Grading The Formats

PLUS Why Some Tapes Don’t Work with Dolby!

Now on Records: Benjamin Britten’s “Death in Venice”
According to Audio Times, a leading publication devoted to audio manufacturing and retailing: "No piece of audio equipment is as eagerly awaited as the 'one four-channel unit that does everything — i.e., the receiver with built-in circuitry for SQ, RM and CD-4 record decoding.'

**It's here!**

Pioneer has taken another giant step forward. Our new collection of quadraphonic receivers — QX-949, QX-747, QX-646 — has this total capability. They reproduce CD-4, SQ, RM and discrete four-channel sound without adaptors, add-on decoders or demodulators. And they're specifically designed to fully meet all of the standards established for these matrix and discrete program sources.

Bearing in mind that two-channel is, and will continue to be, a tremendous source of listening pleasure for many years to come, these new units are designed for it, along with their total quadrophonic capabilities. The QX-949 and QX-747 reproduce two-channel with augmented power due to Pioneer's new Power Boosting circuitry.

**A whole new world of discrete sound with the built-in CD-4 demodulator**

While many quadraphonic receivers have limited degrees of four-channel capabilities, Pioneer offers maximum versatility with built-in CD-4. Without it you can't enjoy the increasing number of CD-4 discrete discs (the true four-channel record) from leading recording companies like RCA, Warner, Atlantic, Elektra, and others. CD-4 is a 'must' for optimum quadrophonic listening enjoyment.

Since the CD-4 circuit incorporates FET's and IC's, continuous, stable performance is assured. In addition, it uses a 30KHz subcarrier similar to that used in FM multiplex broadcasting. The subcarrier is demodulated by a Phase Lock Loop (PLL) circuit for each channel. The result is optimum channel separation — absolutely necessary to achieve the full, rich impact of quadrophonic reproduction. Convenient and simple-to-use front/rear left and right separation controls are on the front panels of all three models.

**SO and RM decoding bring to life the hidden ambience of matrixed and stereo records**

With built-in RM circuitry, you can experience new brilliance from your present collection of two-channel stereo records and tapes. FM broadcasts, too. Also, new vistas of enjoyment unfold when you play the new four-channel SQ matrix records being released by Columbia, Capitol, Epic and Vanguard, to mention just a few of the prominent SQ record producers. No matter what the quadrophonic program source or the record label, Pioneer's new quadraphonic receivers flawlessly reproduce them all.

**Matchless performance with powerhouse capabilities**

As is traditional with all Pioneer receivers, these quadraphonic units have power to spare. For example, the top model, QX-949 has a power output in four-channel operation, of 40 watts per channel, minimum continuous power, 20Hz—20,000Hz, maximum total harmonic distortion 0.3% at 8 ohms.

Switching to two-channel operation, the Pioneer Power Boosting circuit delivers 60 watts per channel, minimum continuous power, 20Hz—20,000Hz, maximum total harmonic distortion 0.3% at 8 ohms.

By using super-size power transformers in the QX-949, in combination with four 10,000 microfarad electrolytic capacitors, this high power output is obtained at very low frequency. And it's further insured by direct-coupling in the output stage.

**No overload with speaker protector circuit**

Since direct-coupling feeds the signal directly to the speakers, an automatic
Pioneer. The very best
The best way to find out how well a receiver performs is to listen to it. The next best way is to listen to the opinions of qualified critics who have listened to it. Pioneer quacraphonic receivers have earned the unanimous praise of the critics. Visit a Pioneer dealer and listen to these receivers. Once you've heard them yourself, we're confident you'll agree.

STEREO REVIEW: "The QX-549 has built-in decoding circuits for all the major types of four-channel records - SQ, RM and CD-4. . .electrical performance of its tuner and amplifier rivals some of the finest separate component systems."

MODERN HI-FI & STEREO GUIDE: "The QX-949 is commensurate with all the fine receivers we have learned to expect from Pioneer and it stands as the model for present-day quadraphonic receivers."

AUDIO: "(The QX-549 is) one of the most impressive receivers (visually and technically) we have ever tested. . .It would be very difficult to come up with any features in a four-channel receiver that Pioneer hasn't already thought of in this powerful unit."

POPULAR ELECTRONICS: "The Pioneer Model QX-747 receiver is clearly a superb unit when judged by all normal performance standards. In fact, its power capabilities in the 2-channel mode make it a fine value even as a stereo-only receiver."

HIGH FIDELITY: "The tuner section is one of the best we've seen in a quadraphonic receiver. . .All told, the QX-949 strikes us as typical of Pioneer's relatively uncompromising approach to receiver design."

Complete reprints available upon request. CIRCLE 40 ON READER-SERVICE CARD
source is in operation, the sound level of each channel can be monitored by viewing the large scope-type level indicator on the top two models. Left and right front/rear controls permit instant adjustment. Indicator sensitivity controls allow for a maximum of -30dB adjustments at any sound level. The level indicator may also be used to view CD-4 channel separation adjustments made with the CD-4 separation controls.

**Inputs/Outputs for total versatility**

Pioneer has endowed these models with terminals for a wide range of program sources. The only limitation is your own listening interests and your capability to experiment with sound.

**Convenient features increase listening enjoyment**

Along with the total capability of these receivers, Pioneer has incorporated a wide array of additional, meaningful features. All these instruments include: loudness contour, FM muting, an extra wide tuning dial, two sets of bass/treble controls for front and rear channels, function and mode selector with multi-colored indicator lights. Further refinement is offered with the QX-949’s multiplex noise and high/low filters, plus signal strength and center tuning meters in one housing.

Admittedly, these new Pioneer quadraphonic receivers, like fine sports cars or cameras, are not inexpensive. However, they represent the high fidelity industry’s most outstanding value. We have built them with the same quality, precision and performance you’ve come to expect from Pioneer stereo equipment. We offer them to you with the same pride and conviction that has always compelled you to say—“Pioneer, the very best.”

QX-949 — $743.95 QX-747 — $649.95 QX-646 — $499.95. Prices include walnut cabinets.

**Specifications**

<table>
<thead>
<tr>
<th></th>
<th>QX-949</th>
<th>QX-747</th>
<th>QX-646</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>4-ch. minimum continuous power per channel, 8 ohms</strong></td>
<td>40 watts/ channel (20Hz-20kHz)</td>
<td>20 watts/ channel (20Hz-20kHz)</td>
<td>9 watts/ channel (40Hz-20kHz)</td>
</tr>
<tr>
<td><strong>2-ch. minimum continuous power per channel, 8 ohms</strong></td>
<td>60 watts/ channel (20Hz-20kHz)</td>
<td>40 watts/ channel (20Hz-20kHz)</td>
<td>13 watts/ channel (40Hz-20kHz)</td>
</tr>
<tr>
<td><strong>Maximum total harmonic distortion</strong></td>
<td>0.3% (20Hz-20kHz)</td>
<td>0.5% (20Hz-40kHz)</td>
<td>1% (40Hz-20kHz)</td>
</tr>
<tr>
<td><strong>FM Tuner</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Sensitivity (IHF)</strong></td>
<td>1.8uV (the lower the better)</td>
<td>1.9uV (the lower the better)</td>
<td>2.2uV</td>
</tr>
<tr>
<td><strong>Selectivity</strong></td>
<td>80dB (the higher the better)</td>
<td>60dB (the higher the better)</td>
<td>40dB</td>
</tr>
<tr>
<td><strong>Capture Ratio</strong></td>
<td>1dB (the lower the better)</td>
<td>1dB (the lower the better)</td>
<td>3dB</td>
</tr>
<tr>
<td><strong>S/N Ratio</strong></td>
<td>70dB (the higher the better)</td>
<td>70dB (the higher the better)</td>
<td>95dB</td>
</tr>
</tbody>
</table>

**Inputs**

- **Phono**
- **Tape Monitor** 2 (4-ch.), 1 (2-ch.)
- **Dolby adaptor input** 1 (4-ch.)
- **Auxiliary** 1

**Outputs**

- **Speakers** 2 (Front), 2 (Rear)
- **Headset** 1 (Front/Rear)
- **Dolby adaptor output** 1 (4-ch.)
- **Tape Rec.** 1 (4-ch.)
- **4-ch. MPX output** 1
What is it that feels good, sounds good—and will go anywhere with you?

Pickering's Model OA-3 dynamic open audio lightweight headphones.

Expanded Listening Enjoyment. Just plug the special adapter into the earphone jack of any Mono Cassette Recorder, Portable Radio or TV Set and plug the OA-3 into the special adapter and enjoy total sound everywhere you go.

Revolutionary. So slender. So light. So comfortable to use over long periods of time.

Sound Perfection. You have to listen to believe.

Open Audio. Enjoy the sound. Yet, be part of what's going on around you. That's the big thing about "open audio".

Prediction. The OA-3 will be your favorite "component" in your hi-fi stereo system. $39.95

For further information write to: Pickering & Co. Inc., Dept. HF, 101 Sunnyside Blvd., Plainview, New York 11803

"for those who can hear the difference"

CIRCLE 39 ON READER-SERVICE CARD
music and musicians
Gene Lees  OSCAR PETERSON  18
The greatest pianist in jazz history?
Stephen Bishop  COMPETING WITH YOUR OWN RECORDINGS  24
Why shouldn’t a live performance sound like its disc counterpart?

audio and video
TOO HOT TO HANDLE  28
NEWS AND VIEWS  34

acoustic returns  A new/old idea in pickups

EQUIPMENT IN THE NEWS  37

EQUIPMENT REPORTS
Tandberg 3600XD open-reel tape deck
Accuphase C-200 preamp
Technics RS-676US cassette deck
Pioneer PL-71 turntable
Superex PEP-79E headphones

Robert Angus  WHICH TAPE FORMAT FOR YOU?  49

Edward J. Foster  HOW TO INTERPRET OUR TAPE RECORDER TESTS  59
Knowing the basics helps

Robert Long  "THE DOLBY PROBLEM"  72
Why does this system work better with some tapes than others?

record reviews
Peter G. Davis  DEATH IN VENICE: NOT JUST A CLOSET CASE  79
London records Britten’s latest work with the original participants

Paul Henry Lang  THE EVOLUTION OF THE CLASSICAL SYMPHONY  81
Marriner on Philips traces the development of Mozart’s early works

David Hamilton  MOSES UND ARON: RICH AND PROFOUND  82
Schoenberg’s extraordinary opera returns to the catalogue from Philips

Susan T. Sommer  MONTEVERDI AND THE GLORY OF EVIL  84
New recordings of Orfeo and Poppea display his operatic mastery

CLASSICAL  87

Caballé’s Aida  Böhms Abduction from the Seraglio  Festival of trumpets

Robert Long  FOUR-CHANNEL DISCS AND TAPES  110
The great Everest scandal  Ives and quad—a proper mating?

LIGHTER SIDE  112

Frank Sinatra  George Benson  Gladys Knight and the Pips

JAZZ  116
Count Basie Trio  Modern Jazz Quartet  Zoot Sims

R. D. Darrell  THE TAPE DECK  120
Optimum quadraphonics on tape  Sensual anthems etc.

LETTERS
Ellington remembered  AM broadcasting

PRODUCT INFORMATION
An “at-home” shopping service

ADVERTISING INDEX  94

See pages 49, 59, and 72.

Moses und Aron at last. See page 82.
For more than a decade Bozak has been supplying monitor speakers for the most critical professional audio applications — recording studio control rooms, backstage at theaters and concert halls, broadcast studios — applications where the most precise reproduction of original performances is vital for commercial success.

Now Bozak has developed a speaker for use in home music systems that combines the accurate aural reproduction of its studio monitor systems with the visual appeal of the fine furniture enclosures for which Bozak's own cabinet shop is justly famous.

Monitor-C is unique in its speaker complement — 12 in all, including four wide-range speakers for the bass and mid-range regions and eight tweeters for treble notes. All speaker diaphragms are of neoprene-coated aluminum and, thus, are non-hygrosopic, so that changes in atmospheric humidity do not result in changes in performance.

You have probably never heard a speaker system with such a combination of transient-response capability, smooth over-all response in the entire 30-to-20,000-hertz range and broad spatial coverage as the Monitor-C. These listener benefits are particularly realized when the Monitor-C is used with the uncompromising new Bozak Model 929 amplifier.

Monitor-C can be heard at selected Bozak dealers. We'll gladly send you their names.
In our most recent test, we asked Ella Fitzgerald's old friend and longtime jazz arranger, Nelson Riddle, if he was listening to Ella live, or Ella as recorded on a Memorex cassette.

He couldn't tell.

We believe that's a strong endorsement of our exclusive MRX₂ Oxide formulation.

In fact, since we introduced MRX₂ Oxide, a lot of other ferric tapes have been scrambling to find something to beat it.

Nobody has.
BELT DRIVE ISN’T NEW.  
MULTIPLE PLAY ISN’T NEW.  
A TURNTABLE THAT COMBINES BOTH IS NEW.  
READ ALL ABOUT IT.

Back in monophonic times, turntable motors drove platters through a series of wheels called "idlers". Many automatics and changers still use this system. In those days, records and playback systems were still relatively unsophisticated, so the distortions an idler drive system created didn’t matter much.

Today, however, distortion is a critical problem. With recordings of increased dynamic range, wow, flutter and rumble must be reduced to inconsequential levels. A belt-drive system is light years ahead of idler drive in that department.

And here the belt is driven by a unique motor found only in BIC turntables. It is a 300 RPM, 24-pole motor and it is inherently freer from noise and vibration than the 1800 RPM units with from 2 to 16 poles, which are standard in even the best of the conventional automatics.

**The advantage of Programmed Multiple Play**

The 980 and 960 are not record changers. They are belt-drive Programmed Turntables which are engineered to play as many as 6 records at a time.

They have a 2-point record support system which is far less complicated and far more reliable than any umbrella spindle we’ve ever seen.

But an even more important advantage is this. An automatic record handling system like the one on a BIC turntable can handle a single record, or 6 at a time, perfectly. No false drops. No bouncing and skating a diamond stylus across the grooves. It eliminates human error, and human error is what damages the sidewalls of your record grooves forever.

**The simplicity factor**

The 980 and 960 have the visibly lower profile of single-play manual instruments. They’ve been engineered to be simple machines, so they have fewer parts and fewer potential problems.

They abound in innovations. In the tone arm, the cartridge shell, the program panel, the entire system.

We can send you more detailed information if you write to Dept. 2B British Industries Co., Westbury, L.I. 11590; or better yet, see them at your local audio specialist.

This is the 980 with solid state speed control and strobe. About $200. The 960 is identical except for these two features. About $150.

Subtle Soul Sounds

In her October review of Minnie Riperton's "Perfect Angel," Morgan Ames makes a worthwhile point regarding critics who set up stiff rules that limit black singers to funky roles. However, I was surprised to find it in High Fidelity, since your group of critics has been especially at fault in this matter.

The problem may be that some of your reviewers are afflicted with an excessive zeal to try to make rock intelligent or poetical (which isn't necessarily the same as intelligent). Of course they rightly recognize (usually) that it is nearly impossible to convey intelligence over a primal beat or rhythm. Thus the harder forms of rock are not normally subject to evaluation according to the intelligence of the lyrics.

