW FOR THE FIRST TIME
YOU CAN HEAR THE
FULL POTENTIAL OF
STEREOPHONIC REPRODUCTION
WITH THE
SOUND CONCEPTS
IR2100 IN YOUR OWN
STEREO SYSTEM

You may have wondered why all the sound from your stereo seems to come from the space between your speakers when you know that speakers project sound in all directions. In a conventional stereo system, the speakers act as sonic barriers to the stereo image. They actually become obvious sources for the sounds that were originally recorded beyond the angle that they enclose.

In live music each separate sound emanates from a single location and is basically heard once in each ear. In stereo all the sounds are reproduced from two locations. The resulting cross coupling of left channel to right ear and vice versa is the sonic equivalent of a double exposure.

The IR2100 embodies unique circuitry that represents the first major improvement in stereo image enhancement in 20 years.*

It develops signals that actually cancel the stereo portion of the acoustic cross talk and allows your stereo to reproduce the full breadth and depth of the original performance. The IR2100 is also uniquely adjustable from the listening position for a wide range of speaker locations and source material, so you can easily tune it to get the most out of your stereo and your recordings. The impact of the IR2100 will be to expand your stereo sound stage and recordings. The impact of the IR2100 will be to expand your stereo sound stage and recordings.

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PRERECORDED CASSETTES FOR AUDIOPHILES

I've always been partial to the cassette medium, not for the way the cassette deck is commonly used (the ethically questionable practices of dubbing from broadcasts or friends' records), but as a means of providing, through the prerecorded cassette, music of high sonic quality at low cost. Cassettes, if properly recorded, can offer lower noise, fewer defects, longer playing life even on substandard equipment, and longer uninterrupted playing times than most long-playing discs. Prerecorded cassettes can even give better high-frequency performance than an LP's inner grooves.

Unfortunately, until recently there has been very little effort among manufacturers to realize the full capabilities of the medium. Advent, InSync, and CBS MasterSound have been among the few exceptions. To that list you can now add Vanguard, Mobile Fidelity, and JVC as companies that have chosen to apply audiophile criteria and techniques to the production of cassettes of high sonic quality.

Vanguard's releases in its SuperChrome cassette series are duplicated at fairly low speed on chromium-dioxide tape stock and use Dolby-B encoding. While these characteristics sound very much like those of the CBS MasterSound cassettes, there is a major difference: price. Vanguard's "Twofers," containing the program equivalent of two LPs per cassette, sell for $10.98. Artists with such double-length cassettes include Joan Baez (CAT 41/42), Buffy Saint-Marie (CAT 3/4), the Clancy Brothers (CAT 53/54), and P. D. Q. Bach (CAT 719/20). There is also a group of classical releases including music by Vivaldi (CAT 470665), Stravinsky (CAT 471177), and Mussorgsky (CAT 471188), Handel's Messiah (CAT 410090/2), and Bach's Brandenburg Concertos (CAT 471208/9).

How do they sound? Very good. The only major defect I found on the SuperChrome tapes I heard was some slight overmodulation distortion of the trumpet in the Bach Brandenburg Concerto No. 2. Wow and flutter were not a problem, nor was the noise level.

Audio Source (1185 Chess Dr., Foster City, Calif. 94404) is importing several cassettes that have been duplicated at low speed onto metal tape by JVC in Japan. Priced at $29.95 each, the first three releases feature Irakere (MDS-4), Sadao Watanabe (MDS-1), and Dave Grusin (MDS-7). As can be expected from metal tape, the high-frequency performance of these recordings is very good, as is the noise level. The cleanest-sounding cassette, containing what to my ears is the most interesting music, is the Dave Grusin Mountain Dance tape, derived from a disk-master recording.

Mobile Fidelity, known for recutting and repressing various LPs, has taken another unusual route with cassette releases. The Mobile Fidelity cassettes are said to be recorded at playing speed (1 7/8 inches per second) directly from the master tape. Even the Dolby-B unit employed is said to be improved, with reduced harmonic distortion and extended frequency response. These cassettes are probably the closest that consumers can get to master-tape sound, at least until digital playback enters the home. They cost $1 more than the equivalent Mobile Fidelity discs.

Regardless of how they were duplicated, the Mobile Fidelity cassettes sound superb. The tapes I heard (Steely Dan, C-033; Pink Floyd, C-017; Earl Klugh, C-025; and Zuber Mehta conducting excerpts from Star Wars and Close Encounters, C-008) all had very low noise levels, wide dynamic range, full-range frequency response, and no obtrusive distortion. At times I felt that I was missing some of the uppermost high-frequency octave (10,000 to 20,000 Hz), but this is probably because of a slight head-alignment mismatch between Mobile Fidelity's duplicating machines and my playback unit. I also heard some slight modulation noise with certain selections, but this could just as easily stem from the original analog recordings as from the duplication process.

In short, these releases demonstrate that prerecorded cassettes can sound fully competitive with their disc counterparts and in some ways (noise, end-of-disc distortion) superior. They also seem to show that prerecorded cassettes are reaching their final peak of development, barring another breakthrough in tape formulation or the use of more advanced noise-reduction systems.
not simply a “cartridge”... but an innovative playback system

**Dynamic Stabilizer** Suspended from two viscous-damped bearings, acts like a shock absorber to maintain a constant cartridge-to-record distance and uniform tracking force, eliminates record groove skipping caused by warp, cushions the stylus from accidental damage.

**Electrostatic Neutralizer** 10,000 conductive graphite fibers discharge static electricity from the record during play. Eliminates attraction of dust and tracking force variations caused by static charges.

**Hyperelliptical Tip** Elongated, uniform groove contact reduces harmonic and intermodulation distortion by as much as 25% over conventional Elliptical or long contact tips.

**Telescoped Shank** Greatly improves trackability at the critical middle and high frequencies. Lowest effective mass, with no sacrifice of necessary stiffness or strength.

**Two-Function Bearing** Unique bearing system is optimized for both low frequencies and high frequencies independently. Enhances trackability across entire audio spectrum.

**Laminated Core** Low-loss, laminated electromagnetic structure provides consistently flat frequency response, exceptional channel separation, higher signal level output.
**WHILE OVERCOMING ALL THESE PROBLEMS**

### Hot Signals

Digital recording, half-speed mastering, direct-to-disc—these and other recording breakthroughs deliver previously unattainable dynamic range. But, they also put unprecedented demands on the playback system. In the graph below, the dots show the actual measured recorded velocity of several commonly available “hot” recordings. A cartridge which cannot cope with such hot recorded signals mistracks; that is, the stylus loses contact with the record groove walls producing distortion and permanent audible damage to the groove.

The ability of the stylus to stay in contact with both groove walls is called trackability, and it is the best measure of a cartridge’s total performance. The trackability of the V15 Type IV (the solid curved line) is in excess of most measured hot signals on the graph below—even at an ultra-light, one gram tracking force. This is due in large part to the unique design of the stylus assembly: it incorporates a telescoped shank structure and a lightweight, high-energy magnet which reduce the effective mass of the moving system without sacrificing stiffness. Low and high frequency trackability have been independently optimized by means of a unique two-function bearing system for uncompromised trackability across the entire audio spectrum.

![Graph showing system trackability](image)

*Cartridge-tone arm system trackability when mounted in SME3009 tone arm at 1 gram tracking force.*

### Warp

Your phonograph cartridge “sees” all records as twisted, uneven surfaces. Jolting up and down 0.5 to 8 times a second. This is due to the record manufacturing process itself. Even most new records that look flat have warps, and a warped record can change the cartridge-to-record distance, the tracking force, and the vertical tracking angle. Warps produce frequency “wow,” distortion, and subaudible signals that can dangerously overload speakers and amplifiers.

What’s more, somewhere between 5 and 15 Hz every tone arm-cartridge system has a resonance frequency—a frequency at which a warp will produce an exaggerated motion that may result in mistracking and in extreme cases, cause serious damage to both the record and stylus.

The Dynamic Stabilizer is viscous-damped to resist sudden changes in motion, such as those caused by subaudible warp. Instead, the damping ensures that the tone arm will follow the irregularities of the record surface, even at the frequency of arm-cartridge resonance. The original cartridge-to-record distance is thus maintained, and vertical tracking angle and stylus tracking force remain constant! Stabilizing the distance, angle, and force ensures that the full tracking capability of the cartridge is realized at all times. The V15 Type IV’s Dynamic Stabilizer makes certain you hear the recorded information, not the warp effects.

![Warp illustration](image)

### Static Charges

Electrostatic charges on the record can be caused by contact with the record jacket, the turntable mat, or other records. These charges on the record are omnipresent and unevenly distributed. As they attract the cartridge toward the record, they change the arm-to-record distance, the vertical tracking angle, and stylus tracking force. The result is undesirable “wow” and flutter.

What’s more, static discharge through the stylus and amplifying system causes annoying pops and clicks.

During play, 10,000 electrically conductive fibers in the Dynamic Stabilizer continuously sweep just ahead of the stylus, preparing the groove about to be played. They pick up the static electricity and discharge it to ground, much like a miniature lightning rod. As a result, the record surface is electrically neutralized. The static charge is prevented from affecting arm-to-record distance or from altering the vertical tracking angle—and the tracking force is stabilized to minimize “wow” and flutter.
Dust and Dirt Distortion

Dust particles on the surface of the record or in the record groove can have two detrimental effects on record playback. Particles that accumulate and foul the stylus tip prevent accurate tracking and can cause loss of contact with the record surface, resulting in gross distortion. Particles that remain in the groove can cause “pops” and “tics” or can be embedded in the groove wall causing permanent record damage.

Effective record cleaning is essential. However, when Shure engineers examined the record cleaning devices on the market today, they found that most of the bristles were actually too wide to fit inside the record grooves. They cleaned the surface, but left the grooves, where the music is, untouched!

The Dynamic Stabilizer, pictured below, contains over 10,000 ultra-fine graphite fibers. Each one so thin that 10 of them can fit inside the average record groove. They “sweep” the grooves effectively, silently, just ahead of the stylus every time the record is played, removing interfering particles from the record grooves and protecting the stylus tip from dust accumulation.

And because the record surface is electrostatically neutralized by these fibers, it does not attract airborne dust particles.

The remarkable sound of the V15 Type IV has been variously described by the most respected audio critics in the industry as “clean,” “natural,” and “easy to listen to.” One reason is the incomparably low distortion afforded by its Hyperelliptical stylus. The unique, Shure-developed Hyperelliptical nude diamond tip configuration is better suited to reproduction of the stereo-cut groove than any other tip configuration. The tracing radius is smaller to more accurately follow the groove. As the figures below show, its “footprint” (represented by black oval) is longer, narrower, and more uniform than the traditional Biradial (Elliptical) tip-groove contact area. As a direct result of this optimized contact area, the Hyperelliptical stylus reduces intermodulation and harmonic distortion to a significant degree—as much as 25%!

FREE! Trackability Record

When you buy a V15 Type IV cartridge and return the warranty card, we’ll send you a free copy of An Audio Obstacle Course, Era IV (TTR115) worth $5.50. It includes tests to evaluate trackability, arm-cartridge resonance, channel balance, and phasing.

the Critics’ Choice...

“Like all of Shure’s top cartridges for many years, this has become a standard in the industry—a cartridge against which others are judged. (It) has earned its place in the cartridge pantheon honestly. When performance, price, and reliability are all taken into account, the V15 Type IV still comes out a top choice, even in the face of exotic competition.”

AudioScene (Canada)

“Music of all types sounded natural, transients were crisp; string tone was good and the bass was full and solid. Stereo imaging was precise and stable; and distortion remarkably low.”

Gramophone (England)

“The resolution in the medium and high frequencies was supported by the excellent trackability and I was able to enjoy a delicate pianissimo sound, the likes of which I had not heard before.”

Stereo Geijutsu (Japan)
Shure supplies a replacement stylus (needle) for virtually every cartridge we've ever made.

No matter which Shure cartridge you own, from today's V15 Type IV all the way back to the M3D, the first true high fidelity stereo cartridge, you can get a Genuine Shure replacement stylus that can bring it right back up to its original performance specifications. Upgrade styli are available to fit some Shure cartridges for performance beyond original specifications.

Even as the performance of the rest of your high fidelity system can be no better than the performance of the cartridge, the performance of a fine Shure cartridge can be no better than its stylus. Cartridges don't wear out—styli do. A worn or damaged stylus can cause irreparable damage to your valuable, possibly irreplaceable record collection. Don't take the chance! Have your stylus professionally inspected at least once a year, and replace it if necessary with a Genuine Shure replacement stylus.

Don't be fooled by cheap imitations. Sophisticated equipment designed by Shure assures uniformity and unwavering adherence to specifications. Insist on the name SHURE on the stylus grip.
Technical Talk
By Julian D. Hirsch

Improving Cassette Tape

Though metal-coated tapes have received most of the publicity during the past couple of years, the major tape manufacturers have been hard at work improving their oxide-based tapes. Judging from recent announcements from Fuji, Maxell, Memorex, and TDK, their development programs have been following parallel paths.

Some of the incentive for this activity may have resulted from a slight letdown in the general enthusiasm for metal tape following the fanfare of its introduction. Unquestionably, there has been considerable "oversell" of the new tape, and the lessening of enthusiasm has been aggravated by the inevitable time lag between the announcement and the availability of the tape itself, the initial variability in the tape's characteristics, the delayed appearance of hardware capable of exploiting its unique qualities—and the high cost of the tape.

Now that even the lowest-priced cassette decks are beginning to boast "metal compatibility," it is becoming apparent to anyone who has used this tape that metal, per se, is not the answer to everyone's cassette recording problems. On many decks, metal tape is hardly distinguishable from any good grade of ferric-oxide tape (except perhaps in those rare cases where one wishes to record live music that has a strong high-frequency content). Indeed, the most obvious difference between the two is usually price—metal tape costs roughly twice as much as premium oxide-coated tape.

Initially, there were production problems in the manufacture of metal tape, and the differences in magnetic properties between the tapes from different manufacturers sometimes made it difficult to realize their qualities to the fullest. If we can accept the latest statements from the tape manufacturers, most of these problems have been overcome, and the public can now choose among metal tapes from several manufacturers. It is a bit early to determine if there are substantive performance differences among them, but it is gratifying to see that the very high price of the early metal tapes has been shaved considerably in some of the newer products.

What about those "old-fashioned" oxide-coated tapes? Well, we now have new FX-1 and FX-2 formulations from Fuji, plus Fuji Metal and a lower-price "standard" tape, FL. According to Fuji, these tapes tend to have slightly higher output and lower noise than their similarly named predecessors, resulting in an overall dynamic-range improvement of 1.5 to 2 dB, depending on frequency. Maxell has added two new tapes, XL I-S and XL II-S, plus MX metal tape, to its line, supplementing rather than replacing the well-established UD, UD XL-I, and UD XL-II. Here, too, the manufacturer claims that an improved process gives more uniform particle dispersion, greater bias latitude, lower noise, and less print-through, with an overall dynamic-range improvement of 1.5 to 2 dB.

Not all the tape development is taking place in Japan. Memorex has been busy as well, and the result of its labors is a pair of new tapes, MRX I (which replaces the MRX3), Memorex High Bias II (replacing the High Bias tape), and a new Metal IV tape. The numerical designations of the new Memorex tapes conform to the present international standards, which designate standard-bias, 120-microsecond-equalized tapes as Type I; high-bias, 70-microsecond-equalized tapes, including chromium dioxide and "chrome equivalents," as Type II; ferrichrome tapes, nearly extinct at this time, as Type III; and metal-coated tapes as Type IV. BASF has also upgraded various tapes in its line, mostly by enhancing the packing density of the oxide particles; in addition, the new shells have improved structural integrity, larger spring pads, redesigned roller guides, and so forth. And 3M also has improved the shell mechanics in its Scotch Master line.

Returning to Japan, we find TDK's new line featuring an improvement on the popular SA tape. The new SA-X tape is similar to SA in its bias requirements and frequency response, but SA-X (like the other new premium tapes we have mentioned) offers improved sensitivity and a higher output level at all frequencies, giving it a 1- to 2-dB advantage in signal-to-noise ratio. The magnetic improvements in all these tapes are certainly worthwhile, though we would hardly expect any of them to be dramatically better-sounding than their predecessors (or even its competitors). The sonic improvements of a couple of decibels more dynamic range, plus a little better high-fre-

Tested This Month

MXR Model 140 System Preamp • NAD Model 3140 Integrated Amplifier
Sony Model PS-X75 Turntable • Tandberg Model 3001 FM Tuner
Wharfedale Laser 100 Speaker System
Stereo Review

Coatings have come many modifications in early three-head recorders that the record-case of a three-head recorder. It was this machine will match the playback-head azimuth of the tape, so that the audible sense (a jammed cassette is not very subtle in its effects!). Without attempting to dissect the new cassettes and compare their mechanical constructions and tighter dimensional tolerances (which could not be done very meaningfully anyway), I can see from the claimed advantages of each make that their manufacturers have been addressing the same problems, although I have no way of knowing to what extent each of them has been troubled by them.

Among the generic problems of cassettes has been the maintenance of a uniform, tightly controlled tape path, so that the actual magnetic pattern recorded on one machine will match the playback-head azimuth of another (or even of itself, in the case of a three-head recorder). It was this problem that led to the requirement in most early three-head recorders that the recording-head azimuth be aligned to the playback-head azimuth, not only for each cassette used, but for each side of the cassette as well. Other problems, also related to the control of the tape motion, include a shifting of the tape in the cassette at right angles to the direction of tape movement (leading to interchannel crosstalk), uneven torque that can create wow or in severe cases prevent the tape from moving in the fast-forward or rewind mode, and the ultimate defect of jamming or tape breakage.

The announcements of the tape manufacturers indicate that they are taking similar steps to correct these conditions. Among the modifications are tape hubs and guide rollers of improved plastic materials that have tighter mechanical tolerances and new low-friction slip sheets (which prevent the tape packs from binding against the inside of the cassette shell and help maintain an even tape pack on the hubs). In addition, most new tapes seem to be catering to the practical needs of the user, and there is a trend toward new designs for cassette boxes that expose most of the cassette to view.

The box for the new Memorex cassettes, moreover, is designed so that whichever direction the cassette is inserted (with the tape opening facing either the top or bottom of the box), the box can be closed with the cassette hubs firmly locked in place. It will also stay open at any angle and, like the cover of a record player, has detents at the fully open and closed positions.

I noted with some interest that Maxell and Memorex have taken exactly opposite steps in designing their molded cassette shells to keep the tape path linear and uniform across the cassette opening. Maxell (along with most other manufacturers) has made the two halves of the case as symmetrical as possible, so that their junction is exactly along the center line of the tape path, while Memorex (and BASF) has made the molded pieces strongly asymmetrical so that they meet on a line along the tape's outer edge.

I am not going to attempt to draw any sweeping conclusions about the relative merits of the various tapes and cassette constructions. Although tape manufacturers, more than most, tend to publish full specifications of their products complete with details of their test conditions, there are enough differences between test standards that interbrand comparisons are not always feasible from printed specifications. Furthermore, most of these data do not have any unique relationship to the ultimate sound quality provided by the tape, merely to the recorder adjustments needed for optimum results with the tape. The very important question of how effective the mechanical improvements and features really are can be answered only by the manufacturers themselves, and there is no way for a consumer to judge relative merit except by personal experience.

It is my feeling that, although each of these many improvements may be rather minor, their combined effect is a substantially improved product compared with the best cassettes of even a few years ago. The gap between oxide and metal-coated tapes has been narrowed (and it was never as significantly large as many people claimed or believed). Metal-tape prices have dropped while premium oxide tapes have become more expensive than ever, so a choice between them must be made on the basis of the specific tape recorder to be used. For the majority of low-price machines, metal offers no advantages commensurate with its cost, and in many cases even a high-bias (Type II) tape is not audibly better than a good Type I tape. The recordist with a good machine, preferably with three heads, who is a perfectionist or wishes to tape audiophile records or do live recording will probably find metal tape the answer to his needs—but the only way he can be sure is to try the different tapes for himself.

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Equipment Test Reports

By Hirsch-Houck Laboratories

MXR Model 140 System Preamp

Already well known as a manufacturer of professional and home signal-processing devices, MXR has now added a novel preamplifier to its line. The MXR Model 140 "System Preamp" does not include many of the features that one usually finds in a preamplifier, since it is expected that those functions (filters, equalizers, and the (Continued on page 38)
HIGH PERFORMANCE
HIGH BIAS.

AMPEX GM II HIGH BIAS TAPE.

When you're recording music that's rich in high frequencies, you need a high performance tape. Ampex GM II high bias cassettes. They retain and release every note and nuance. Especially those found in highly amplified electronic music.

GM II's high performance begins with the magnetic particle. The ones we use are smaller, permit higher volumetric loading and greater uniformity of dispersion on the tape surface. This produces a more consistent energy, increased output sensitivity, and a substantial reduction in the third harmonic distortion level. Our unique oxide formulation and new processing techniques extend the high end while they lower the noise floor (-62.8dB @ 333Hz). And to make certain that tape-to-head contact is precise, we use our exclusive Ferrosheen™ calendering process to give the tape an ultrasmooth, glossy surface.

GM II's True-Track™ cassette mechanism is an audio achievement in and of itself. Every aspect, from the fore and aft guide system to the computer-torqued cassette housing screws, says high performance. Then every Ampex cassette must pass our stringent quality control standards.

GM II high bias, high performance tape. Use it next time you're recording a passage that's rich in high frequencies. You'll hear what a difference it can make when your high bias tape delivers high performance.

For complete information and specifications on all Ampex premium tapes, write us for a copy of our Full Line Brochure.

AMPEX
The Tape of the Stars

Ampex Corporation, Magnetic Tape Division, 401 Broadway, Redwood City, CA 94063 415/367-3888
CIRCLE NO. 4 ON READER SERVICE CARD
If you want some you do it

We could save money by making one driver do in many systems. Some companies do. But at AR we design each driver for the individual operating level of each speaker.

Acoustic Suspension design requires a strong, sealed, air-tight cabinet. So we check every enclosure paying special attention to glue, joints, and bracing.

Many reputable speaker manufacturers buy some, or all, of their insides from outside suppliers. While there's nothing inherently wrong with putting a Frammas woofer and Tekamaki tweeter with a Schenklocker driver, the quality of the parts is out of your hands.

At AR, however, our only business is speakers. We have both the time and the dedication to build and inspect every driver ourselves. From the design room to the packing room.

That's why we can confidently say that the end product will do exactly what it's designed to:

AR builds nine speaker systems. Every driver in every system is designed, built and tested in our own plant. We do it right.

Every AR speaker goes through more than 70 different quality control tests and inspections before it leaves the factory.

TELEDYNE ACoustic REsearcH
thing done right, yourself.

This coil of wire (it's called a choke) is part of an AR crossover. Winding it on a ferrite core would save copper and money. We use only air-core chokes for better performance.

AR uses magnetic fluid to cool high range drivers. As a result, you can pump more power through today's AR's without overheating.

The AR speakers sell for from $90 to $900. Each one is the standard of what a speaker in its price range should sound like.

AR gives you a full (not limited) 5-year Warranty on parts, labor and performance to within 1 dB of design specs.

So next time you're shopping for speakers, look for the ones with the AR nameplate. It stands for a lot. A lot more speaker for your money.

"Truth in Listening"
components that can be connected to and adequately in a limited space. In fact, we add an accurately equalized RIAA phono preamplifier, or similar accessories; and, finally, to a separate buffered (isolated) headphone loops that can modify the signals with ac-controllable monitor output for driving a second power amplifier and speakers, to either or both of two external -processor inputs. Aside from all its switching functions and an accurately equalized RIAA phono preamplifier, the only response-modification capability of the Model 140 is an infrasonic filter for the phono inputs, cutting off at 18 dB per octave below about 20 Hz.

The flexibility offered by the MXR Model 140 is so great that it cannot be described adequately in a limited space. In fact, we believe that even after careful study of its very comprehensive instruction manual, the only way to appreciate the Model 140 properly is to connect it into a system with a number of accessories for some "hands-on" experience. The two input-source selectors are labeled A and B, and those letters identify the two preamplifier channels throughout the unit (each of them also has L and R channels). A small mix knob passes only the A or B selected signal at its right- and left-limit settings and mixes them at intermediate settings. The main outputs are controlled by a group of three knobs: a large volume control, a smaller balance control, and a small trimmer switch that feeds the main amplifier stages with either A or B alone, the output of the mix circuit, or the playback from either of two tape decks (T1 and T2).

The two input-source selectors are a row of pushbuttons along the bottom of the panel. Single buttons control the infrasonic filter and the power; a third button, when depressed, increases the system gain by 20 dB. The remaining buttons are grouped in pairs. The ones marked RECORD ASSIGN (T1 and T2) independently connect the two tape-recording outputs to the mix circuit output. Regardless of the control settings, it is not possible to create a feedback condition between the recording and playback circuits of a tape deck connected to the Model 140 (a problem not uncommon with some other amplifiers), since assigning either record output to its deck simultaneously disconnects its playback from the program-source switch (it is, however, present at the MAIN and MONITOR SELECT switches). By making appropriate switch settings, it is possible to dub from either tape deck to the other and to listen to a different program source at the same time.

Two pairs of buttons control the processing accessories through circuits identified as LOOP 1 and LOOP 2. For each loop, engaging one button inserts the processor into a selected portion of the system, and the second button reverses what that location is. For LOOP 1, the choice of locations is either the main channel or directly after the A source. For LOOP 2, the processor can be switched in line with the selected B source or just after the mix circuit. Another pair of buttons can feed either channel in mono to both STEREO. TAPE 1 and TAPE 2 independently to the main outputs; to either or both (identified as A and B) channel outputs. The front-panel headphone jack carries the main signal to either or both (identified as A and B) channel outputs. The main outputs are controlled by a switch that feeds the main amplifier stages with either A or B alone, the output of the mix circuit, or the playback from either of two tape decks (T1 and T2).

The MXR Model 140 was 97 mV at 1,000 Hz, and at 20,000 Hz (adjusting for the different gain) the corresponding 20-Hz limit was 91 mV. In most amplifiers levels are...
Without it, an amplifier simply isn’t good enough for the Purist.

While everyone else was bogged down in the same old concept, Kenwood’s engineers were busy developing a totally new way to look at amplifier performance.

SIGMA DRIVE

Traditionally, audio engineers have tended to approach amplifier design from the same misconception: that an amplifier and speaker should function as separate entities, when in reality they function together.

After years of extensive research, our engineers have solved the problem with a radical departure in amplifier design. It’s incorporated for the first time in our new KA-1000 Purist Amplifier.

Kenwood’s exclusive patented SIGMA DRIVE ignores traditional amplifier-speaker relationships by extending the KA-1000’s negative feedback loop past the output terminals, all the way to the speaker terminals. SIGMA DRIVE ties a speaker’s behavior directly to the amplifier’s performance, which produces an unprecedented damping factor in excess of 600 at the speaker terminals and literally forces a speaker to behave in perfect sync with the amplifier.

Just as impressive are the other Kenwood advanced audio technologies which helped pave the way for SIGMA DRIVE.

For instance, an exclusive non-magnetic chassis. Dual power supplies, totally separate from the main chassis to further minimize magnetic interference.

And DC amplification for crystal clear tonal response down to 0Hz. Plus a built-in preamp for moving coil cartridges.