So far so good. When it comes to softer rock music, however, some reviewers suffer a critical failing. Since such music doesn't have a prominent beat and isn't overtly funky, they somehow assume that it has to be intelligent. Any rock music presented in ballad form, such as that of black vocal groups and uptown soul singers, is condemned as banal or, even more inexplicably, as being pop in approach. Surely these so-called critics must realize that rock ballads may be ordinary or even silly lyrically, yet still have a vitality that stems from their interpretation.

The feeling of a song is not always conveyed by its lyrics. That some critics still do not recognize these elemental points regarding rock is unbelievable. But this nonsense regarding soul ballads as pop fluff has been going on for more than ten years now, probably because all the folk hits of the early 1960s brought their exceedingly narrow aesthetic sensibilities with them when they decided to give their approval to rock.

How else can one explain that white critics in the 1960s completely overlooked the Chicago Sound in soul music, while praising the incessant beat of Motown and the funky rhythms of Memphis? Apparently too many critics missed out on the subtle sounds of the Impressions, Gene Chandler, Jerry Butler, Billy Butler and the Chanters, Jan Bradley, and Billy Stewart.

It is about time your reviewing staff woke up and started recognizing the tremendous contribution of the Stylistics, Chi-Lites, Manhattans, Intruders, Gladys Knight and the Pips, and many more groups of this genre.

Robert Pruter
Chicago, Ill.

Casals and El Pessebre

I was glad to read Alfred Frankenstein's October review of the new Columbia recording of Pablo Casals' peace oratorio El Pessebre. And I wish to respond to the questions he raised. El Pessebre was taped at recording sessions in June 1972, during the Festival Casals in San Juan. Though the review does not say so, the Columbia album cover and notes accurately report that Alexander Schneider served as assistant conductor to Casals for the rehearsals and recording sessions.

Mr. Frankenstein complains that Alfredo Matilla's notes do not tell "the true story" of the performing history of El Pessebre. They are reprinted from the program notes that usually are distributed at performances of the oratorio. But Columbia's notes also include Joan Alavedra's essay describing how Casals composed the work, and this is probably as historical an account as is possible only fourteen years after the premiere. Unfortunately Columbia did not include the peace message that Casals wrote for performances of El Pessebre.

That El Pessebre has been performed seventy-four times since its premiere in 1960 is not "astonishing." Casals was asked to conduct it more often than he was able to do so. Mr. Frankenstein, happily, is not the only important critic who had "unreservedly good words to say for it in print." Winthrop Surget called it a "cool, refreshing drink of pure spring water in the midst of a desert. . . . El Pessebre has the innocence and sincerity of true greatness.

Casals composed the oratorio to move people who still possess the capacity to respond, but most critics have been too involved with the politics and polemics of modern music to respond without prejudice. Audiences of music lovers, who may go to concerts for different reasons than critics, have responded much more favorably to Casals' eloquent El Pessebre . . . a beautiful work of breadth and simplicity." Casals probably would have been happy to read Mr. Frankenstein's description of El Pessebre—not because it is praise, but because it shows that someone has understood and responded.

Jose D. Alfaro
Flushing, N.Y.

Ellington

I would like both to thank and to congratulate you for the brilliant essays on Duke Ellington's career by Gunther Schuller, the more or less comprehensive survey of Ellington's records by John S. Wilson, and the complete discography [November]. Yours is the first major publication—on this side of the Atlantic, at least—that has seen fit to discuss Ellington's work with the respect that it deserves.

My only complaint about the issue was your decision to preface the Schuller and Wilson articles with the curious and tasteless "Minority Report" of Gene Lees. Apart from the monumental self-importance implied in his comments on why he "chose" not to know Ellington well—perhaps Ellington had some voice in the matter—would it not have been wiser to have found (if a minority report was deemed necessary) someone who could have expressed his nonadmission in understandable musical terms rather than in vague references to "unnamed composers of real stature" who have reservations about his music, or to irrelevant comments on the personal lives of Ellington and his sidemen?

I would like to come back, though, to the admirable contributions of Schuller and Wilson, not to mention the discography and the key to the compositions in each album. I hope I am not being too greedy in expressing the wish that even more space had been devoted to Ellington's career. Perhaps Schuller can be encouraged to expand his remarks to book form to follow up his one on early jazz.

John W. Black
Ridgewood, N.J.

Gunther Schuller is currently at work on a second book on jazz that surely will include Duke Ellington.

Gene Lees's remembrance of Duke Ellington was one of the best pieces of writing I've ever read. Like all things great, you never know where you're going, and when you get there it isn't where you expected to be. A most extraordinary piece of work.

Enoch H. Dolbe II
Sandwich, Mass.

For AM or FM Only

In Leonard Marcus' editorial announcing HF's acquisition by the American Broadcasting Companies [October] he made a big point about your continuing "complete and unquestioned editorial independence" from your new parent corporation. In the same issue, there was an unsigned editorial opposing the "all-channel radio bill" then before Congress [News and Views] that, if passed, could mean a windfall for ABC. Bravo! You certainly proved your point. (Are you still there?)

Arthur Durfee
New York, N. Y.

I heartily agree with your expressed reservations about the contemplated ban on AM- and FM-only radios.
I live only thirty miles east of San Francisco, as the crow flies, but even fifteen miles due east one cannot receive much in the way of quality FM (just a few rock programs). I did buy myself a stereo-FM/cassette player for the car, but after three years I concluded it wasn’t worth the money. And our place is hardly in “rural” America.

Paul A. Elias
Clayton, Calif.

AM Broadcasting

Since the introduction of the new “super tuner” for AM radio, the McKay Dymec AM-3, I have seen a revived interest in AM reception among your readers from the letters they write to your magazine. However, there are still a few misconceptions about AM radio in the minds of most high fidelity enthusiasts. I would like to try to clear them up.

One of the most common is that an AM transmitter is inherently incapable of transmitting a high fidelity signal. It is perfectly capable of transmitting a very high-quality signal. Prototype AM transmitters have been known to produce distortion figures well under 1%. Production models regularly produce distortion figures in the region from 1 to 1.5% and, if properly maintained, will retain these figures even after many years of service. At least one design concept, the RCA Ampliphase, regularly turns in distortion figures of 0.5% or so on production models. While most of the distortion figures cannot be considered “super high fidelity.” They are not at all bad.

The Beogram 3000

One part of a system developed to reproduce sound as it is.

The Beogram 3000 is an integrated, automatic turntable offering utter simplicity of operation and elegant, understated design. All functions are handled by a single master control: the choice of record size automatically selects the correct speed (33 or 45 rpm), a slight touch of the center disk places the stylus tip in the first groove of the record. When the selection is completed, the tone arm automatically returns to its rest position and shuts off the unit.

The tone arm pivots on hardened steel bearings for low horizontal friction. An ingenious system of inclined planes automatically applies the correct amount of anti-skating force as the tone arm travels across the record. A pendulum suspension system isolates the stylus from external vibrations and acoustic feedback.

As a turntable must operate in concert with the cartridge, the Beogram 3000 has been engineered to utilize Bang & Olusen cartridges. The integration of tone arm and cartridge provides a lower dynamic mass, thus reducing the force required to move the stylus tip, and eliminates unwanted resonances. Bang & Olusen cartridges have been acknowledged as being among the world’s finest.

Bang & Olusen
Excellence in engineering—Elegance in design
Two traditions from Denmark

Bang & Olusen 2271 Devon Avenue, Elk Grove Village, Illinois 60007
CIRCLE 7 ON READER-SERVICE CARD
Mozart — music's greatest natural genius! Wolfgang Amadeus Mozart — divinely gifted beyond any other musician who ever lived! And into his six greatest symphonies he poured a multitude of his most astonishingly beautiful, incredibly moving inspirations!

Symphony No. 41, "Jupiter"
Symphony No. 40 in G-minor
Symphony No. 39 in E-flat
Symphony No. 38, "Prague"
Symphony No. 36, "Linz"
Symphony No. 35, "Haffner"
Extra! Symphony No. 32

Now you are invited to hear these miraculous works in their finest recording — interpreted with extraordinary empathy by Karl Böhm...played to perfection by the Berlin Philharmonic Orchestra...captured in unsurpassed stereo realism by Deutsche Grammophon. So outstanding is this recording that it has won three of the music world's most eagerly sought honors: the Grand Prix International du Disque, Edison Award and Deutsche Schallplatten Prize! In addition, you will receive Mozart's Piano Concertos Nos. 12 and 26, "Coronation", superbly performed by soloist Geza Anda with the Salzburg Camerata Academica — winner of the coveted Grand Prix des Discographes.

Now enjoy and keep these 4 superb albums for less than the price you'd pay for 1! Because these magnificent recordings have met with almost unprecedented acclaim, they have been chosen to introduce you to The Great Awards Collection, a totally new concept in home listening. You may enjoy all eight masterpieces, on four superb quality, imported records, for 10 days absolutely free. Then keep all 8, or return any you wish, for only $6.98 (that's less than the price of one!)

Money-saving introductory offer.

Free ten-day trials of all selections.
Superior imported LP's — silent surfaces.
Big savings through Half-Price Bonus Plan.
Eight ways The Great Awards Collection helps you enjoy fine music more than ever!
1. The greatest music by the world's immortal composers.
2. A major, award-winning recording each month.
4. Free ten-day trials of all selections.
5. Big savings through Half-Price Bonus Plan.
6. No obligation to buy — no minimum purchase.
8. All selections always far less than retail price.

Spend no money now — Mail coupon TODAY!

Listen for 10 days free. Keep all 4 for less than the price of 1!

The Great Awards Collection • 175 Community Drive • Great Neck, N.Y. 11025

Please send me, for my free audition, the triple-award-winning recording of Mozart's Six Greatest Symphonies by Karl Böhm, together with Geza Anda's award-winning performance of Mozart's Piano Concertos Nos. 12 and 26. I may return the set after 10 days and owe nothing, or keep it and pay only $6.98 for all four Deutsche Grammophon records, plus a small postage/handling charge. This is all four records for less than the regular price of one!

I will also receive a free ten-day audition each month of another award-winning recording of great music. For every one of these records I buy at your members' price (always below suggested retail), I may also choose one record at half that price from your special list. I am not obligated to buy any minimum number of records. I may cancel my membership at any time.

Sales tax added for New York residents.

NAME (please print) ADDRESS

CITY STATE ZIP

Other limited to the contiguous 48 states. Only one per household. Please mail the attached card or coupon for your free trial, with four-for-less-than-the-price-of-one purchase option of this essential collection of Mozart's Six Greatest Symphonies and exquisite Piano Concertos Nos. 12 and 26.

FEBRUARY 1975

11
With so many things on your mind, you just don’t have time for details like how long it’s been since you changed your stylus. But, you should take the time to think about it. The stylus is the single point of contact between the record and the balance of your music system. That makes it the single most important component for faithfully reproducing sound and for protecting your great investment in records. It’s not always easy to tell when a stylus is ready for replacement—but if it’s worn or damaged, it could be damaging your records with every playing! When you first hear sounds that shouldn’t be there—and didn’t use to be—it’s already too late. Have your Shure dealer inspect your stylus today. It could be a few minutes well spent... no matter what else you have going.
BEFORE WE MADE THE NEW YAMAHA RECEIVER, WE MADE THE ORCHESTRA.

The new Yamaha receiver and other stereo components emerged from a unique eighty-year involvement in music and sound.

Years ago Yamaha established new standards in wind instrument precision, piano sound, guitar craftsmanship, organ electronic technology.

Our engineers didn't just sit down and create those standards—they evolved them, and the same is true in their latest audio achievements.

To reach their goal of maximum truthful reproduction, they had Yamaha's three-quarters of a century sound experience to draw on.

And they developed new technology to match and exceed the kind of quality performance (low distortion) usually found on "separates" at the highest price levels.

A New Engineering.

They developed a new kind of engineering philosophy, too.

Because they conceived this quality standard not for just the highest priced Yamaha components, but for the whole line!

The result is low distortion performance, typically at .08%, available to receiver and amplifier buyers in all competitive price ranges.

Compare the specs on the new Yamaha components to any of their competition.

But don't stop there—compare them to your idea of an ultimate component selling at any price.

We're confident of the outcome.

The Powerful Truth.

The new Yamaha CR-800 receiver, for example, packs a powerful 45 watts per channel RMS (both channels driven, 8 ohms, 20-20 kHz) to give you the full force of a big crescendo, or full audibility of a delicate piccolo solo.

Sophisticated Tuner.

The CR-800's FM tuner section is the first to utilize negative feedback around the multiplex demodulator. This achieves superb separation (45 dB) and reduces MPX distortion to 0.05%. And Yamaha Auto Touch tuning allows the electronics to fine tune the station for minimum distortion (and keeps it there).

Ten position control.

Loudness control takes speaker efficiency, room acoustics, and other factors into consideration, to give you the tonal balance of lows, middles, and highs you like at all volume levels.

Multiples and Mixes.

For the multiple tape deck owner, the 800 has a five-position tape monitor selector to easily control two stereo tape record/playback circuits for recording on one or both decks simultaneously, for copying from one recorder to another, or for reproducing or monitoring on either.

Other features include a separate microphone pre-amp and volume control, a two-position low filter (20 Hz-70 Hz) and a two-position high filter (8 kHz-blend). And LED's for critical indications.

Homemade Philosophy.

The 800 fully incorporates all the years of electronics technology, metal working, machining and wood working pioneered by Yamaha in the music field.

Most of the various parts of Yamaha stereo equipment are made by Yamaha, in our own facilities, for stronger quality control.

And like Yamaha music products, Yamaha components are covered by an unusually long warranty—5 year parts, 3 year labor—and a national service and dealer network.

Audition the Yamaha CR-800, and all our new components, at your nearby Yamaha dealer.

YAMAHA
The technical virtuosity of our stereo components has to extend your sense of sound.
designed into each a very sophisticated purpose: to its fullest potential.

In other words, we'll do a number on your ears.

AKAI

You'll hear more from us.
Introducing Maxell Ultra Dynamic backcoated/open reel tape.

A professional studio engineer doesn't have time for dropouts, wow, flutter, tape noise, static, poor winding, edge damage or erratic tape traction. Maxell Ultra Dynamic tape has the backcoating that eliminates these recording obstacles.

That's why the professionals use it. And why you should too.

While your Maxell UD tape is running (and the backcoating is protecting your music) you can concentrate on mike placement, sound levels and the more creative side of audio...like shushing the kids in the next room.

Maxell Corporation of America, Moonachie, New Jersey 07074. Also available in Canada.
If the whole is greater than the sum of its parts, imagine what happens when each part is greater than it has to be.

Your Accuphase retailer will be happy to demonstrate exactly what happens. To find the one nearest you, write us.

Accuphase by TEAC

TEAC Corporation of America, 7703 Telegraph Road, Montebello, California 91761
Oscar Peterson—
The Greatest Pianist in Jazz History?

He seems never to have squandered a moment of his life's energies on that most tedious of Canadian pastimes, agonizing over one's identity. Perhaps that is because he is black and thus was always a "different" Canadian. On the other hand, when black militancy began dividing the jazz world, he remained apart, once dismissing its first article of faith—that no white man could play "authentic" jazz—as "a lot of junk." He is fully aware that the power of creative drive in jazz has come predominantly from black musicians, but he believes that each man brings to it his own environmental values, and that this makes him unique.

It is probably not coincidence that some doctrinaire leftist commentators have been his most patronizing critics, calling his work mechanical or excessively perfect, whatever that means, or most condescending of all—eclectic. He is eclectic. So was Bach.

Whatever the reasons, he has always been his own separate man. He is an example of what Colin Wilson called "the outsider."

This outsider, Oscar Peterson, originally of Place St. Henri in Montreal and latterly of Paris and London and New York and Sydney and Tokyo, is quite possibly the greatest pianist in the history of jazz. Whatever critics say (and the record must be balanced by pointing out that many of them, including Leonard Feather, are among his deepest admirers), he absolutely freaks out other musicians, particularly pianists.

The Argentine-born film composer Lalo Schifrin is one of the most thoroughly schooled of musicians. He was himself an excellent pianist with Dizzy Gillespie's quintet before settling in Hollywood. "Oscar represents," he said, "a tradition that has been lost in this century—the virtuoso piano improviser, like Chopin, the tradition of bravura playing that started with Beethoven and reached the apotheosis with Liszt. After that, the pianists began playing what was written. Oscar is a true romantic in the nineteenth-century sense, with the addition of the twentieth-century Afro-American jazz tradition. He is a top-class virtuoso."

Schifrin said it less objectively one night in the Hong Kong lounge in Beverly Hills, where Peterson was playing. "Ridiculous," he muttered, shaking his head in wonder. "Ridiculous. Impossible."

This response is common. Peterson has astounding speed. Only Phineas Newborn and the late Art Tatum, one of his idols and mentors, have equaled him. And he has a power of direct swing that Tatum did not equal. His ideas are not always original; on a poor night, he falls back on his own highly identifiable phrases of musical vocabulary and some that he got from others, like a curiously spinning chromatic figure of Dizzy Gillespie's. But these alone can be electrifying—the brilliantly clear and perfectly balanced runs, like streams of sparks, the great chords whacked into perfect place in the swing with a left hand that plays tenths effortlessly and could, I suppose, if he wanted them, encompass twelfths, the dizzying passages in octaves that utilize a left hand as proficient as the right.

Asked for an evaluation of his work, Peterson's long-time close friend, arranger and composer Phil Nimmons (who recently orchestrated Peterson's Canadiana Suite), hesitated. "Oh—oh—I don't know what to say. It is overwhelming. The piano is like an extension of his own physical being. I'm amazed at the speed of his creativity. I am not talking about mere technical capabilities, although his are awesome. I'm speaking of the times when you find him under optimum conditions of creativity. His mind can move as quickly as his fingers, and that is what is so astounding. It's all going by so fast that it's almost too much to absorb, which may be why some critics have had trouble with him."

Everyone who has followed Peterson's work closely knows those moments of which Nimmons speaks: sometimes late at night, in a club, when the expense-account people have gone and he is as liable as not to use the quiet for ballads, lovely, soft, and pensive. That is a part of his playing too few people know.

He has always been a virtuoso soloist.
FREE 1975 Heathkit Catalog

The audiophile's guide to kit-form savings

Our latest catalog contains the world's largest selection of kit-form stereo & 4-channel components, along with speakers, cabinets & accessories — plus over 350 other exciting Heathkit products for every interest and every budget. And it's yours for the asking — just fill out & mail in the coupon below! For over 27 years, we've made superb electronic equipment that anyone can build — even with no prior knowledge of kit building or electronics.

Our assembly manuals are famous for guiding you step-by-step. Friendly technical consultants at our factory are ready to help you at the first sign of a problem and expert service is available coast-to-coast. As hundreds of thousands of customers will tell you, we won't let you fail!

AR-1500A Stereo Receiver

Without a doubt, one of the world's finest receivers. The amplifier delivers 60 watts RMS per channel into 8 ohms at less than 0.25% total harmonic distortion from 20-20,000 Hz. And the AM and FM sections measure up to equally impressive levels of performance. An outstanding receiver, yet even a novice can build it.

Kit AR-1500A, less case ................................................. 399.95*

Dolby® Stereo Cassette Deck

Top performance at an easy to afford price. Bias adjustments for regular and chromium dioxide tapes. With CrO2 tape and Dolby, frequency response is typically 40-14,000 Hz, ±3 dB with −58 dB hum and noise. The reliable transport comes factory-assembled and aligned. Just wire the plug-in circuit boards and perform the final assembly. With test tape and blank cassette.

Kit AD-1530 ............................................................ 259.95*

dolby is a trademark of Dolby Laboratories, Inc.

See our complete line of stereo & 4-channel components — send for your FREE Heathkit catalog.

HEATHKIT ELECTRONIC CENTERS — Units of Schlumberger Products Corporation

Retail prices slightly higher.

ARIZ.: Phoenix; CALIF.: Anahiem, El Cerrito, Los Angeles, Pomona, Redwood City, San Diego (La Mesa), Woodland Hills; COLO.: Denver; CONN.: Hartford (Avon); FLA.: Miami (Bal Harbour), Tampa; ILL.: Chicago, Downers Grove, IND. (Indianapolis); KANSAS: Kansas City (Mission); KY.: Louisville; LA.: New Orleans (Kenner); MD.: Baltimore, Rockville; MICH.: Detroit; MINN.: Minneapolis (Hopkins); MO.: St. Louis (Bridgeport); N.J.: Newark, N.Y.: Buffalo (Amherst), New York City, Jersey (L.I.), Rochester, White Plains; OHIO: Cincinnati (Woodlawn), Cleveland, Columbus, Toledo; PA.: Philadelphia, Pittsburgh; RI.: Providence (Warwick), TEXAS: Dallas, Houston; WASH.: Seattle, WIS.: Milwaukee.

CIRCLE 21 ON READER-SERVICE CARD

FEBRUARY 1975
Because there's no one mike for everyone, AKG makes the one mike that's right for you.

The D-707 is a multi-purpose microphone for part-time professionals. The D-190 is a bass-boosting audio-buff pleaser with built-in on/off switch. The D-1000 features a unique mode selector. This lets you emphasize the bass, the mid and high—or the super highs. They're all cardioid dynamic. The most useful type for better stage, studio and PA work. The Three Miketeers will make both professionals and part-time professionals happy.

All three will withstand high sound pressure, wet vocal chords and rough handling. They all have the Hertzes, Ohms and decibels you want.

The Three Miketeers are on display at better audio and music shops. Or write to us for more information.

The Three Miketeers.

RILE MICROPHONES  HEADPHONES

The Three Miketeers are on display at better audio and music shops. Or write to us for more information.

He began music on the trumpet, but he contracted tuberculosis as a child and had to give it up. Piano was the substitute. Ironically, his brother Charles began as a pianist and, when he was injured in an accident, turned to the trumpet. Both their sisters were pianists, and it was from them that Oscar received his first training.

As a child he practiced up to twelve hours a day—voluntarily. In fact, his mother had to pull him away from the piano in the evenings. Except for a brief period in a band during his adolescence he has always had his own group, at one time a duo with bassist Ray Brown and later various trios, in which he has been the dominant figure.

It was twenty-five years ago that jazz impresario Norman Granz brought him to New York for an appearance with Jazz at the Philharmonic at Carnegie Hall. He has been traveling ever since, all over the world.

He is forty-eight now, and he talks at times of retiring—though it should be noted that he has been saying that for years. He's tired of the road. ("Who isn't?" asked another musician.) He wants to work with aphasic children. He likes to be with his wife, Sandra, at their home in one of the Toronto suburbs, with his own piano and a complex of sophisticated recording equipment that his son Norman (for Norman Granz) seems to know more about than he does. Or he likes to go to their summer home in Northern Ontario and fish. At such times, not even his sister May, who takes care of much of the business of his career, can find him.

Perhaps one of the reasons he's thinking of retiring is the pain that playing brings him. He has arthritis in his hands. "It almost always hurts when I play now," he told me quietly two or three years ago. Yet one would never divine it, hearing him—there is no diminution of the massive energy, no catering to his discomfort. That is part of him: an unrelenting self-discipline.

In the end, there is something larger than life about him. Astrology buffs will be unsurprised to learn he is a Leo. Elegantly articulate, stubborn as hell, thoughtful, gentle, capable of enormous anger that he almost always controls and great laughter that he doesn't, more easily hurt than he will admit, he is a big man, even physically: big in the chest and shoulders, big in the arms, big in the hands. In his case, the passion for music found itself embodied in an absolutely perfect physical tool.

Canada has produced two prodigious pianists, one in classical music, one in jazz, and they both live in Toronto. One is Glenn Gould, the other Oscar Peterson. They have never met. Isn't that odd? Outsiders.
West German precision by PE is a greater value than ever.

West Germany's craftsmen have a well-earned reputation for building turntables with superb engineering, costly materials, careful manufacturing and clean functional design.

Music lovers have known this for years, and as a result, West German turntables are more popular than any other, although they are not inexpensive.

Except for PE, whose prices begin at little more than those of ordinary record changers.

At $109.95, the PE 3044 has a low-mass counterbalanced tonearm that can track flawlessly at as low as 1.5 grams. And it offers such precision features as variable pitch control and cue control viscous damped in both directions.

Furthermore, each of the higher priced PE models offers additional precision features that make it highly competitive in its respective price class. For example:

The 3046 and 3048 offer die-cast, dynamically-balanced platters; rotating single-play spindles; and separate anti-skating scales for different stylus types.

As for the top of the line, the 3060, Hirsch-Houck Labs reported in Stereo Review: "The performance of the PE 3060 belongs in the top rank of automatic turntables."

To appreciate PE turntables in terms of performance, visit your authorized PE dealer and compare them with others priced well above them. You'll see what makes each PE the best automatic turntable at its price and the best value.

---

**PE**

Impro Industries, Inc., 120 Hartford Ave., Mt. Vernon, N.Y. 10553

CIRCLE 27 ON READER-SERVICE CARD

February 1975
I think Artur Rubinstein touched a sensitive nerve when he quipped that the younger pianists are nervous because they cannot play as well in public as their recordings lead an audience to expect. But this ironic observation suggests only a single facet of the intricate relationship between concert performance and recording, a relationship that concerns young and old pianists alike.

Every contemporary performer is affected by recordings—those of others as well as his own—but in a positive as well as a negative way. I have found that audiences who know my records have a context within which to appreciate my performance, because they are aware of my musical values and aims. People have expressed surprise after a concert that my live performance of a work differed in some respects from the recording. But I believe that if the live performance is good enough, most listeners will be sufficiently involved that they will not be comparing you with yourself.

As most sophisticated audiences realize, live performances and recordings represent a musical work in different ways. A recital will of necessity have flaws, but it will often have an in-built continuity, a spanning intellectual arch, that most recordings do not capture. The complexity of recording-studio conditions and the necessity that the score be rendered note-perfect—few listeners will tolerate hearing the same mistake over and over again—usually dictate doing more than one take for a movement or work, and the sense of a long line stretching across the whole piece can rarely be achieved unless the playing continues from beginning to end without stopping. I am not complaining about this, merely stating a fact of life: that in the recording studio the performer is striving for something different from what he achieves on the recital platform.

Recordings generally do little to illuminate over-all structure; that kind of illumination a performer seizes upon almost exclusively in the concert hall. Recordings show us other things. They clarify certain details and musical points that seldom come through in live performance. They also make clear the relationship between technical perfection and total conception—that is, if it were possible to play everything perfectly on the stage, and to do so without distracting worry, recordings show the ways in which individual passages should be balanced and contrasted with one another, how they mesh into larger wholes, and so forth.

I hasten to say that I am ashamed of none of my recordings and that they do present a fair picture of my playing at its technical best. A few offer something more. I think, in particular, my Bartók recital (Mikrokosmos Vol. 6, the Out of Doors Suite, and the sonatina), my Mozart concerto recordings with Colin Davis, and the Schumann concerto with the same conductor. In a couple of cases, I feel I have been lucky enough to achieve a really rare sense of the long line: in the Bartók Second Concerto (again with Davis) and the Beethoven Op. 111 Sonata, in which the final movement especially was done in very long takes.

Of course, some works do not require much structural illumination: the Grieg concerto, for instance. Here all one need do is introduce sufficient contrast among the parts of the piece; there are very few passages of structural elision between disparate elements or passages in which such elements are gathered together and synthesized. Because of this I felt that, in the case of the Grieg, I could make an exception to my generally ironclad rule that I will not record a work until I have played it before an audience. But the Philips Records executives said, “If you want to record the Schumann, you must do the Grieg.” And I wanted to record the Schumann very much.

I have never found that working with a conductor in the recording studio has come between me and what I wanted to achieve in a particular work. It is certainly more fun than solo recording, where you are alone with the microphones and voices coming at you from
Both the 901® and 501 speakers utilize two key elements essential to BOSE loudspeaker design: direct and reflecting sound, and flat-power response. Additionally, the 901s incorporate multiple full-range drivers acoustically-coupled to a common chamber, and active equalization.

These features, resulting from twelve years of university research*, have made the BOSE 901 the most highly reviewed speaker† in the high fidelity world. And our SYNCOM™ II computer assures you of extremely high quality control standards.

Just A-B the 901s or the 501s with any conventional speakers. Comparison will prove, the difference between a fine sound system and a great one is the speakers. It all begins with BOSE speakers.

*For a description of this research see the article "Sound Recording and Reproduction" published in Technology Review (M.I.T.) Vol. 75, No. 7, June 75. Reprints are available from BOSE for fifty cents.

†For your complimentary copy of these reviews plus information on our speakers write: BOSE, Dept. HF, The Mountain, Framingham, MA 01701

Shown above (left to right) new walnut and white 901 Continentals, ebony, white, and walnut 901s; (center) 501. Pedestals optional.
The Little GIANT
SMALL IN SIZE...BIG IN PERFORMANCE!

UHER
CR 134
PORTABLE
HI FI
STEREO
CASSETTE

THESE CURVES TELL THE STORY BETTER THAN WORDS!
Rugged die cast chassis and case  ■ Automatic tape reversal  ■ Photo-sensitive electronic control of the tape-drive mechanism  ■ Use it in a component hi fi system, for film synch or "sound hunting"  ■ Built-in condenser microphone

For Further Information write to
UHER of America Inc.
621 S. HINDRY AVENUE
INGLEWOOD, CA 90301
CIRCLE 57 ON READER-SERVICE CARD

FREE McIntosh CATALOG
and FM DIRECTORY

Get all the newest and latest information on the new McIntosh Solid State equipment in the McIntosh catalog. In addition you will receive an FM station directory that covers all of North America.

MX 113
FM/FM STEREO - AM TUNER AND PREAMPLIFIER

SEND TODAY!

If you are in a hurry for your catalog please send the coupon to McIntosh. For non rush service send the Reader Service Card to the magazine.

CIRCLE 34 ON READER-SERVICE CARD

control booths, for you have the give and take with the conductor and other musicians. By this I mean personal give and take; I don't believe in artistic give and take—that is, striking a bargain or compromising. If a conductor disputes a musical point with me, I either stick to my guns or go along with him. I never search for an alternative that will please both of us. Compromise and committee decisions have their place—in the Yellow River Concerto.

Solo recording has its pleasures and rewards too. I think specifically of a wonderful Italian producer, Vittorio Negri, with whom I love to work for many reasons but in large part because he has such a sense of humor. In most of the music I play I am accustomed to using a very wide dynamic range. Negri used to get a marvelous crucified look whenever I escaped the dynamic limitations of his machine at either end. "Stephen," he would say after what I thought was a particularly fine pianissimo passage, "all I am getting is sssssssss." But this is an area in which innovations in recording technique are making it possible to capture on disc something that once was reserved for a concert audience. In recording my Op. 111, using the newest machinery, Negri was able to let me do anything I wanted at either end of the dynamic scale.