We’ve also included our famous HI-SPEED™ circuitry which allows the KA-1000 to react much faster to dynamic music changes. And an ingenious touch-sensor volume control that increases to any preset volume level or fades to silence.

Of course, there’s even more to the KA-1000 than we can possibly mention in this limited space. For the complete story, visit your nearest Kenwood Audio Purist Dealer. And find out for yourself why anything less simply isn’t for the Purist.

Significant specifications measured at speaker terminals: 100 watts per channel, minimum RMS into 8 ohms from 20Hz to 20kHz with less than 0.005% total harmonic distortion. Transient Response: Rise Time 0.9 microsecond; Slew Rate ±120 volts per microsecond. Phono S/N: MM 93dB, MC 67dB. Special 10 meter speaker cables included.

KENWOOD

Not all Kenwood dealers carry these products. For the Audio Purist dealer nearest you, write Kenwood, P.O. Box 6213, Carson, CA 90749.

CIRCLE NO. 22 ON READER SERVICE CARD
adjusted by potentiometer voltage dividers, but in the Model 140 the actual gain of an operational amplifier is varied by a resistance in the feedback loop (all the active elements in the Model 140 are integrated-circuit "op amps").

The preamplifier distortion is specified as less than 0.005 per cent at a 1-volt output through any combination of inputs and outputs. We measured the distortion at 1,000 Hz as less than 0.001 per cent up to a 1-volt output, and it reached 0.005 per cent at about 4 volts. Just below clipping, at an 8-volt output, the distortion was still only 0.05 per cent. The output impedance, which is rated at 600 ohms, was measured as 590 ohms.

In addition to being protected against inadvertent feedback loops when used with tape decks, the MXR Model 140 is designed to be free of transient noise during switching and turn-on or turn-off. Instead of using relays to mute the outputs until power-supply voltages have stabilized, MXR uses an all-electronic system with FETs shunting the signal to ground at key points within the circuit. There is a turn-on time constant of several seconds before the FET switches open up completely and allow the unattenuated signals to pass. In use, the muting system worked perfectly.

Comment. The electrical and mechanical performance of the MXR Model 140 was excellent; and in most respects surpassed the manufacturer's ratings (as well as in some cases our measurement capabilities). Nevertheless, it seems to us that a novel product such as this can be judged only in terms of one's own system requirements. If considered only as a "preamp," it appears to be a very good (but rather expensive) device lacking many of the signal-modification functions one would expect to find in a conventional preamplifier. The main reason to have a preamp like the MXR in your system is for its wonderful flexibility, for its ability to control an assortment of inputs and a variety of accessory signal processors and tape decks.

We connected the unit up with a tuner, two cassette decks, and an octave-band graphic equalizer, and even this array of components left quite a few of the MXR's functions idle. It did everything it was supposed to do, and it never gave us any unpleasant surprises. It was obvious that the circuits and switching layout of the MXR Model 140 have been carefully engineered (not thrown together haphazardly) so as to forestall the problems that could easily occur with such complex interconnecting capability. Of course, as with any complex instrument, it was necessary to practice with the controls a bit in order to discover how to use them effectively.

One consequence of the light weight of the Model 140 was that it tended to slide backward when any of its buttons was pushed. The cure, other than rack mounting, is to rest the hand atop the cabinet while pressing the button with the thumb. We also noted that the MXR's single unswitched a.c. outlet is hardly adequate for a control center that may interconnect with as many as eight to ten powered components. Obviously MXR decided that a full a.c.-power switching capability would be prohibitively bulky and expensive, and the user would be better advised to employ some form of external power switching. For those who would like two phono inputs and the ability to crossfade between them, MXR has the Model 150 in the works; it will include such a function for about $40 more than the Model 140 and will be available early this spring.

Our tests of the MXR Model 140 can do little more than confirm that it is a very conservatively rated, well-built, and uniquely versatile system-control center. We cannot begin to guess all the uses to which it might be put, although its flexibility is certainly beyond the needs of the average component hi-fi system user. But anyone with special system-switching requirements who is not satisfied with the facilities of conventional preamplifiers would be well advised to investigate the special features of the MXR Model 140.

Circle 140 on reader service card

NAD Model 3140 Integrated Amplifier

The new NAD 3140 integrated amplifier, like the Model 3020 reviewed in July 1979, carries a moderate power rating—in this case, 40 watts per channel from 20 to 20,000 Hz into 8-ohm loads with no more than 0.03 per cent total harmonic distortion. The NAD amplifier (the initials stand for New Acoustic Dimension) does not have the high-fidelity performance circuits for the output transistors, which have earned an unsavory reputation in some quarters for their undesirable behavior when driving some types of reactive loads or very low impedances. Instead, it uses high-power-rated output transistors that are capable of delivering far more than the amplifier's rated power; instantaneous program peaks can thus be reproduced without clipping even at levels far above the amplifier's continuous-power ratings. The NAD 3140 is protected against prolonged overdriving by thermal circuit breakers that shut down each channel if it begins to become too hot, by d.c. supply fuses that will blow if excessive load currents are drawn, and by a power-line fuse that protects the entire amplifier in the event of some serious internal failure.

The dark chocolate-brown front panel has a large VOLUME knob concentric with a detented BALANCE ring. Smaller knobs, with center detents, operate the bass and treble tone controls. There are independent selector switches for the input source to be heard through the amplifier and for the source that is to be channeled to the tape-recorder output. The input selector has two magnetic-phono-cartridge inputs (one with three switchable values of input capacitance and the other with a fixed low capacitance but a 10-dB higher gain for high-
Nakamichi 700ZXL

The Goal...to combine art and technology. To achieve performance equalled only by the 1000ZXL...and the beauty of a sleek, trim, classic styling that complements and enhances any decor. Computer-optimized Azimuth, Bias, Level, and Equalization achieves 24-kHz response. Four tape memories store ideal recording parameters. Subsonic encoding controls playback equalization and noise reduction, providing true, error-free, random access to each of 15 programs.

The Nakamichi 700ZXL...The perfect recorder for the devotee of art and music.

For more information, write to Nakamichi U.S.A. Corp., 1101 Colorado Ave., Santa Monica, CA 90401.
The SPEAKER EQ knob is a unique feature of the NAD 3140; it is designed to extend the low-bass response of many acoustic-suspension speakers whose output normally rolls off at a 12-dB-per-octave rate below the bass resonance frequency. Its center-off setting is flanked by 45-Hz and 70-Hz positions. These introduce a 12-dB-per-octave boost below the indicated frequencies, which correspond to the resonance frequencies of many popular small- and medium-size acoustic-suspension speakers (typically those using 8-inch woofers). The total boost is 12 dB, effectively extending the bass range of such speakers by an octave. Usually, such a boost in an ordinary low-power amplifier would simply lead to output-stage overload, but (as we shall see) the NAD 3140 is not an ordinary amplifier.

Pushbutton switches control POWER, an INFRASONIC filter cutting off at 12 dB per octave below 15 Hz (which should always be used in conjunction with the SPEAKER EQ) MONO mode selection, LOUDNESS compensation, and a LOW LEVEL mode that drops the amplifier gain by 20 dB. At the top of the panel is a LED display showing the approximate instantaneous power output of each channel into 8-ohm loads. It has green lights marked 0.5, 5, 25, and 50 watts, plus red lights marked 100 watts (these last will not be lit except under extraordinary conditions). To their left are three status lights: a POWER light and two others marked SOFT CLIPPING and SLC.

The "soft-clipping" system was a feature of the NAD 3020 that has been carried forward into the 3140. It modifies the manner in which a waveform is clipped when the amplifier's power limits are exceeded, the usual "sharp corners" of a clipped waveform being rounded off somewhat by special output circuitry (these set the amplitudes of the higher-order harmonics responsible for most of the irritating sonic quality associated with moderate clipping). The soft-clipping circuit is activated by a pushbutton in the rear of the amplifier, which also turns on the green front-panel indicator. The SLC ("speaker-lead compensator") is a current-feedback circuit intended to compensate for the undesirable effects of excessively long or high-resistance speaker leads. Among those negative effects are a reduction of power delivered to the speakers, a slight frequency-response variation reflecting the speaker's impedance variation over the frequency range, a reduced effective damping factor, and (according to NAD) the generation of considerable distortion at the speaker due to a nonlinear variation of its voice-coil inductance at extreme cone excursions, causing a nonlinear current in the speaker circuit.

The SLC alleviates all these problems to some degree, depending on the length and gauge of the speaker wires. It has been designed to compensate for a speaker-lead resistance of about 0.5 ohm, corresponding to a 12-foot length of 24-gauge wire (an undesirably small gauge, but it is nevertheless sometimes used in speaker installations) or the equivalent lengths of larger wires (38 feet of 18-gauge, for example). According to the amplifier's instruction manual, if your speaker lines are long enough or thin enough to fit these guidelines, the SLC button in the rear of the amplifier should be pressed (this also turns on an amber light on the front panel). The effect of the SLC is subtle, and with adequate speaker wiring the feature need not be used.

On the rear apron of the NAD 3140 are jacks for the two phono inputs, the high-level inputs, and the inputs and outputs for two tape decks, plus a DIN socket for one of them. The preamplifier outputs are brought out to separate jacks, joined externally by jumpers to either of two pairs of power-amplifier input jacks marked NORMAL and L/R. Through the NORMAL inputs, the amplifier response is limited by low- and high-pass filters to a range of 15 to 35,000 Hz. If the jumpers are installed in the L/R jacks, the amplifier bandwidth is 10 to 70,000 Hz. Above one set of phono-input jacks is a slide switch that selects input capacitance values of 100, 200, or 320 picofarads to suit almost any combination of cartridge and tone-arm wiring capacitance. Both phono inputs have a 47,000-ohm resistance. The speaker outputs are through insulated spring-loaded connectors, and one of the two a.c. outlets is switched.

The NAD 3140 also has another feature that greatly enhances its potential utility. By means of a rear-panel switch, its channels can be bridged to form a mono power amplifier of more than double the stereo power ratings for both channels. A single 8- or 4-ohm speaker can be connected across the two "hot" outputs and will be driven (via the right-channel input) by an amplifier power of 150 to 160 watts, depending on the load impedance. The NAD 3140 is 16½ inches wide, 11⅞ inches deep, and 3⅞ inches high. It weighs 17 pounds. Price: $348.

- Laboratory Measurements. The power transistors of the NAD 3140 (four in all) are within the case, and their finned heat sinks are ventilated though a grille on the top cover. The 1-hour preconditioning period left the top of the amplifier only moderately warm, although our subsequent tests (especially driving low load impedances) caused it to become quite hot. The clipping output at 1,000 Hz, with both channels driving 8-ohm loads, was about 73 watts per channel. The 4- and 2-ohm clipping powers were, respectively, 94 and 112.5 watts per channel (the internal d.c. fuses blew on several occasions when we drove full power into 2 ohms). The 8-ohm IHF clipping headroom was 2.61 dB, evidence of the very conservative power rating of the amplifier. With the 20-millisecond burst signals of the IHF dynamic-headroom test, the maximum outputs into 8, 4, and 2 ohms were, respectively, 103, 152, and 201 watts per channel, giving an IHF clipping-headroom rating into 8 ohms of 4.11 dB, one of the highest we have ever measured. In the mono (Continued on page 44).
Noise is a thief. It robs you of the quality of music you are entitled to hear from a fine cassette deck. On the right is a picture of a type of dynamic distortion known as modulation noise. It makes music sound gritty, whether the sound is loud or soft. What these spectrum analyzer traces show, and your own ears will confirm, is that Sansui’s new D-550M cassette deck, with its exclusive (pat. pending) Dyna-Scrape Filter, reduces modulation noise by as much as 10dB! That represents a startling audible difference and a profound reduction in this most pervasive of tape noises. Until now, scrape filters were found only in professional reel to reel tape decks. Now Sansui has ingeniously engineered this valuable technology into a truly affordable cassette deck.

The D-550M is a 3-head machine with full IC logic control. It has a frequency response from 25-21,000Hz (± 3dB, metal tape); user adjustable bias control; 2-motor drive that reduces wow and flutter to a miniscule 0.035% (WRMS); plus state-of-the-art heads and electronics that improves signal to noise ratio to 70dB (with Dolby-B™).

And if it is logical for our top-of-the-line D-550M to have full IC logic, then it is logical for our more modestly priced D-300M to have it as well. In fact, much of Sansui’s advanced technology that’s in our most costly models is also found across the entire Sansui line. Indeed, our lowest priced cassette deck, the D-95M, like the D-550M, D-350M and D-300M, has metal tape capability.

More music, less noise. More machine. Better value. That’s what Sansui cassette decks are all about.

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bridged mode the clipping-power output was 176 watts into 8 ohms and 200 watts into 4 ohms.

The harmonic distortion at 1,000 Hz, driving 8-ohm loads, was less than 0.002 per cent up to more than 10 watts output, increasing gradually to 0.0028 per cent at 60 watts and more suddenly to 0.013 per cent at 70 watts just before clipping occurred. With 4-ohm loads, the distortion rose from 0.004 to 0.005 per cent at most power levels up to 50 watts, reaching 0.016 per cent at 90 watts. Into 2 ohms, the distortion rose from 0.005 per cent at 1 watt to 0.01 per cent between 30 and 90 watts (at the two lower impedances we could not make distortion measurements any closer to the clipping-power levels because of the unit's protective fuses).

Intermodulation distortion, using 19,000- and 20,000-Hz input signals of equal amplitude with a peak level equivalent to that of a 40-watt sine-wave signal, was –84 dB for the third-order component at 18,000 Hz and –87 dB for the second-order component at 1,000 Hz. The amplifier recovery from a 10-dB overload was essentially instantaneous (less than the 2-microsecond resolution of our test setup). The slew factor exceeded our measurement limit of 25 (it is rated as being greater than 50).

The high-level-input sensitivity was 26.5 millivolts for a 1-watt reference output, with an A-weighted output-noise level of –86 dB referred to 1 watt. The phono sensitivity for 1 watt was 0.41 and 0.097 millivolt for the two inputs, both of which had noise levels of –82 dB. The phono overload at 1,000 Hz was 66 millivolts for the high-gain (moving-coil) input and 210 millivolts for the moving-magnet input. The equivalent overload levels at 20 and 20,000 Hz were within a few per cent of the 1,000-Hz values. The phono-input impedance was 48,000 ohms in parallel with nominal capacitances of 100, 225, or 360 picofarads, depending on the setting of the switch in the rear of the amplifier. The capacitance at the high-gain phono input was fixed at 100 picofarads.

The tone controls had the familiar Baxandall characteristic, with the bass-turn-over frequency varying from less than 100 Hz to about 400 Hz as the control was turned and the treble curves hinging at about 3,000 Hz. This type of control gives a useful range of adjustment with little risk of grossly disturbing the program's frequency balance. The loudness compensation boosted both low and high frequencies, but to such a moderate degree that the sound was never objectionable. The RIAA phono equalization was accurate within ±1 dB and was changed by less than 0.5 dB at any frequency by the inductance of a phono cartridge. The SPEAKER EQ curves were as represented, with their +3-dB response points at 40 and 65 Hz and a maximum boost of 11 dB at 20 Hz from the 70-Hz curve (the 45-Hz-curve response was +8 dB at the lower measurement limit of 20 Hz).

The power-display lights came on abruptly and without the ambiguity we have seen on many such displays. There were some differences between channels, and at low powers the actual output was from 30 to 100 per cent higher than the lights indicated. At higher levels (25 and 30 watts) the calibration of the display was more accurate, with errors of about 10 per cent.
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You can't train somebody to be a hero. And the Army Guard people on this page would be the last to label themselves that.

But it was Army Guard people like these who flew into the teeth of a devastating blizzard last winter to save a farm family that had become trapped by the big snow. And it's Army Guard people like these, working in their own communities, who have helped their neighbors and friends to survive everything from floods to blizzards to tornadoes.

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You'll join your friends and neighbors who train at home. But it won't just happen. You've got to do something first. Rip out the attached postcard, fill it out and mail it in. Better yet, call us right now. It's toll-free and won't cost a penny. The number is 800-638-7600.* Or see your Army Guard recruiter. He has the whole story. Ask about the benefits that can last a lifetime and the money you'll earn.

Then get on the Guard team. And be your best.

higher-power NAD amplifier might be like. Now we know; it is surely as much a bargain as its junior partner, and it represents a genuine advance in design. To assess the NAD 3140 fairly, do not consider it as merely a 40-watt integrated amplifier. Think of it instead as an 80- to 100-watt amplifier of exceptional quality and with versatility and features found nowhere else, including an ability to drive low-impedance speaker loads that would confound most other amplifiers on the market, even some rated at many times its power. In that light, it seems to be as much a bargain as the 3020. Dare we wonder what a still more powerful NAD amplifier might be like?

Although servo-controlled tone arms are a virtual necessity in radial-tracking systems, they have not, until fairly recently, been used in more conventional record players. A couple of years ago, Sony introduced to the Japanese market a novel, high-price turntable (the PS-B80) featuring a servo-controlled tone arm called the "Biotracer." An arm very similar to it has been incorporated in the more popular-priced Model PS-X75 record player now available in this country. A combination of ingenious mechanical and electrical design in conjunction with microprocessor control makes the PS-X75 practical and affordable.

The turntable of the PS-X75 is a conventional two-speed direct-drive unit with quartz-crystal frequency control. It has fixed speeds of 33 1/3 and 45 rpm. The cast-alloy platter, which weighs 4 1/2 pounds, comes up to speed in half a revolution at 33 1/3 rpm and has sufficient torque to operate at exact speed with as much as 150 grams of downward force at the outside of a 12-inch record (needless to say, this is not a recommended operating condition).

The true novelty of the Sony PS-X75 is its Biotracer tone arm. It is a conventional J-shape tubular arm fitted with a universal four-pin plug-in headshell. However, the pivot portion of the arm has a rather bulky rectangular housing about 1 1/4 inches square and 5 inches long. Within it are the various drive motors and sensors that control arm motion.

Three servo systems act on the arm. One controls horizontal movement, another controls vertical movement, and the third raises and lowers the arm. Magnetic velocity sensors supply feedback signals through servo amplifiers to the corresponding linear drive motors. The arm servos operate in a frequency range extending from 0 Hz (d.c.) to more than 10 Hz, and thus they are able not only to move the arm but to reduce the effects of spurious arm movement, including that caused by the low-frequency arm/cartridge resonance.

Although the servos are analog systems, they are controlled digitally by the microprocessor in the PS-X75. The horizontal-position sensor consists of a pair of optical "shutters" in front of a photo cell that delivers an output pulse every time two clear shutter segments coincide. These pulses are counted and remembered by the central computer, so it always knows where the arm is and how far it has to move to get to any other designated position. There are actually two sets of photo sensors next to the shutter, spaced so that their output pulses are 90 degrees out of phase as the arm moves. This tells the computer which direction the arm is traveling.

In automatic operation, the START control button turns on the motor and causes the arm (which is always lifted safely above the record except during play) to move in to the lead-in groove radius of the record (the correct number of pulses required from the optical sensors to reach that point has been preprogrammed into the computer). At that point it stops and the lift servo lowers the pickup gently to the record; this is followed an instant later by the unmuting of the audio outputs (which are shorted when the pickup is off the record).

(Continued on page 50)

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During play, the arm is free to move about as freely as any ordinary arm (it is not "driven" in the usual sense of the word by the servos). It is guided along the path determined by the stylus following the spiral groove, and even if it is moved manually with the finger lift there is no sense that it is being acted on by other forces. The servo gain is very low at the low arm velocities of normal tracking and handling.

However, any rapid arm motion, such as might be caused by a record warp or a low-frequency arm resonance, sends a large corrective signal to the drive motors, which rapidly move the arm to minimize the error signal. For example, as the stylus begins to climb a warp, the arm is servo-driven in the same direction so that the stylus does not have to do the work of accelerating the arm mass. Thus, the arm and cartridge are deceived into acting as though the warp (or resonance) were not present, and the groove modulation continues to be traced as though there were no warp. The servo gain in the resonance-frequency region (above 3 Hz) is increased so as to reduce the resonant "Q" by nearly 2,000 times, according to Sony, without affecting the tracking at other frequencies. At end of play, the arm is made to lift by the optical sensor and the motor shuts off as the arm returns to its rest.

The PS-X75 has an effective system for selecting the pickup cueing diameter and for preventing the pickup from descending to an empty platter in automatic operation (this protective feature does not function during manual operation). A light mounted in a post next to the platter shines across its surface. There are two groups of holes in the platter, at small and large radii, and there are small prisms embedded in the rubber mat that transmit light through them to photocells under the platter. If light passes through the inner set of holes only, this is taken to mean that a 7-inch record is in place, and the arm indexing is set accordingly. If light passes through both sets of holes, this means that no record is on the turntable, and the arm will not lower (it immediately returns to its rest and the motor shuts off). And if light is blocked at all the holes, the arm indexes for a 12-inch record. The turntable speed is not determined by the indexing logic and must be set manually. (Incidentally, the automatic indexing system does not work with transparent, translucent, or 10-inch records, all of which must be played manually.)

In addition to its automatic control functions, the arm servo system makes it possible to control all aspects of arm movement from the front control panel of the turntable while its cover is lowered. Flat buttons for the "in" and "out" directions of arm movement actuate the horizontal servo to move the arm, slowly at first and then more rapidly if the button is held down; the arm stops the instant the button is released. Another button, on alternate operations, raises and lowers the tone arm. Thus, full cueing and positioning control is provided without any need to touch the arm. At the left of the control panel is a POWER button. A group of momentary-contact flat buttons near the center of the panel starts the motor (for manual cueing purposes), positions the arm in or out, and raises or lowers the tone arm. Thus, full cueing and positioning control is provided without any need to touch the arm.

With a record on the platter, touching START causes the arm to index to the appropriate diameter while the turntable comes up to speed, to descend and play the record, and (at the end) to return to the rest, shutting off the motor. At any time during play, touching STOP initiates the shut-down cycle. If START is touched during play, the arm returns to the beginning of the record and plays it again. The remaining control is a small knob that adjusts the vertical stylus force (and with it the antiskating torque) over a range of 0 to 3 grams, with calibrations at 0.1-gram intervals.

Using the vertical servo to supply the downward tracking action is logical, but gives the user the unique opportunity to vary the force while playing a record without interfering in any way with the arm motion, which is the ideal way to determine the necessary force. The only setup adjustment, other than setting the stylus overhang, is balancing the tone arm while it is positioned in the area where the servo is inoperative.

The Sony PS-X75 is approximately 19 inches wide, 16% inches deep, and 6½ inches high with the cover lowered. It weighs 28% pounds. Supplied with the record player are, among other things, a plug-in cartridge headshell (although any other shell having the standard 4-pin plug can be used) and an extra balance weight for use with cartridges that weigh between 8 and 15 grams (the standard weight can balance cartridges weighing between 1 and 8 grams when they are installed in the Sony headshell). Price: $500.

Laboratory Measurements. The Sony PS-X75 was supplied to us together with a Sony VL-7 magnetic cartridge, which we installed for our tests. The setup was simple, although we found it necessary to keep the arm very close to its rest when balancing it to prevent the automatic arm lift from operating. When the balancing is done properly, the calibrations of the tracking-force dial are within 0.05 gram of the actual force.

For minimum tracking-angle distortion, the stylus must be 49 mm from the end of the tone arm when mounted in the shell. When so mounted, the tracking error was always less than 0.5 degree per inch of radius over a 12-inch record, typically about half that amount.

The unweighted turntable rumble was a good — 38 dB, improving with ARLL weighting to a very good — 63 dB. The rumble spectrum was uniform for frequencies below 10 Hz, falling off smoothly at higher frequencies. The flutter was 0.055 percent per channel, and ±0.08 percent weighted peak (CCIR or DIN), with most of its spectral components below 10 Hz. The turntable speed was exact within ±0.05 percent of the nominal values. Cable capacitance was about 70 picofarads per channel.

In automatic operation, the turntable "on" cycle required 5.5 seconds from the time of pressing the START button to the unmuting of the pickup on the record. At the end of the record, or when the STOP button was pressed, 7 seconds elapsed before the arm reached its rest, although the platter motor shut off before the arm return was complete. The motor evidently has an elec-

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Record a standard $5 tape on one of the new Harman Kardon High Technology cassette decks with Dolby HX*. And a $10 metal tape on a conventional deck. Any conventional deck.

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The hK400XM with frequency response from 15-20kHz ± 3dB.

The hK400XM with frequency response from 15-20kHz ± 3dB.

The hK400XM with frequency response from 15-20kHz ± 3dB.

The hK100M with frequency response from 15-19kHz ± 3dB.

The hK200XM with frequency response from 15-19kHz ± 3dB.

The hK300XM with frequency response from 15-20kHz ± 3dB.

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In Canada, E.S. Gould Marketing, Montreal.
Tandberg Model 3001 FM Tuner

Tandberg's "Series 3000" consists of a group of true "state-of-the-art" audio components whose rated performance in many respects surpasses anything previously attainable. The series includes an FM tuner, a preamplifier, a power amplifier, and a cassette deck. The Tandberg 3001 programmable FM tuner, the subject of this report, is notable not only for its distinctive styling but for its performance, which in many respects exceeds the measurement capabilities of available laboratory instruments.

The 3001 tuner does not employ digital signal processing but takes advantage of the digital frequency display, because the required pulse circuitry inevitably increases the tuner's noise level to some degree. One of Tandberg's goals was the best possible signal-to-noise ratio both in mono and stereo reception, and the success of their engineering efforts can be appreciated from the tuner's S/N rating of 95 dB in mono and 82 dB in stereo at the usual 65-dBF signal level (the stereo S/N rating improves to 92 dB at 85 dBf input). These S/N ratings are 10 to 20 dB better than those of most top-quality tuners and are well beyond the capabilities of the Sound Technology 1000A signal generator (used by us and most manufacturers and test laboratories) or any other presently available signal generator that we know of.

(Continued on page 54)
The Tape Guide

Professional-I. The one tape that stands up when you crank it up.

Professional-II. The world's quietest tape puts nothing between you and your music.

Professional-III. The only car tape that eliminates the car.

BASF

Professional-I
normal (norm) position

Professional-II
chrome/high (CrO₂) position

Professional-III
ferrichrome (FeCr) position

Premium ferric oxide tapes have more headroom, which allows higher maximum recording levels (MRL). Among all premium ferric oxides, PRO I has the best MRL for loud recordings. Uniform magnetite particles provide increased headroom for very accurate and loud recordings with virtually no distortion. In the fundamental music range (20Hz-5kHz), PRO I can be recorded louder and driven harder than even high bias tapes. PRO I is the internationally accepted reference tape, whose bias point is specifically matched to the Type I/normal/ferric position on today's high quality cassette decks.

High bias tapes consistently provide wider frequency response and less tape noise (his or background noise) than any other tape type. Among premium high bias tapes, PRO II is in a class by itself. It is the second generation chromium dioxide tape with superb frequency response and outstanding sensitivity in the critical (10kHz-20kHz) high frequency range. It also has the lowest background noise of any other competitive tape available today. PRO II will capture the many subtle harmonics of the most demanding recordings and play them back with the reality and presence of a live performance. PRO II is the tape for the Type II/chrome/high bias position that comes closest to metal tape performance for half the price.

Ferrichrome tapes combine the benefits of chromium dioxide and ferric oxide tapes for superior performance in car stereos. The top layer is pure chromium dioxide for unsurpassed highs and low background noise. The bottom layer is ferric oxide for superior lows and great middle frequencies. And it also gives you higher recording levels, so you get clearer, louder playback without cranking up your volume control to compensate. PRO III is the ideal tape for car stereo systems and performs just as well in the home on the Type III/ferrichrome position.

Patented "Jam-Proof" Security Mechanism (SM).

SM - Security Mechanism. Two precision arms actually guide the tape in a smooth, even and consistent track so that winding is always even, no matter how often the cassette is played. SM prevents "jamming" and easy jamming.

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"The guarantee of a lifetime" - All BASF tape cassettes come with a lifetime guarantee. Should any BASF cassette ever fail—even for abuse or malfunction—simply return it to BASF for a free replacement.

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Crosby Drive, Bedford, Massachusetts 01730
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Since commercial laboratory signal generators are not able to measure these low FM noise levels, Tandberg had to devise special measurement techniques for that purpose.

Physically, the Tandberg 3001 is a "low-profile" unit only 3 1/8 inches high, 17 3/8 inches wide, and 13 3/4 inches deep. It weighs just over 15 pounds. The silver-colored front panel appears quite conventional, with a fairly short dial scale calibrated linearly across the FM band (the tuner does not have AM coverage) and a flywheel tuning mechanism operated by a large knob. To the left of the dial are two meters; one is a channel-center tuning indicator and the other reads signal strength directly in microwatts at the tuner's 75-ohm antenna input. The lower part of the panel contains small knobs for i.f. bandwidth selection (WIDE, NORMAL, NARROW) and a continuous MUTING LEVEL adjustment calibrated logarithmically from 1 to 1,000 microvolts (µV). The meter has an auto-ranging feature so that when the input exceeds 1,000 µV its scale expands by 1,000 times to cover a range of 1,000 µV to 1 volt; a red LED comes on below the meter to indicate that fact. Next to the meter is a small window marked PROGRAM, which will be described shortly.

The lower portion of the panel contains small knobs for i.f. bandwidth selection (WIDE, NORMAL, NARROW) and a continuous MUTING LEVEL adjustment calibrated logarithmically from 1 to 3,000 µV. Four small pushbuttons with red LED lights above them control MUTING, SERVO (an AFC system that is automatically disabled whenever the tuning knob is touched and comes on when it is released), ANC (an automatic noise-canceling circuit that operates below certain signal levels), and stereo operation. There is also an MPX stereo-indicator light.

The AM rejection was 67 to 74 dB, depending on signal level (it did not vary significantly with bandwidth), compared to its rating of more than 70 dB. The tuner's extremely steep quieting curve even put (it does not have the usual 300-ohm antenna circuit). The microvolt calibrations are logarithmic, covering a range of 1 to 1,000 microvolts (µV). The meter has an auto-ranging feature so that when the input exceeds 1,000 µV its scale expands by 1,000 times to cover a range of 1,000 µV to 1 volt; a red LED comes on below the meter to indicate that fact. Next to the meter is a small window marked PROGRAM, which will be described shortly.

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To the left of the PROGRAM window are eight small pushbuttons for the preset tuning channels, and below them is a STORE PROGRAM button. Up to eight frequencies can be stored in the tuner's memory by simultaneously holding in a numbered button and the STORE PROGRAM button. Large red numbers appear in the PROGRAM window to show which button is in use, and an "F" appears there when the tuner is in its manual tuning mode. In preset operation the channel-center meter becomes a rough indicator of the tuned frequency, reading on a second scale from 88 to 108 MHz; a "AF" light below the meter goes out to indicate that it no longer shows channel-center tuning. Touching the tuning knob at any time restores manual operation and disables the AFC. The remaining front-panel controls are for output level and power.

On the rear apron of the 3001 tuner there are both fixed- and variable-level audio output jacks, oscilloscope outputs for external multipath indication, a detector output ahead of the de-emphasis, and a three-position de-emphasis switch offering 25-, 50-, and 75-microsecond characteristics. The tuner has a detachable a.c. line cord and a connector for a standard 75-ohm cable fit-

The distortion readings were 0.05 and 0.35 per cent in mono and stereo, respectively, at a 65-dBF input (NORMAL). The former is known to be the residual distortion of our signal generator, indicating that the tuner's mono distortion is much lower than 0.05 per cent. The S/N measured 78.5 and 71 dB for mono and stereo with our regular signal generator. This would be considered very good by our usual standards, although the measurements obviously reflect the residual noise of the signal generator to a great degree.

In the wide- and narrow-bandwidth modes the noise readings were approximately the same, but the distortion levels changed; in narrow-bandwidth the distortion was still a very good 0.135 per cent, but the stereo distortion rose to 0.6 per cent. In wide, the mono and stereo distortion readings were 0.05 and 0.1 per cent.

The frequency response of the tuner was ruler-flat, within ±0.2 dB from 30 to 15,000 Hz. The channel separation changed with bandwidth, although the wide and normal readings were about the same from 30 to 800 Hz (increasing from 52 to 60 dB over that range). The separation fell at high frequencies to 40, 33, and 30 dB for wide, normal, and narrow bandwidths.

As would be expected, many other performance parameters depended on the bandwidth, although the values were often far better than those we usually encounter when testing FM tuners. The capture ratio was about 2 dB in normal and 3 dB in narrow, but in wide it was virtually unmeasurable—our reading was about 0.8 dB. The AM rejection was 67 to 74 dB, depending on signal level (it did not vary significantly with bandwidth), compared to its rating of more than 70 dB. The tuner's

(Continued on page 56)
Technics linear-tracking turntable.
Program it to play any cut. In any order. Even upside down.

Once again, Technics makes turntable history with the introduction of the world’s first programmable linear-tracking turntable. The direct-drive SL-15 does what no other turntable can: Automatically plays the record selections you want with zero tracking error, and skips the ones you don’t.

The SL-15’s microcomputer and infrared optical sensor let you play up to 10 cuts per side, in any order. Just press the program keys in the order of the selections you want to hear. And with the repeat button, the SL-15 can repeat the entire program or any selection.

The fact is, the SL-15 will perform virtually any turntable function, automatically. It selects the record size and speed, finds the lead-in groove and begins playback at the touch of a button. And it does it more accurately than you can.

More proof of the SL-15’s accuracy is its quartz-locked, direct-drive motor and dynamically-balanced, linear-tracking tonearm. In addition to tracking perfectly, the SL-15 plays a record as accurately upside-down as it does right side up.

Technics also offers other linear-tracking turntables, including our famous SL-10 and our new SL-7. But whichever turntable you choose, all prove when it comes to linear-tracking, Technics is a cut above the rest.

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rated image-response ratio is greater than 135 dB, a figure that cannot be measured by any normal signal generator. In our tests it exceeded the 120-dB limit set by the maximum output of our signal generator. The tuner hum level was 74 dB below 100 per cent modulation.

Naturally, selectivity was a function of i.f. bandwidth. Alternate-channel measurements were 29 dB (wide), 81 dB (normal), and 86 dB (narrow). The corresponding adjacent-channel readings were 5, 13, and 18 dB. The rated alternate-channel selectivity (wide, normal, narrow) is 30, 90, and more than 90 dB, while the corresponding adjacent-channel ratings are 3, 12, and 40 dB. The muting threshold was adjustable between 20 and 72 dB, and the stereo threshold was about 18 dB. The tuner’s cancellation of the pilot carrier was extraordinary, with the 19-kHz leakage being at a barely detectable — 90 dB.

Tandberg is one of the few tuner manufacturers to publish 1HF intermodulation-distortion ratings based on 14- and 15-kHz modulating signals, each at 50 per cent modulation. Their rating for the 1,000-Hz difference-tone component in mono is less than 0.1, 0.15, and 0.5 per cent for wide, normal, and narrow bandwidths. Our measurements were 0.04, 0.06, and 0.16 per cent. Their stereo ratings are similar, except for an increase to 0.8 per cent in narrow, but we did not make this test in stereo. Equally impressive were the odd-order intermodulation-distortion products at 13 and 16 kHz. Compared to the primary tone levels, they were at — 80 dB (0.01 per cent), — 57 dB (0.14 per cent), and — 37 dB (1.4 per cent) for the three bandwidths. Although few manufacturers include these data in their ratings, we have been making this measurement for some time. In its wide mode, the Tandberg 3001 surpasses every other tuner we have tested over the past year and more in respect to IM distortion.

We made some measurements on the noise-canceling system (ANC) to see the relationship between signal level, channel separation, and S/N. Above 55 dB, the ANC has no effect. As the signal is reduced below that level, the channel separation decreases and the S/N improves (compared to the readings with ANC off). At 35 dB, the separation was only about 4 dB, but the S/N improvement was about 8 dB. At 25 dB, the signal was essentially mono, with a noise improvement of about 15 dB.

Comment. It is not possible to design a tuner that excels simultaneously in every respect, since many of the parameters are mutually exclusive (high selectivity and low distortion, for example). Tandberg’s three-position switchable i.f. bandwidth lets the user optimize the tuner’s performance for a particular listening condition. Even in broadcast range of New York City, whose crowded FM spectrum has more than fifty receivable stations, the 3001, when set for wide, provided the lowest distortion and widest channel separation as well as the highest S/N we have yet measured on an FM tuner.

Only in the most extreme conditions, when one must receive an adjacent-channel signal in the presence of a strong local signal, will it be necessary to use narrow bandwidth. In most cases, where distortion at normal will give fine results, better in almost every respect than other fine tuners can provide.

As we have stated, no other FM tuner comes even close to matching the S/N of the Tandberg 3001. This is due in large measure to a remarkably complex and sophisticated multiplex decoder, which occupies more space in the tuner than any other section and which we would estimate contains far more components and active devices than practically any other complete tuner we have seen.

We wondered why, in view of the inherent noise and distortion accompanying every FM broadcast, Tandberg chose to devote so much effort to the multiplex section of this tuner. Their answer was that the same characteristics that give it very low noise and wide separation also reduce its various intermodulation components to a minimum—and they are certainly far lower than those of most other tuners.

Although we verified to our satisfaction the technical claims made for this tuner, we were unable to hear any significant difference between it and other good tuners in actual reception. This is not to say that such differences do not exist, but we suspect that a proper comparison can be made only with a very strong (at least 85 dB) and very high-quality signal so as to realize the full quieting of the 3001. That sort of signal is not available in our area (if anywhere).

The ANC feature is entirely automatic and the transition is smooth and continuous rather than abrupt, in many cases providing a listenable signal with some stereo separation where otherwise one would have to go to full mono for an acceptable noise level.

The program memories worked perfectly and always returned the tuner to the exact preset channel (aided by the inherent moderate amount of AFC). The action is totally silent, as is the normal manual tuning of the 3001, due to an ideal muting system that is free of any modulation bursts or thumps. Our only criticism of the memory system is that each time the tuner is turned on, it comes on in “manual” at the frequency to which the dial is set. Although the dial scale is quite accurate in spite of its short length, the frequency indications on the tuning meter in the programmed mode are merely approximate.

At its price, the Tandberg 3001 is obviously not Everyman’s tuner. It is, however, one of the most advanced stereo components we have seen. Its selectivity, noise, distortion, channel separation, and interference-rejection abilities are all at or beyond the limits of measurability, and that is a most impressive achievement.

Circle 143 on reader service card

(Continued on page 58)
Marlboro Country

The Wharfedale Laser 100 is a compact three-way bookshelf speaker system based on a 10-inch-diameter acoustic-suspension woofer. There is a crossover at 700 Hz to a 4-inch mineral-filled homopolymer-cone midrange driver, and there is a second crossover at 3,500 Hz to a 3/4-inch dome tweeter. The sealed walnut-veneer enclosure is 22⅛ inches high, 12 inches wide, and 9⅞ inches deep. It weighs 22⅛ pounds. An acoustically transparent cloth grille, stretched on a light plastic frame, is held in place by plastic snaps. The Laser 100, which has no user-adjustable level controls, has its spring-loaded amplifier-connection terminals recessed into the back panel of the cabinet.

System specifications listed on the rear of the cabinet include a nominal 6-ohm impedance rating and a maximum power-handling rating of 105 watts of program material. The speaker is recommended for use with amplifiers rated between 15 and 105 watts output. Other ratings of the Wharfedale Laser 100 include a sensitivity of 88 dB at 1 meter with a 1-watt input and a frequency response of 55 to 20,000 Hz ± 3 dB. Price: $240.

Laboratory Measurements. A close-miked woofer-response curve spliced to the frequency response measured in the reverberant field of the room yielded an overall response flat within ±4 dB from 50 to 20,000 Hz. The woofer's maximum output was at about 90 Hz, with a 12-dB-per-octave fall-off at lower frequencies. The output in the upper part of the woofer's operating range (from 150 to 750 Hz) was flat within about ±1.25 dB, and it was attenuated steeply by the speaker system's crossover network.

The average output from the midrange driver was down some 3 to 4 dB from the upper-bass output level, and the response varied ±2 dB from 750 to 5,000 Hz. Thus, the speaker's overall response showed a flat but slightly depressed upper-midrange output but was generally flat and smooth, with no significant irregularities. The high-frequency dispersion of the tweeter was typical of small dome radiators. There were clearly measurable differences in high-frequency output from the left and right speakers, with the microphone oriented on the axis of one and about 30 degrees off the axis of the other.

The sensitivity of the Laser 100 was exactly as rated, with a sound-pressure level of 88 dB measured at 1 meter when the speaker was driven with 2.83 volts (nominally 1 watt into 8 ohms) of random noise in an octave band centered at 1,000 Hz. The impedance of the system was 8 ohms or higher through the bass and midrange, with maxima of 18 ohms at the woofer resonance of 70 Hz, about 20 ohms at 750 Hz, and 12 ohms at 4,000 Hz (the last two evidently due to the crossover network). However, the impedance dropped off to a plateau of 4 ohms between 10,000 and 20,000 Hz.

The bass distortion was measured with drive levels of 1 watt and 10 watts (based on an 8-ohm impedance) from 100 Hz down to the point where it became excessive. At 1 watt, the distortion was very low (0.2 to 0.4 per cent) down to 70 Hz, rising to 3.2 per cent at 50 Hz and 4.9 per cent at 40 Hz. Increasing the drive by 10 dB produced a substantial increase in distortion, to about 1 per cent at 80 Hz and above, 4.7 per cent at 60 Hz, and 9.5 per cent at 50 Hz. Considering the speaker's low-level frequency response and bass distortion, we judge its rated 55-Hz lower frequency limit to be realistic (and the specified 20,000-Hz upper limit was completely confirmed by our test measurements).

Comment. The sound quality of the Wharfedale Laser 100 was completely consistent with its measured frequency response. It was well balanced, with a sweet, unemphasized (but obviously extended) high end. Although there was no sense of very deep bass, there never seemed to be any deficiency of bass output. There is no contradiction in these statements, since most musical program material has relatively little acoustic energy at frequencies below approximately 60 Hz.

When the sound of the Wharfedale Laser 100 was compared with that of some other speakers that we measured as having very flat midrange response, the Wharfedale had a slightly more distant quality, doubtless a result of its frequency-response characteristics. In summary, we liked what we heard from the Wharfedale Laser 100 speakers. They were musical and clean sounding, with a generally good octave-to-octave balance and a sound that was by no means "small" as the physical dimensions of the speaker might suggest.

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With Linatrace, tracking error is reduced to a phenomenal 0.5° or less, virtually eliminating distortion and protecting your records from excessive wear.

The high torque direct drive motor of the Revox B790 uses Hall-Effect magnetic sensors tied to a quartz crystal to constantly read and instantly correct rotational speed. This eliminates the moment-to-moment deviations found on even the most expensive conventional direct drive motors. You can verify speed accuracy with the fast responding LED digital readouts. The readouts also provide an accurate log of manual speed adjustments.

Even with its advanced features, the Revox B790 is a pleasure to operate with safe and convenient automation. It works with virtually every cartridge and is ruggedly built to stand up to years of daily operation.

For more good reasons to play your records without a tone arm, experience the B790 at your Revox dealer.

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Those who have glanced at this column over a period of years will know that the musical setting of the English language has been a major concern of mine. I've been among many to give Handel his lumps, and if I have not flailed away at most English-language productions of non-English-language operas it is because most of them were larded to die of natural causes anyway. But the setting of English texts to Italianate music goes on. Gian-Carlo Menotti has been a most effective carrier of a most insidious bug — and so does their setting to music that has no roots in any human language at all. The other day, in a biography of the poet W. H. Auden, I came across a comment by Auden about how much he admired Benjamin Britten's setting of the language. Well, I'm sure instances can be found of Britten's treating English with great sensitivity and grace, but anyone who listens to the John Donne Sonnets can hear the opposite (I am not referring at all to the language operas it may, at the same time, introduce the interested reader to a couple of English-language musical masterpieces. Arabesque 8018 contains Ralph Vaughan Williams' On Wenlock Edge and Peter Warlock's The Curlew, both sung by tenor Ian Partridge with instrumentalists of the Music Group of London (the former work is scored for piano and string quartet, the latter for flute, English horn, and string quartet). The Wenlock poems are taken from A. E. Housman's A Shropshire Lad, some of the loveliest and most affecting short lyrics in English, The Curlew is based on four poems by William Butler Yeats, at least arguably the greatest lyric poet in the language. The second record offers the same Vaughan Williams work, but it is the first recording known to me of the orchestral version, and tenor Gerald English sings the piece perhaps a trifle better than Partridge does. He is accompanied by David Measham and the West Australian Symphony Orchestra on a Unicorn Kanchana disc (KP 8001) distributed in this country by Euroclass Records, Ltd., 155 Avenue of the Americas, New York, N. Y. 10013. (The overside contains music of John Ireland.)

The Vaughan Williams and Warlock pieces have almost nothing to do with one another stylistically despite the fact that they were both composed by Englishmen and only about a dozen years apart. But what they both offer is great poetry sensitivity set to great music in a variety of ways, the rhythms enhancing both intelligibility and meaning, the words and the melody so bonded that once heard they remain in the memory together. If there is a better recipe for song in any language I'd like to know what it is.
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Imagination has just become reality.
HOW TO MAKE BETTER-SOUNDING CASSETTE RECORDINGS

By Ivan Berger

If the professionals make better-sounding tape recordings than you do, the credit doesn't all belong to their recording gear. Today's better cassette decks are as good in many respects as professional open-reel decks of a decade or so back—decks that are still in use in some studios. No, the real "professional" difference is technique, and many of the professional techniques are things you can do as readily even though you are usually dubbing whereas they are working with live material. And there are other tips as well, most of which don't apply to professional recording, that can help you get better-sounding results.

Tape/Deck Matching

The first step toward getting good recordings is to match your recorder and your tape properly. Setting your deck's bias and equalization switches to match the tape type is important, of course, but it's not quite the whole story. Matching your deck to the precise tape formulation you are recording on will help you squeeze the last possible decibel of performance from it. Many of the newest decks can do this job automatically, but they're among the most expensive models. More moderate-priced decks have metering or indicating circuits that show you when the bias is
correctly set for the particular tape you're recording on.

But you can get a good match even without such aids. If your deck has a continuously variable bias control, try adjusting it slowly as you make a test tape of a record that is sonically as similar as possible to the kind of material you're planning to record (live, off the air, or whatever). Listen critically so you can find which bias setting gives the best balance among good high-frequency response, low distortion, and low noise. (Optimizing for one of these qualities alone is sure to worsen at least one of the others.) If the bias control on your deck is not continuously variable (or if there isn't any control at all), buy a selection of different brands and types of cassettes and try recording the same material on each of them to see which gives the best results. You won't be wasting money on the tapes that turn out to be less than the best, since the quality will be comparable to that of the better tapes at the least good setting. But once you know which tape brand and type performs the very best on your machine, stick with it (and bear in mind that C-60 and C-90 cassettes that are nominally of the same formulation will have slightly different performance characteristics).

To be absolutely sure of maintaining the best possible tape/deck match, take two more tips from the pros. First, buy your preferred tape a dozen or so cassettes at a time so as to ensure that they will all have exactly the same performance characteristics; even those from reputable manufacturers should all give you at least good results. But once you know which is the best, you can buy the worst on your machine is likely to be fairly narrow; cassettes from reputable manufacturers should all give you at least good results. But once you know which tape brand and type performs the very best on your machine, stick with it (and bear in mind that C-60 and C-90 cassettes that are nominally of the same formulation will have slightly different performance characteristics).

Level Setting

Using a less than optimum tape can subtly "log" a recording, but the wrong recording level can ruin it altogether. Unfortunately, what constitutes the right recording level varies from tape to tape, from deck to deck, and according to the material you're taping. A good general rule is to set the level so that the meter needle or level indicator switches occasionally during the softest passages and moves past 0 or into the red area only briefly during the loudest ones. But, like all general statements, this has to be qualified by the specific recording and by what is said in your recorder's instruction manual.

- **Meter Types:** The same signal will register higher on a peak-reading meter than on an average-reading one (such as a VU meter) because, after all, a signal's average value will always be less than its highest (peak) value. The difference can be anywhere from 3 to 8 dB, depending on the material being recorded, so don't try to convert mentally from one system to the other; just learn how to interpret the one your machine uses.

Some new machines have meters or bar-graph indicators with expanded scales, and these require a little different thinking too. Obviously, a signal level that barely causes the needle to twitch on a meter whose scale stops at -20 dB will provoke vigorous needle movement on one whose scale goes all the way down to, say, -45 dB. Moreover, different manufacturers may set their meters' 0-level points differently. Setting it low gives lots of headroom for undistorted recording above the 0 point, but it also increases the risk that soft passages will be recorded with too little gain and be excessively hissy on playback. Setting the 0 level high gives a better signal-to-noise ratio—but at an increased risk of overload distortion in loud passages.

- **Headroom and Saturation:** Tape decks—and, even more, tapes—differ in their ability to handle strong signals without overload distortion due to saturation of the head or the tape. This is especially true at the higher frequencies (above 8,000 Hz or so), but since these are usually overtones and are rolled off a bit by many microphones, much of what you record won't contain enough high-level, high-frequency sound to cause trouble. If your deck can record on pure-metal tape, that's the obvious type to use for critical recordings of treble-rich material; improved high-end headroom is the greatest benefit of metal tape.

- **Presetting Levels:** It's best, of course, if your recording level is set correctly from the moment you begin tapping. And it's usually possible to sample the source material beforehand to determine what the level should be. If you're recording from FM, it's easy—FM has a comparatively limited dynamic range that's easy to get on tape. One caution, however: you can't judge the level of a music program by the announcements between musical selections. Some stations deliberately cut back their volume during such announcements, feeling that it's unrealistic for an announcer to sound as loud as an orchestra or rock band. Others soup up the level of the commercials.

If you're dubbing from a disc or another tape, just play the loudest passages and set your levels so that they can be recorded without distortion. This is especially easy with records, since the loudest passages can often be spotted by eye; they are the areas where the disc surface appears roughest.

- **Riding Gain:** Unless you're taping material with a limited dynamic range on a recorder with a wide one, no single level setting will quite manage to keep the recorded signal both well above the noise in quiet passages and comfortably below the distortion point in loud ones, so you'll probably have to adjust the level settings during the recording—what the pros call "riding gain." This won't be as necessary in dubbing as in live recording, but you'll still have to do some of it, especially when you're dubbing from audiophile recordings with extra-wide dynamic range.

Too many amateurs don't "ride" gain, they chuse it—dashing to the level knob to turn it down once a loud passage becomes distorted, then turning it up again when the signal gets too soft and hence potentially hissy. Tapes made that way sound awful: passages no sooner build to a fortissimo than they're pulled back into an anticlimax; a delicate pianissimo is no sooner established than the level is pumped up again. And, of course, there's an audible increase in noise or distortion just before each delayed correction. The trick in riding gain is to anticipate where the music is heading and to achieve the proper level setting for each passage before the crucial moment. Reduce the gain slowly while a crescendo builds so the sense of its development is only slightly diminished, not destroyed. Raise the gain slowly as the music's average level drops so the softest sections will be clearly audible above the noise yet remain relatively soft. If you know well the music you are recording, riding gain properly becomes easy.

- **Cleaning and Demagnetizing:** You should periodically clean and demagne-
"...the art of live recording is the art of knowing where to place your microphones."

Taping Off the Air

So much for the basics; now for specific tips on different kinds of recording jobs. Let's start with the easiest, taping off the air. As I've mentioned, what makes it easy is the limited dynamic and frequency range of most broadcasts. And with FM you'll also find that a recording level that works for one station will almost always be good for any other as long as you're using the same tuner and don't change its output-level settings. Some stations regularly broadcast Dolby-level calibration tones at a 50 per cent modulation level (6 dB below maximum modulation), and if you catch one of these test tones you can use it to calibrate your recording as well as Dolby levels.

Speaking of Dolby, you'll find that most decks equipped with Dolby noise-reduction circuitry also have a switch position marked "MPX Filter" or the like. It's wise to switch in this filter whenever you tape a stereo FM program, for without it remnants of the FM-multiplex pilot tone leaking from your tuner or receiver may fool the Dolby circuits into acting as if there were more high-frequency audio in the signal than is actually there.

A recording from FM can be no better than the received signal, so make sure this is as good as possible. Tune in the station accurately and orient your antenna for the cleanest signal. Compare the signal quality in stereo, mono, and (if your tuner has it) "high-blend" mode (this is sometimes, confusingly, labeled "MPX Filter") to see which one gives the best-sounding results. Since reception conditions do change, make all these checks as close as you can to the airtime of the program you want to tape—but not so close that you'll be pressed for time to resolve any problems you encounter. With today's equipment there's rarely any need to warm it up beforehand, but there's no harm in this either.

Try to match the tape length to that of the music program you're taping if you know in advance what that will be. Broadcasts of classical music are usually listed in advance in station program guides or local FM magazines (some even give timings!). For specific pop selections you'll just have to be ready to go when what you want comes on, though programs featuring specific genres or artists are sometimes announced ahead of time. Planning your taping in advance ensures that you won't be frantically scrambling for a blank tape while something you want has already started. And keeping a blank tape cued up and the recording levels set whenever you listen to FM ensures that you'll be ready to tape when opportunity beckons.

Convenient as it is to use a timer to record programs aired when you're not around, it pays to be on hand if possible for taping off the air. That way you can use the deck's pause control to edit out commercials and unwanted announcements. If your machine (or car player) has an automatic music-finding system, be sure when you record to leave a few seconds of silence between selections (decks with "record-mute" switches do this semi-automatically). If you're tapping a broadcast of a live concert, though, it isn't a good idea to cut the recording sharply when the music is over; fade out gradually during the applause—and try not to shear off the last few seconds of hall reverberation.

At each announcement break, check the amount of tape remaining and the expected length of the next selection. If you won't be able to get it all without an interruption, take advantage of the intermission to turn the cassette over or to switch to a new one. Finally, if you're in doubt about whether something is worth taping off the air, tape it anyway; you can always reuse the tape if you decide later that the program isn't worth preserving.

Dubbing

There are many reasons you might want to dub your own records or tapes: to preserve irreplaceable old records; to copy discs or open-reel tapes on cassette for use in a car or with a portable player; to arrange an evening's worth of singles or album cuts for continuous play during a party; to make a tape anthology of your favorites from several sources; to duplicate your own demo tapes to send copies off to record companies... and so on.