All in all, these were some of my most successful sessions. We had to cancel the first one scheduled because I was sick, and at the second I was still running a 103-degree fever. Negri took one look at me and said, "Go home. I refuse to take the responsibility for your health. You look like hell." But the sessions before these, during which I recorded the Beethoven Op. 110, had gone very well, and I had worked hard at Op. 111 and wanted to try it. He finally agreed. As I have said, the results were very pleasing to me. I think I like recording with a fever.

I love listening to records, both my own and those of others, though for sheer pleasure divorced from study I most often want to hear something other than solo piano music. I do treasure some piano recordings: I think particularly of those of Sergei Rachmaninoff, which RCA has just reissued in abundance—especially the shorter pieces. They are extraordinary examples of pianistic art. Far from being a series of moments spliced together, these recordings time and again capture a sense of occasion. For the performer, these recordings are the elusive ideal. But it would be fatuous to suggest that short pieces alone should be recorded, and only by the Rachmaninoffs among us. Recordings—the great and the not so great—are an integral part of our cultural environment; on balance we can only be grateful for them. •

26 CIRCLE 34 ON READER-SERVICE CARD

HIGH FIDELITY MAGAZINE
New from Acoustic Research

The AR-10π
A new standard of musical accuracy and an unprecedented degree of placement flexibility

Musical accuracy
The new AR-10π is the most accurate musical reproducer that Acoustic Research has ever built for use in the home. It has been designed to deliver uniform flat energy response in most listening rooms. This means that the musical balance of the input signal will be accurately transmitted to the listener, and listeners in virtually all listening positions will hear the performance in the same way. A new tweeter and crossover network make this new standard of accuracy possible.

Speaker placement
Speaker placement in the listening room is of critical importance to the musical balance of the system. That’s why most speaker manufacturers give explicit instructions on exactly where their speakers must be placed for best results. The AR-10π however has been designed for maximum flexibility in this respect. It can operate in almost any location in your room with no sacrifice in accuracy.

The AR-10π can be positioned against a wall, in a corner, or even in the middle of the room. Simply resetting a single switch will ensure the right amount of bass energy for any position—something that is not possible with conventional loudspeaker designs or equalization techniques.

Acoustic Research has prepared a comprehensive description of the AR-10π speaker system. You can get a free copy by sending us the coupon below.

Acoustic Research
10 American Drive
Norwood
Massachusetts 02062
Telephone: 617 769 4200

Please send me a complete description of the AR-10π

Name

Address

February 1975

CIRCLE 1 ON READER-SERVICE CARD
In a class by itself.

The Phase Linear 400 Power Amplifier has only one serious competitor when it comes to advanced design, superior performance, made-one-at-a-time craftsmanship, proven reliability, elegant appearance... and incomparable value. And that's the Phase Linear 700B. Hear them both at your dealer soon.

Phase Linear 400

THE POWERFUL DIFFERENCE

200 watts per channel, min. RMS at 8 ohms from 20 Hz to 20 kHz with no more than 2% total harmonic distortion

PHASE LINEAR CORPORATION
20121 - 48th Avenue S.W.
Lynnwood, Washington 98036

CIRCLE 38 ON READER-SERVICE CARD

My Marantz amplifier runs between 6 and 16 hours a day, usually with my Marantz tuner. Since the amp runs about one-third power, a point where most solid-state devices produce the most heat, would it be advisable to run it instead of, say, three-quarters power and simply lower the output of the tuner to maintain listening level?—Doug Guerette, Nashua, N.H.

I understand that both Dynaco and Phase Linear are fighting the new Federal Trade Commission rule that, when amplifiers' specs are measured, they first be preconditioned for one hour at one-third rated power. Does this mean that some or all of these companies' amplifiers can't hack it in this test?—T. Lindner, Seattle, Wash.

Frankly, we don't know. The question is not so much whose will and whose won't (many manufacturers seem to have been slow to understand this provision of the new FTC power-spec rules and to check out their own products in this respect), as it is whether such preconditioning makes sense in the first place. The amplifier is fed a continuous 1-kHz sine wave (which, of course, is quite unlike normal music or speech signals) at—as Mr. Guerette says—the worst-case heat dissipation point, or very near it. A 45-watt amp, for example, will be preconditioned at 15 watts, raise or lower the output (as music or speech signals force the amplifier to do continuously and over a fairly wide range), and less heat will be produced. Furthermore one-third power is a very hefty output: less than 5 dB below rated output and therefore a level to which most users seldom if ever drive their volume controls. One-third power is only one-third of the way up—a very different situation for heat dissipation will make the amp... cooled-running and therefore, theoretically, longer-lived.

But when Mr. Guerette talks of running his Marantz at one-third power, he presumably means with the volume control turned one-third of the way up—a very different thing because of the "audio taper" used in volume controls. One-third power is only about 5 dB below full output and would be much closer to maximum knob rotation. If he really is driving the amplifier so that its average output (which still isn't continuous output, of course) is only some 5 dB below rated output, he must play only music with a relatively limited dynamic range or be overloading the amp shamelessly on the loudest passages—and he presumably either has a very skimpy amp for his speakers' efficiency rating or has irate neighbors. And turning down the output from the tuner and then compensating at the amp's volume control will put him right back where he started from in terms of watts delivered by the amplifier. The real question is: How hot is the amp running? If the heat sinking feels hot to the touch, the amp might profit from better ventilation, aided by a fan, if necessary. But the arbitrary and somewhat unrealistic FTC rule strikes us as only indirectly related to practical problems of overheating, where they do exist; it remains to be seen how the rule will be enforced and therefore what practical impact (if any) it will have on actual product design.

After all that you and other magazines have written about quad, I was shocked to hear a dealer say it will be dead in a couple of years. "Everybody knows it has been a bomb," were his exact words. I didn't know, or I wouldn't have invested in quad equipment and recordings. Does he know what he's talking about?—William G. Norris, Short Hills, N.J.

Dealers have been, perhaps, the least enthusiastic group in the country where quad is concerned. There have been some notable exceptions among equipment dealers but mighty few among record dealers, to our knowledge. And being aware of this, the manufacturers in both fields seem to have done a massive job of overselling, giving the impression that quad would sweep stereo aside at any moment. That simply hasn't happened—nor does it appear likely to happen. The result is that, having bought (or at least been insistently exposed to) the oversell, many dealers now see quad as a dismal failure.

Quadriphonics appears to be in a period of gradual progress. While its measured tread may disappoint those who thought it would turn into a horse race, it has brought more sanity to the subject than we've seen at any time since quad first arrived on the commercial market.

The Han-D-Mag [tape-head] degausser described in your September issue [test reports] had a field strength of 700 gauss. Could such a strong field permanently affect VU meters in the vicinity of the heads being demagnetized? The meters on my Teac are three to four inches from the heads.—William Moy, Monteblelo, Calif.

Good point! One reason the field from the Han-D-Mag (or any other well-designed head degausser) is as strong as it is because it is concentrated by the pole pieces...
Speakers are a matter of taste.

No other component in your high fidelity system will influence your enjoyment of music as much as your choice of speakers. Every speaker design has its own individual characteristics, and actually imposes its own personality on any music you play.

What kind of a sound do you prefer? The tight sound of an acoustic suspension speaker? The open sound and flexibility of an omni-radial speaker? Or the presence and realism of a multi-directional speaker?

No matter which you choose, Sansui makes a speaker to match your taste. And they are all superior in performance delivering sharp definition, and a smooth, but crystal clear dynamic attack over a wide range.

Yes, speakers are a matter of taste. Only you can decide which one of the seven Sansui speakers is really the best speaker you ever heard. So stop in at your nearest Sansui dealer, and listen.
We're too British to boast.
So here's what the experts say about us.

Rather than appear immodest, we'll let the experts who write for the audio publications tell you about an automatic turntable we're quite proud of-our 8100X Transcription Series model.

High Fidelity magazine says:
The new cam system in the 8100X is credited with providing smoother and quieter operation than in past models. Average flutter was very low at 0.05%, total audible rumble by the CBS-ARL method was -52db. The arm has negligible friction laterally and vertically, and requires a 0.3 gram stylus force for automatic trip. Taking it all together-performance, features, styling-the BSR 8100X moves into ranking place among the best automatics we know of.

Stereo Review magazine says:
The BSR 8100X has an unusually complete array of operating controls and adjustments, yet is simple to use. The wow and flutter were very low-respectively 0.03 and 0.045% at 33 1/3 rpm and 0.05 and 0.04% at 45 rpm. The BSR 8100X, undeniably a well-constructed and attractively styled record player, was also a very easy one to operate. The controls had a smooth, positive feel and action.

This is a modest way to tell you how good our 8100X Transcription Series turntable really is. We would be pleased to send you detailed specifications. Just drop us a note.

Gentlemen:
P.O. Box 60271, Terminal Annex
SAE, Inc., Dept. HF 257
Los Angeles, California 90060

Name:
Address:
City State Zip:

Mark IVDM by return mail.

BSR (USA)Ltd., Blauvelt, N.Y. 10913

BSR (USA)Ltd., Blauvelt, N.Y. 10913

What ever happened to video tape for the home? I thought that it was supposed to be the coming thing in electronic home entertainment and that Sony had won the "battle of the formats" with its U-Matic system. How come you never talk about the subject any more? Were you perhaps a little overeager in what you were saying a few years back?-V.G. McGinn, Brooklyn, N.Y.

Perhaps, though we have been far less overeager than many publications. The subject of home video recording—or, at least, recordings—has considerable appeal and always did. It's all a question of how you get there from here. Each time the technological and format questions seemed to have been settled so that the business of reducing costs to affordable levels could go forward, the subject has taken a new twist. Despite the wide acceptance (albeit outside the home market) of Sony's 1/4-inch U-Matic cassette system, the company is now said to be at work on yet another, 1/2-inch, tape system. (In fairness to Sony we should point out that the U-Matic system was not pushed as a home system, but rather for the very industrial and educational markets in which it has been widely accepted.) At the same time, much activity continues in the various video disc formats—which perhaps have more appeal to manufacturers at present because of the failure of the Cartrivision home tape format.

Basically, however, the matter continues much as it has—wearyingly—for most of the last decade. Introduction dates, technical advances, and selling prices are bandied about, but (Cartrivision aside) nothing comes of them. When the product can be bought at a reasonable price and appears to work satisfactorily with good prospects of staying power, our flagging interest doubtless will get its second wind.

I hear that the Tate logic-SQ decoder will make all present-day quad decoders obsolete. What do you think, and when are you going to test it?-E. W. Meiers, Allentown, Pa.

When it's a real product. Only prototypes have been demonstrated so far, and there were what we consider to be shortcomings in the demonstrations we heard. Specifically, we were disturbed by a certain instability of placement—something we have heard in other demos of super-logic prototypes. If this property is inherent in the sound produced by the production model (and neither Tate nor other prototype demonstrators have been able to reassure us effectively on this point) unqualified enthusiasm would be out of the question.

CIRCLE 11 ON READER-SERVICE CARD

Middle of the road?

Not a chance! Even though the Mark IXB stereo preamplifier and the Mark IVDM power amplifier represent the middle of our product line, they by no means represent mediocrity. They both use only the highest quality parts such as 2% deposited-carbon resistors, military grade G-10 glass-epoxy circuit boards and Darlington transistors in the amplifier output stages. These are the same superior parts found in our most expensive components. Send coupon today for detailed information.

SAE, Inc., Dept. HF 257
P.O. Box 60271, Terminal Annex
Los Angeles, California 90060

Gentlemen:
Please rush free information on the Mark IXB and Mark IVDM by return mail.

Name:
Address:
City State Zip:

CIRCLE 47 ON READER-SERVICE CARD
Load up with blanks

Buy two. Get one free.

Here’s a sure-fire way to save on the music tape
BY CAPITOL premium quality blank cassettes and
and cartridges. Buy two and get a third one free. You’ll find
these special three-packs of cassettes (60 and 90 minutes)
and cartridges (45 and 100 minutes) at participating stores while
supply lasts. If you record music, quit horsing around with
ordinary tapes. The music tape has greater sound sensitivity at both
high and low frequencies, a better signal-to-noise ratio and less audible
noise. It is also mechanically superior. Cassettes and cartridges are jamproof.
The cassette tape has our exclusive cushion-air™ backcoating to prevent static,
jamming and dropouts. The cartridge tape is lubricated for smooth, even winding
over hundreds of passes. We make more blank cartridges than any other manufacturer. In fact, every
major music company uses our tape for prerecorded cartridges. There’s no better time to try the music tape
then now, when you can load up with blanks without shooting your budget.

If you record ordinary things, use an ordinary tape. But if you record music, record on

the music tape™
cassette • cartridge • open reel

BY CAPITOL

Capitol  EMI
CIRCLE 12 ON READER-SERVICE CARD

February 1975
A Grand Old Name Revived

To new readers the name Acoustech may mean very little; to many of us it brings pangs of memory. A decade ago the Acoustech line (the company had been known as Acoustic Technology, Inc.) was important in solid-state electronics, venturing into areas that had been strongholds of the vacuum tube and offering some very fancy-spec units in both kit and wired form. And Acoustech was among the few companies to offer a full-range electrostatic speaker.

A child of the transistor boom and bred in Cambridge, Massachusetts (that incubator of audio ideas), it grew to a financially troubled maturity somewhat ahead of its time. Its designs were ambitious and, perhaps for that reason, sometimes seemed particularly plagued by the problems that infected even more cautious ventures working in the still-new transistor technology. In the end its boldness didn't pay off.

The Koss Corporation acquired what remained of the company and moved it to Milwaukee. For a time some models remained on the market, but manufacturing had ceased and eventually so did availability. The only project that remained (more or less) alive was the electrostatic speaker, which Koss has been working with in the intervening years. A new model was announced in 1973, but its introduction then was postponed.

Recently a new Milwaukee group acquired the Acoustech, Inc., name (it's still a Massachusetts corporation) from Koss and reactivated it. So far it doesn't plan to go back into any of the projects with which the name originally was associated—even the electrostatic speaker design, which Koss has retained. Instead specialty audio accessories of various sorts will be offered.

A plastics and molding operation is among the assets, and the first two products to come to our attention stem from that operation. One is a wood-grain base for turntables (any turntables, apparently; custom inserts are used to tailor the unit for specific models). It is made of high-density polyurethane and, with its "carved" detailing along the upper edge, is among the more attractive models we've seen.

The other product is a wall-hanging extension speaker designed to resemble one end of a Schlitz beer barrel. It's intended for use in recreation rooms and the like, costs $49.95, measures 19 1/2 inches in diameter, has a built-in level control, and uses a coaxial driver (8-inch woof er, 2-inch tweeter). Obviously it's not for everybody, but it is an amusing variant on the dreary little boxes that so often are sold as extension speakers.

A New/Old Idea in Pickups

Win Laboratories, which has been represented in high fidelity so far by a single product—the Lab 10 turntable—has gone into cartridge manufacture with a design that bears a good deal of resemblance to the Euphonics pickup of the Sixties. Some audiophiles still talk wistfully of the Euphonics, believing it to have been an excellent design that failed largely through poor timing and sales promotion. They doubtless will be intrigued to know that the Win Semiconductor Disc Transducer is based directly on the Euphonics (whose design and patents Win has acquired) but has been re-engineered in a number of significant respects.