If you're dubbing a record, be sure beforehand that the disc and stylus are clean and that the turntable is running at precisely the desired speed (which is not always the nominally correct speed, since you may sometimes want to alter the pitch and tempo slightly). Audition the record carefully beforehand to make sure your turntable has no trouble tracking it; you may need to use one that is better at handling warps. You'll certainly want to use your amplifier's...
How to get 50% more sound without turning up the volume.

There's a whole range of sound in a live performance that you never hear from your stereo system. And it's not a question of turning up the volume.

The problem is in the records you play. When recording engineers master a record, they electronically eliminate up to half the music. They literally compress the sound to make it "fit" on the vinyl record.

Fortunately, there's one solution to the problem: dbx Dynamic Range Expanders. A dbx Dynamic Range Expander in your system restores most of the lost music. And it reduces annoying record surface noise by as much as 20 dB. So instead of a compressed 50 or 60 dB of dynamic range, you get a full 75 to 90 dB. The loud passages begin to thunder. The softs are truly subtle. All your music comes to life.

And you can use a dbx Dynamic Range Expander not only with your records, but also with tapes and FM broadcasts.

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Because there's a lot more to music than has been reaching your ears.


Making good sound better
ONE SYSTEM STANDS ABOVE THE REST. VERTICALLY. SIMPLY. MITSUBISHI.

This is the system destined to turn the audio world on its ear. If you find that hard to believe, take another look. What you see is the InterPlay X-10™ The world’s first vertical format complete audio system. No trick photography here. The way you see it is the way you play it. Vertically.

Play a record. Play a cassette. Play the tuner. Any way you play it, it's Mitsubishi.

The vertical linear-track turntable allows the X-10 to sit on a small bookshelf. It needs only 10” of shelf depth.

And we’ve integrated an AM/FM stereo tuner and cassette deck. Hook up the speakers, plug it in, and turn it on. The InterPlay X-10 is stereo at its upright best.

For your nearest dealer, call toll-free (800) 447-2882 or in Illinois, (800) 322-4400 and ask for operator X-10.
When dubbing from other tapes, there are fewer points to keep in mind. First, make sure that the playback deck is also clean, demagnetized, and has its 70/120-usec playback-equalization switch set to match the tape in use. If you are dubbing from one cassette to another, try both machines as the playback unit for the same source tape to see which works best (in general, the better deck should be used as the playback machine).

It is probably worth using Dolby (or whatever other noise-reduction system you have) even when you're dubbing from a source that's already noisy. True, Dolby circuitry can't clean up pre-existing noise, but it will keep the noise from building up further. And if you're recording from a Dolbyized tape, decode it in playback and then re-encode it while dubbing; even though this means the signal has to pass through extra Dolby circuits, it will help ensure that the Dolby circuits track properly when you play back the dub. (If the source you want to dub is very noisy, you may want to investigate a one-step noise-reduction accessory from such companies as KLI, Phase Linear, etc.)

### RECOMMENDED READING

The following four books make up an extremely useful small reference library for the recordist. If you are unable to find them at your local bookstore, library, or audio shop, you can order directly from the publishers at the addresses given. Be sure to include applicable state and local sales taxes when ordering by mail.

- **Sound Recording**, by John Earl, 368 pp., illus., hardbound, $32.95 (postpaid on prepaid orders). Van Nostrand Reinhold Co., 135 W. 50th St., New York, N.Y. 10020.
- **Modern Recording Techniques**, by Robert Runstein, 368 pp., illus., softbound, $9.95 plus 50¢ postage. Howard W. Sams Co., Inc., 4300 W. 62nd St., Indianapolis, Ind. 46206.
- **The Recording Studio Handbook**, by John Woram, 496 pp., illus., hardbound, $37.50 postpaid. Sagamore Publishing Co., 1120 Old Country Road, Plainview, N.Y. 11803.

Ilum., $10.95 hardbound, $7.95 softbound (postpaid on prepaid orders).


### Live Recording

What the professionals do most—and amateurs least—is to make live recordings through microphones. This is enough of a challenge that whole books have been written on the subject (see the accompanying box), so I'll just hit the high points.

Basically, the art of live recording is the art of knowing where to place your microphones. There's no one "right" place: it varies with the acoustics of the room you're taping in, the kind of music (or other material) you're taping, and the kind of sound you want to get on the tape. Here are a few basic guidelines:

1. **Distance matters most.** Moving your mikes in closer doesn't just make the sound they pick up louder—you could do much the same thing by merely turning up the gain. Microphone distance strongly affects the balance between the direct and the reflected sounds the mikes pick up. The closer the mikes, the more sonic details it will get; the farther away the mike, the more hall ambiance and sense of spaciousness its signal will have. Usually you'll want some of each, but you'll have to pick the balance between them for yourself; experiment to see what works. You'll find that overly close miking brings in sonic details you might prefer not to hear, such as the slide of a musician's fingers across strings; set your mike too far away, on the other hand, and the instrumental sound will be submerged in reverberation.

2. **Stereo perspective is controllable.** There are two basic stereo microphone setups that amateurs can easily use: a crossed pair of directional microphones facing forward in a V configuration on the same stand or a spaced pair of microphones (whether directional or not) on separate stands. Crossed pairs can give a more stable stereo image, but spaced pairs let you get closer pickup of more instruments and a wider stereo "stage." Again, experiment to find which you prefer—and for what.

3. **Too many mikes is madness.** Not all pros agree with this—I've seen as many as twenty-eight microphones at a classical-music recording session—but more and more audio engineers are coming to realize that although a multiplicity of microphones may give more control over individual instruments and sections, it gives less control over the sound as a whole; moreover, excessive miking sometimes creates strange "comb-filter" effects that add an unnatural quality to the sound. In any case, it pays to learn basic recording techniques using only a couple of mikes, gradually adding more as you master those you already have.

### A Final Note

Bear in mind that top-quality equipment is not necessarily required for top-quality results. In fact, a talented and knowledgeable recordist is likely to turn out better-sounding tapes with a mid-price cassette deck than a novice with a professional-quality open-reel machine. Time spent sharpening your recording skills will pay off in better performance from whatever level of equipment you are able to afford.

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**MARCH 1981**
The original cassette machine, the Norelco Carry-Corder from Philips, was a marvel of simplicity. There were no adjustments to make (other than in signal level), no choice of tape type or speed or noise-reduction system to confuse the user. It was the audio-tape equivalent of the Kodak Brownie box camera, which may not have made the greatest pictures but was certainly an easy device to use.

Today anyone shopping for a high-fidelity cassette deck must choose among hundreds of models with a broad range of features, capabilities, and prices. Capabilities and prices will interest the prospective buyer, but the features are what most clearly distinguish one cassette deck from another in the marketplace. And since features to a large extent determine cassette-deck performance and price, a shopper can arrive at some preliminary buying decisions once he understands what features are available and what they will do for him.

Tape and Machines

Any recorder's performance is intimately linked to that of the tape being used. Over the past couple of years metal tape (whose magnetic coating contains fine particles of metal alloy instead of metal oxides) has become so important to marketing in the audio industry that even inexpensive cassette decks are now "metal-compatible." Metal tape does have advantages, mainly in its high overload limits at high frequencies. It does, however, require higher bias and record levels than other tape types. In order to make machines metal-compatible, manufacturers have had to redesign their record and erase heads as well as bias and record-amplifier circuitry. It's safe to say that because of the necessary expense of such designs, the cheapest current metal-compatible models will not really get the most out of metal tape.

Getting the most out of a non-metal tape doesn't require redesign, but it does require careful adjustment of those deck characteristics to which a tape is most sensitive. Within each of the four major subcategories of tape (standard ferric, chrome and chrome-equivalent, ferrichrome, and metal) there is a wide variation in the optimum settings for bias, recording equalization, and sensitivity (standard recording level).

Many recent decks have been equipped with front-panel "bias-trim" or "equalization-trim" variable controls in addition to the bias and equalization switches used to set the deck for the general tape type. Proper use of these trim controls can improve high-frequency response for any particular tape, but some decks require that the adjustments be made by ear. This can be done easily only if your deck has separate record and playback heads so you can hear the effects—for better or worse—as you make the adjustments.

This year's decks have begun to take full advantage of affordable microprocessor technology by "computerizing" the adjustment not only of bias but of recording equalization and sensitivity. This full range of calibrations is rarely available without computer control because of the difficulty of adjusting all the interrelated settings at once by hand. A built-in microprocessor can optimize a deck's performance in a few seconds for almost any tape.

More Headroom

Recorder/tape adjustments can be critical in making a truly accurate recording of demanding musical material. But even the optimum settings are a compromise (though an acceptable one) between the conflicting demands of low noise, low distortion, and the ability to record loud high-frequency signals.

One way around the problem is double-speed recording, which increases high-frequency "headroom" by running the tape at 3 1/4 inches per second instead of the standard 1 7/8 ips. Double-speed recording does, however, require twice as much tape for an equivalent playing time.

Another approach is the logical extension of all those automatic bias and equalization adjustments. Dolby HX (headroom extension), found on a few manufacturers' models this year, is a circuit that continuously varies bias and record equalization according to the demands of the music, producing the best moment-to-moment compromise. Dolby claims that use of this circuit effectively yields lower distortion at both high and low recording levels and in-
A GUIDE FOR BEGINNING BUYERS

By Mark P. Fishman and Stephen H. Owades

Increases maximum potential output levels at high frequencies. Tandberg has a somewhat similar system of its own, called Dyneq (Dynamic Equalization), which adjusts only equalization to achieve a similar result. Both systems are active only during recording, and the resulting tapes will play normally on any deck.

Level Setting

In order to stay above a tape system's noise "floor" and below its distortion "ceiling" (that is, within the recording "window"), the recording levels must be set with care. The wider the dynamic range of the source material, the more critical this level-setting process is and the more important the level-metering system employed.

Most current cassette recorders, except for the least expensive models, have some sort of peak-indicating device to register short, high peaks in the music. This used to consist only of a light-emitting diode (LED) that would flash if the level exceeded a predetermined overload point; it was used in conjunction with standard average-reading mechanical meters. Nowadays, rows of LEDs (or other opto-electronic indicators) have replaced the meter movements entirely in many cassette-deck models.

Being electronic and without mechanical inertia, such metering devices can easily be designed to follow peaks or averages or to hold the highest peak value of the signal at the touch of a switch. Because of the discrete steps in which they work, however, they give only the illusion of precision, and frequently at the expense of usable accuracy. If the steps are too many decibels apart, the display loses much of its usefulness as a guide for setting recording levels.

To be most useful, any meter should have a scale reading from at least -30 dB to +5 dB. A good peak-reading mechanical meter will be easier to read in the critical area around 0 dB than a coarsely segmented display. Some of these meters have a switchable slow decay built into the drive circuit so that they can hold the highest peak value for some time.

Since microprocessors are so good at calibrating the machine for individual tape characteristics, the next step is to design them to set the recording level as well. Indeed, at least one manufacturer has announced a deck which does just that. Since levels in music are constantly varying, however, wide-dynamic-range source material may require some "gain riding" during recording, something that at the moment can be done well only by a human who knows the score—the musical score, that is.

Noise Reduction

Manual gain-riding during recording is one way of fitting the music into the dynamic-range limitations of a machine and tape, but the end product of such gain-riding is a recording with less dynamic range than the original. Noise-reduction systems can be considered a form of electronic gain-riding that employs frequency- and level-sensitive circuitry to reduce the dynamic range of the incoming signal in a predictable way that can be exactly reversed.

The Dolby-B noise-reduction system was the breakthrough that allowed cassettes to be taken seriously for recording music. Introduced in 1970, it has since become de facto the world-wide standard for cassette noise reduction, and it is available on virtually every cassette deck made. Dolby B acts only on high frequencies, where it produces an improvement in signal-to-noise ratio of slightly less than 10 dB. Encoded tapes can be played back without decoding (in cars, on portable equipment, and so forth) with reasonable quality. (JVC's ANRS noise-reduction system is generally compatible with Dolby B.)

All machines with Dolby-B circuits incorporate a filter for removing the 19-kHz pilot tone from stereo FM broadcasts before recording. This filter is necessary to avoid confusing the Dolby high-frequency level-sensing circuits while taping off the air. Some cassette decks can switch out the multiplex filter for widest frequency response in other recording applications, though such a switch is useful only if the deck has a usable response above 15 kHz or so.

Other manufacturers, in an effort to achieve greater noise reduction than Dolby B's 8 to 10 dB, have developed an assortment of compressor/expander (compander) systems. The longest-es-
cassette decks...

established compander system for consumer use is the dbx II, which operates on all audio frequencies simultaneously. When recording through the dbx II system, the dynamic range of the incoming signal is cut in half as it is fed to the tape. This two-to-one (2:1) compression enables the signal to fit comfortably within the limitations of the recorder and tape. On playback the signal is re-expanded to the original dynamic range, effectively suppressing noise from the recording process by some 30 dB. While outboard (non-built-in) dbx II processors have been available for some years, the system has only recently been introduced into a few cassette decks. Some of these decks also include switching that makes possible decoding of dbx-encoded records as well as playing and recording tapes.

Recent years have seen the introduction of several new 2:1 compander systems intended to compete with dbx II. High-Com II and Super-D, both of which split the audio range into two frequency bands while operating, are incompatible with each other and with the single-band dbx. As yet, High-Com II and Super-D are available only as outboard devices that can be added to any manufacturer's cassette deck. ADRES (Automatic Dynamic Range Enhancement System) is another 2:1 compander system, but it is incompatible with dbx and is not yet available as an outboard unit. While all of these systems are intended to provide more noise reduction than Dolby B (some claim up to 30 dB more), they do not compete with it directly because no one of them has or is likely to achieve the same marketplace acceptance as Dolby B.

Dolby Laboratories itself has introduced a new noise-reduction circuit offering a 20-dB improvement in signal-to-noise ratio. Christened Dolby C, it has been offered to all present Dolby licensees at no additional fee, and at least fifteen companies have indicated their intention to put it in some new models. Dolby states that a C-encoded tape played back through a B-type decoder will sound much the same as a B-encoded tape played without a decoder—that is, fairly good. And every deck incorporating one of the Dolby-C systems will include a Dolby-B system as well, so it looks as though Dolby B will continue as the cassette noise-reduction standard.

Moving Parts

Up to this point we have not discussed the mechanical operation and functions of the cassette deck. Yet attention should be paid to the various features available with the latest cassette-deck mechanisms because mechanical stability and precision are vital with the slow speeds and narrow track widths used in cassette recording. For example, dual-capstan drive is one good way to ensure smooth tape motion since it isolates the tape in the head region from frictions in the cassette shell. And several new decks in Japan include special "tensioning" arms for much the same purpose. Separate motors for capstan(s) and hubs simplify the mechanical operation of the transport for improved reliability and gentler tape handling. Direct drive (in which the capstan is an extension of the motor shaft) is an elegant approach to reducing wow and flutter since tape speed can be controlled by precise electronic circuitry.

Three-head decks permit playback of a recording while it is being made in addition to allowing separate optimization of head characteristics for the record and playback functions. In a few three-head decks the record and playback heads are in separate mountings and the effective relative angle (azimuth) between the heads is somewhat dependent on the physical characteristics of the particular tape and cassette housing. Head misalignment results in a loss of high-frequency response and a slight increase in noise. Correcting for such alignment variations has always been a cumbersome task at best, but now several high-price decks use their microprocessors to perform this azimuth adjustment quickly and automatically for each tape.

Another automatic function available on some decks is a search system. In an effort to give the cassette medium some of the instant accessibility inherent in disc recordings, auto-search systems look for and count silent pauses between musical selections. In a few machines specific tape-counter numbers or timings can be entered and located. With the most advanced of the automatic search units, selections designated by the operator can be programmed for playback in any desired sequence. One deck can even be operated by a home computer! As another convenience feature, most decks can be set up to be started by a timer to make unattended recordings. Unfortunately, the maximum length of a program you can record this way is 60 minutes with a C-120 cassette. There is a way around this limitation—a half-speed cassette deck that runs at 1½ speeds. Several are available. Variable-speed playback is available on a few decks, a feature useful for matching the pitch of the recording to an instrument or for correcting a speed error made on another machine.

The Future

The latest features available on cassette decks point in several directions. On one hand, there is an array of incompatible noise-reduction systems, making life still more complicated for the average buyer. But then there are the various improvements in the machine connection, such as useful metering devices and computer controls that make it possible to get optimized results with little trouble. For example, one of the most welcome features in today's equipment is the provision for adjusting bias levels, recording equalization, and recording level...
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Keyboards

Here Comes Another "Supertone" Xylophone from ExCello
A New Messiah: Moving Almost to the Point of Tears

If I were to tell you that a new Messiah has just appeared that eclipses all earlier Messiahs, would you believe me? I am not, of course, talking real Messiahs, Monty Python Messiahs, or rock-and-roll Messiahs, but Handelian musical ones. After all these years, there is still something—quite a lot of something, in fact—to be discovered about Georg Friedrich (or George Friedrich) Handel’s annual and perennial masterpiece.

The problem is that the work has been done so often and in so many ways (starting with the composer himself) that its outlines have grown hazy, its image becoming more Victorian or Baroque Revival than truly eighteenth century. From 1785, the year of the famous Handel Commemorative performance in Westminster Abbey, the oft-restored Messiah began to be afflicted with elephantiasis, leading to overblown presentations full of impressive but totally opaque sounds, operatic soloists, and rhythmic squareness. In recent years the pendulum has swung the other way; performing forces have been cut to the minimum in order to attain transparency rather than a grand sonority, but this has often only substituted one sort of rigidity for another.

And now L’Oiseau-Lyre has brought us a Messiah by Christopher Hogwood and his Academy of Ancient Music. More Olde Baroque? Not quite.

Hogwood has an orchestra of ancient instruments, real ones or modern copies thereof. He has a chorus of boys and men—small, crackerjack. He has a cast of singers with beautiful, pure (but not cold) voices. And he has the parts for and accounts of the Foundling Hospital version of 1754, together with the most up-to-date how-to information on mid-eighteenth-century performance practice. The resulting sound is simply wonderful: luminous, transparent, gratifying. But there’s even more to it than that, for this performance is not so much a triumph of mere scholarship as it is a triumph of musicality and intelligence. Everything is phrased, everything sings—and not flat-out sing-out, but a rising and a falling like the very breath of life. And this is as true of the orchestral playing as it is of the choral singing and solo work.

If there is a fault, it is a certain lack of dramatic power, for this is a lyrical Messiah and not a theatrical one. The singers have therefore obviously been chosen for beauty of tone and musicality rather than (as they often were in Handel’s day) for dramatic force. On the other hand, this is far from being a garden-party or Church of England kind of Handel. There is everywhere evident a common-sense straightforwardness and a very unsnobbish reality to the work of Hogwood and his forces, a down-to-earth quality that does not preclude expressivity. On the contrary, in its very freshness and sincerity, the music is believable and moving—almost to the point of tears.

So far as editions are concerned, there is no one Messiah that is more authentic than the others; Handel made changes from one performance to another and there are alternative versions of several numbers. The Foundling Hospital version is not, as it turns out, all that different from the one we are familiar with. A few pieces are shortened, some others transposed or assigned to different voices and, in the process, sometimes a bit changed. Hogwood’s insistence on strong pacing, double-dotting, inflections, and articulations makes this Messiah a lively affair—a little different from what we know, but all to the good. Shall I stick my neck out? Okay. I think this is the most absorbing and moving performance of Messiah I’ve ever heard.

Libretto and fascinating scholarly notes are included. Did you know, for example, why Handel placed that odd musical accent on the first word of “For unto us a child is born”? The chorus was adapted (along with a good deal of other music in Messiah) from an earlier Italian setting, in this case of the line “No, non vo’ che voi pietarmi”—in which, of course, the accent makes perfect sense.

—Eric Salzman

"I think this is the most absorbing, moving performance of Messiah I've ever heard."
Michael Wycoff: discovering a distinctive voice

Michael Wycoff:
A Polished Debut
Album by a Promising
Young Multi-talent

When I first heard Michael Wycoff's debut album for RCA, I thought that some fiendishly clever producer had managed to produce a clone of Stevie Wonder by stealing a few crucial cells from the original, spiriting them off to a Brazilian jungle laboratory, and re-creating the artist far from the eyes and ears of competitors. A closer listen assured me that this was no ersatz Wonder but a promising young artist in the process of discovering a distinctive voice of his own.

Wycoff's talents have apparently been polished for a number of years in the backwoods of Los Angeles and other bush leagues of the music industry. An accomplished pianist, organist, singer, and composer, he was a sideman with D. J. Rogers for a time, has backed up Phoebe Snow, and has sung and played behind Natalie Cole (he appeared on her live album). His only professional encounter with Stevie Wonder, to whom he does bear a remarkable vocal resemblance, was when he put in a few session hours during the making of the chart-topping "Songs in the Key of Life."

What, then, is distinctive about Wycoff? He sticks pretty close to his r- & b roots and draws heavily on the gospel influence in his life: he is director of a church choir in Los Angeles, and this association shines through in marvelous fashion. His style might as readily be compared with that of the late Donny Hathaway as with Stevie Wonder's, particularly when he bends syllables and chews up his notes as though they were so delicious he can hardly stand to let go of them. For an example of this gustatory approach to singing, lend an ear to Love Makes Me Sing here. It surely does, and it makes a happy sound indeed.

Wycoff's talents run deeper than his engagingly refreshing singing, for he also wrote all the music and lyrics on this excellent album, collaborating at times with Will Jennings. While he may encounter some initial difficulty in dealing with his similarity to two musical giants and establishing his own identity, Michael Wycoff gives full indication here that he has a talent quite large enough to give us reason to expect much future delight from him.

-Phyl Garland

"Hawks and Doves":
Back to Basics
With Troubadour
Neil Young

Neil Young's new "Hawks & Doves" isn't really a theme album about hawks and doves in the political sense, but it is structurally cohesive, and it's so provocatively soft-spoken that it's bound to get your attention. Young has exercised—and beautifully integrated—his folk- and country-rock leanings, ornamenting the result by using some of his skills as a phrasemaker, both verbally and musically.

The first side of the disc has a spartan backing (including, in The Old Homestead, a musical saw), often only Young's acoustic guitar. The backing is fuller, some of it even electric, on side two, but it remains just as basic. Young sings more accurately now, I think, than he ever did, and I detect no great loss of emotion. His lyrics range all the way from more or less straightforward narration (Captain Kennedy) to the cryptic and oblique, but you always get enough of what he means to feel the way the song meant you to. Coastline is a strange little ditty, with the last line of every other verse trailing off melodically into the blue. Union Man and Comin' Apart at Every Nail blend both
Pachelbel's "Canon in D Major" is yours for only $1!

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But the other works are transporting as well. The performance of the orchestra could not possibly be excelled and the trumpet playing is so spectacular that it is, in a word, breathtaking!

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MHS 1060
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CONCERTO In D Major for Trumpet, 2 Oboes, Strings and Continuo
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Maurice ANDRE, Trumpet
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melodically and thematically, the former being ironic and the latter starting with the lines, "It's awful hard to find a job/On one side the government, the other the mob." The Old Homestead, all dream-like symbolism, is reminiscent of Last Trip to Tulsa in Young's first album long ago. And so on. The sound is unlike that of any other Neil Young album, yet it is unmistakably a Neil Young sound. In other words, he's one of the originals, still the coolest hippie who ever turned me on.

—Noel Coppage

NEIL YOUNG: Hawks & Doves. Neil Young (vocals, guitar, harmonica, piano); Greg Thomas (drums); Dennis Belfield (bass); Rufus Thibodeaux (fiddle); other musicians. Little Wing; The Old Homestead; Lost in Space; Captain Kennedy; Stayin' Power; Coastline; Union Man; Comin' Apart at Every Nail; Hawks and Doves. REPRISE HS 2297 $8.98, © R5 2297 $8.98, © R8 2297 $8.98.

A New Shostakovich Thirteenth: Perhaps Previn's Finest Recording to Date

A little more than six years ago, in reviewing André Previn's recording of Shostakovich's Eighth Symphony with the London Symphony Orchestra (Angel S-36980, January 1975), I suggested it was "the best thing Previn has yet given us on records." The conductor has enlarged his discography (the LSO segment of which had begun with the Shostakovich Fifth) vastly since then, and now it is another Shostakovich symphony, the Thirteenth, that seems even more clearly his finest effort to date. Like the Eighth before, the Thirteenth was especially in need of just this sort of attention.

The Thirteenth Symphony was the occasion for the last of the official humiliations visited upon Shostakovich, who had been in and out of his government's favor since the mid Thirties, when Stalin himself expressed displeasure with the opera Lady Macbeth of the Mtsensk District and Pravda denounced him as an "enemy of the people." He "rehabilitated" himself, of course, with the Fifth Symphony in 1937, but after the war there were the infamous Zhdanov list and other batterings to test his spirit. The Thirteenth Symphony, introduced in Moscow in December 1962, ran into trouble because of its text: its five movements are settings for solo bass and male chorus of five poems by Yevgeny Yevtushenko, the first being the famous Babi Yar. The première of the work in which, as Boris Schwarz remarked, Shostakovich and Yevtushenko "had joined hands to reassert the liberty of spirit" turned into a sort of protest meeting. The audience was not given printed texts, the performance was not reviewed in the Soviet press, and further performances were prohibited until Yevtushenko agreed to make some emendations in his Babi Yar. A single performance was then given in 1963, and another two years later, under Kiril Kondrashin; the latter was taped and has enjoyed supposedly unauthorized circulation on Everest SDBR-3181. It was not until 1973 that an "authorized" stereo recording under Kondrashin (with a different soloist) appeared on Melodiya/Angel SR-40212; by that time the symphony had been successfully introduced in this country by Eugene Ormandy and the Philadelphia Orchestra, whose recording was issued by RCA in 1970. Since then, I gather, performances of the work have continued to be infrequent in the USSR, though it has been performed widely in the West (using the original, unaltered text of Babi Yar, as in both the Ormandy and Previn recordings). It is a fascinating and moving and important work, fully deserving the widest circulation, and it was dismaying to have the Ormandy recording withdrawn some time ago, leaving only the two Kondrashin versions till now.

The Kondrashin performance on Everest has a certain historical aura, enhanced perhaps by the thinnish sound (simulated stereo), and his "official" remake on Melodiya/Angel is no great shakes sonically either, though the performance has enormous vitality and fervor (as well as some conspicuous rough spots and untidinesses). Previn's approach is in general rather closer to Ormandy's, which is to say he favors broader tempos than Kondrashin's in all the movements but the second (Humor). Thus, although he may miss
some of the slashing rage of Kondrashin’s handling of the Babi Yar movement, Previn achieves a stark depth of brooding outrage which seems somehow more awesome and more permanently imprinted on the senses. His reading of Humor is especially sly and alert, and he takes the interconnected last three movements (At the Store, Fears, A Career) somewhat more deliberately than either Ormandy or Kondrashin did (side two plays more than thirty-seven minutes); again the impression is one of profound and “permanent” intensity, and of the specifically Mussorgskian quality to which Shostakovich himself alluded in speaking of this work.

While Angel has not managed quite the open spaciousness RCA achieved for Ormandy a decade earlier, the sound of the new disc is rich and powerful by any standards, and Previn has yet another ace in the person of his soloist, the Bulgarian basso Dimiter Petkov. Impressive as Tom Krause was with Ormandy, and Artur Eizen with Kondrashin on Melodiya/Angel, Petkov not only has that rich, “black” Slavic tone in abundance, but seems to understand and relish the texts still more than either of those predecessors. The men of the London Symphony Chorus, trained by Richard Hickox, also sound both authentic and eloquent; all the vocal and instrumental participants, in fact, are superbly charged up by Previn’s own inspired response to the work, and if this recording doesn’t do a great deal toward making the Thirteenth one of Shostakovich’s most admired compositions this listener will be more than surprised. —Richard Freed

SHOSTAKOVICH: Symphony No. 13, Op. 113 (“Babi Yar”). Dimiter Petkov (bass); London Symphony Chorus (male voices); London Symphony Orchestra. Andre Previn cond. ANGEL SZ-37661 $8.98.

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**One Master Pays Tribute to Another:**

**Roy Acuff Sings Hank Williams**

If you think you know something about songwriting, try this exercise: take a Hank Williams song, any Hank Williams song, and edit it—throw out anything in it that’s unnecessary. Well, heh heh, that was a trick exercise, as you’re now finding out: there is nothing superfluous in a Hank Williams song.

After a decade or so of listening to what seems like thousands of songwriters, I think Williams was Nature’s most nearly perfect example of the type. Roy Acuff, who in his prime may have been Nature’s most nearly perfect example of a country singer, has at last recorded ten of Williams’ songs for Elektra, and the result should become a collectors’ item. Acuff doesn’t hold pitch quite as well as he once did, but he still sings with passion and his voice is still very nearly perfectly on the National Treble level. Unlike others who’ve done Williams’ songs as a sort of tribute, he doesn’t have his backers try to copy the primitive sound of Williams’ band; the musicians here aren’t credited, but they sound like Acuff’s own kind of primitive (pre-bluegrass) band, with Jimmy Riddle (my guess is) often stepping out on an old-time country-sounding harmonica and Bashful Brother (my guess is) accenting it with the dobro. You could find these standards better rendered technically, but I doubt if you’ll find this kind of understanding anywhere else, and that fairly shrivels the importance of mere technique. Nice going, Mr. A. —Noel Coppage

**BEST OF MONTH: RECENT SELECTIONS YOU MAY HAVE MISSED**

**CLASSICAL**

- American Brass Quintet: Music of the Medievil's. TITANIC 181: "Innovagious music, strikingly performed." (December)
- Beethoven: Piano Concerto No. 1, in C Major, Op. 15. DEUTSCHE GRAMMOPHON 2531 302. "The work has not been better served in its many recordings." (January)
- Brahms: Piano Sonatas Nos. 1 and 2. DEUTSCHE GRAMMOPHON 2531 352. "Music by the young Brahms, played with an elemental romantic impetus by the young Kyras Zimerman." (December)
- Brevi: Bojoles, Respaldes Espagnol. Alborat del Gracioso. RCA ARC 3-3968. "Raror-sharp performances, a bookbinder digital recording." (February)
- Schubert: Winterreise. DEUTSCHE GRAMMOPHON 2707 119. "The best one to have." (February)
- Verdi: Rigoletto. DEUTSCHE GRAMMOPHON 2740 226. "Gielia's splendidly lyrical view . . . places this new set above all others." (January)

**POPULAR**

- Bobby Bare: Drunk and Crazy. COLUMBIA JC 3675. "Sensocmic country rock . . . basically anti-hypocrisy in a good-old-boy mode." (February)
- George Benson: Give Me the Night. WARNER BROS. HS 3453. "Elegant, expressive pop music from a master et jazz." (December)
- Ron Carter: New York Slick. MILESTONE M 5006. "For those who know real jazz from polyester." (January)
- Corelea Street: The Songwriters Exchange. STASH ST 311. "Beautiful little album, the best and brightest of the troubadours." (December)
- Aretha Franklin: Aretha. ARISTA 15 958. "The Queen of Soul back in past form." (February)
- Paul Simon: One-Trick Pony. WARNER BROS. HS 3472. "As good as anything he's ever done." (December)
The White House Record Library has been nearly doubled in size this year by the addition of 1,000 new discs chosen by a seven-member commission working under the aegis of the Recording Industry Association of America (RIAA). Record producer John Hammond was chairman, and members included Classical Commission Director David Hall and Spoken Word Commissioner Paul Kresh, both regular reviewers for STEREO REVIEW.

The record collection at the White House was started in 1973 during the Nixon administration. When plans for the new additions were being made in 1979, First Lady Rosalynn Carter said to the commissioners, “Mr. Carter does love his music, and he plays it all over the White House. But when he plays Wagner, watch out! That’s when he’s in a bad mood.” The new records were presented in January, shortly before the Carters had to move.

About one-third of the collection is made up of classical recordings, according to Commissioner Hall. In speaking of his work in fleshing out the collection, he voiced two complaints familiar to most classical collectors: “We were faced with an embarrassment of riches to choose from, and our main problem was limitation of space.” Commissioner Kresh said, “I recommended that the nub of the spoken-word collection should be the eighteen minutes of silence from the Nixon tapes.”

Record companies donate the recordings chosen for the White House collection, and a duplicate set is presented to the Performing Arts Library at the Kennedy Center, where they can be listened to by members of the public. RIAA has distributed to music schools a catalog of the new additions to the White House Record Library, and it is available free to the public while the limited supply lasts. Send $1 for postage and handling to White House Catalog, Schwann Record Catalogs, 535 Boylston Street, Boston, Mass. 02116.

TOGETHER for the first time in a public performance, recording superstars mezzo-soprano Marilyn Horne, soprano Dame Joan Sutherland, and tenor Luciano Pavarotti will give a pair of joint recitals with orchestra conducted by Richard Bonyngne this month at Avery Fisher Hall. The concert on March 23 will be telecast in Exxon’s Live from Lincoln Center series on the Public Broadcasting Service.

Bonyngne and all three singers record exclusively for London Records, and for that label they have collaborated on a complete recording of Verdi’s Trovatore. Sutherland, Horne, and Pavarotti have made other records together in various duo combinations, and they have been paired in opera and concert. This first public triple collaboration is the culmination of a series of Live from Lincoln Center events that began with Pavarotti’s first solo recital at the Metropolitan Opera House (February 1978) and continued with a Pavarotti/Sutherland recital (January 1979) and a Sutherland/Horne concert (October 1979).

The program for March 23 will include solos by each singer, duets with various combinations, and trios from Verdi’s Ernani and Trovatore, Bellini’s Norma, and Ponchielli’s La Gioconda. Miss Horne is also scheduled to sing “Danny Boy.” Stereo simulcast will be available in many parts of the country. The performance will take place in New York at 8:00 p.m.; check your local PBS station for date and time.

The Institute for Studies in American Music, established in 1971 and operating out of Brooklyn College in New York, publishes monographs of academic and general interest. The latest, called The Phonograph and Our Musical Life, made up of selected papers and commentaries from a 1977 conference on the centennial of Edison’s invention of the phonograph, is edited by H. Wiley Hitchcock, costs $7.50, and contains all sorts of interesting material by the Country Music Foundation’s William Ivey, the Smithsonian Institution’s jazz expert Martin Williams, composer/pianist William Bolcom, and others, as well as the scandalous opinions of James Goodfriend. Write to Institute for Studies in American Music, Department of Music, Brooklyn College, CUNY, Brooklyn, New York 11210, for Monograph No. 14.
Recently added to Peters' list of editors is pianist Ruth Laredo, who will prepare new editions of the piano works of Rachmaninoff to be published beginning in September 1981. Miss Laredo's seventh and final album in her series of recordings of all of Rachmaninoff's solo piano compositions on CBS Masterworks was reviewed in the "Best of the Month" section in January. Speaking of that review, she said, "It's thrilling to read such praise of my work and to see myself compared to Horowitz, but that is a tremendous responsibility to live up to. Playing these great works on the piano doesn't get any easier, you know. And for me the prospect of editing Rachmaninoff is the challenge of a lifetime."

RCA hasn't been doing much in the way of classical recording lately, but it has just signed young American violinist Dylana Jenson to an exclusive, long-term contract. At seventeen Ms. Jenson was silver medalist in the 1978 Tchaikovsky Competition in Moscow, garnered glowing predictions of future greatness. RCA has issued a sampler of her playing for the use of critics and classical radio stations, and her first real record will be coming later this year: the Sibelius Violin Concerto with Eugene Ormandy conducting the Philadelphia Orchestra.

The Metropolitan Opera Guild has produced a series of recordings and cassettes called Great Artists at the Met. Each is a collection of the best arias recordings by a Met singer of the past (Jussi Bjorling, Zinka Milanov, Ezio Pinza) or present (Sherrill Milnes, Luciano Pavarotti, Joan Sutherland). Price: $9.98 plus $2 postage and handling. Offered by the Guild at the same price is "Met Stars on Broadway," a collection of the arias performed by such singers as Birgit Nilsson (I Could Have Danced All Night), Cesare Siepi (Night and Day), and Leontyne Price (It Never Entered My Mind), Order from The Met by Mail, 1865 Broadway, New York, N.Y. 10023. A catalog of books, records, and gifts sold by the Guild will be sent free on request.

**Disc and Tape Reviews**

*By RICHARD FREED • DAVID HALL • GEORGE JELLINEK • PAUL KRESH
STODDARD LINCOLN • ERIC SALZMAN*

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The first listing is the one reviewed; other formats, if available, follow.

**ANTHEIL: Symphony No. 5 (see MAXWELL DAVIES)**

**RECORDING OF SPECIAL MERIT**

**J. S. BACH: Motets (BWV 225-230).**

Stockholm Bach Choir; Concentus Musicus of Vienna, Nikolaus Harnoncourt cond. 

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**Performance: Breathtaking**

**Recording: Breathtaking**

What is perhaps some of the most complex and difficult choral music ever written is found in Bach's six motets. The counterpoint is richly detailed, the textures are thick, and the mood is intensely religious. A good solid sound is essential, but if the chorus is too large the inner lines are blurred. If, on the other hand, the forces are cut to a minimum, the sonority becomes too thin. Nikolaus Harnoncourt has found the perfect solution: a modest-size chorus doubled by authentic strings, winds, and organ. The result in this two-disc Telefunken set is a sound that is full-bodied and transparent at the same time.

The Stockholm Bach Choir boasts excellent and musically intelligent singers. No coloratura daunts them, they articulate like instrumentalists, and they sing lightly and clearly. They have the same clarity and precision as the Swingle Singers. If you remember that astonishing group, you will recall that they sang arrangements of Bach's instrumental music with a clarity and verve that rivaled instrumental performances. Here we have that same instrumental clarity (minus the jazzy style)—not as a gimmick but seriously applied to music that cries for it. Never before have I been able to hear each line so clearly, so carefully articulated, and so beautifully phrased. The polyphonic ideal is here superbly realized. This album, I believe, and not those of the cantatas, will turn out to be Harnoncourt's finest contribution to the Bach discography. **S.L.**
First Recording: Goldmark's "Queen of Sheba"

INTRODUCED in Vienna with spectacular success in 1875, Karl Goldmark's Die Königin von Saba was long considered a staple of the German opera repertoire (it was given fifteen times during its first Metropolitan season, 1885-1886). Its popularity began to fade in the late 1920s, and it was decisively cast aside in Germany during the Hitler era, when both the opera's composer and its Old Testament subject became unacceptable. But certain old operas refuse to die. The Vienna Opera, where this work once enjoyed legendary performances under Gustav Mahler, gave a concert performance of it under Julius Rudel in 1979. Even before that, in 1969, the opera was revived in Goldmark's native Hungary, and this is where the world-premiere recording was finally produced in 1980, honoring the 150th anniversary of the composer's birth.

The Queen of Sheba is a skillfully written, masterfully orchestrated grand opera on a Meyerbeerian scale with lots of pomp and pageantry and some lush Oriental color thrown in for good measure. And Goldmark knew his Wagner too. His harmonic idiom recalls Tannhäuser, Lohengrin, and even Die Meistersinger, but without striving for the Wagnerian endless melody; in Goldmark's scheme arias, duets, and other ensembles have their distinct places. As for the subject matter, the librettist (Mosen-thal) used the Bible only as a starting point. As the opera progresses, Assad, its tenor hero, begins to look more and more like Tannhäuser: he turns away from an idealistic love (Sulamith) and yields to a temptress music quite skillfully with his light and malleable tones. And the sensuous siren call of Astaroth is temptingly delivered by Mag-da Kalmár, an artist known from previous Hungaroton recordings.

The chorus attends to the score's considerable demands quite well except for a certain weakness in the high soprano range, and in the orchestra only the brass section keeps the total effort below the top international level. Although I admire the achievement of young Adám Fischer (only thirty-one, but with lots of international experience behind him) in conducting this complex score, I cannot help feeling that certain climactic points (Sulamith's second-act aria and several massed scenes) call for more sweep and passion.

The recorded sound is generally very good, with an occasional extra boost given to the solo voices. I noted a few minor press-flaws in the surfaces of my review copy. All in all, this is a very impressive recording debut for an opera that has badly needed such documentation.

—George Jellinek

GOLDMARK: The Queen of Sheba (Die Königin von Saba). Sándor Sólyom-Nagy (baritone), King Solomon; József Gregor (bass), High Priest; Veronika Kincses (soprano), Sulamith; Siegfried Jerusalem (tenor), Assad; Klára Tákkás (mezzo-soprano), Queen of Sheba; Lajos Miller (baritone), Kipnis-Frick-Moll variety; Laszlo Polgár (bass), Watchman. Hungarian State Opera Chorus and Orchestra, Adám Fischer cond. HUNGAROTON SPLX 12179-82 four discs $35.92 (from Qualiton Records, Ltd., 39-28 Crescent Street, Long Island City, N.Y. 11101).
and businesslike. Trying to make his piano emulate the harpsichord, he demonstrates an extraordinary control of touch; in the C Minor Prelude of the Six Little Preludes, for instance, he gives the illusion of changing from a regular eight-foot stop to a buff. Gould conceives of the harpsichord as all staccato and prickly-sounding, and that is how he approaches every one of these little pieces. Alas, many of them, such as the G Major Prelude (BWV 902), should be played legato and lyrically. By ignoring this side of the composer, Gould reduces the music to a single dimension—surely not Bach's intention.

S.L.

DESTOUCHES: Les Éléments (see REBEL)

GLASS: Dance No. 1; Dance No. 3. Philip Glass Ensemble. TOMATO TOM-8029 $7.98.

Performance: Excellent
Recording: Bright

This music is from a three-way collaboration by Philip Glass, choreographer Lucinda Childs, and artist Sol LeWitt that was premiered in Holland in October 1979 and at the Brooklyn Academy of Music a month later. Einstein on the Beach, the somewhat similar collaboration between Glass and Robert Wilson, produced some of Glass' best-known and most effective music and an outstanding Tomato album. Curiously enough, this new album is only his second for the label. I say "curiously" because Glass must be the most popular "non-popular" living composer in America today—possibly in the world. He and Steve Reich are certainly the only composers who can fill both Carnegie Hall and the rock clubs and who have influenced the course of both popular and non-popular music.

These Dances are perfect examples of Glass' charming, simple, unwearingly exalted minimalist style. The energy and good spirits never vary, never flag. The musical direction is credited to Michael Reisman, but Glass is the co-producer and this is really the composer's performance. The recording is basically excellent, although the cutting, sawtooth-edged synthesizer part sometimes seems like distortion in the overall clear, blended, bright sound.

E.S.

HANDEL: Messiah (see Best of the Month, page 74)

JANÁČEK: Fate. Vilém Přibíl (tenor), Zděněk, Magdalena Hajóssová (soprano), Mila; Jarmila Palivcová (mezzo-soprano), Mila's mother, Vladimír Krejčík (tenor), Dr. Suda; Richard Novák (baritone), Lhotský; others. Brno Janáček Opera Chorus and Orchestra, František Jilek cond. SUPRAPHON 1112 2011/12 two discs $19.96 (from Qualiton Records, Ltd., 39-28 Crescent Street, Long Island City, N.Y. 11101).

Performance: Vivid but unpolished
Recording: Good

Leos Janáček was already fifty when Jenufa, his third opera, suddenly brought him to prominence. But his next opera, Fate, brought him only disappointment. It was neither published nor performed in his lifetime and has received only a handful of per-
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formances in recent years. It was a nice gesture to record the work, but, unfortunately, it really is not a good opera. The plot, which revolves around a pair of ill-matched, neurotic lovers, lacks strong characterizations, development, even clarity; the nebulous action is further beleaguered by an unbearably stilted and amateurish libretto by the composer and a well-meaning dilettante named Fedora Bartošová. The action takes place around 1900, but the characters express themselves in a convoluted, oblique manner better suited to medieval mystery plays.

There are some redeeming touches in the music—the powerful opening chorus in Act III, the melismatic high-register writing for violin, the bold trumpet passages, the brief ostinato melodic fragments—but without effective dramatic action or characters that can hold the listener's interest, these familiar musical characteristics of the composer seem mere mannerisms.

Tenor Vjém Přiběl, who will be remembered for his outstanding work in recordings of Jenůfa and of Smetana's Dalibor, has the stamina for the arduous role of the composer Živný (possibly an alter-ego of Janáček himself), who is on stage virtually all the time, but the years have made him into a hard-toned, unsuitable singer. The other members of the very large cast range from acceptable to tolerable. We can assume that this performance from the composer's native Moravia is authoritative and scrupulously prepared, but I recommend Fate only to Janáček enthusiasts. The recording is quite good technically, though the disc surfaces of my review copy were far from noiseless.

G. J.


Performance: Sounds of glass

Recording: Excellent, super quiet

Not all glass minimalism has to do with Philip Glass. Anna Lockwood is an American who makes her home in London and whose musical interests run to glass in every size, shape, and form—sheets, panes, rods, discs, bottles, bulbs, gongs, and goblets—struck, rubbed, scratched, shaken, spun, knocked, and otherwise excited into vibration in every conceivable way. This kind of instrument/sound creating goes back to Harry Partch (some of the instruments employed here are quite close to Partch's inventions), but the point of view, the aesthetic if you wish, is closer to that of a contemporary sound-sculpture.

The notion of making activities and constructions that produce simple sound in some simple, small way—outside the realm of performance in time—does not translate very well into recordings, and, not surprisingly, very little has made its way onto discs. There is no "macro" here: no works or pieces of music. This is, however, a very expertly produced (and gorgeously quiet) microcosm.

MASSENET: Le Roi de Lahore. Luis Lima (tenor), Alim, King of Lahore; Joan Sutherland (soprano), Sita; Sherrill Milnes (baritone), Scinda; Nicolai Ghiaurov (Continued on page 90)
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A highly skilled as well as a clever composer, Jules Massenet knew how to please the public in many different ways. He could be Meyerbeerian (Le Cid) or Wagnerian (Esclarmonde) at will, and he could write a miracle play (La Vierge de Notre Dame) with the same skill that he displayed in the field of verismo (La Navarraise). The shadow of Meyerbeer still hovers over Massenet's early Le Roi de Lahore (1877) with its five-act format and obligatory ballet, but the striving for effect is less obvious than in Meyerbeer's operas, and there is little evidence of musical padding. In its Orientalism, to say nothing of certain plot similarities, the Massenet opera is more indebted to Bizet's The Pearl Fishers. Massenet's melodic writing was not as assured as it was to become in his later works: there is little that instantly grips the listener except the baritone's "Promesse de mon avenir." But even in the absence of direct hits, there are enough near-misses in the score to make us welcome the opera's first recording.

It was the Sutherland/Bonyenge team that rescued this sleeping beauty for a revival in Vancouver in 1977. Not quite as strongly cast as this recording, that revival was only moderately successful. Here the producers came closer to the mark, and they would have scored even higher had they matched Joan Sutherland with a tenor more attuned to Massenet's sensuous writing than the gifted but tonally inconsistent Luis Lima. For Miss Sutherland is near her stellar form (instances of dubious intonation aside), rising to a firm high D-natural at the end of Act II.

Huguette Tourangeau has the distinction of being one of the few mezzos who can sing the role of the priestess—with sensuous tones that are firmly controlled except in a few loud top notes where the focus is beclouded. James Morris does an impressive job with the demanding role of the priest, and Nicolai Ghiaurov is one of the few basses who can be cast as a deity without fear of sacreligious singing. Huguette Tourangeau has the distinction of singing the most Oriental song in the score, and she does it voluptuously if with a somewhat artificial delivery.

The digital recording offers marvelously clear pianissimos and perfect surfaces, but I find the heavily orchestrated passages somewhat compressed-sounding and can detect no superiority over London's best nongital achievements.

Performance Good to very good
Recording Good


Performance Solid and handsome
Recording Excellent


Performance Live
Recording Very good

Christoph von Dohnányi, as in the earlier installments of his Mendelssohn symphony series (which the present release completes), here takes a solid, sensible approach to the Scottish Symphony, draws brilliant playing from the great Vienna orchestra, and benefits from superb recording. There are no surprises or special interpretive insights, but it is a competent statement of the familiar work, filled out with the unfamiliar—and really rather unmemorable—overture from Mendelssohn's incidental music to Racine's Athalie as well as the famous march from the same score. Mention should be made of the fine Dutch passages: it is heartening to find discs bearing the London label (and the others of the Decca group) so quiet and free of warps now that the company is part of PolyGram.

Leonard Bernstein's Scottish Symphony is a more interesting performance than Dohnányi's, and it is more persuasive than his own earlier one with the New York Philharmonic (Columbia MS 6976). I believe that all of his recent recordings for Deutsche Grammophon, except Fidelo, were taped in concert, and the performances thus preserved constitute a strong argument in favor of more live recording. These of both the overture (sensibly placed
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Two Trim Trios

While the Beaux Arts Trio has occasionally been joined by another string player or two to record works by Dvořák, Schubert, and Schumann, a new Philips disc of the Beethoven B-flat Major Trio and the Brahms A Minor appears to be the first in which one of the group’s own members has dropped out in favor of a guest artist—violinist Isidore Cohen in this case yielding his place to George Pietsch, the splendid principal clarinetist of the Concertgebouw Orchestra. Pietschen not only displays a warmer tone than I recall from his earlier recordings as a soloist (with both the Netherlands Wind Ensemble and his own orchestra) but sounds as if he might have been part of the Beaux Arts team himself for years, so complete is his integration with pianist Menahem Pressler and cellist Bernard Greenhouse throughout these superb performances.

The Beaux Arts’ earlier recording of the Beethoven work, in the alternative version with violin instead of clarinet (part of the complete Beethoven cycle set on Philips 6747 142 with Daniel Guilet, Cohen’s predecessor in the group), like most other recordings of both versions, omitted the exposition repeat in the first movement. Here the repeat is taken, and it might be said to give the work a more just sense of proportion—or so it seems when the succeeding adagio is realized on as poetic a level as it is here, and that movement in turn is followed by a finale in which the wit and humor of the variations are so subtly pointed. The realization of the weightier Brahms trio is similarly in character, similarly rich, similarly complete, the work’s nostalgic, autumnal qualities done with the same subtlety with which they are limned. So remarkably convincing are both performances, in fact, that there is little that need be said about them. None of the participants has given us more beautiful playing in anything he has done, and the Philips engineers have upheld their lofty standards. This is surely the outstanding coupling of these two works, and I think it is the most satisfying account of each of the two individually as well: a cornerstone item for any representative chamber-music collection.

—Richard Freed


Performance: Outstanding  Recording: Excellent

When will it let up, this deluge of Mozart flute-concerto recordings? It must be time for a moratorium—but then we might miss something as beautiful as this Argo release. If William Bennett does not display the individual personality of a Rampal or a Galway, he lacks nothing in the way of a convincing Mozart style, sympathetic response to the music, or capacity to convey it to the listener in the most appealing form. No one familiar with his outstanding account of the Mozart flute quartets with the Grumiaux Trio (Philips 6500 034) will be at all surprised by this release, but of course such elegant and idiomatic playing can never be taken for granted. George Malcolm, for his part, is an especially inspiring conductor, making more of the orchestral parts of both works than I can recall any of his recorded predecessors doing, yet without fuss, self-consciousness, or getting in his soloist’s way. Several other records of these concertos manage to include the Andante in C Major, K. 315, and a lovely little piece it is, but with performances of the caliber of these, which happen to be outstandingly well recorded to boot, no one is likely to feel short-weighted. A winner.

R.F.


Performance: Scintillating  Recording: Excellent remastering

Manuel Rosenthal’s arrangements of melodies from the vivacious stage works of Offenbach worked so well in the now classic ballet score Gaité Parisienne of 1937 that in 1953 Remington Records commissioned the venerable arranger and conductor to put together a sequel. The result was Offenbanchiana, of which Rosenthal wrote: “I first chose melodies and rhythms, then I kind of digested it, and finally invested the material with a symphonic form. Of course, I have written chords which Offenbach would never have thought of . . . .” It is precisely such brilliant instrumental touches and bridge passages, invested with the exhilarating spirit of Offenbach’s own music, that make Gaité Parisienne the enduring delight it is on discs. Offenbanchiana does not have quite the same sparkle, but it comes close, and this recording of it under the arranger’s direction with the Berlin Radio Symphony (RIAS), remastered by Varese Sarabande so that it sounds far better than the original, remains the only version there is. Best of all, while the mono sound has been brightened there has been no finagling with “electronic stereo reprocessing,” which has ruined so many reissues of great recordings.

P.K.

RECORDING OF SPECIAL MERIT

PUCCINI: Le Villi. Leo Nucci (baritone), Guglielmo Wulf; Renata Scotto (soprano), Anna; Placido Domingo (tenor); Roberto Tito Gobbi, narrator. National Philharmonic Orchestra, Lorin Maazel cond. CBS M 36669 $8.98, © MT 36669 $8.98.

Performance: Very good  Recording: Very good

Though not a really important work in itself, Puccini’s first opera, Le Villi (1883), nonetheless commands attention as a landmark in the composer’s development, the creation of a gifted young eclectic on his way toward finding an individual style. In retrospect we may wonder how the creator of La Bohème and Tosca could ever have been attracted to this heavily romantic tale of a Gypsy woman, the coquette Fontana’s fairy-like unsiring treatment of it, but even a Puc- cini had to start somewhere. Le Villi, at any rate, already has the Puccinian virtue of conciseness: its two brief acts, separated by a musical intermezzo and spoken narration, can easily be combined into one act lasting little more than an hour. And the music is quite appealing.

About seven years ago, RCA issued the opera’s first recording (LSC-7096), with
Adriana Maliponte, Barry Morell, and Matteo Manuguerra in the lead roles, Antonio Guadagno conducting. It was a very decent performance, but the current version has a decided edge: conductor Lorin Maazel brings a keener dramatic sense to the music and has a superior orchestra to work with as well as singing principals who seem more involved, and therefore more convincing, in their roles. As the unfaithful lover who falls victim to the vengeful "willies," Placido Domingo is in top form. Renata Scotto's superior dramatic gifts and appealing lyricism make us forget her few moments of flawed vocalism. Baritone Leo Nucci sounds too youthful in the role of Anna's father, but there is nothing wrong with his singing as such. All three principals have attractive arias in this opera.

G.J.


Performance Superb Recording Well defined

Lazar Berman at his best, as he is on this splendid record, can make the listener forget about other pianists, and even about Berman himself, and simply marvel over the manifold delights in the music. We now have three first-rate accounts of Rachmaninoff's Corelli Variations on discs; since each of them is coupled with different companion works—Ashkenazy's with the Op. 39 Études Tableaux (London CS 6822), Ruth Laredo's with the Op. 33 Études Tableaux and no fewer than five additional short pieces (CBS M 33998)—a choice might be made on the basis of the respective couplings. I don't think anybody will be disappointed in any of them, but I find Berman's really the most persuasive of all. While both of the other pianists emphasize warmth in their approach, Berman is more crystalline, his phrases somewhat more sharply etched, his tone a bit less "round," and all this is quite appropriate to the Corellian source, as is his stricter sense of pacing in the first half-dozen variations. The approach is by no means understated, but rather patrician, and it works stunningly.