The Euphonics pickup abandoned the conventional coil-and-magnet "generators" in favor of strain-gauge elements that would respond to the minute forces transmitted through the stylus cantilever by varying its resistance to an externally applied voltage—and therefore by varying the current it would pass to the associated electronics as a result of the applied voltage and the stylus motion. (This idea no longer is unique, of course, since brands like Panasonic and Toshiba have been offering cartridges based on the same operating principle, though not the same design.) The cartridge therefore is an amplitude-sensitive device (standard magnetics are velocity-sensitive) that requires an external power supply, which also can include all the electronics necessary to compensate for the RIAA recording characteristic and deliver equalized, line-level signals to aux or similar (as opposed to "phono") control-preamp inputs.

Much change has taken place in phono pickups since Euphonics' days. Elliptical (or biradial) styli have put a premium on light tracking forces; and Win says that by redesigning the strain-gauge elements it has sharply reduced the required operating forces by contrast to the Euphonics design. Tubed electronics have given way to all-solid-state circuitry; and Win says that its redesign of the associated electronics prevents peak-overload problems that seem to have compromised the Euphonics' performance with transistor (though not tubed) cartridges. And of course quad is a reality. Win has made its pickup compatible with quad (i.e., CD-4).

The initial form in which the SDT pickup should be available by the time you read this includes the pickup cartridge itself, with a biradial (0.2 by 0.9 mils) diamond stylus, and the power-supply unit for $139. The pickup is designed to track at between 0.5 and 1.5 grams and respond to 50 kHz. It thus can be used for CD-4 Quadratics as well as stereo and quad-matrixed discs. By spring Win expects to add a second SDT with a CD-4 demodulator built into its power-supply unit and fitted with a stylus that is especially contoured (Shibata or similar geometry) for playing Quadratics. The company is at work on microcircuitry so that it can achieve the cost and uniformity advantages of ICs in its more elaborate electronics units. Plans also are afoot to offer a total Win turntable/pickup/power-supply/demodulator package.

Advance specifications and other data look impressive. We plan to keep an eye on the SDT systems as they develop.

Washington: Your Hi-Fi Is Showing!

On the weekend of February 7 to 9 Teresa and Robert Rogers will present the 1975 Washington (D.C.) Hi-Fidelity Music Show at the Hotel Washington. According to advance statistics, the show will occupy about eighty rooms on four floors of the hotel, which is across Treasury Square from the White House.

It has been twenty-one years since the first Rogers-produced Washington show (at the Hotel Harrington), which drew an astonishing 40,000 visitors. Over the intervening years, during which the couple have been producing shows in several other cities as well, a door charge has been imposed to weed out the idly curious and to keep crowds to manageable numbers. This year it will be $2.00 per person—the admission price established ten years ago.
The Specification Guarantee.
Perhaps someday everyone will have it.

You're looking at the new Technics 600 Series, two of the finest cassette decks we've ever made. But equally important, they're also our first examples of "the Specification Guarantee." The only kind of a specification we feel is worth serious consideration.

That's because "the Specification Guarantee" isn't merely a collection of overly impressive numbers achieved under ideal conditions. It's five meaningful performance specifications that every Technics RS-676US and RS-610US cassette deck, including yours, is guaranteed to meet or surpass*. And if by some unlikely chance it doesn't, we will make sure it does. After all, that's what we feel a guarantee is all about.

But the guarantee isn't the only impressive thing about these specs. The numbers are equally impressive. Even when you compare them with the "unguaranteed" performance figures you usually see. Yet our figures are conservative, understated. Figures that your unit is likely to surpass rather than just meet. And that makes them even more impressive.

The RS-676US. The RS-610US. And "the Specification Guarantee." The concept is simple. The execution is precise. The performance is outstanding. The name is Technics.

Specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>RS-676US</th>
<th>RS-610US</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wow &amp; Flutter (JIS WRMS)</td>
<td>0.08% or better</td>
<td>0.15% or better</td>
</tr>
<tr>
<td>Frequency Response:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Normal Tape Position</td>
<td>RS-676US</td>
<td>RS-610US</td>
</tr>
<tr>
<td>40Hz - 12kHz (+2/-4dB)</td>
<td>50Hz - 10kHz ±3dB</td>
<td></td>
</tr>
<tr>
<td>C-O Tape Position</td>
<td>RS-676US</td>
<td>RS-610US</td>
</tr>
<tr>
<td>40Hz - 13kHz (+2/-4dB)</td>
<td>50Hz - 12kHz ±3dB</td>
<td></td>
</tr>
<tr>
<td>S/N Ratio (Weighted)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No Ditolb</td>
<td>50dB or better</td>
<td>49dB or better</td>
</tr>
<tr>
<td>Normal Tape Position</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frequency Response:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Normal Tape Position</td>
<td>RS-676US</td>
<td>RS-610US</td>
</tr>
<tr>
<td>40Hz - 13kHz (+2/-4dB)</td>
<td>50Hz - 12kHz ±3dB</td>
<td></td>
</tr>
<tr>
<td>THD (0 VU at 1 kHz)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Normal Tape Position</td>
<td>RS-676US</td>
<td>RS-610US</td>
</tr>
<tr>
<td>2% or better</td>
<td>2.3% or better</td>
<td></td>
</tr>
<tr>
<td>Speed Accuracy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>With Dolby (Above 5 kHz)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No Ditolb</td>
<td>50dB or better</td>
<td>49dB or better</td>
</tr>
<tr>
<td>Normal Tape Position</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frequency Response:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Normal Tape Position</td>
<td>RS-676US</td>
<td>RS-610US</td>
</tr>
<tr>
<td>40Hz - 13kHz (+2/-4dB)</td>
<td>50Hz - 12kHz ±3dB</td>
<td></td>
</tr>
<tr>
<td>THD (0 VU at 1 kHz)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Normal Tape Position</td>
<td>RS-676US</td>
<td>RS-610US</td>
</tr>
<tr>
<td>2% or better</td>
<td>2.3% or better</td>
<td></td>
</tr>
</tbody>
</table>

"Specification Guarantee will be honored for a period of ninety days from the date of original purchase. Void if the product is damaged, abused, or abused following original sale, or if repaired by other than authorized Technics personnel, or if the product is not purchased and retained within the U.S.A. or Puerto Rico. Test procedures are available in detailed description on request from Technics by Panasonic, 600 Park Avenue, New York, N.Y. 10017. Specification Guarantee is in addition to the usual parts and labor warranty.

200 PARK AVE., NEW YORK, N.Y. 10017. FOR YOUR NEAREST AUTHORIZED TECHNICS DEALER CALL TOLL FREE 800-443-4700. IN ILLINOIS: 800-322-4400.

Technics
by Panasonic
The Classic Cassette with ferri-chrome. Truer than chrome. Truer than iron oxide.

In these Classic cassettes, advanced 3M technology brings you ferri-chrome, a truly superior cassette tape with not one, but two distinct layers of oxide. Directly on the backing is a coating of gamma ferric oxide designed for rich low and middle frequencies and low noise levels. Above it is a layer of chromium dioxide coating for brilliant high output at high frequencies. Together, they combine to give you full-range performance never before possible from any single-oxide cassette tape.

To prove ferri-chrome’s remarkable fidelity, we taped a broad spectrum piece of music from a disc recording with our Classic cassette, our iron oxide cassette and our chrome cassette. Then we compared the output of all three with the original source on a precise Brüel and Kjaer sound spectrum analyzer. Our graph shows you the results.

But there’s even more from Scotch brand. Outstanding Classic 8-track cartridges and Classic open-reel tape. Both with their own improved oxide. Both super quiet. Beautifully responsive. More brilliant than even the best previous Scotch home recording tapes.

The Classics — cassette, cartridge and reel tape — are quite simply and clearly the best we’ve ever made for you.

Along with superior fidelity, ferri-chrome also offers you full compatibility. These Classic cassettes will deliver optimum performance on any high quality cassette machine you may own.

Scotch The Master Tape.
B&O builds a cassette deck

B&O, which long has been making quality open-reel decks (though they have not been offered here for some years), has turned its attention to the cassette format with the Beocord 2200. It is sleekly styled (like all B&O products) and is available with rosewood, oak, or teak trim. Features include Dolby noise reduction, a chrome/ferric bias/equalization switch, stereo/mono input switching, and memory rewind. The 2200 sells for $460.

New tweeter array in Micro-Acoustics speaker

The newest loudspeaker from Micro-Acoustics Corp. is the Model FRM-2, a two-way system with a 10-inch woofer and a "trihedron array" of tweeters for which a 160-degree dispersion pattern is claimed in both horizontal and vertical planes. It is designed for higher efficiency than typical bookshelf systems, and the company says it can be used with amplifiers rated as low as 10 watts per channel. The FRM-2 costs $129.

Automatic features on Technics single-player

The latest of Technics' direct-drive turntables, the SL-1300, includes automatic-operation features that are new to the series. Once record size and speed (33 or 45 rpm, each independently variable and strobe-tunable) are selected, a touch of the start lever will start the platter and will trigger arm liftoff and cueing; arm return at the end of the disc is automatic. Automatic repeat can be dialed for up to five plays before shutoff or for unlimited repeat of the disc. The turntable lists for $299.95 with die-cast base and acrylic dust cover.

Pan pots and multisync on Sony NAB quad deck

Superscope is offering Sony's latest stereo/quad open-reel deck, the TC-788-4, with dual capstan servodrive, automatic timed recording option, reel capacities to 10 1/2 inches, dual-position bias and equalization tape-matching switches, line/mike mixing in all four channels, a pan-pot system that allows back inputs to be mixed into those for the front at any position (that is, anywhere in the two-channel stereo image), and Synchro-Trak (which uses the recording head for playback of previously recorded material for perfect syncing of new material being added in other tracks). It is a quarter-track unit with three motors, three heads, and two speeds (15 and 7 1/2 ips). It costs $1,399.95.

An AC-powered record-cleaning device

It's called The Whisker, and it's made by RPM Industries. Place your record on its "turntable," apply a few drops of the supplied antistatic, antibacterial solution, place the brush element over the spindle, and—according to RPM—the thousands of camel's hair bristles will gently scrub the grooves clean in 15 seconds. Planetary gears in the coupling between spindle and brush drive the bristles in the opposite direction from the record, "creating a 15-mile-an-hour surface wind" that helps in the cleaning. The Whisker costs $60 prepaid by mail order, which is an "introductory price," the manufacturer says.
Up to now you've only been getting half the cassette tape performance you need.

You may not have realized it, but it's true. For instance, when you record music with a lot of high frequencies you use chromium oxide tape. Right? But when you do that you sacrifice dynamic range at the lower frequencies.

And with ferric oxide tape it's just the reverse; you sacrifice dynamic range at the highs.

Either way, you're losing half the music. Extended frequency response without wide dynamic range is not, in itself, good sound.

Well, at Meriton we don't like doing things by halves. So we put the lows and the highs together on one tape.

Notice how it's made. First, we have a polyester base. On that we put a layer of ferric oxide five microns thick for low frequency response. On top of that we put a layer of chromium oxide one micron thick, mirror polished for superior high frequency response. Of course, without our advanced coating technology that crucial one-micron layer might not have been possible.

You can get an idea of the way it reproduces sound from this chart. The top line is Meriton's Ferri-Chrome Tape. As you can see, it performs as well for high frequencies as it does for lows. Note its wide dynamic range as well as its low noise characteristics. At all frequencies its dynamic range is far superior to plain ferric oxide (L-H) tape, and it is better than chrome oxide at low and middle frequencies.

So you no longer have to sacrifice the bassoons for the violins, or vice versa. Instead, you can enjoy 62 minutes of the finest music you've ever recorded.

meriton® ferri-chrome
Trust your ears.

Meriton Electronics, Inc. 35 Oxford Drive, Moonachie, N.J. 07074 / 1611 Anderson Avenue, Compton, Calif. 90220
CIRCLE 36 ON READER-SERVICE CARD
Technics Offers a Uniquely Interesting Cassette Deck


Comment: First, let’s say it again: Front loading, in our opinion, is a feature that hardly justifies all the fuss that’s being made over it. If you want a cassette deck that will be convenient for eye-level use, you want front loading; but there is a price to be paid. In the RS-676US, that price consists primarily of reduced accessibility to the heads for cleaning, a small loss in convenience in inserting or removing cassettes, and somewhat reduced visibility of the cassette while it is in use. And that said, we can get to the real point: The RS-676US is above all a fine unit whose operating “feel” and control scheme—for metering, mixing, and “Dolby FM” in particular—are among the most attractive we’ve encountered.

To insert a cassette you press the eject button next to the transport compartment door, which opens a crack but must be manually swung down the rest of the way, like a see-through oven door. An angled mirror at the back (plus a small light in the “ceiling”) allows you to see a cassette in play/record position at the bottom of the compartment. The transport mechanism that holds the cassette is similar to that of typical top-loading decks, with the heads at the near side of the cassette, just inside and below the bottom edge of the door.

The controls to the right of the door are the solenoid type that—presumably because they reproduce much of the “feel” of expensive open-reel equipment—contribute materially to the sense of luxury in using the RS-676. There are large bars for play and stop, smaller ones for the two fast-wind modes, the recording interlock, and pause. Pilot lights are built into the faces of the play, record, and pause bars; you must examine the counter to make sure which fast-wind mode is in use.

When you press the recording button the meters immediately read the source signal, but the heads are not brought into contact with the tape. When levels have been set and you want to begin recording, a press on the play button starts tape motion. The lack of an interlock requiring you to press the recording button simultaneously at first seemed to threaten accidental tape erasure, though in practical terms we found it difficult to dream up situations in which accidental erasure would logically take place. There is interlock to prevent going directly from play to record without pressing stop, and one between the fast-wind modes and normal transport speed so that you can’t go from the former to the latter without first stopping the transport.

There are a tape counter and “memory rewind” switch just above the solenoid controls. Though they look familiar, their operation is unconventional. Set the counter to 000, turn on the memory switch, and the tape will return to the 000 point when you rewind; but instead of merely stopping, it automatically goes into the play mode. You can easily study a given passage on the tape by playing it over and over, or you can achieve instant playback of what you’ve just recorded by simply pressing rewind. If you want to stop the tape at 000 in the usual way, you can switch to pause during the rewind cycle and then press the stop button before releasing the pause.

To the right of the solenoid controls are three lever switches. The bottom one chooses either ferric (“normal”) bias and equalization or that for chrome tapes. The lab tested the chrome position with TDK (though brand is not particularly critical) and, on Technics’ recommendation, used Maxell UD with the ferric setting. UD is not among the tapes listed in the manual, however (BASF LH, Scotch High Density, TDK SD, and Sony HF are shown), and we judged TDK SD to be possibly a slightly better match on the basis of both listening and lab tests. When chrome cassettes with the extra key well for automatic chrome sensing are used, the RS-676 will override the front-panel switch, adjusting itself for chrome even if the switch is in the ferric position.

The other two lever switches, next to the counter, are for Dolby functions. One has positions for off, Dolby with FM-pilot filter, and Dolby without the filter; the other is an on/off switch for the “Dolby FM” mode. In this mode...
the input signal is fed directly (without decoding) to the recording head and through the Dolby circuit (for decoding) to the output jacks. The mode thus can be used to make Dolby-encoded cassettes from either Dolby broadcasts or other Dolby tapes while listening to the decoded output, or it can be used simply as a decoder for listening to Dolby-encoded signals derived from other, non-Dolby equipment. A pair of screwdriver adjustments for aligning Dolby-FM reference levels in each channel are on the front panel just below the large recording-level knob. Other wrinkles in this unusually comprehensive system will be described in due course.