Berman's selection of preludes omits the C-sharp Minor, Op. 3, No. 5, but includes the C-sharp Minor, Op. 3, No. 2. What extraordinary dignity and power he infuses into that notorious piece, or simply finds in it—and, in fact, in all six pieces, ideally realizing the character of each one. The poetic treatment of the F-sharp Minor alone would make this release a treasure. I hope Berman will eventually record the rest of Rachmaninoff's preludes, in the meantime, none of the seven works on this record is likely to be more persuasively performed. The sound is as clean, crisp, and well defined as the playing itself. R.F.
off no less effectively, especially the day-break climax.

The most interesting and provocative aspect of the Angel disc is the Boléro, taken here at a tempo even slower than the composer's own. As I have noted before, it is fascinating to experience this piece as ritual rather than orgy, and André Previn endows it with the most sensual and hypnotic quality I have heard yet, thanks to the London Symphony principals. Slatkin opts for faster pacing in Boléro, which does not work terribly well unless the strings bring more weight to the orchestral texture in the later pages than they do here.

Previn's penchant for a somewhat languid sensuality carries over into his treatment of the Daphnis et Chloé music, and what sounds like a rather heavily multi-miked, broadly panoramic sound imaging tends to reinforce the effect; the solo instruments all sound a bit bigger than life. The way this is done, notably by the solo flute throughout the "Pan and Syrinx" pantomime, is faultless, but Previn's deliberate pacing with the "Danse Générale" causes the whole performance to run out of steam, at least compared with Slatkin's. The ever-popular and oddly poignant Pavane is a stiff test for any orchestra's solo horn, and both London and St. Louis deserve about equal honors here.

D.H.

RECORDING OF SPECIAL MERIT


Performance: Superb
Recording: Excellent

Ordinarily one can count on a French Baroque ballet score to open with a pompous French ouverture. It comes as a shock, then, to hear the harsh dissonances, thundering percussion, and cascades of trills and runs that Jean-Féry Rebel (1661-1747) used to represent Chaos at the beginning of his Les Éléments. Gradually, however, chaos is dispelled and we are treated to harmonic depictions of Earth, Water, Air, Fire, and so on through to the arrival of nightingales and the eventual appearance of Love. The score is a work of genius, and the use of authentic Baroque instruments in this recording adds to the unique sonority of the arresting music.

Rebel's contemporary André Cardinal Destouches (1672-1749) dealt with the same subject matter in a score that is charming but completely conventional. The usual ouverture is followed by the expected minuets, passepieds, airs, and final chaconne. Rebel's wild genius is hard to follow; perhaps one should begin with side two of this disc on an initial hearing.

The Academy of Ancient Music knows how to manage early instruments flawlessly. All the Baroque mannerisms are there, as is the white string sound. The winds are colorful, the brass and percussion dramatic. But conductor Christopher Hogwood's sense of rhythm and phrasing prevent the manerisms from becoming an end in themselves. Musical considerations come first, and a fine sense of projection brings it all off handsomely. This Academy is first-rate, one of the finest ensembles devoted to the performance of early music in an authentic and tasteful manner.

S.L.


Performance: Theatrical
Recording: Handsome

Not even the wonders of digital mastering can make me forget what such conductors as Sir Thomas Beecham, Ernest Ansermet, and Pierre Monteux were able to do with this score. In their older, analog recordings the work altogether transcends the movie-music connotations it has acquired over the past half-century or so. With each new recording of Scheherazade that appears I hope for a repetition of that minor miracle, but I haven't experienced it in at least the last ten years. In view of the theory that Rimsky appropriated a number of Persian themes for the score, I had thought that Iranian-born Loris Tjeknavorian might bring some special insight to it. Perhaps his super-sensuous reading of the section "The Young Prince and the Princess" does have an unusual degree of rhythmic grace and sinuosity, but in the big movements—the sea music at the opening and close and the gripping episodes of the Kalender Prince—I
miss a truly epic feel, the kind of big line that this music needs. There is plenty of theatricality, but that is not the same as capturing the mystique of the piece on a grand scale the way Beecham, Ansermet, and Monteux did.

The London Symphony Orchestra plays like the fine bunch of professionals it is, with concertmaster Irvine Arditti doing handsomely by the celebrated solo violin episodes. Kudos also to the solo harpist, who is impressively present thanks to the digital mastering. As a whole, the disc is not quite as spectacular sonically as, say, Morton Gould’s recording of his Latin-American Symphonette on Varèse Sarabande, but it is a thoroughly creditable and enjoyable job all the same. D.H.

RECORDING OF SPECIAL MERIT

SCHOENBERG: A Survivor from Warsaw, Op. 113 (see Best of the Month, page 79); Cinematographic Scene, Op. 34; Five Pieces for Orchestra, Op. 46; Variations for Orchestra, Op. 31; Accompaniment to a Cinematographic Scene, Op. 34; Five Pieces for Orchestra, Op. 16. BBC Symphony Orchestra, Pierre Boulez cond. CBS M 35882 $8.98, © MT 35882 $8.98.

Performance: Musical
Recording: Superb

What a strange twist of fate that Pierre Boulez, who as a younger man wrote the famous and scandalous article “Schoenberg Is Dead”—the European avant-garde’s declaration of independence from Schoenberg and his influence—should have become today the leading, the best, almost the only interpreter of Schoenberg’s music.

The Five Pieces for Orchestra—early expressionist Schoenberg—have in fact taken a place on the outskirts of the standard repertoire, and Boulez is certainly not the only or even the best interpreter of this passionate, tormented post-Romantic music. But the masterfully Variations for Orchestra and the dark, brooding Accompaniment to a Film Scene (a scene that existed only in the composer’s head) are both fairly difficult twelve-tone works that rarely reach the level of clarity or achieve the dimensions they have in these performances. Boulez makes them work as music that is squarely in the great symphonic tradition.

A Survivor from Warsaw is quite another matter. Written in 1947 under the direct impact of accounts of the Warsaw uprising, it is virtually the only Schoenberg work that has an immediate and overwhelming effect even on audiences normally turned off to anything past Brahms. When the chorus bursts in on the narrator’s chilling account of the Shema Yisroel set against a remarkable Schoenbergian orchestral web, no one can fail to be moved. Boulez does not accent the drama of all this; he merely plays it as it lays—with a strong, settled effect. The recorded sound is excellent. It has certainly taken many years to get “normal” performances of this music: performances that sound, and sound like music. E.S.

SHOSTAKOVICH: Symphony No. 13, Op. 113 (see Best of the Month, page 79)

STRAUSS: A Waltz Dream. Anneliese Rothenberger, Edda Moser (sopranos); Brigitte Fassbaender (mezzo-soprano); Nicolai Gedda, Willi Brokmeier (tenors); Wolfgang Anheisser (barytone). Bavarian State Opera Chorus; Graunke Symphony Orchestra, Willy Mattes cond. ARABESQUE AR 8063-2 two discs $13.96.

Performance: Very good
Recording: Good

Oscar Straus’ A Waltz Dream (1907) is a good representative of the many operettas created during Vienna’s so-called “silver” (post-Merry Widow) period. Its story is old-fashioned/Continental, perhaps to be taken seriously only by a Central European audience with memories of German principalities and of concerns about marrying above one’s station—an audience that really appreciates the contrast between German squareness and Viennese bonhomie. The score contains one truly classic waltz song (Leise, Ganz Leise), an enchanting love duet (O Du Lieber), and an utterly silly but nonetheless catchy comic duet about the relative merits of the piccolo. The rest is entertaining but not particularly memorable genre music.

Nicolai Gedda sings Leise, Ganz Leise with an intoxicating mezza-voce and remains nearly in top form throughout. Anneliese Rothenberger, as the princess he learns to love, is flawless; Edda Moser, as the leading lady, is far from flawless; Edda Moser, as the leader of an all-girl Viennese orchestra, is somewhat below her best but still enjoyable. All the other roles are very capably filled, and

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An Odd Punch and Judy

Harrison Birtwistle's *Punch and Judy* is officially described as "a tragic comedy or a comical tragedy, opera in one act," which is just about none of what it is. It is way beyond comedy or tragedy: a disturbing, nightmarish music-theater distillation of the Punch and Judy tradition via *The Golden Bough*, *Pierrot Lunaire*, *Edith Sitwell, Mother Goose, and Grand Guignol*. The libretto, by Stephen Pruslin, an American pianist resident in England, is a clever braid of ghashly word plays, mostly on themes of gratuitous violence. Birtwistle's serious, splintered score distinctly echoes the jingly nursery-rhyme and riddle texts in a surprising mélange of serialism and surreal jingles. When the work was premiered in 1968 at the Aldeburgh Festival and subsequently performed in Edinburgh and at Sadlers Wells, London, it made a considerable impression. This recording stems from a 1979 concert performance.

How does it hold up? Surprisingly well. Pruslin's treatment of the material is clever—in fact, overly clever to the point of preciousness—full of mock terror, neo-surrealism, camp expressionism. Worst of all, it is schematic and abstract with its child-like anxiety and highly formalized gore; in some very important ways, it doesn't mean a thing. And yet it has its power.

Birtwistle's score is more difficult to evaluate. It always seems to be on the verge of something—of, perhaps, being able to tell us what Pruslin cannot. It is convulsive, adroit, nightmarish, and sometimes even amusing in its long struggle to be witty and communicative. The biggest problem is the lack of a long line. Always on the verge, the music never arrives, never turns the corner, never carries us forward, never transcends the impression of being a collection of bits and pieces. Four sides of bits and pieces, no matter how clever or how schematic, make for a long sit, especially without the benefit of staging. Still, this is in many ways a brilliant score, and the language is set with great precision and panache.

The performers are superb. Phyllis Bryn-Julson and Jan DeGaetani are, of course, two of our leading new-music singers; the English cast members and the London Sinfonietta are, as Virgil Thomson used to say, the berries. The recorded percussion sound lacks presence, otherwise the recording as such is quite good. In spite of my reservations, this release documents an important work of twentieth-century music theater and is well worth your attention.

—Eric Salzman

**BIRTWHISTLE: Punch and Judy**

**Phyllis Bryn-Julson (soprano), Pretty Polly; Witch Jan DeGaetani (mezzo-soprano), Judy; Fortuneteller; Philip Langridge (tenor), Lawyer; Stephen Roberts (baritone), Punch; David Wilson-Johnson (baritone), Choregos; Jack Kevorkian, John Tomlinson (bass), Doctor; London Sinfonietta, David Atherton cond. DECCA/HEADLINE HEAD 24/25 two discs $19.96

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**Performance: Virtuosic. Recording: Rich and spacious.**

Looked at one way, this 1913 Strauss extravaganza is merely a kind of *National Geographic*/Cinerama treatment in sound of the Man and Mountain theme. But from another point of view, there are some genuinely poetic pages in the score, especially those following the real wower of an Alpine storm Strauss kicks up with his huge orchestra, organ, wind machine, and all the rest.

On first hearing, Georg Solti's treatment of the work seems even more driving and extravored than Zubin Mehta's in his still-available Los Angeles Philharmonic disc for London (CS 6981). Where Solti scores over Mehta, at least marginally, is in the intensity he brings to the penultimate lyrical pages. He also has, in the Munich Hercules-saal, a more spacious and somewhat brighter acoustic surround than that afforded Mehta by the University of California's Royce Hall. Details of texture in the upper-midddle orchestral register gain in the newer recording, and if the sonics are not as plush as on Mehta's disc, the air is, so to speak, a lot clearer. And, of course, the Bavarian Radio Symphony Orchestra gives a thoroughly handsome account of itself. D.H.

**VAUGHAN WILLIAMS: On Wenlock Edge (see Going on Record, page 60)**

**WARLOCK: The Curlew (see Going on Record, page 60)**


**Performance: Expert. Recording: Rich and spacious.**

Judith Lang Zaimont is a contemporary American composer who has received all sorts of important awards for her music. It's been played all over the Western world, too, and such major groups as the Gregg Smith Singers have commissioned pieces from her. The principal message of the small-scale works on this record seems to be that impressionism is not yet dead. Their fluency and high technical polish are admirable, but it does seem late in the day for such lavish use of *fin de siècle* devices. I had the eerie feeling, especially during some of the piano pieces, that Claude Debussy himself must have transmitted certain passages from his world beyond. On the other hand, Zaimont was with such skill and rare delicacy and shows so many flashes of genuine originality, that she should not be faulted too heavily for being derivative; she employs the familiar idiom in a way sufficiently her own to delight the ear with its freshness. The high points here are in the songs, haunting settings of delicate verses by Baudelaire, Verlaine, and Rimbaud, which are

---

Willy Mattey, an experienced hand, conducts an idiomatic performance. A Viennese might complain that the attempt of this non-native cast to speak the Viennese dialect are not quite successful, but for all other operetta fanciers this will be a very pleasing account of a somewhat faded but intermittently still delightful score.

Arabesque's remastering of this decade-old EMI Electrola production has resulted in some distortion in the spoken dialogue, though otherwise the recorded sound is satisfactory. Good liner notes are supplied by Richard Traubner, but the roles of Edda Moser and Brigitte Fassbaender are reversed on the back-cover list. G.J.
sensitively sung by Charles Bressler despite the handicap of a certain nasality of tone. Although expertly interpreted by Gary Steigerwalt, the twelve highly ornamented preludes of A Calendar Set, each evoking the spirit of a month, are less memorable; Tchaikovsky did it better. The concluding Nocturne, a "valentine" to composer-pianists of the Gilded Age, is full-bodied and voluptuous, and Zaimont herself plays it with a sure hand.

P.K.

COLLECTIONS


Performance: Fresh and lusty
Recording: Fine


Performance: Slick
Recording: Fine

Judging from these volumes in Desto’s "Mediaeval and Renaissance Sounds" series, there is no particular plan or focus for either the series or the individual records. Apparently anything goes, provided it was written before 1600. What the series does offer, however, is a sampler of various ensembles performing early music today. The Kincorth Waits, featured on Vol. 5, is a group of boys and girls from Scotland’s Kincorth Academy in Aberdeen. Under the direction of Charles Foster, they sing with fresh young voices and perform lustily on a full battery of early instruments. Their raw vitality probably lends the music a much more convincing, if not provably more authentic, character than many more learned and technically polished groups achieve.

The Musica Antiqua, hailing from the southern coast of England, is one of those more learned and technically polished groups. Slaves to the written page—which counts for very little in early music—these musicians sing and play with little feeling of spontaneity and life. Their studied performances sound smooth and well oiled, but they are basically dull.

S.L.

LUCIANO PAVAROTTI: Verismo Arias
(see Best of the Month, page 80)

(Continued overleaf)
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RECORDING OF SPECIAL MERIT

Performance: Superb
Recording: Fine

This album convincingly shows that there was a school of English Baroque harpsichord music, not just the suites of Henry Purcell. The seventeenth century is represented by vigorous works by Matthew Locke and John Blow plus several anonymous or uncertainly attributed pieces. From the eighteenth century, Maurice Greene's exquisitely performed Handelian style, and Thomas Arne's sonata displays tenderness contrasted with a craftsimanlike composer, an author (his final literary effort was a romanticized biography of Tartini), and competent to be entrusted with diplomatic missions in both World Wars. During the Thirties he made some recordings for Victor, and in the early microgroove era he made a short series for Remington that was capped in 1952, about a year before his death, by the Brahms and Beethoven concertos, both with the Vienna Tonkünstler Orchestra under Wilhelm Loibner.

Varese Sarabande now reissued the Brahms, and they have done their customarily resourceful job in improving on the original disc quality, in this case making use of the original 30-ips master tape, which Remington itself bypassed in favor of a 15-ips copy. The sound is not outstanding, even for the recording's age, but it is far more than adequate to permit a thorough enjoyment of Spalding's rich tone and his affectionate, committed performance. Each movement was recorded in a single take, and occasional rough spots were not patched; there is an attractive sense of "liveness" and integrity here, even though the first part of the final movement seems a bit slow. The feeling throughout the performance is one of honest, involved music making. While it would be pointless to consider this a substitute for one of the several brilliant versions available with more polished orchestral playing and up-to-date stereo sound, it is a handsome memorial to an American musician who deserves to be better remembered than he has been.

—Richard Freed


**RECORDING OF SPECIAL MERIT**

Popular Tunes in 17th Century

England. Hyde Park; Mayden Lane; St. Paul's Wharf, Tower Hill; Gray's Inn;
MARCH 1981

Cuckolds All in a Row: Merry Milkmaids. We; Woodcock, Newcastle, Callino Casturame, Come Live with Me and Be My Love; Light o’ Love, Jog On, Greensleeves. Fortune My Foe; Paskington’s Pound; Chi Passa, All in a Garden Green; La Folia, Quatre Branles; The Clean Contrary Way; Gilderoy, Gillette. The Miller of the Dee. Broadside Band, Jeremy Barlow cond. HARMONIA MUNDI HM 1039 S9 98.

Performance: Excellent
Recording: Excellent

Jeremy Barlow has garnered a flock of infectious melodies from the seventeenth century, proving that tunemanship of the period had other things in their heads beyond Greensleeves. To be sure, that inescapable melody is on hand, but so are more than a score of lesser-known others from England and neighboring lands. Many of these were the tunes of the broadside ballads sung in the streets as musical political editorials in their day. Some, like Hyde Park and Maid’en Lane, are named for well-known parts of London. Some are the tunes of ballads mentioned in Shakespeare’s plays. Still others hail from France or "across the border" in Scotland. All are beguilingly played in instruments of the period—lute, virginal, rebec, recorder, bass viol, and mandolin among them—and beautifully recorded.

PLAYING J. R. Ewing, the man the whole world loves to hate, in the TV soap opera Dallas has done a lot for the career of Larry Hagman, son of Mary Martin. As everybody who could possibly care has by now discovered, J. R. was shot by his mistress, played by Mary Crosby, who is Bing Crosby's daughter. If you're Mary Martin's son and you get shot by Bing Crosby's daughter, what's your next logical career move? You make a record, of course. So Hagman, who hosted a Midnight Special slot in January, now has a single out—Ballad of the Good Luck Charm and My Favorite Sins—on Portrait/Lorimar. If it does well, you can expect a whole album before J. R.'s new mistress, played by Audrey Landers, finishes target practice.

ROLLING STONES guitarist Keith Richards plunked down $1,987.50 at a Manhattan video emporium recently. What does a man who's been everywhere and done everything relax with when he gets home? According to New York's Daily News, Keith's shopping bag contained The Muppet Movie, an animated Gulliver's Travels, two XXX-rated sizzlers, soft-core classic Emmanuelle, three films with Marilyn Monroe (Gentlemen Prefer Blondes, Bus Stop, The Seven Year Itch), Marlene Dietrich in The Blue Angel, Peter Lorre in M, and the horrific Night of the Living Dead (a title that has also been applied to some of Keith's midnight crawls about town). Related Stones news: insiders now claim the band is dead serious about readying a studio album for release in May—which would, of course, be the first time since 1970 the Stones have taken less than two years between drinks, so believe it when you hear it. Meanwhile, head Stone Mick Jagger is definitely scheduled to co-star with Jason Robards and Claudia Cardinale in Werner Herzog's new film Fitzcarraldo, a historical drama due out in September.

FOR collectors: "Purity of Essence," the soon-to-be-released new album by the Monkees, will not be the same product released in England on Stiff. Seems that Stiff, after giving the okay to new American independent label Hannibal to market the record, had a change of heart and demanded an additional $20,000 for the master tape. Exasperated, the band went back into the studio and recut the entire album (plus some new material) in a breathless three days, so Stiff can stuff it.

ISLAND International Productions, an affiliate of Island Records, will be releasing the feature film Countryman on videocassettes and videodiscs soon. The company claims this will be the first time a feature-length movie is released for home video before it gets theatrical distribution. Why? Because Island personnel already know a lot about selling discs and cassettes as a result of experience in the record industry, and they expect reaction to the film in the video market to create a demand for it in theaters. An adventure movie filmed in Japan group's long deleted albums. The Monkees, of course, have not recorded together since 1969, though all the band members are still active. Mickey Dolenz and Davy Jones are fixtures on the L.A. pop scene, Peter Tork has been playing New York area New Wave clubs and has appeared on New Jersey TV's The Uncle Floyd Show, and Mike Nesmith is still pursuing a reasonably successful solo career while running Pacific Arts Records.
maica. Countryman has a reggae soundtrack featuring music by Bob Marley and the Wailers, Peter Tosh, Lee "Scratch" Perry, and, of course, Toots and the Maytals.

The so-called "Million Dollar Quartet" tapes have finally made it to a bootleg album, and quite a few folks are very upset about it. The Million Dollar Quartet is, of course, Johnny Cash, Carl Perkins, Jerry Lee Lewis, and Elvis Presley, caught in an informal jam session at the Sun Records studios one afternoon in 1957 when Elvis happened to stop by his old haunts. Collectors and historians have known of the existence of the tapes (said to run about two and a half hours) for years, but official release has been snarled because of a legal dispute between RCA (to whom Presley was under contract at the time) and Shelby Singleton, who purchased the entire Sun catalog in 1969. The bootleg, in case you're looking, is on aptly named One Million Dollar Records.

Classical Notes: Ex-Dead Boy (and budding film star) Stiv Bators debuted in New York recently with a new band that included Brian James of the seminal English punk outfit the Damned. Pianist Joseph Williams, son of Star Wars composer (and Boston Pops maestro) John Williams, is recording (with drummer brother Mark) in a rock band called Joar.... A new album by Sixties Texas cult figure Rocky Erickson ("Rocky Erickson and the Aliens," English CBS) was produced by none other than ex-Creedence bassist Stu Cook and... and other Creedence members got together for the first time in almost ten years to play at the wedding of rhythm guitarist Tom Fogerty recently... A Christmas party at a Manhattan Ronald McDonald house (for children with cancer or other severe illness) was serenaded by the team of Lucy Simon (older sister of Carly) and Peter Yarrow (of Peter, Paul and Mary). The duo entertained the kids with such rockers as Wynken Blynken and Nod. Ms. Simon's old summer-camp classic, and Mr. Yarrow's "Puff the Magic Dragon" (Maggie, Terre, and Suzzy) also put in an appearance, as did Christopher "Superman" Reeve Warming up for its (just concluded) American tour, Rockpile lined up a string of appearances at English universities, including a luncheon show (one hour flat, so as not to interfere with classes) at the London School of Economics, whence, incidentally, one Michael Philip Jagger once dropped out.

Disc and Tape Reviews

By Chris Albertson • Irv Cohn • Noel Coppage • Phyl Garland
Paul Kresh • Peter Reilly • Steve Simels • Joel Vance

ROY ACUFF: Sings Hank Williams—For the First Time (see Best of the Month, page 81)

THE BABYS: On the Edge. The Babys (vocals and instrumentals). Turn and Walk Away, Sweet 17; Darker Side of Town; Love Won't Wait; and six others. Chrysalis CHE 1305 $7.98, © CCH 1305 $7.98, © RCH 1305 $7.98

Performance: Cautious
Recording: Good

After her last album, I thought the Babys might be about to move in a more interesting and ambitious direction, but they seem to have opted for a holding pattern on this one, playing monotonous formula stuff. Sweet 17 is a stock song about a rock stereotype, the nymphet. Darker Side of Town attempts to portray a hard-boiled guy who's wounded by love, but it winds up being self-pitying and hostile. Rock n' Roll (Is Alive and Well) is supposed to be a hurrah, but it sounds as if the boys are hedging their bets, like someone who loudly proclaims his confidence to disguise his insecurity. The Babys are better than they're giving themselves a chance to be, but they'll have to decide what they want to do. If they play safe too long, they may be sorry.

Peter Criss: Out of Control. Peter Criss (vocals, drums); and in this case it's no injustice.

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The murder of John Lennon, a few days after the assassination, shocked the world. The Smithereens, a Sixties-influenced power-pop band, expressed their feelings about Lennon during a performance. The drummer referred to him as 'very cool' and 'cool'.

John Lennon was more than a musician; he was 'very cool'. His wit, style, and songwriting genius made him one of the biggest phenomena in showbiz. Despite the media event, his death has been unprecedented. The world will remember him for his musical accomplishments and the impact he had on society. His final musical tribute was his fictionalized version of 'Imagine' in 'Rock and Roll'. Despite the controversies surrounding his personal life, his musical contributions will endure for generations to come.
As for "Double Fantasy," the comeback record that now becomes his artistic farewell: in honesty, I hated it before he died, and now that he's gone I find listening to it all but unbearable. The simplistic celebrations of the love he and Yoko felt for each other and for their son seem, in retrospect, too painfully sincere to take: the cruelty of his ending intrudes too much. Musically, it shows that he had not completely lost his touch. The voice was still thrillingly intact; it is worth mentioning that among other things John Lennon had perhaps the most hauntingly expressive voice in all of rock-and-roll. At least two of the songs—Watching the Wheels and Woman—are, on a melodic level, as fetching as some of his lesser Beatles efforts. Yoko's stuff strikes me as precious. The vaguely trendy Kiss Kiss Kiss could pass for a minor British New Wave pop hit, and whether time has vindicated her earlier avant-gardisms (as John was convinced it would) I will not venture to guess. The kindest thing to say about "Double Fantasy," all in all, is that it was not designed as a rock record and shouldn't be judged as one. Its music is what the industry calls Adult Contemporary; I don't think it's successful even within the tedious confines of that bland genre, but I can see that some kind of case could be made for it.

Rock-and-roll deaths tend to turn quickly into shopworn metaphors of one kind or another—think of Altamont or Janis Joplin—and there will doubtless be attempts to grasp some "larger" meaning behind the sad events of December 8. There has already been a spate of "The Sixties are over" pronouncements; John, of course, tried to point that out to people ten years ago, but then artists are always ahead of the crowd. Beyond that, what can one say? That we should boycott those who would turn his death into a commercial venture? We're all of us ghouls to some degree; being fans, how could we be otherwise? The Lennon Industry will continue to alternately fascinate and repel us; there will be dignified historical retrospectives and shamelessly mawkish reminiscences, scholarly rummaging through the tape vaults and flagrant rip-off repackagings. The well-meaning and the jackals will together compete for our attention as long as people remember. There's not much that can be done about that. As for the pain we feel right now... well, Peter Townshend once said that rock won't help you forget your problems, but it will let you dance all over them. That advice seems worth remembering.

—Steve Simels

JOHN LENNON/YOKO ONO: Double Fantasy. John Lennon (guitar, vocals); Yoko Ono (vocals); other musicians. (Just Like) Starting Over; Kiss Kiss Kiss; Clean-up Time; Give Me Something: I'm Losing You; I'm Moving On; Beautiful Boy (Darling Boy); Watching the Wheels; I'm Your Angel; Woman; Beautiful Boys; Dear Yoko; Every Man Has a Woman Who Loves Him; Hard Times Are Over. (Just Like) Starting Over; Kiss Kiss Kiss; Clean-up Time; Give Me Something: I'm Losing You; I'm Moving On; Beautiful Boy (Darling Boy); Watching the Wheels; I'm Your Angel; Woman; Beautiful Boys; Dear Yoko; Every Man Has a Woman Who Loves Him; Hard Times Are Over. (GHS 2001 $8.98, © W5 2001 $8.98, © W8 2001 $8.98.