The recording-level knob is, in effect, a master gain control that works in conjunction with several other controls. To its right is a smaller knob for channel balance. Thus balance can be preset and level adjustments or fades made with a single control—an easier route to good results, in our opinion, than the conventional paired sliders or dual-element knobs. Still farther to the right is a similar knob for input mode selection: mike only, line/mike mixing, and “tuner”/mike mixing. The mike level control is above the master level control and has a separate knob element for each channel.

The mike inputs are phone jacks below the balance control. A stereo headphone jack next to them is intended for low-impedance headphones. Nearby is the main power on/off switch.

The meters are calibrated with two scales. At the top is a conventional VU scale running up to +6 VU; the lower one has calibrations at 50% (-6 VU), 100% (0 VU), and Dolby reference level (+3 VU). The latter is used—with test signals broadcast by a Dolby FM station or with a Dolby reference cassette in dubbing—to align the Dolby-FM screwdriver controls. The lab data show the calibration to be less than ideally exact. The meters’ 0 VU measures approximately 3 dB below DIN reference 0 VU. Since Dolby reference level is about 2 dB below DIN 0 VU, it should be at about +1 (rather than +3) on the meters according to these measurements. The difference, though surprising, is not enough to cause serious audible mistracking of the Dolby circuit.

Below the meters is a peak/normal switch. In the normal position the meters have the characteristics of “true” VU meters, reading average signal values; the peak position will read all but the briefest of transients with a quick-rise, slow-decay characteristic in the needle ballistics. Technics recommends that with preprocessed material (broadcasts and most disc recordings) the normal mode be used and the highest readings held to the 0-VU indication; with live recordings or others that may contain the kind of spiky transients usually removed in audio processing, the peak reading mode is recommended, holding highest values to the +6 VU indication. This strikes us as an interesting, flexible, and eminently useful approach that, in our experience so far, is unique to the RS-676 among consumer units.

The back panel has three pairs of pin jacks. One is for the line outputs and has screwdriver level controls that can be set to match tape levels to other sources in your stereo system. The other two are marked “tuner” and “line” inputs. When the deck is switched to the Dolby FM mode, however, the tuner input automatically is selected no matter what position the front-panel selector switch is set to. For this reason, the tuner input (not line) is the normal one, and line is the equivalent of an aux for subsidiary use (perhaps non-Dolby tape dubbing, for example).

Next to the tuner input jacks is a 25/75-microsecond FM de-emphasis switch. This switch operates only in
the Dolby-FM mode and should be set to the time-constant supplied by your tuner. A conventional tuner would require the 75-microsecond setting, which would then compensate at the recorder for the difference between the Dolby broadcast's 25-microsecond pre-emphasis and the tuner's 75-microsecond de-emphasis. Since the 25-microsecond position is for tuners that already provide the correct time constant, it makes no change in the incoming signal and therefore must be used in copying Dolby cassettes via the Dolby-FM mode (that is without decoding and re-encoding). These points are badly covered in the manual, which is hardly up to the quality standards of the unit itself.

The back panel also has a multipin jack for a remote-control unit (Model RP-9275, $34.95, which is not included with the unit and which we did not test) with a 17-foot cord and buttons for recording, play, and pause. In addition, there is a grounding connection that accepts bared wires or spade lugs. There are no user-accessible Dolby alignment controls other than those for Dolby FM on the front panel.

The lab measurements suggest what in-use tests confirm: The RS-676 is an excellent unit that need make apologies to no competing model. Speed accuracy is exceptional; wow and flutter are extremely low. Distortion and noise are about average for a really fine deck, as are the response figures. The response curves do suggest that Dolby alignment is slightly off for the UD tape with which they were made; but, with a rise of less than 2 dB by comparison to the non-Dolby curves, the "shelving" attributable to the misalignment certainly is not serious.

The fine performance, the unusual and highly functional treatment of the recording controls, and the unusually comprehensive working-out of the Dolby FM mode make this an unusually interesting deck. If you want front loading and are ready for the $460 price bracket, we know of no more exciting model you could consider.

CIRCLE 144 ON READER-SERVICE CARD

---

Superex Adds a Superb Electrostatic Headset

**The Equipment:** Superex Model PEP-79E, an electrostatic stereo headphone system consisting of PEP-74 headset and CC-79 control/energizer box. Dimensions of box: 7 by 2¼ inches (front), 4 inches deep. Price: $90.

**Warranty:** one year parts and labor. Manufacturer: Superex Electronics Corp., 151 Ludlow St., Yonkers, N.Y. 10705.

**Comment:** Although it is by now commonplace to find headphones that sound as good as—or perhaps even better than—many speaker systems, it still is something of a discovery to unpack a new model, hook it up, put on some favorite tapes or records, and hear stereo sound that can be described only in superlatives. So it is with the new Superex PEP-79E, an electrostatic stereo headset that is sold together with a small junction-and-control box.

The box must be connected to the speaker terminals of the power amplifier in your stereo system. Ordinary zip cord (the kind used for AC extensions) is appropriate. The lines to the speakers then are reconnected to appropriate terminals on the box. The headset is plugged into the box via a special connector on its coiled cord. A switch on the box lets you select either headphones or speakers.

Note that this particular headset—like most other electrostatics—cannot be connected into the familiar front-panel headphone jack found on receivers and tape decks. It must be driven from a power-amp output stage capable of supplying at least 5 watts. The control box has no AC power cord. A portion of the audio signal, stepped up by circuitry inside the box, is used as the energizing voltage needed by the electrostatic elements.

All of the "electronics" is in the control box; the headset itself, which has extremely lightweight metallized Mylar diaphragms, weighs just under 10 ounces (less cord). This light weight, combined with the cushioned adjustable headband and soft surround earpieces, makes for a very comfortable headset. The cord itself may be uncoiled to a length of over 14 feet without strain. Since the length of the lines from amplifier to control box is not critical, the distance you care to put between yourself and your components while wearing the headphones can be considerably greater than with conventional models.

The control box, finished in wood-grain vinyl over metal, is neat and unobtrusive. The back contains the terminal strips for leads from the amplifier and to the speakers (screw connectors that accept stripped leads or spade lugs); the front has only the headset-cord socket and speaker/phones selector switch. Control of volume, tone, and so on are made at the stereo system, as they would be for speaker listening.

The headphones themselves are a modified rectangle in shape with rounded corners. They are, in a manner of speaking, rather stylish. They do not provide complete acoustic isolation, yet with a signal present at normal listening level they block out all but the shrillest of environmental sounds. More important, in our view,
the lack of a conventionally tight seal has no deleterious effect on bass response, which is full, clean, and very solid.

Indeed the response of this headphone system strikes us as excellent from top to bottom of the audible range. We checked the PEP-79E with discrete frequency test tones and with sweep tones and found it to be remarkably smooth and linear from below 30 Hz to beyond 15 kHz. There were no significant peaks or dips and very few insignificant ones. We could not get the phones to rasp, buzz, or commit other forms of sonic mayhem even when driving them at ridiculously loud levels. The treble range has a wonderfully smooth and open quality; the low end holds up firmly with no audible doubling effects. White noise response is smooth and uncolored, transient response superbly crisp and well defined.

The headset's dynamic range covers at least a 60-dB span, which is about the limit found on modern recordings, and everything is reproduced so cleanly that there is no loss of musical information from thudding crescendos to whispered pianissimos. Stereo imaging is excellent; voices sound utterly natural; ensemble balance and internal detailing are unimpeachable. The headset also is quite efficient by contrast to speakers, producing what psychoacoustically could be termed "room-filling sound" with only modest amplifier gain.

We cannot remember testing any headphones that sounded better.

CIRCLE 143 ON READER-SERVICE CARD

Top-of-the-Line Manual from Pioneer


Comment: The PL-71, Pioneer's top-of-the-line turntable, ranks among the very best of any HF has yet tested. A two-speed (33 and 45 rpm) single-play manual, it is a direct-drive type with an electronically controlled DC servo motor. Virtues claimed—and verified in lab tests—for this system include low wow and flutter, low rumble, and excellent speed accuracy and stability (independent, actually, of changes in supply voltage). The turntable is fitted with an integral tone arm and has a handsome walnut base and a sturdy hinged dust cover. The low-capacitance signal cables could be used satisfactorily for CD-4 pickups if desired.

The impression one gets from just looking at the PL-71, and then handling its adjustments and controls, is one of all-out, no-compromise professionalism in design and workmanship. CBS Labs' test data and our use of the unit reinforce this impression. Speed accuracy is absolute, with no variations measured at either speed setting regardless of changes in line voltage. Once the fine-speed adjustment has been set, it stays set. There is a separate adjustment for each speed to be used in conjunction with the strobe markings along the turntable's rim, which are illuminated by a built-in lamp at the front left corner of the base. The lab reported the actual range of variation as +4.2 to -3.2% at 45 rpm, +3.7 to -3.0% at 33 rpm. Weighted (ANSI/IEEE) peak flutter readings at 33 rpm were 0.06% average and 0.10% maximum. Total audible rumble (ARLL) was -63.5 dB. These are of course excellent figures—among the best measured on any turntable.

The platter itself, covered with a ridged rubber mat, weighs a little over 3 lbs. and has very fast startup time. To start rotation you press the 33 or the 45 button, either of which will turn on the AC power; to stop it you press the "power off" button.

The manual cueing is aided by an ample-size finger lift and a built-in cueing system, which works smoothly and with no side-drift.

The S-shape tubular arm carries a removable lightweight head. Adjustments are provided for stylus overhang, arm height, longitudinal balance (via an ingenious outrigger device) VTF, and, of course, antiskating—via a convenient knob whose scale is coordinated with the VTF scale. The latter proves extremely accurate, showing on-the-nose values when checked against a laboratory gauge for settings of 0.5, 1.0, 1.5, and 2.0 grams. It measured a minute 0.1 gram low for the 2.5-gram setting. Tested with our standard Shure V-15 (Type II improved) pickup, the arm showed a 4-dB rise at 7.5 Hz, a very low resonance indeed. Arm friction, laterally and vertically, was too low to be measured.

The silence and precision with which the PL-71 handles records are due not only to its sophisticated motor and drive system and its beautifully designed and crafted tone arm, but also in part to the shock absorbers built into the four sturdy feet under the base. Another plus is the fact that the PL-71 will operate on either 50- or 60-Hz supply line frequencies. All told, this is a turntable for use in the finest of playback systems—stereo or four-channel—and by the fussiest of record collectors.

CIRCLE 142 ON READER-SERVICE CARD

HIGH FIDELITY MAGAZINE
A Super-Preamp from Accuphase

The Equipment: Accuphase Model C-200, a stereo control preamp in metal case. Dimensions: 17½ by 6 inches (front panel); 14 inches deep plus allowance for controls and connections. Price: $600; accessory walnut case, Model AWC-1, $45. Warranty: five years parts and service, shipping paid one way. Manufacturer: Kenisonic Laboratory, Inc., Japan; U.S. distributor: Teac Corp. of America, 7733 Telegraph Rd., Montebello, Calif. 90640.

Comment: Last month we reviewed the P-300 basic amplifier, the companion-piece to the C-200. (There also is a matching FM/AM tuner, the Model T-100, $650.) We said then that in reviewing the preamp we would comment in more detail on Teac's claim that the two units are so good that each can be heard at its best only in conjunction with the other.

This is a difficult contention to prove—or to disprove. If you move in audiophile circles, you've no doubt heard its like before. To the novice, struggling to determine unequivocally why one speaker is considered better than another, the claim is meaningless since the quantitative difference between one fine piece of electronics and another is minute by comparison to that between competing loudspeakers. So to say that you can hear the difference between the C-200 and other fine preamps would, in our opinion, be misleading to the majority of our readers—though we have no doubt that some will hear it.

The C-200's sound is utterly open and clean. We could find no sonic grounds on which to fault the unit; it is, in a word, superb. It also is expensive and complex. If these factors leave you undaunted and you're after something in more detail on Teac's claim that the two units are so good that each can be heard at its best only in conjunction with the other.

Let's begin our description with the back panel, which must be understood before the front-panel controls will make much sense. Each pin-jack pair for the two phono inputs has a grounding post and a pair (left and right channels) of sensitivity controls. High-level inputs include pin-jack pairs for tuner, aux 1, and aux 2; and there are input and output pairs for tape 1 and tape 2. Outputs—also pin-jacks—are provided for left, right, and mono, the last appropriate for a center-fill speaker, if you want one, or for a remote mono system (with its own amplifier) in, say, the kitchen.

There are seven convenience AC outlets, one unswitched. Another, intended for the power amplifier, has its own front-panel switch but also is switched by the C-200's own AC button; that is, the amp will turn off when you switch off the C-200 but can also be turned off independently from the preamp's front panel. The remaining five receptacles, switched only by the C-200's main AC control, are marked for turntables 1 and 2, tape decks 1 and 2, and tuner. Some users may prefer non-switched outlets for turntables and even, unless they are solenoid-operated, tape decks; but there's no reason you must use these outlets as marked of course.

There also is a special "speaker control" jack on the back panel. It is designed to accept a relay system (available on special order) that can be wired into the speaker leads from the power amp and that will interrupt the power feed on command from the C-200's front panel.

At the bottom of the front panel is a black trim strip that hinges down to give access to the more esoteric features. As in the P-300 power amp, the main AC switch protrudes through an opening so that it is accessible whether the strip is open or shut. Next to it is the switch for the back-panel power-amp AC outlet. There is a stereo headphone jack, followed by pin jacks for an accessory output (which parallel the left and right-channel outputs on the back panel), tape input and output (which are, in effect, a tape-3 set of connections since they don't parallel the two sets on the back panel), and an aux input (again, in effect, aux 3). To the right of these inputs are a disc-1 impedance switch and a "low-enhance" switch for discs. The impedances offered are 30,000 ohms (appropriate for matching transformers used with some moving-coil cartridges), 47,000 ohms (standard for stereo magnetic cartridges), and 100,000 ohms (for CD-4 cartridges). The 'enhance' switch gives a very subtle lift to the bass response with either disc input; measured values are close to the ratings (at 100 Hz) of 1 dB and ½ dB for the two boost positions, while the '0' position yields a very flat RIAA curve indeed. At the extreme right of the hidden panel are phone jacks for left and right mike inputs.

At the left of the main (upper) portion of the front panel are four tone-control knobs: separate bass and treble for each channel. Among the switches at the lower-center portion of this panel is one for tone defeat, one to switch bass turnover between 200 and 400 Hz, and one to switch treble turnover between 5 and 2.5 kHz. As measured at CBS Labs these frequencies represent (for maximum tone-control rotation) the ±3-dB points in the bass and the +2, -3-dB points in the treble. There are three filter buttons as well—subsonic, low, and high—and one for loudness compensation.

The volume and balance knobs are above the push-button array. The volume control becomes a loudness control when the compensation switch is pushed, of course, and the actual degree of compensation bears a fixed relationship to volume-control rotation (as it does in almost all receivers). When the preamp is used with the P-300 amp, however, the level controls on the amp can be set to give somewhat more level than you ever will want with full preamp gain, and the loudness action will then be tailored to the actual operation of your sys-
tem. If you're using only a portion of the available power (say, with fairly efficient speakers) this way of adjusting the system will prevent the common anomaly of conventional loudness controls: excessive "compensation" at high volume settings.

Also in the pushbutton array are two for use with the speaker relay box mentioned earlier; one controls the main speakers, the other the remote units.

The remaining four knobs control inputs and modes. The main mode switch has positions for stereo, reverse stereo, and three mono modes (L, R, and L + R) each feeding both output channels identically from the selected input(s). The main selector knob has five positions for back-panel inputs (disc 1 and 2, tuner, aux 1 and 2) and two for front-panel inputs (mike and the extra aux). The tape monitor switch has positions for source, tape 1, tape 2, and the front-panel tape input. And the tape-copy knob will select tape 1 to tape 2, tape 2 to tape 1, and off.

Actually, however, the inputs and outputs of up to four tape units can be used with the C-200, and the capabilities of each will depend on the connections used. In addition to the back-panel jacks there are the front-panel tape jacks plus the front-panel output and aux input. The decks connected at the back panel will be able to record from any input and will permit dubbing from one to the other (even while you are listening to a different program via the "source" selector) and will permit simultaneous playback monitoring from either deck (as long as it has the feature) in any of these uses. The front-panel tape jacks will allow dubbing from any of the other three, with simultaneous monitoring, but not dubbing to the others from the front-connected deck. Using the output/aux connections you can record from any source or dub to or from any of the other decks, using the tone controls and filters, if you wish, to equalize the signal you are recording—though of course none of this can be done while you are listening to another source and you cannot monitor from the tape as you record it. (This is not the only use for the front-panel output connections. The owner's manual suggests their use to A/B power amplifiers, but we consider the tape-recording-with-equalization option to have broader practical application.)

The preamp, in short, offers an extremely broad range of possibilities. It also performs superbly, as CBS Labs' test data show. The clipping point is above 12 volts—far more than any normal signal source will ever feed to the unit—and the distortion is at or below 0.02% in every measurement that the lab made. Note that the least impressive noise measurements (about 65 dB for the disc inputs or the mike) are measured for a sensitivity of 2 millivolts (for 2 volts' output); with heftier input signals even these good S/N measurements will be improved in practice, because the signal is increased while the noise is not. While there are a few units with better S/N measurements, those of the C-200 exceed the dynamic range to be expected in any input signal. And of course linearity is excellent; the RIAA response varies from flat by only about ¼ dB, while over-all response shows a departure of only about ¼ dB between 20 Hz and 20 kHz.

In sum, the C-200 is an altogether fitting companion for the P-300 and is, in fact, a top-notch preamp for any stereo system. And when its performance and control flexibility are added to the five-year warranty and Teac's guaranteed specifications, the total picture is seductive indeed.

**Accuphase C-200 Preamp Additional Data**

<table>
<thead>
<tr>
<th><strong>Output at clipping, channels individually</strong></th>
<th><strong>Input characteristics (for 2 volts’ output)</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>L ch 12.0 volts for 0.014% THD</td>
<td>Sensitivity</td>
</tr>
<tr>
<td>R ch 12.9 volts for 0.020% THD</td>
<td>disc 1, 2 2.0 to 6.5 mV*</td>
</tr>
<tr>
<td></td>
<td>S/N ratio</td>
</tr>
<tr>
<td></td>
<td>65 to 72 dB*</td>
</tr>
<tr>
<td></td>
<td>mike 2.08 mV</td>
</tr>
<tr>
<td></td>
<td>64½ dB</td>
</tr>
<tr>
<td></td>
<td>tuner 200 mV</td>
</tr>
<tr>
<td></td>
<td>86 dB</td>
</tr>
<tr>
<td></td>
<td>aux 1, 2 200 mV</td>
</tr>
<tr>
<td></td>
<td>86 dB</td>
</tr>
<tr>
<td></td>
<td>aux. front 200 mV</td>
</tr>
<tr>
<td></td>
<td>86 dB</td>
</tr>
<tr>
<td></td>
<td>tape 1, 2 203 mV</td>
</tr>
<tr>
<td></td>
<td>85½ dB</td>
</tr>
<tr>
<td></td>
<td>tape. front 203 mV</td>
</tr>
<tr>
<td></td>
<td>85½ dB</td>
</tr>
<tr>
<td></td>
<td>Harmonic distortion (2 V output)</td>
</tr>
<tr>
<td></td>
<td>L ch &lt;0.019%, 20 Hz to 20 kHz</td>
</tr>
<tr>
<td></td>
<td>R ch &lt;0.020%, 20 Hz to 20 kHz</td>
</tr>
<tr>
<td></td>
<td>IM distortion (2 V output)</td>
</tr>
<tr>
<td></td>
<td>0.002%</td>
</tr>
<tr>
<td></td>
<td>Frequency response +0, -¼ dB, 20 Hz to 20 kHz</td>
</tr>
<tr>
<td></td>
<td>+0, -½ dB, 10 Hz to 40 kHz</td>
</tr>
<tr>
<td></td>
<td>+0, -3 dB, below 10 Hz to above 100 kHz</td>
</tr>
<tr>
<td></td>
<td>RIAA equalization accuracy +0, -¼ dB, 20 Hz to 20 kHz</td>
</tr>
</tbody>
</table>

*First figure measured with input-level control at maximum, second with control at minimum.
A “Budget”

Tandberg—With Dolby


Comment: The “Tandberg 3600XD” specifies a series of recorders, all of which have crossfield bias head (X) and Dolby (D). There are several models; we chose the quarter-track stereo-deck version (Model 3641XD) as the one of overriding interest to American readers—who doubtless will refer to it as we generally do, by the series number, just as they have on past Tandbergs.

It is a “budget” model in the sense that, in Tandberg’s words, it “is the only stereo tape deck in its price range to combine [the] Cross-Field recording technique [with] Dolby B.” It also includes a number of other important features from Tandberg’s more expensive decks: the peak-reading metering system about which we have waxed enthusiastic in the past, the automatic mixing of left and right inputs for mono recording (a big flexibility plus, assuming you do mono recording), and the excellent performance—even at the “low-fi” speed (for open-reel decks, though not in cassette equipment) of 1 3/4 ips. Thus $600, while by no means cheap, is a modest price for all that the model offers.

The transport system is not the solenoid type, like that in the Model 9000X (HF test reports, October 1973), but is completely mechanical and built around the joystick control that has been used by Tandberg for a generation. The center position is “off”; it applies the reel brakes and releases the capstan drive. The up position (“free”), with the deck sitting vertically, releases the reel brakes as well for easy threading. The left and right positions are, respectively, for rewind and fast forward. The down position engages the tape with the heads and capstan for playback or recording. In addition there is a start/stop lever switch protruding from the lower head cover. It is used in recording or playback as a pause control; its “stop” position retracts the pinch roller slightly from the capstan without otherwise altering head switching or tape alignment.

With both head covers removed the relatively complex tape path can be studied. After passing the left-hand guide and a photoelectric tape sensor it goes through what looks like a pressure-pad assembly—actually a tape-backing cleaning pad to prevent debris on the tape from fouling the crossfield bias head. Then it passes the erase head and a second guide before coming to the recording-head assembly, consisting of the recording head proper (which carries the signal to be recorded) above the tape and the crossfield head (which carries AC bias only) below it. Following another guide and an idler is the playback head, with a hum shield opposite it, below the tape; then another guide and the capstan/pinch-roller assembly and a final guide.

The photoelectric system (whose lamp, incidentally, doubles as the on/off pilot) will stop the motor whenever light reaches the sensor—because of a mis-threaded tape, because the tape has broken or run through, or because clear leader has been used—but it will not disengage the drive system. The hum shield near the playback head complicates but does not prevent marking the tape for physical editing; the pause control allows “rocking” the tape to find a precise cue. Physical editing thus is possible on the 3600, though it isn’t as easy as the owner’s manual implies.

The reel spindles have twist-to-lock finials that hold the reels in place even in the vertical operation. Between the reels is a speed-selector lever; to their right is a four-digit counter. The remaining controls are similar to those on the 9000X series: paired sliders for input and output levels, separate push-push recording-interlock and tape/source buttons in each channel, and a three-position switch for sound-on-sound or (mono) tape-echo operation. The input sliders control both mike and line signals; if you want only one source, you must make sure that the other is disconnected or, at least, that it carries no signal. The mike inputs are front-panel phone jacks. There is a stereo headphone jack on the front panel and a choice of pin or DIN line connections on the back.

The Dolby control on the front panel has positions for off, normal, filter, and Dolby FM. The latter position turns off the Dolby circuit in the recording amp while retaining that in the playback side and allows you to listen to the decoded broadcast while (if you wish) recording it without decoding. For this purpose the station’s Dolby alignment tone is set to the 50% modulation mark (–6 VU) on the 3600’s meters. The normal and filter positions both switch in the Dolby circuitry of recording and playback (encoding and decoding) modes, the filter being, of course, a 19-kHz pilot suppressor for use in taping (non-Dolby) broadcasts from FM. All positions but “off” light a pilot near the switch. There are no user-accessible Dolby alignment controls on the deck.

Since Tandberg uses its peak-reading meters in the 3600, their calibration is totally different from that of conventional metering systems. The “meter action” figure (see Additional Data) of 14% and 12 dB low therefore represent the way in which Tandberg uses the tape’s available headroom. “Standard” (NAB) 0 VU is well below overload, leaving a “pad” to absorb transients too brief to register on the meters; Tandberg’s 0 VU calibration is near the overload point, since even very brief transients are displayed by the meters and can be “positioned” (via the recording level controls) at
or below this point, making maximum use of the tape's total dynamic range.

Unlike the meters in the 9000, these do not read playback values, they light up and display signal values only for source signals and only when the transport is in the recording mode (achieved by pressing a red recording button at the left of the head cover and putting the transport control at the right into the record/play position). If the recording selector buttons for either or both channels are then switched off, the meter for the appropriate channel(s) will stop functioning, though recording can be reactivated in either or both by pressing these buttons once again, as long as the transport has not been turned off in the meantime. Thus to preset levels you must press the appropriate channel selector(s), put the pause lever to "stop," and engage the drive in the recording mode. To begin recording, you release the pause lever.

The lab data and the listening tests were all made with Maxell UD tape, though Tandberg says Scotch Classic and TDK Audua will give similar results. However, the manual warns that, if you should use other low-noise high-output tapes, it is best to keep peak levels about 2½ dB below the meters' 0 VU indication because these tapes may not provide as much headroom as the three already mentioned. For a fuller explanation of the meters and their influence on both S/N ratios (which can, in practice, be better than those shown—with respect to NAB 0 VU—under Additional Data) and harmonic distortion (which are influenced by noise to some extent at -10 VU), see the October 1973 report on the 9000X.

Both on the bench and in the listening room we found the performance to be very fine indeed. Even at 1⅝ ips we were able to record from a reasonably good FM signal (using the Dolby circuitry) with no audible increase in noise and only the barest loss in "bloom" at the high end. It took better signals than we could find on FM to demonstrate the superiority of 7⅞ ips over 3⅛ as captured and reproduced by the Tandberg. The excellence of the lab's response and distortion data at these speeds readily demonstrates why this was so.

We did miss the "feel" and mechanical adroitness of the Model 9000X (which, even without Dolby, is a more expensive deck), but for home purposes we could find nothing in the 3600's technical performance to complain of. This is not to be wondered at since its audio electronics (as opposed to the 9000's transport-logic electronics) seem to be based on the earlier model. So if you can live without remote controls, automatic recording (with a timer), and the like, the 3600XD will give you much of the 9000's quality at a considerable saving.

CIRCLE 17 ON READER-SERVICE CARD

Tandberg 3600XD Additional Data

| Speed accuracy | 7⅞ ips | 1.8% slow at 105 VAC |
|               | 3⅛ ips | 0.7% slow at 127 VAC |
|               | 1⅝ ips | 0.5% slow at 127 VAC |
| Wow and flutter (ANSI weighted) | 7⅞ ips | playback: 0.03% |
|               | 3⅛ ips | playback: 0.05% |
|               | 1⅝ ips | playback: 0.10% |
| Crosstalk (at 400 Hz) | record left, play right | 48 dB |
|                   | record right, play left | 58 dB |
| Sensitivity (re NAB 0 VU) | line input | L ch: 29 mV | R ch: 37 mV |
|                   | mike input | L ch: 0.12 mV | R ch: 0.13 mV |
| Meter action (re NAB 0 VU) | L ch: 14½ dB low | R ch: 12 dB low |
| Total harmonic distortion (at -10 VU) | 7⅞ ips | <1.6%, 50 Hz to 10 kHz |
|               | 3⅛ ips | <1.8%, 50 Hz to 10 kHz |
|               | 1⅝ ips | <2.4%, 50 Hz to 5 kHz |
| IM distortion (record/play, -10 VU) | 7⅞ ips | L ch: 1.6% | R ch: 2.2% |
|               | 3⅛ ips | L ch: 2.4% | R ch: 3.5% |
|               | 1⅝ ips | L ch: 3.8% | R ch: 5.5% |
| Maximum output (line, 0 VU) | L ch: 580 mV | R ch: 620 mV |
Why you should select your turntable more carefully than any other component.

Every component is important to the total performance of an audio system, but the turntable is critical. It is the only component that physically handles your biggest investment in musical enjoyment: your record collection.

In time, your changing tastes can outgrow your present amplifier and speakers. But regardless of how these components affect the reproduction of music, they cannot do anything to harm your records.

Not so the turntable. A tonearm that does not allow the stylus to track the grooves lightly, accurately and with perfect balance can turn the stylus into a destructive instrument easily capable of lopping off the sharp contours which carry the high frequencies. When that happens, the clean high notes become fuzzy memories. Permanently. There's just no way to restore a damaged record. Even the best equipment can't replace notes once they're gone.

After considering what your records require for longevity, you should consider what you require of operating convenience and flexibility. For example, if you don't relish risking your stylus and records by handling the tonearm each time you play a record, you will want an automatic turntable. And if you desire to play two or more records in sequence, you will want a turntable with record changing ability.

All Dual turntables easily fulfill every requirement for record playback and preservation—and every requirement for user convenience. Which is why the readers of the leading audio and music magazines own more Duals than any other turntable. It's also why so many audio professionals are quite satisfied with even the lowest-priced Dual.

Please write for our very informative brochures and complete reprints of independent test reports. The more carefully you read them, the more likely you are to select a Dual. Any Dual.

United Audio Products
120 So. Columbus Ave.,
Mt. Vernon, N.Y. 10553
Exclusive Distribution Agency for Dual
Only Sony Plus 2 cassette tapes give you two extra minutes at no extra charge!

How many times have you missed those last few bars when you’re recording your LP’s because the tape ran out? Well, no more.

With Sony Plus 2 you get MORE. A FULL TWO MINUTES MORE TAPE than you get with most other cassettes. And Sony Plus 2 won’t cost you one cent more than standard length cassettes.

Sony Plus 2 tapes give you far less distortion, a smoother frequency response, less dropout, reduced tape hiss and greater dynamic range than other cassette tapes. They offer better signal-to-noise ratios, durable Flexi-strength polyester backing and Sony’s exclusive Lubri-cushion coating to protect heads. And Sony Plus 2 tapes in 47; 62, 92 and 122 minute lengths are available in Standard and UHF series for the finest performance from any machine.