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bоро, North Carolina, and were soon in New York recording their first big hit, *In a Little Gypsy Tea Room*. On this record you can hear the band swinging, shuffling, and tooting its way through such numbers with an old-fashioned Southern sound as *South Rampart Street Parade* and the *Honky Tonk Train Blues*. Singer Kay Weber offers her deadpan, absolutely emotionless vocals in *It's Wonderful* and *Please Be Kind*, and Bob Crosby himself—who sounds a little like his brother but even cooler and more casual, if that's possible—breathes through the lyrics of *More Than Ever*. *You're an Education*, and *Showdown of the Old Apple Tree*, a novelty number that was never much of a novelty even then. A bolder singer, named Nappy Lamare, together with a chorus as well as the band, concludes the program with a comic version of *The Old Apple Tree*. All this agreeable stuff, originally recorded by the World Broadcasting System, is worth a listen. P.K.

**JANIE FRICKE: I'll Need Someone to Hold Me When I Cry.** Janie Fricke (vocals); instrumental accompaniment. *I'll Need Someone to Hold Me, Enough of Each* One singer (Johnny Duncan, in this case) being a little more laid-back, Fricke's single is more so. It presents Duncan and Fricke as one of those mature, friendly and weathered baritone voices) con-

**JOHNNY DUNCAN AND JANIE FRICKE: Nice 'n' Easy.** Johnny Duncan, Janie Fricke (vocals); vocal and instrumental accompaniment. *He's Out of My Life*; *I'll Need Someone to Hold Me When I Cry*, and five others. COLUMBIA JC 36820 $7.98, © JCT 36820 $7.98, © JCA 36820 $7.98.

**Performance:** Silky
**Recording:** Likewise

In basketball they talk of "pure" shooters, meaning those who are both accurate and graceful, and that sense Janie Fricke is one of the finest pure singers. Comparison of these two new albums must be pretty rough. Fricke's "looser" side (as one would call it) is a bit more laid-back, but her solo work is evolving, and "I'll Need Someone* is a nice, if rather quiet, sign of progress. Someone" is a nice, if rather quiet, sign of...
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Performance: Smooth
Recording: Very good

I'm still not sure Steve Goodman should be doing something that reminds me of Boz Scaggs, but here he does it well. More to my taste is the touch of the old Good- man, the funny one, at the end of this album in a zany little number about talking back-wards (complete with some slick examples of how it's done). For the rest, Goodman has not written any of those funny little social commentaries he used to—he's written the kind of thing Scaggs might sing—but just about everything here has well-crafted lyrics and a real tune. And there's a morning-radio duet with Phoebe Snow, in the manner of Streisand and Diamond or Log- gins and Nix, that's nice to have on when you're shaving or driving to work or something. The ballads and production are little slick, but they do give good equipment something to do. And Goodman's getting more nuance and more color from his voice than ever before. The more of an indors- type person you are, the better you'll like this album.

JOAN JETT: Joan Jett (vocals, guitar); vo- cal and instrumental accompaniment. Bad Re-putation; Make Believe; You Don't Know What You've Got; You Don't Own Me, Shout; Let Me Go, and five others. BLACKHEART JJJ 707 $7.98.

Performance: Insouciant
Recording: Okay

Joan Jett, formerly of the proto-punk girl group the Runaways, sings about as well as I do (which is to say neither one of us is ready for the Bell Song from Lakmé), plays guitar with all the élan of Mick Ronson on Rom- ril, and possesses the front-person star quality of one of the lower mollusks. That allowed, her new solo album is actually quite a lot of fun—but blatant trash, to be sure, but rendered with real verve and insou- ciance. The originals are out of her Run- ways mold and don't express much beyond "I'm horny and rebellious but otherwise a good kid," but it's the cover tunes that tell the story here: moldy oldies originally done by such once-time trash luminaries as Sam the Sham, Lesley Gore, and Gary Glitter. Not one of them is any more substantial than a bottle of Lo-Cal cola, but for my money their silliness approaches the sublime. Ms. Jett and her partners in crime (including two of the Sex Pistols) do them all with enough panache for this to qualify as emotionally or technically, from Fricke, but you can hear a growing assurance in the way she sings. The lovely way she relates to Mickey Newbury's fine, understated Blue Sky Shining—indeed, its very presence here—points the direction her further evolu-

RECORDING OF SPECIAL MERIT

STEVE GOODMAN: Hot Spot; Steve Goodman (vocals, guitar); instrumental ac- companyment. Don'ty: Bobby Don't Stop; Sometimes Love Forgets; Hit and Run Lover, Trust Me; and four others. ASYLUM 6E-297 $7.98, © TCS-297 $7.98, © ET8-297 $7.98.

Performance: Smooth
Recording: Very good

Not one of them is any more substantial than a bottle of Lo-Cal cola, but for my money their silliness approaches the sublime. Ms. Jett and her partners in crime (including two of the Sex Pistols) do them all with enough panache for this to qualify as emotionally or technically, from Fricke, but you can hear a growing assurance in the way she sings. The lovely way she relates to Mickey Newbury's fine, understated Blue Sky Shining—indeed, its very presence here—points the direction her further evolu-

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Couples

JOHN Updike realized how charged that word is, meaning, as far as anybody knows, both the problem and the solution. Ambrose Bierce said something about such a unit consisting of two masters and two slaves, making, in all, two. Before me are two couples albums by two couples obviously in love, George Jones and Tammy Wynette, who are divorced, and Louise Mandrell and R. C. Bannon, who recently got married. The albums, both on Epic, George and Tammy's "Together Again" and Louise and R. C.'s "Love Won't Let Us Go," are, however, quite different. The former is really about being a couple, and the latter is only about being a couple as far as the cover photos go. Where the one tries to deal with "coupling" in the grooves, the other just wants to entertain you. Not surprisingly, I'm more entertained by George and Tammy. "They all but make love to one another on stage," said a friend who'd just seen their revived road show, adding that they get this impression across without actually touching each other physically at all much. Listening to the album, you get the idea: George and Tammy sing to each other. Louise and R. C., on the other hand, could be hugging and kissing and I don't know what all behind the mike, but they aren't singing to each other or to anybody; they're singing at whoever's out there.

The songs and production have something to do with it. The songs in both albums are gimmicky word plays more often than not, but those done by George and Tammy have some poignancy now and then, and all of theirs are designed, it seems, to work better as male-female duets than they would as solos. Billy Sherrill lets the steel player (instrumentalists are not identified in the credits) get a little too quavery and corny several times, but generally he keeps the backing behind George and Tammy countrified and simple. The style of the Mandrell/Bannon effort is that amorphous slick pop stuff known in some circles as attempted crossover.

Well, you can't have everything in a couple. R. C. and Louise (Barbara's sister) are as handsome a couple as you'll find in Nashville, and they have good, smooth voices, but the album makes them sound as if they're still on their honeymoon and everything's still hunky dory and they still haven't really experienced what being a couple means. I don't know if that's actually the case—I doubt it—but for all the real life you'll find in the album, or for all you'll learn about couples, you might as well watch Popeye and Olive Oyl in old cartoons (or the new movie).

Jones and Wynette not only have more believable, more weathered faces, but they have two of country music's best voices. Comparing the two albums helps one focus on what we mean by "best" in these cases, how much more than technical facility the voices have to have to make that grade. There is true emotional interaction between George and Tammy, and when they overlap vocal lines so that both may better explain "It's not my fault" in a song of the same name, you know they understand as thoroughly as Updike and Bierce did what this couples stuff is all about—they understand, among other things, that they don't really understand.

It takes a heap o' living to get all these nuances right, to get the feeling right, to sing to one another in a near vacuum like this and yet give all the cavedroppers a sense of how comforting and desperate life inside a couple is. Jones and Wynette, couple-wise, have paid their dues. Mandrell and Bannon, on record as the moment, as a private couple—a pair we still don't really know much about—singing duets. Neither of these albums is what I'd call wonderful, nor is either what I'd call bad, but the difference between them can knock you for a loop—like a well-engineered sound.

GEORGE JONES AND TAMMY WYNETTE: Together Again. George Jones and Tammy Wynette (vocals); instrumental accompaniment. A Pair of Old Sneakers; Right in the Wrong Direction; I Just Started Livin' Today; Love in the Mean Time; Move (And I'm Yours); The Pleasure's All Mine; Lovin' Up a Storm; Breakfast in Bed; Gonna Hurt; Right in the Wrong Direction; I Just Started Livin' Today; Move (And I'm Yours); The Pleasure's All Mine; Lovin' Up a Storm; Breakfast in Bed; Gonna Hurt; Can't Get Enough; The State of Our Union; When God Made You (He Must Of Had Me in Mind). Epic JE 36764 $7.98, © JET 36764 $7.98, © JEA 36764 $7.98.

LOUISE MANDRELL AND R. C. BANNON: Love Won't Let Us Go. Louise Mandrell and R. C. Bannon (vocals); instrumental accompaniment. Love Won't Let Us Go; I Gotcha; Perfect Match; One False Move (And I'm Yours); The Pleasure's All Mine; Lovin' Up a Storm; Breakfast in Bed; I Can't Get Enough; The State of Our Union; When God Made You (He Must Of Had Me in Mind). Epic JE 36759 $7.98, © JET 36759 $7.98, © JEA 36759 $7.98.

This album peaks early. The opening number, Celebreatle! is an exuberant mid-tempo dance cut that sweeps you up in its high spirits. But the rest is cast from a single mold. Like Kool and the Gang's successful Ladies' Night, the music is never very heavy, never very hot, never very anything except comfortable. It's all just too good-natured for me. Love Festival is the strongest entry; the female back-up singers give the sound a much-needed edge. The album is not helped by mixes that thump so madly that they intrude on the music, and that's a shame, because behind the thumping you can hear some otherwise well-engineered sound.

R.C.

JIMMY MACK & THE JUMPERS. Jimmy Mack (vocals, guitar); vocal and instrumental accompaniment. Just to Be in Love Again; It's Not My Fault; I Want It All; The Very Last Time; and five others. RCA AFl-3698 $7.98, © AFKI-3698 $7.98.

Performance: Excellent

Recording: Good

Hail to the hinterlands! Nobody gave Asbury Park, New Jersey, much notice until Bruce Springsteen came along, and now, with Jimmie Mack, Staten Island may become famous. Mack writes somewhat like Springsteen and sings somewhat like Southside Johnny, but he is very much his own man. He has the ability to simplify and focus emotions in his lyrics while taking in to a good melody line or a catchy chorus. It's Gonna Hurt is an example of quality craftsmanship in pop-song construction. The theme is familiar—lovers breaking up—but the way Mack handles it makes it seem like a new idea. I Need You has a terrific hook in the chorus and a tantalizing arrangement. But the knockout here is Just to Be in Love Again—another familiar theme—wherein Mack's use of minor-chord sequences and sparse instrumentation is perfect. This is the second Jimmie Mack solo album I've heard, and it's better than the first. I can hardly wait for his next. J.V.

BARRY MANILOW: Barry. Barry Manilow (vocals, piano); Lily Tomlin (vocal); vocal and instrumental accompaniment. Bermuda Triangle; The Last Duet; Dance Away; Life Will Go On; London; and five others. Arista AL 9537 $8.98, © ACT 9537 $8.98, © AR 9537 $8.98.

Performance: Fun

Recording: Excellent

Scoff if you will. I still think that Barry Manilow is the slickest MOR arranger-producer in the business today. I'm not quite sure if he really writes music or only ar-
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...ranges chords on some sort of response graph, but I do know that I've gotten a lot of simple pleasure from his work. I'm particularly fond of whistling 'Copacabana' on crowded elevators. Every one of his albums seems to incline at least one track that I can suspend judgment on and just enjoy. This time it's a rambunctious, semi-disc number called 'The Last Duet,' in which he plays straight man, more or less, to Lily Tomlin. They portray two soon-to-be-ex-lovers, and their musical bickering (She: "You're much too blonde," He: "You snore") combined with a hurried, up-tempo beat, makes this a really fun track.

Things are a lot more sentimental on most of the rest, such as Twenty-four Hours a Day, We Still Have Time (the theme from the Jack Lemon tasterkje Tribune), and London (which ran on long enough to convince me they were way past Heathrow by the time it finally came to an end). But it's all good, solid, carefully crafted MOR entertainment and can be enjoyed on that level.

P.M.

MOON MARTIN: Street Fever. Moon Martin (vocals); vocal and instrumental accompaniment. Five Days of Fever, Signal for Help, Pushed Around, Love Gone Bad, Stranded, Breakout Tonight.

The firm stylistic control that keeps even energy to spare, but that's no unique virtue case, the composer himself does less with artists as well as newcomers. As is often the voice is thin and reedy, but he is helped here his songs than his interpreters do. Martin's is not quite a performer's album, but it had a certifiable hit yet, several of Martin's (Martin writes better than he sings), but it is...
CHET ATKINS/DOC WATSON: Reflections. Chet Atkins (guitar, vocals); Doc Watson (guitar, vocals); Michael Coleman (bass); Terry McMillan (percussion); Jerry Shook (rhythm guitar); Dill Pickle; Me and Chet Made a Record; Flatt Did It; Tennesseee Rag/Beaumont Rag; Texas Gales/Old Joe Clark; You’re Gonna Be Sorry; Goodnight Waltz; Don’t Monkey ‘Round My Widder; Black and White/Ragtime Annie; On My Way to Canaan’s Land. RCA AHLI-3701 $7.98, © AHK1-3701 $7.98, © AHSI-3701 $7.98.

Performance: Embracing
Recording: Good

I had a better time with NRBQ’s last outing, “Kick Me Hard,” because it was funnier and there was more of it, but “Tiddly Winks” still contains several delights. There are three good ballads (Feel You Around Me, Beverely, and Never Take the Place of You), a rearranged standard played half seriously but with great panache (The Music Goes Round and Around), and a certified NRBQ sloppy rocker (Want You to Feel Good Too). This quartet has a lazy-afternoon, backyard-jam-session feeling about them that’s deceptive: only a very tight band can sound this loose. They are capricious, but they know their stuff.

J.V.

THE REDDINGS: The Awakening. The Reddings (vocals and instrumental accompaniment). Remote Control, Funkin’ on the One; Come In Out of the Rain; It’s Friday Night; and five others. BELIEVE IN A DREAM JZ 36875 $7.98, © JZT 36875 $7.98.

Performance: Good
Recording: Good

Two of the members of this trio are the sons of Otis Redding, so one has to be careful
neither to expect too much of them nor to be too ready to dismiss them. But styles have changed. The great days of the bravura, individualistic "soul" singers are, alas, behind us; even Ronnie Isley, one of the few singers left who can work a ballad in the grand manner, seldom does so on records, since the marketplace won’t respond. And if the Isley Brothers are jiving to stay in business, you can imagine what the Reddings are doing. They play hyper-boogie, somewhere between soul and disco, a style that blurs distinctions and discourages individuality. But the Reddings are professional and smooth, and, being young, they have lots of time to grow. I’m going to keep an ear on them despite reservations about this debut. J.V.

RECORDING OF SPECIAL MERIT
LOU REED: Rock and Roll Diary 1967-1980. Lou Reed (vocals, guitar); other musicians. Waiting for the Man; White Light/White Heat; I Heard Her Call My Name; Pale Blue Eyes; Beginning to See the Light; Sweet Jane; Rock and Roll; Heroin; Femme Fatale; Walk on the Wild Side; and ten others. ARISTA A2L 8603 two discs $9.98, ACT2 8603 $9.98, ABT2 8603 $9.98.

Performance: Often sublime
Recording: Variable

A funny thing happened to Lou Reed in the Seventies: he actually sold a few records. He even had a Top-40 hit. Now, a snob might point to this as evidence of a qualitative decline in his work—art losing out to commerce and all that—and to tell the truth he did pander a little, and his solo efforts have been wildly erratic. Of course, he had lots of company (quick, name three Sixties stars whose Seventies output was not in some ways a letdown). Actually, though, I mention Lou’s commercial success not to grind a critical axe (on balance his post-Velvet Underground work looks pretty impressive), but rather to show how much has changed since he first appeared on the scene. No one would have thought back in 1967 that the man who introduced heroin, sadomasochism, fetishism, and murder to rock-and-roll lyrics would today be considered a Grand Old Man with a respectable commercial track record. Ah, but life is full of surprises, isn’t it?

In any event, "Rock and Roll Diary" is a nicely balanced retrospective, a well-programmed document of Lou’s metamorphosis from Punk to Godfather. There are a lot of classics here (Sweet Jane, as some have observed, might be the Johnny B. Goode of the Seventies), and, though I might quibble some (the studio version of Heroin is considerably more chilling than the admirable live performance included here), the set has been put together with obvious care and intelligence. A few random observations:

1. Recent fans will probably be floored by the Byrd-like Pale Blue Eyes and Beginning to See the Light, both from the unutterably lovely third Velvets album, which some American label ought to reissue in its entirety.
2. Sadly, nothing is included from Reed’s first solo record, which in my humble opinion is the best thing he’s ever done in terms of pure craft.
3. I grossly underrated “The Bells” at the time of its release, and I now publicly apologize. All Through the

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CIRCLE NO. 26 ON READER SERVICE CARD
Billy Burnette

Billy Burnette's first Columbia album is an entertaining throwback to the rockabilly sound of Sun Records in the Fifties. His own new material is tough and tangy enough, but the real kicks are in his versions of songs associated with the short-lived (1956) but very influential Rock and Roll Trio that his father Dorsey and uncle Johnny belonged to. These include Honey Hush, first cut by Big Joe Turner; One Night, a hollering ballad co-written by Dave Bartholomew (Fats Domino's collaborator) and made famous by Elvis; and the trio's own Tear It Up. Young Burnette's treatments can easily stand comparison with the originals, and it's no wonder considering his background. What is a wonder is that it's taken him this long—he released several albums on other labels before this one—to get back to his roots.

After the Rock and Roll Trio broke up, Dorsey and Johnny Burnette wrote material for Ricky Nelson, and Johnny had two major hits as a singer, Dreamin' and You're Sixteen, before his early death in 1964. Dorsey became a country performer and worked that vein until his death in 1979. Billy started singing and writing songs when he was seven, and after he graduated from high school in 1970 Dorsey introduced him to Chips Moman, dean of the "Memphis Sound." Billy worked with Moman as a writer and performer until the Memphis vogue passed, then followed Moman to Atlanta for the "Atlanta Sound"; when that passed he went to Nashville and settled in as a successful writer. During these years he recorded several albums, but none of them displayed the slugging, hard-core rockabilly style his father and uncle had developed.

Susan Frank, a friend of Dorsey's, then leader of the explicitly political rock-and-roll band bearing his name, announced with no small degree of satisfaction that "The Pistols and the Clash equivocate. We don't." Now, some years later, we find Robinson and his new band slugging, hard-core rockabilly style his father and uncle had developed.

At the height of the English punk explosion, Tom Robinson, then leader of the explicitly political rock-and-roll band bearing his name, announced with no small degree of satisfaction that "The Pistols and the Clash equivocate. We don't." Now, some years later, we find Robinson and his new band equivocating like mad. Sector 27, both album and band, is musically a bland recycling of the old outfit's approach, which was never all that radical; as for the lyrics, well, for the life of me I can't figure out what's bugging him. Interpersonal relationships, probably, which is not exactly a revolutionary topic. Looking at You is a catchy enough summary of a less than successful night on the town, but the rest of the songs are as forgettable and uninvoking as Robinson's old stuff was kinetic and uplifting. In a nutshell: no tunes, no statements. Otherwise, of course, it's just dandy. S.S.

Recording: Good
Performance: Disappointing

TOM ROBINSON: Sector 27. Tom Robinson (vocals); Jo Burt (bass); Stevie B (guitar); Derek Quinton (drums). Invitation; Not Ready; Mary Lynne; Looking at You; Five Two Five; Can't Keep Away; Total Recall; and four others. I.R.S. SP-70013 $7.98.

Recording: Good
Performance: Disappointing

At the height of the English punk explosion, Tom Robinson, then leader of the explicitly political rock-and-roll band bearing his name, announced with no small degree of satisfaction that "The Pistols and the Clash equivocate. We don't." Now, some years later, we find Robinson and his new band equivocating like mad. Sector 27, both album and band, is musically a bland recycling of the old outfit's approach, which was never all that radical; as for the lyrics, well, for the life of me I can't figure out what's bugging him. Interpersonal relationships, probably, which is not exactly a revolutionary topic. Looking at You is a catchy enough summary of a less than successful night on the town, but the rest of the songs are as forgettable and uninvoking as Robinson's old stuff was kinetic and uplifting. In a nutshell: no tunes, no statements. Otherwise, of course, it's just dandy. S.S.

Recording: Good
Performance: Disappointing

THE ROCHES: Nurds. Maggie, Suzzy, and Terre Roche (vocals, guitar); Jay Lee Daugherty (drums); Fred Smith (bass); other musicians. Nurds; It's Bad for Me; Louis; Bobby's Song; The Boat Family; My Sick Mind; and four others. WARNER BROS. BSF 3475 $7.98, © M5 3475 $7.98.

Recording: I.R.S.
Performance: Hilarious

The Roche sisters are living proof that not all youth is wasted on the young. Maggie, Suzzy, and Terre seem to have been born with enough sly sophistication to tickle
ELLEN SHIPLEY: Breaking Through the Ice Age. Ellen Shipley (vocals); the Numbers (instrumentals, back-up vocals); other musicians: Head to Heart: Foregenic; James: This Little Girl; Talk Don't Shout; and four others. RCA AFL 1-3626 $7.98, © AFK 1-3626 $7.98, © AFS1-3626 $7.98.

Performance: Rollicking
Recording: Good

I agree that this is an ice age of sorts, but I'm not sure manic repetition of “This little girl's got the hots for you” will break through it. Energy is important, though, in any undertaking, and Ellen Shipley is still showing plenty of that. She does not have impressive vocal equipment, nor do she and her various collaborators write anything likely to cause an emotional warm front, but she and her band have an infectious good time here trying to rock your fillings out. Some of her hot-mama posing is ludicrous and the album is thoroughly trivial, but it will make you put your foot and wish you had a maid (or, as the case may be, a butler) to chase around the coffee table. N.C.

SLAVE: Stone Jam. Slave (vocals and instrumentals). Feel My Love, Starting Over: Dreaming; Stone Jam; Watching You; and three others. Cotillion SD 5224 $7.98, © CS 5224 $7.98, © TP 5224 $7.98.

Performance: Tops
Recording: One of the best

For those who like the mood mellow, the beat swaying, and the production smooth as velvet, Slave is very near the top of its class. The eight men and women who are the group's vocalists do class instrumentation and are augmented by four others; all work their very nice way through slick arrangements with a distinctively heavy, sexy undercurrent. I'm not so enthusiastic about the songs themselves, which tend to have a dull, linear construction with no clear division between verse and chorus. But I love the sound of this album. It’s warm, and the balances are just about perfect. I.C.


Performance: A letdown
Recording: Fine

Suddenly, in the midst of a career ascent that has given the word “meteoric” new meaning, Donna Summer and her creative team (songwriter/producer Pete Bellotte and Giorgio Moroder and sonic engineer/magician Jurgen Koppers) have staked this LP launches Summer on a new label, but it breaks no new ground. Worse, while nothing about it is less than workmanlike, it lacks the daring and imagination of this crew’s previous collaborations.

There are some special moments, though. Looking Up, the album’s best track, is a fast-tempo bouncer that frees the singer to use her wonderfully rich and strong middlevoice to great effect. Also notable is a straightforward rocker called Cold Love, a ripper that is enriched by exciting acoustic guitar solos and back-up. Running for Cov—

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er is loaded down with a bit too much message ("The devil's loose in the city"); but it is delivered with that remarkable range of feeling that Summer can bring even to mediocre material. I hope the disappointing remainder of this album reflects only a temporary lull in the Summer team's creative drive.

I.C.

RECORDING OF SPECIAL MERIT

EDMUND SYLVERS: Have You Heard.

Edmund Sylvers (vocals); vocal and instrumental accompaniment. You Can Talk About Leaving; Have You Heard the News; At the Top; Burning Love; You Went Away; and four others. CASABLANCA NBLP 7222 $7.98, © NBL5 7222 $7.98, © NBL8 7222 $7.98. Performance: Golden Sylvers

Recording: Extraordinary

Edmund Sylvers has stepped out in style. This first solo album (without the rest of the Sylvers) blasts off with a boyish, winning attack on a very fast, post-disco dance production called I Choose You, and under Sylvers' direction it rarely slows down through eight other songs. But the slower moments are the album's highlights. Beauty of Nature is a lushly produced ballad sung with genuine feeling and skill. Time is a hackneyed song (more "flowing like a river" lyrics), but just listen to Sylvers negotiating his way perfectly through its delicate intricacies. On such essentially pop material Sylvers avoids the Michael Jackson tendencies that afflict the up-tempo tracks. His voice is warm, sexily husky, and versatile enough to handle soulful inflections, although he lacks the range for true soul singing.

As with the Sylvers' family affairs, the arrangements here are big and busy, almost frenetic, but good. The best is for Have You Heard the News, which has a lot going on behind the vocal, all of it beautifully balanced and engineered; this track will get your dancing feet going, yet it is interesting enough musically for more sedentary types as well. The solid musicianship evident throughout "Have You Heard" makes Edmund Sylvers' solo future look very bright.

I.C.

THE TROGGS: Live at Max's Kansas City.

The Troggs (vocals and instrumental); Got Love If You Want It; Satisfaction; Love Is All Around; Give It to Me; Feels Like a Woman; Strange Movie; Summertime; and five others. MAX'S KANSAS CITY MKC-214 $7.98 (from Max's Kansas City Records, Inc., 213 Park Avenue South, New York, N.Y. 10008).

Performance: Lewd and crude

Recording: Okay

The Troggs are, of course, the vulgar, moronic, overweight, aging British rockers who made a couple of great, vulgar, moronic hit records in the Sixties. It's nice to have them around (that they have a lead singer with the ultimate rock-star name, Reg Presley, is merely icing on the cake), and lately they've become local fixtures in Manhattan. This live record documents, though with a somewhat thin mix, a typical current Troggs set. They play their hits, their cult numbers, and some raunchy power- trio blues standards with gusto, maximum volume, and a sense of the absurdity of it all—in short, exactly what they were doing fifteen years ago. Especially recommended: the utterly salacious Strange Movie.

S.S.

TOM WAITS: Heartattack and Vine. Tom Waits (vocals, guitar, piano); instrumental accompaniment. In Shades; Saving All My Love for You; Mr. Siegal; Ruby's Arms; and six others. ASYLUM 6E-295 $7.98, © TC-295 $7.98, © 8T-295 $7.98.

Performance: Good in small doses

Recording: Good

Tom Waits' songs and voice are something like the horror stories of Ambrose Bierce: you don't want them as a steady diet, but when you're in the mood nothing else will do. Waits portrays street people, losers, winners, would-be tough guys with soft hearts, and other assorted low-lifes so well that I sometimes wonder if he's not pretty alienated himself. In photographs he goes out of his way to look sloppy and ugly; his vocals are guttural, affected, sometimes even repellant, and he seems to want to forestall any sympathy. His songs remind me of an actor who cannot shake off his character after the curtain falls. But, as always, I have to admire his lyrics. His plots and characters may be predictable, his performances irritatingly mannered, but I forgive him all that for one line like "How do the angels get to sleep? When the devil leaves hisMICHAEL WYCOFF: Come to My World

(see Best of the Month, page 78)

YELLOW MAGIC ORCHESTRA: X∞ Multiplying. Yellow Magic Orchestra (instruments); vocal and instrumental accompaniment. Behind the Mask; Rydeen; Solid State Survivor; Day Tripper; and four others. A&M SP-4813 $7.98.

Performance: Techno-pop fun

Recording: Terrific

Last year an instrumental called Computer Games by the Yellow Magic Orchestra was picked up by New Wave discos and surprisingly became the Japanese super-group's first single on American pop and disco charts. With this album of newer material (reprogrammed for American distribution), YMO may well be in for bigger things. The time is right for their highly technological blend of dance rhythms, heavy metal, and pop melodies.

Essentially it is an instrumental album; the words, all English, are droned and slurred electronically into little more than vocals. Rydeen sprints by at a fast clip, ticking off a sprightly tune against a continuous bass-and-drum texture. I also like the funkier sound of Citizen of Science and the ingratiating Technopolis. The more rock-style efforts, augmented with electric guitars, are less successful; YMO's electronic tricks (Brian Eno and Giorgio Moroder are among their influences) and the rock sensibility just don't seem to mix. Clearly, the group is still looking for a sound with universal appeal, but their explorations are worth your attention.

I.C.

NEIL YOUNG: Hawks & Doves (see Best of the Month, page 78)
JAZZ

RECORDING OF SPECIAL MERIT
COUNT BASIE: Kansas City Shout. Eddie “Cleanhead” Vinson (vocals); Count Basie (piano); Count Basie Orchestra. Just a Dream on My Mind; Cherry Red. Joe Turner (vocals); Count Basic (piano); Count Basic Orchestra. Blues for Joe Turner; Everyday / Have the Blues; and two others. Count Basic Trio (instrumentals). Standing on the Corner; Signifying. Count Basic Quartet (instrumentals). Apollo Daze; Blues for Joel; Blues au Four. PABLO D2310859 $8.98

Performance: Excellent
Recording: Excellent

If jazz were golf, this session would be a pros’ tournament. Everything goes down as smooth as good wine and as dignified as a church collection (or maybe it’s the other way around). As vocalists, Joe Turner seems more intent on displaying his tone and volume while Eddie “Cleanhead” Vinson concentrates on interpretation; both of them still know how to score.

It is certainly a pleasure to hear so much of Count Basie’s piano. Like Ellington, Basie has always subordinated his solo work to the duties and demands of being a bandleader. Here, given a chance to stretch out, he plays with quiet authority and a delicate, dry sense of humor. For additional delight, there is the Basie band with its triumphant ensemble sound and, in the trio and quartet selections, the incomparable guitar of the wonderful Freddie Green. Producer Norman Granz has attempted to re-create the blues-shouting contests of swing bands during the 1930s, but this isn’t music for nostalgia or scholarship; the musicians still speak for today—and, I must add, in pristine digital sound. Delicious. J.V.

RECORDING OF SPECIAL MERIT
JACK DEJOHNETTE: New Directions in Europe. Jack DeJohnette (drums, piano); Lester Bowie (trumpet); John Abercrombie (guitar, mandolin guitar); Eddie Gomez (bass). Salsa for Eddie G.; Where or Wayne; and two others. ECM ECM-1-1157 $8.98. © MSE-1157 $8.98.

Performance: Superb
Recording: Excellent

Drummer Jack DeJohnette took part in jazz history about a decade ago as a member of the Miles Davis group that led the way to today’s electronic jazz. Since then he has made a worldwide reputation for himself, of course, and his musical exploration has taken him far afield. But perhaps he has now come full circle, for as I listen to “New Directions in Europe” I hear echoes of the “flower children” at the Fillmores East and West at the beginning of the Seventies. The tracks leading back to Miles were not quite as clear on this group’s first album (ECM-1128), which was recorded in mid-1978. Recorded a year later at a concert in Willisau, Switzerland, the all-star quartet here communicates splendidly with an audience that fully appreciates their artistry. DeJohnette opens the second selection, Where or Wayne, at the piano, playing that instrument with commendable authority, but he is heard mostly as a drummer, and as such he has few peers. Contributing greatly to the Fillmore flavor is the trumpet work of Lester Bowie, a musician for whom I have a growing respect; he sounds eerily like Miles Davis did ten years ago (and, for all we know, Miles may still sound that way). The boiling rhythm laid down by the leader, with John Abercrombie and the remarkable Eddie Gomez, gives a perfect steam for Bowie’s crystal-clear, penetrating horn. The language may be familiar, but be assured that the message is fresh. C.A.

RECORDING OF SPECIAL MERIT
TOMMY FLANAGAN: Trinity. Tommy Flanagan (piano); Ron Carter (bass); Roy Haynes (drums). Smooth as the Wind; Ruby My Dear; Passion Flower; Torment;

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MARCH 1981 115
Scott Hamilton, a tenor saxophonist, recently released an album titled "Tenorshoes." Hamilton, known for his smooth, swinging style, has collaborated with some of the greatest jazz musicians, including Jimmy Heath, Ron Carter, and Roy Haynes. The album features a mix of new compositions and reworkings of classic standards. Hamilton's playing is as smooth and seamless as ever, with his tenor saxophone weaving its way through the music. The album also contains fine solo work by tenor saxophonist Ricky Ford (whose star was surely rise higher still), Konitz, Gomez, and guitarist Larry Coryell.

The title tune, a decided nod to Charlie Parker, takes up all of side one and most of side two; it is a 31 1/2-minute romp with solo changes with Ron Carter on bass, Tony Williams on drums, and guitarist Larry Coryell. "Something Like a Bird" is the better of the two very fine albums that represent Charles Mingus' closing statement and cap a prolific recording career. As Nat Hentoff put it in his notes to this one, "There is no way that Mingus' death would not have been untimely." But, while his recordings did not make much of a dent in the full store of riches Mingus had to offer, the legacy continues far beyond the boundaries of jazz and will surely rise higher still, Konitz, Gomez, and guitarist Larry Coryell.

Mingus

Charles Mingus conducted his last recording sessions in January 1978, about a year before he died. Already confined to a wheelchair, he was unable to perform, but we are told that through tapes and piano sketches he conveyed his musical thoughts to orchestrators Jack Walrath and Paul Jeffrey, then supervised the recordings, some of which were released in 1979 on the album "Me, Mysel an Eye" (Atlantic SD 8803). I was full of praise for that release, and the follow-up album, "Something Like a Bird," is even more exciting. Sure, one misses the master himself on bass—though, again, Eddie Gomez and George Mraz perform superbly—but there is a great deal to be savored and digested here, and the Mingus touch is pervasive.

The title tune, a decided nod to Charlie Parker, takes up all of side one and most of side two; it is a 31 1/2-minute romp with solo changes with Ron Carter on bass, Tony Williams on drums, and guitarist Larry Coryell. "Something Like a Bird" is the better of the two very fine albums that represent Charles Mingus' closing statement and cap a prolific recording career. As Nat Hentoff put it in his notes to this one, "There is no way that Mingus' death would not have been untimely." But, while his recordings did not make much of a dent in the full store of riches Mingus had to offer, the legacy extends far beyond the boundaries of jazz and will continue to generate enjoyment and inspiration in increasing measure for years to come.

—Chris Albertson

Charles Mingus: Something Like a Bird. Orchestrations supervised by Charles Mingus. Somethings Like a Bird (Parts 1 and 2); Farewell Farwell. ATLANTIC SD 8805 $7.98, © CS 8805 $7.98, © TP 8805 $7.98.

Herbie Hancock: Mr. Hands. Herbie Hancock (keyboards); other musicians. Spiraling Prism, Calypso, Just Around the Corner, Shiftless Shuffle, and two others. COLUMBIA JC 36578 $7.98, © JCT 36578 $7.98.

Performance: He's playing again
Recording: Very good

Having long ago despairs what hearing the real Herbie Hancock again, I approached this album with great reluctance. If he had tried to sing this time around or slipped into a contrived super-funk groove again, that would have been it. Even long-standing fans can take just so much aural abuse. But from the opening passages of Spiraling Prism, a cascading sound piece with a strong center and glistening synthesized effects, I knew that Hancock was again exploring the sort of jazz fusion that provides sufficient space for exposure of his talents. This initial pleasure increased when I reached the second track and heard some real, live, acoustic bass and a real jazz piano played the way Hancock used to before he gave up music for electronics. That one selection, called Calypso, where Hancock stretches out and engages in up-tempo exchanges with Ron Carter on bass, Tony Williams on drums, and Sheila Escovedo on percussion is almost enough to hold me until the next time he decides to make a real record. While the balance of this album distinctly in the Hancock/Corea fusion frame, a spirit of musicianship prevails. Perhaps now that Hancock has mastered all his machines, he'll redirect his energies back to making music, which is what he does so well.

—P.G.

Billie Holiday: I'll Be Seeing You. Billie Holiday (vocals); Eddie Heywood and His Orchestra. I'll Be Seeing You (two versions); Embraceable You (two versions); As Time Goes By (two versions); I'm Yours (two versions); A Night in Tunisia (two versions). COLUMBIA © XFL 15351 $7.98 (from Columbia Special Products, 51 West 52nd Street, New York, N.Y. 10019).

Performance: Classic
Recording: Variable

Another tour around the Commodore jazz vault has yielded this latest addition to the valuable "Classics in Jazz" series. Billie Holiday, easily one of the most powerfully influential jazz voices of this century, is heard here on fifteen tracks recorded in 1944. Seven are duplicates (called "alternate choice performances" on the jacket), takes that never made it onto the original issues. The album is a fascinating "must have" for the jazz buff, a bit wearing for the average listener, but it gives further confirmation—if any were needed—of what a great singer Billie Holiday was. My favorite track: her aching, smoldering Embraceable You.

—P.R.

HeLEN MERRILL: Chasin' the Bird. Helen Merrill (vocals); instrumental accompaniment. Embraceable You, Summertime, etc.

Performance: Classic
Recording: Excellent

If a trio consisting of Tommy Flanagan, Ron Carter, and Roy Haynes made an album that was less than very good, I would really have something to write about, but there is nothing unusual or unexpected about "Trinity." It offers a program of enduring but not overly familiar material (when was the last time you heard Tadd Dameron's Smooth as the Wind?) performed with flawless skill and devotion.

Scott Hamilton: Tenorshoes. Scott Hamilton (tenor saxophone); Dave McKenna (piano); Phil Flanigan (bass); Jeff Hamilton (drums). I Should Care, The Nearness of You, Our Delight, O.K.; and four others. CONCORD JAZZ CJ-127 $7.98.

Performance: Romantic
Recording: Very good

Scott Hamilton arrived on the jazz scene fairly recently, but—judging by the number of Hamilton album releases—he has obviously found a sizable audience for his full-throated Swing Era tenor style. If you are already a member of that audience, you've probably already added "Tenorshoes" to your collection. If, on the other hand, you are unfamiliar with Hamilton's music, you ought to check it out. It's firmly in the tradition of Coleman Hawkins and Ben Webster, it breaks no new ground, and it will feed your emotions more than your intellect, but if this album does not appeal to you, I think it's time for you to see an ear specialist.

C.A.
Isn't It a Pity; I Loves You Porgy; and four others. INNER CITY IC 1080 $7.98.

There's a tenuously interesting experiment on this new release. Dick Katz, the arranger here, has Helen Merrill singing the original melody of a couple of Gershwin songs, Embraceable You and I Got Rhythm, while musicians play variations written by Char-lie Parker as a counterline. It really works in the stunning Embraceable You, which has Parker's Quasimodo being played on baritone sax behind the singer, but I Got Rhythm lost me quite early. The remainder of the album is an all-Gershwin recital by the amber-voiced Merrill, who executes everything with a fine, clear line and who keeps it all simple as only a truly good jazz singer can.

RECORDING OF SPECIAL MERIT

PAT METHENY: 80/81. Pat Metheny (guitar); Dewey Redman, Michael Brecker (tenor saxophone); Charlie Haden (bass); Jack DeJohnette (drums). The Bat; Turn Around; Open; Pretty Scattered; Goin' Ahead; and three others. ECM ECM-2-1180 two discs $13.98, © 2E5-1180 $13.98, © 2E8-1180 $13.98.

Guitarist Pat Metheny's boring first ECM albums as a leader did not exactly endear him to me (although I had enjoyed some of his earlier work with Gary Burton). But that was some time ago, and I am happy to report that this latest release, "80/81," sent me into my file of superlatives.

With the superb supporting cast Metheny has assembled here, at least some interesting moments were inevitable, but in fact there is not a spot on any side of this double album that I would not play for a friend I wished to keep. The mood varies, as does the use of the two tenors (they are heard both separately and together), but the most extraordinary feature of this set is the constantly stunning work of Charlie Haden and Jack DeJohnette, two of the finest rhythm men around today. Open and Pretty Scatter-ered feature the full band (as does The Bat) and are probably the most easily accessible of the tracks that will also please the jazz-oriented listener. Metheny ends the album on a very mellow, subdued note, playing the kind of pretty things most people associate with the guitar, but he has wisely avoided more than a casual brush with the kind of junk that is deemed marketable today by people who haven't bought a record since they were teenagers.

JEAN-LUC PONTY: Civilized Evil. Jean-Luc Ponty (violin); instrumental accompaniment. Demagogamia; In Case We Survive; Forms of Life; Peace Crusaders; and four others. ATLANTIC SD 16020 $8.98, © CS 16020 $8.98, © TP 16020 $8.98.

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tously enough on the ears, and everything is too long. Then too, Ponty's trendy socially conscious titles, such as Peace Crusaders, In Case We Survive, and Once a Blue Planet, seem to have little in common with the impressionistic aura he achieves in his rather dreamy arrangements and the bluesy effects he draws from his fiddle—but what's in a name? In Happy Robots, at least, he does present a persuasive mechanical dance appropriate to the subject, and in Forms of Life, a little tone poem for violin, keyboard, and synthesizer bass, he demonstrates a grasp of form to balance the usually undisciplined approach to improvisation characteristic of his giddier pieces. The evil in "Civilized Evil" could stand to be a bit more civilized.

**RECORDING OF SPECIAL MERIT**

**MARLENE VER PLANCK: A New York Singer.** Marlene Ver Planck (vocals); orchestra, J. Billy Ver Planck arr. and cond. Go Away Little Boy; By Myself; Hey, Star; Sure Thing; Music Man; and six others. AUDIOPHILE AP-160 $7.98.

**Performance:** Lovely

**Recording:** Excellent

There are some lovely things here by Marlene Ver Planck. Among them: a shimmering performance of By Myself; a Stairway to the Stars that is long on intelligence and heart and short on sentimentality and gloss; A Sure Thing, a Jerome Kern song new to me; and a haunting, silvery, elegant Why Shouldn't I? that has the same tooled beauty as one of Cole Porter's famous cigarette cases. If you don't already know about Marlene Ver Planck, you really owe it to yourself to get one of her records. This new release, like her previous ones, proves that class, real class, is still very much alive and around in pop music.

**COLLECTIONS**


**Performances:** Unique

**Recordings:** Variable

Here's some valuable stuff for the collector that should also be of considerable interest even to the average listener: twelve vintage tracks by four great American pop-jazz singers. Billie Holiday contributes four, including the 1935 What a Little Moonlight Can Do that marked her first recorded appearance with the Teddy Wilson Orchestra. Ella Fitzgerald is her musically immaculate self in a 1936 My Melancholy Baby. Sarah Vaughan was recorded in the Forties by Huddie "Leadbelly" Ledbetter and in the Twenties by Blind Lemon Jefferson. Its eerie sexual imagery remains powerful and provocative. Chenier deserves a wider hearing, and I hope you'll listen.

**RECORDING OF SPECIAL MERIT**

**CLIFTON CHENIER: Classic Clifton.** Clifton Chenier (vocals, accordion); vocal and instrumental accompaniment. Zydecob Sont pas Sale; Louisiana Blues; Black Gal; Black Snake Blues; I'm on the Wonder; and seven others. ARHOLIE 1082 $7.98.

**Performance:** Enticing

**Recording:** Variable

Clifton Chenier is the leading light of zydeco, a Cajun dance music from New Orleans that is one of the few unspoiled folk forms left in the United States. This album contains selected cuts from Chenier's previous recordings on the Arhoolie label, and I recommend it, particularly if you've never heard zydeco or Chenier's way with it. Black Gal, recorded in 1965, was leased by a New York label four years later for national distribution. Black Snake Blues was recorded in the Forties by Huddie "Leadbelly" Ledbetter and in the Twenties by Blind Lemon Jefferson. Its eerie sexual imagery remains powerful and provocative. Chenier deserves a wider hearing, and I hope you'll listen.

**COLLECTION**

**MEETING IN THE AIR: SONGS OF THE CARTER FAMILY.** Jim Watson, Mike Craver (vocals, guitar); Tommy Thompson (vocals, guitar, banjo). The Winding Stream; One Little Word; Dixie Darling; Lula Wallis; The Woyrank Traveler; and nine others. FLYING FISH FF 219 $7.98.

**Performance:** Flavor's right

**Recording:** Very good

Jim Watson, Mike Craver, and Tommy Thompson are three-fifths of the Red Clay Ramblers. They could have done a Carter Family tribute with the whole band, but what they've done here is more evocative of the Carters' spirit. The only instrumentation is acoustic guitars—one of which usually replicates Maybelle's thumb-picking style—and an occasional banjo. And the harmonies, though all male, are arranged in Carter Family style with lead, tenor, and bass. The album is quite a success, I'd say, at calling up memories of the Carters and of a vanished rural America. It reminds me not only of the Carters but of the early Weavers and the Chuck Wagon Gang. Thompson's bass singing is so reminiscent of A. P. Carter's (and, for that matter, of Lee Hays') that it's truly haunting in such quintessential old-time songs as The Schoolhouse on the Hill. The album is a beautiful primitive.

(Continued on page 121)
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MARCH 1981

THEATER FILMS

RECORDING OF SPECIAL MERIT

DIVINE MADNESS. Original-soundtrack recording. Bette Midler (vocals); vocal and instrumental accompaniment. Paradise, Shiver Me Timbers; Fire Down Below; Stay with Me; My Mother's Eyes; and eight others. ATLANTIC SD 16022 $8.98, © CS 16022 $8.98, © TP 16022 $8.98.

Performance: Very fine

Recording: Good

This is the soundtrack from Bette Midler's latest film, which is in turn a documentation of a live performance Midler gave in Pasadena. There's not very much new material here, but everything she does, from her introduction of her back-up singers, the Harlettes ("I first met these girls when they were still selling their papayas on 42nd Street"), to a five-handkerchief My Mother's Eyes, is greeted with thunderous roars of approval from the audience. And she delivers them. Bette Midler is a great entertainer in the classic American show-biz tradition, and she lets out all the stops in "Divine Madness." Very fine indeed. P.R.

THE IDOLMAKER. Original-soundtrack recording. Peter Gallagher, Jesse Frederick, Darlene Love, Colleen Fitzpatrick, the Sweet Inspirations, and the London Fog, Ray Sharkey (vocals); Nino Tempo and the Kingbees (instrumentalists). A&M SP-4840 $7.98, © CS-1840 $7.98.

Performance: Variable

Recording: Good

The Idolmaker is based on the career of Bob Marucci, the promoter-manager of Frankie Avalon and Fabian in the late 1950s. Ray Sharkey, Peter Gallagher, and Jesse Frederick, respectively, play those three roles and sing on the soundtrack. Their vocals and the arrangements are as carefully programmed as were the characters they portray—blond but bumptious. Those pros are on board to lend verisimilitude: Darlene Love was one of the original Phil Spector artists, and she still sounds good. The delightful Sweet Inspirations graced many a Memphis pop date and toured with Elvis. Nino Tempo, who leads the instrumental combo, had some hits (Deep Purple, Whipping) in the early 1960s. Tempo's combo plays in the vapid but danceable manner of any number of studio groups from the mercifully brief Avalon/Fabian period.

The film falls apart after the early scenes where Sharkey teaches his clients every choreographed move they should make on stage; their resultant success with the nebulous mob is cynically funny, but the plot soon plunges into bathos. The soundtrack is likewise self-defeating because it recalls one of the dullest periods in rock. J.V.

POPEYE (Harry Nilsson). Original-soundtrack recording. Robin Williams, Shelley Duvall, others (1980); and Van Dyke Parks arr. and cond. BOARDWALK SW-36880 $8.98, © SWT-36880 $8.98.

Performance: Duvall is lovely

Recording: Superb

The delight and charm of two songs in the uneven Popeye are by Harry Nilsson and performed by Shelley Duvall as Olive Oyl, engender wistful thoughts of what might have been. The first is He Needs Me, in which Olive makes her poignant pledge of love to Popeye, and the second comes out when, a convolution of the plot having led her former fiancé Bluto instead, she makes the best of things and explains that, oh well, after all, He's Large. Nothing else here measures up to those two numbers, and Nilsson's pastel, almost twittering music for every situation eventually dispels interest. What is sensational, however, is the arrangement and conducting of Van Dyke Parks, who makes the recording glow with a rich color and vibrancy that aren't in the music. The production, also by Nilsson, is superb. P.R.
Earth, Wind & Fire's new release, the two-disc set "Faces," has all the impact of a live volcano, but, unlike natural eruptions, this one is carefully controlled and every stunning effect is meticulously calculated. The overwhelming wall of sound on leader Maurice White's latest production is built from the output of a choir of horns, a battalion of strings, and a virtual orchestra of other instruments, including harp, bells, keyboards, and abundant percussion. All these forces might have gotten in each other's way and produced a monstrously cluttered set, but the way White has choreographed them everything fits together so well that the listener need only sit (or lie) back and enjoy.

A combination of energy and precision has always been the hallmark of albums by Earth, Wind & Fire, which after ten years has always been the hallmark of albums by other long-lived groups. While the essentials of their music stay constant—sharply accented, clustered vocal harmonies developed from melodies full of fascinating, unexpected changes and underscored by rich percussive effects—they have managed to avoid slipping into the kind of perfunctory repetition that plagues many other long-lived groups.

Earth, Wind & Fire has been associated from the start with astrological and alchemical symbols, pyramids and other occult Egyptian themes, numerology (it's no accident that there are nine in the group), plus other mystical and/or extraterrestrial phenomena. Their lyrics have often seemed like nomenclature. Their lyrics have often seemed like other mystical and/or extraterrestrial phenomena. Their lyrics have often seemed like other mystical and/or extraterrestrial phenomena. Their lyrics have often seemed like other mystical and/or extraterrestrial phenomena.

Earth, Wind & Fire: Faces. Earth, Wind & Fire (vocals and instrumentals); the album, is universality, and it brings together for a blockbuster finale all the many special effects used in previous tracks. The horns on this one will all but blow you away, and the organ that comes in at the end adds a pleasing touch of whimsy to this explosively energetic cut.

One piece of advice: listen to this album at full volume. Turning it down will diminish its delights proportionately. If your neighbors are cranky or don't like music, try headphones.

—Phyl Garland
One of the nine matched full-range HVC drivers in a Bose 901 Direct/Reflecting speaker.

Specially shaped foam roll allows high excursion with low distortion.

Injection-molded, high-stability plastic frame does not distort the magnetic field and results in greater efficiency.

Molded-in top plate.

Injection-molded, high-stability plastic frame does not distort the magnetic field and results in greater efficiency.

Molded-in top plate.

Carefully engineered cone. Exclusive design extends, smoothes frequency response.

Flat spider provides high linear extension.

One of nine ceramic magnets totaling 5.3 lbs. Together, they provide more magnetic field energy than even very large conventional speaker systems.

One-piece center pole and backplate.

Helically wound, all-aluminum voice coil.

This driver has more research, technology and engineering behind it than most entire speaker systems.

Conventional systems use woofers and tweeters with a crossover network to send lower frequencies to the woofers and high frequencies to the tweeters. In the 901 speaker, nine matched HVC (Helical Voice Coil) drivers replace both woofers and tweeters. Each driver covers the full range of audible frequencies. There is no crossover coloration, because the crossover network itself is eliminated.

The heart of the Bose 901 HVC driver is a low impedance (0.9 ohm) single layer voice coil made entirely of aluminum. With ordinary round wire, the spaces between turns waste considerable energy. So for maximum efficiency in the Bose coil, rectangular wire is tightly wound on edge to form a helix. Incredibly thin and durable insulation assures ruggedness at extreme power levels. So rugged, that the insulation and bonding can withstand a pulse power test of approximately 4,000 watts per coil.

In-production performance goals for the HVC driver required a degree of dimensional control for the coil never attempted before. Bose responded by designing and building its own highly advanced computer-controlled winding equipment to hold coil tolerances to within 0.001 inch.

And Bose developed quality control procedures as remarkable as the driver itself. The Bose Syncom® computer was designed to test each driver for proper frequency response—under simulated home acoustical conditions, with an accuracy of ±0.1 dB. The net result is a degree of acoustical matching most engineers would have thought impossible.

To date, more than 30,000 man-hours have been spent developing the 901 HVC driver and equipment to manufacture and test it. If so much thought, effort and design go into the driver alone, you can imagine what goes into the complete 901 Direct/Reflecting* loudspeaker system.

The complete Bose Direct/Reflecting® loudspeaker system contains eighteen HVC drivers.

BOSE®
Better sound through research.
Introducing a totally new concept in stereophones.

The new Koss HV/X high velocity stereophone represents a remarkable breakthrough in hear-thru stereophone design and performance. For the first time, Koss engineers have been able to create a lightweight, hear-thru stereophone that combines the transparency of high velocity phones with the superior bass performance of closed-type phones. The result is a breathtaking musical experience.

CONToured VARIABLE-DENSITY EARCUSHIONS

While most lightweight, hear-thru stereophones have earcushions that fit against the ear, the new Koss HV/X features a unique, contoured, variable-density cushion that fits around the ear. Not only does this unique earcushion design create a far more comfortable stereophone but it has also allowed Koss engineers to create a dramatically better element design as well.

These new variable-density earcushions are made up of a very porous material that is acoustically transparent at the perimeter of the earcushion yet compressed toward the center region. This varies the pattern of acoustic resistance over portions of the earcushions creating the proper seal for specific bass frequencies while allowing the flow of middle and high frequencies at the perimeter of the earcushions.

LIGHTWEIGHT ELEMENT

The uniqueness of the new variable-density earcushions made it possible for Koss engineers to design a lightweight element that reproduces a Sound of Koss you have to hear to believe. Incredibly, even though the overall weight of the element was reduced, Koss engineers were able to develop a magnet with enough magnetic density to drive an extra large diaphragm. With a response range of 15 to 35,000 Hz, the new Koss HV/X will drive you into ecstacy and our competitors nuts.

HEARING IS BELIEVING.

Slip into the new Koss HV/X or HV/XLC with volume/balance controls at your audio dealer soon. You'll like the best of both worlds: the open, airy, up-front sound of hear-thru stereophones and the deep, rich bass performance of closed-type stereophones.

And while you're with your audio dealer, listen to our full line of Koss stereophones and CM loudspeakers. There's no sound quite like the Sound of Koss.

For more information on the HV/X, our full line of stereophones and loudspeakers or our new Koss K/4DS digital delay system, write c/o Virginia Lamm.

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