Look for the Sony Plus 2 cassette recording tape display at your Superscope dealer. He’s in the yellow pages.

SONY Ask anyone.

brought to you by SUPERSCOPE.

COMING SOON
NEW Ferri-chrome tape. The latest advance in magnetic recording tape exclusively from Sony.
Which Tape Format for You?

Open-Reel, Cartridge, Cassette—or Unisette?

Only a few years ago it seemed that every fourth or fifth letter to the editor of any magazine like *High Fidelity* started off, “I’m planning to buy my first tape recorder. Should I buy a cartridge, cassette, or open-reel machine?” Those of us who are paid to observe the goings-on in the tape industry wondered just how long it would be before one tape medium managed to bury the other two and which one would emerge the winner.

Now it appears that all three are managing to coexist. It’s not uncommon these days to see stereo systems that have an open-reel deck and a cartridge or cassette unit. Each format seems to have found favor for particular purposes, and each accomplishes those purposes better than its rivals. As a result, a growing number of manufacturers are offering all three. There’s a fourth system waiting in the wings (more about it later on), and backers of the first three aren’t in the least concerned.

The three available systems became what they are, with their respective strengths and weaknesses, as a result of both heredity and upbringing, in a sense. Each has a heritage that determined the basic design concepts involved; each has been deeply influenced by the high fidelity environment in which it has grown to its present maturity. The degree to which each has learned to meet the technical needs of high fidelity use is tabulated in the series of “report cards” accompanying this article.

The Recorder and the Oxide Hatchery

Actually, ever since 1935, when BASF and AEG teamed up to produce the first magnetic tape and tape recorder, the relationship between software (the tape) and hardware (the recorder) has been that of chicken and egg. So before considering the equipment formats, let’s have a look at the tape.

From the earliest days of tape making in the U.S. to fairly recently, the manufacturers had been content to buy raw iron oxide (actually rust) from giant chemical producers, then mill and refine it to their own tolerances. But a few years ago, E. I. du Pont introduced Crolyn tape, with a magnetic coating made from chromium dioxide, a laboratory substance that promised much better signal-to-noise ratios and better high-frequency response than iron oxides, particularly at low tape speeds. From the industry’s point of view, chromium dioxide had two disadvantages: It cost more than iron oxide, and it...
required special biasing—which meant it couldn’t be used to optimum effect on existing recorders.

From the point of view of the chemical suppliers, it had another disadvantage: If it caught on, it would cut into their sales. So Charles Pfizer, Hercules Powder, and other suppliers in the U.S. (plus those overseas) turned their research departments loose; they wanted an iron oxide that could do everything chromium dioxide does, but for less money and with no need for special biasing. The result was a new round of iron oxide formulations bearing mystical names like MRX2, XHE, XHO, UD, SD, ED, and LH.

Those research efforts are continuing, and this year should see some oxides that are even better than the already improved formulations of 1973 and 1974. As tape makers narrowed the performance gap between chromium dioxide and the new ferric oxides, some who had introduced chromium dioxide tapes with great fanfare quietly phased them out of their lines. The same thing seems to be happening with cobalt, another “mystery” ingredient added to ferric oxides several years ago in order to boost performance. Scotch is the latest brand to drop it in favor of an improved iron oxide.

Other approaches have been talked about. Pure cobalt was suggested (by Graham Magnetics, a Texas company that announced plans to produce the raw powder—see “News and Views”, HF, September 1972). Another coating is pure iron in the form of finely divided metal particles. Philips of the Netherlands has worked with it in the lab and claims it will outperform the signal-to-noise ratios of anything now on the market—by about 12 dB! But when (or indeed whether) the laboratory work might lead to a marketable product remains to be seen.

One new development has reached the market, however: ferrichrome. It contains two oxides—a lower layer of ferric oxide designed to capture bass and midrange frequencies, and a thin upper layer of chromium dioxide designed to improve high-frequency response and cut down on tape hiss by increasing tape output.

Ferrichrome, like chromium dioxide, benefits from special equalization and bias during recording and playback. The ideal equalization curve falls somewhere between that recommended for the better ferric oxide tapes and that recommended for Crolyn. For this reason there was, at the beginning of 1974, no tape deck on the American market capable of utilizing ferrichrome to the full. At least, that was the position of the Sony engineers who developed Ferri-chrome and of some independent testers.

At the 3M Company too, researchers had experimented with a layered ferrichrome tape and liked what they heard. They decided to introduce it in the new Scotch Classic series of premium tapes—but only in cassette format. And they felt that, while special biasing and equalization did improve performance, the improvement wasn’t great enough to deter its use with a deck adjusted for conventional ferric tapes.

Meanwhile, Sony had incorporated a special Ferri-chrome switch position on its 1975 cassette decks. It then set about persuading other manufacturers to do likewise. Among those who did were Yamaha, Superscope, and Uher. (Sony and 3M aren’t the only potential sources of ferrichrome tapes; Fuji Film in Japan has announced one, and European manufacturers are said to be experimenting with it.)

All of this work on oxide formulations, while it has resulted in performance improvements in all recorder formats, has affected each in different ways. And in spite of the “exotic” substances that have been used in tape manufacture, regular iron oxide remains the basic ingredient of magnetic coatings.

The “Reel” Professional

Open-reel recorders are, of course, the direct descendants of the professional quarter-inch mono tape equipment of the 1940s. Performance, operation, and features of the open-reel decks currently available to the consumer are closer to professional standards and practices than those of any other home format. Such specific features as 10½-inch NAB reels, large “true” VU meters, synchronous multitrack recording, and simultaneous playback monitoring during recording—all fairly common in today’s models—are often called “professional” features.

Because of the inherent quality of open-reel recordings, particularly at the higher transport speeds, many experts have felt that the medium already was so good that the added bias and equalization switching necessary for the more “advanced” tape types would increase cost more than performance. Du Pont’s Crolyn has never been made available on open reels, nor do there appear to be plans for offering ferrichrome in this form. The low-noise, high-density iron oxide formulations, however, have consistently found their way into the open-reel market—contributing to the steady improvement in performance standards, particularly at the slower transport speeds, for open-reel equipment.

TDK, for example, has offered its SD tape in open-reel format for several years. Audua, TDK’s newest open-reel tape, takes advantage of the latest developments in ferric oxide research. Maxell and BASF market reels featuring their (respective) UD and LH formulations. Most of these tapes, like the premium formulations of other manufacturers, have found their way up “through the ranks” from experimentation originally aimed at improving...
cassette performance. One exception—in addition to TDK’s Audua—is the 3M Company’s Scotch formulations; the company believes the demands on each system are sufficiently different to warrant individual approaches.

It is only within the last few years that manufacturers of open-reel decks have begun to allow for the proliferation of tape types by providing a significant degree of user adjustability in recording equalization and bias. Some (Ferrograph and Dokorder, for example) have offered continuously adjustable bias controls for some time. But most decks were factory-optimized for a single tape and could be adjusted only by a qualified technician until the advent of simple “tape switches” like those that already have been accepted in cassette equipment. Manufacturers as diverse as Akai, Sony, JVC, Pioneer, Revox, Teac, Technics, and Toshiba now offer open-reel models that can be user-adjusted.

Another feature brought over from cassette equipment is Dolby noise reduction—though, curiously, it made its first appearance in consumer tape equipment via KLH open-reel decks about a decade ago. From there it migrated to the cassette format, where it found its first significant role in home equipment. Though it seems to have found a cordial welcome among some users on its return to open-reel decks, its major stronghold remains the over-$200 cassette deck.

Most decks continue to use professional (or “true”) VU meters as opposed to the cheap imitations, which once were the bane of inexpensive consumer equipment. But many now use “peak reading” indicators or meters, which on the one hand offer a simpler route toward precise setting of recording levels for the nonprofessional user, and on the other provide even the professional with additional important information, and hence they are showing up on an ever wider variety of professional gear.

And of course the three-motor transport of professional decks is commonplace in today’s home equipment. Three motors are virtually indispensable for handling a full 10½-inch reel of tape. Capstan motors on current equipment may be quite sophisticated. Hysteresis-synchronous motors are fairly common; a growing number of manufacturers are turning to DC servo-controlled motors for their better models. Akai, Nagra, Revox, and Sony are among those that have done so. A number of companies use dual-capstan drive for extra stability in tape motion, adapting the idea from professional and instrumentation equipment. More often, however, double capstans are used to accomplish bidirectional operation, normally with an automatic-reverse feature.

Automatic reverse can imply an unusually elaborate complement of heads. As many as six have been used to allow stereo recording in both directions; some models allow stereo or quad recording in one direction and stereo playback in both. Since there are no limitations placed on the equipment designer in choosing the number and type of heads he will use, a wide variety of head complements are available. Some models (the Revox A-700, for example) offer interchangeable plug-in head assemblies, usually so the deck can be used for either quarter-track or half-track operation.

The heads themselves may be of the newer ferrite or glass-and-ferrite types, though here again manufacturers haven’t made as big a deal over open-reel heads as over their cassette counterparts, because open-reel performance already was so good. There are some head configurations available in the reel format that, because of physical limitations, have not been adapted to the others: the crossfield biasing head (which is intended to improve high-frequency response, particularly important at lower tape speeds), synching heads, and the like. And of course the large, open, accessible head assemblies of open-reel equipment contribute to its being the first choice hands down where physical tape editing (splicing—as opposed to “electronic editing” via a pause control) will be required.

The “professional” format thus remains the one that will appeal most to users who want at least a close approach to truly professional equipment in performance standards and functional flexibility. It also is the most expensive—in terms of initial investment, in tape consumption, and in storage-space requirements. But for the user who wants to have the best that tape can offer (particularly in terms of recording capabilities) it remains the format of choice.

Eight Tracks and Four Wheels

The tape cartridge has come a long way in overcoming the limitations of its heredity. Originally a mono endless-loop system, it was adapted first to the four-track format for stereo and later (by the Lear Jet people) to the eight-track version, which would hold double the recording time of its predecessor on the same loop length. At its introduction in 1965, the eight-track cartridge was intended simply as a music playback system for cars. Today it may incorporate many high fidelity characteristics and has been further adapted (as Q-8 cartridges) for quad.

Its inherent limitations are less a result of its relatively low transport speed (3¾ ips) or even its nar-
row track width (0.021 inch—like that of stereo cassettes) than they are of the mechanical construction of the cartridge and the player. The endless loop of tape within the cartridge must twist and slide across itself in use. Moreover, the only drive is from the capstan, which turns the “pancake” of tape within the cartridge by pulling the free loop of tape past the heads. Therefore there is less opportunity to isolate the tape at the head from motional irregularities caused by the friction of the tape itself than there is with reel and cassette mechanisms.

At the point where the tape loop is joined together, a metallic foil strip triggers a mechanical system that repositions the head in line with the upcoming set of tracks. Conceivably a fixed eight-gap head might be used for the purpose, but the cost of building such heads makes them prohibitive for regular consumer use. Hence the mechanical stability of the head, as well as that of the tape, is necessarily compromised to some extent by the design of the cartridge.

Because of these limitations, and because the cartridge originally was not intended for home use as such, most designers have felt that cartridge users weren’t really interested in high fidelity performance and that the increased cost of adding the sort of refinements being applied to the cassette would not be justified in the eight-track medium. Research intended to produce better tapes for cassettes did result in some benefits for the cartridge, but (again, 3M aside) the oxides by which blank cartridges were improved generally made their appearance first in the cassette format.

For the same reason, Dolby noise reduction and the newer head materials have been slower to come to cartridges than even to open reels. So far no cartridge-equipment manufacturer has utilized either ferrite or glass-ferrite heads. But several manufacturers are offering Dolby cartridge decks or models with the similar ANRS system of noise reduction. And the growing application of improved oxides to blank-cartridge manufacture finally has resulted in the use of tape-matching switches. Wollensak currently is the only brand to offer both Dolby and tape switching, the latter with one position for 3M’s Classic cartridges, which were specifically formulated for the eight-track medium.

While the other two available formats have profited from ever greater sophistication in motor and transport design, two factors have worked against this in cartridge equipment. First, there is no option for separating drive function and designing separately for each. Aside from the capstan, the timer or counter is the only other driven element; multiple motors therefore cannot be applied to the format. Second, the relatively low levels at which prices are considered “high” in cartridge equipment would appear to rule out—at least for the present—such sophisticated but costly developments as electronically servo-controlled drive motors.

The physical design of the cartridge also limits the head configurations that can be used with it. The tape can move only in one direction. (Among other things, this puts severe restrictions on the ease with which a given selection on the tape can be located. Some manufacturers offer “fast forward” features—which generally aren’t very fast because of the tape’s involuted path—but reverse is impossible.) Since the tape’s entire contents will be reproduced, in sequence, when played in one direction, automatic reversing obviously is unnecessary. But simultaneous playback monitoring during recording might have some value for the serious recordist. There are two head openings in the cartridge, each with its own pressure pad. One normally is used for the erase head, the other for a combined record/play head. Combined erase/record heads have been built (both for open-reel and cassette equipment) to allow simultaneous monitoring with only two heads, but they have not been applied to cartridge decks, presumably because, again, “the cartridge user is not interested in the finer points of high fidelity.”

These attitudes, and the physical limitations of the cartridge, actually have had side benefits for the medium. Cartridge equipment has performed relatively simple and convenient to use. Such complexities as are found in cartridge recorders, in fact, usually consist of added switching to enhance the convenience values of the equipment: automatic-eject functions and the like. As a result, this format generally is considered the most convenient of the three, and confirmed cartridge users may think today’s better cassette and open-reel equipment appallingly complex. They also may find it discouragingly expensive, though a cassette deck of similar performance capability will cost about the same as a record/play cartridge deck.

**Cassettes: Up from Dictation**

The first cassette machines, brought here by North American Philips in 1964, were mono only and intended for dictation. Some mono music cassettes were introduced (in Europe), but it took about three years before the advent of stereo cassette heads, as the growing success of the then-new eight-track cartridge format (with the same track width) began to convince recording companies that the cassette, too, might be taken seriously for music reproduction.

As an index of the development that has taken place recently in the cassette format, remember that until about two years ago the best cassette decks cost no more than $300, and supporters of this format were pointing out that the cassette was “nearly as good as a record.” Today few self-respecting audiophiles consider spending less than $300 for a cassette deck; and any of the better units,
playing one of Advent's Dolby-encoded chromium dioxide prerecorded cassettes, is likely to give the disc version serious competition. And, of course, the cassette medium has been the primary beneficiary of literally millions of dollars' worth of research on oxide technology during the last five years.

The development of special features for matching recording characteristics to Crolyn and other new tape formulations is a fascinating history in itself. The earliest chromium dioxide switch position on cassette decks altered only the bias; today's switching alters playback, as well as recording equalization to make better use of chrome tape's potential. Most home cassette decks today have a two-position switch offering options for chromium dioxide or standard ferrics. Many—particularly in the higher price brackets—offer a third position: either that for ferrichrome or one for the extremely "hot" ferric oxides (like Maxell UD) that require some increase in bias but no change in recording or playback equalization. In some, bias and equalization may be handled by separate switches, allowing a somewhat greater range of options.

What's new this year on a number of cassette decks—including models from Dual, Uher, Teac, Technics, Yamaha, Kenwood—is automatic bias adjustment. These decks contain a finger that searches for a coating indentation or key well on the back of chromium dioxide cassettes. If the search is successful, the deck automatically adjusts adjustment. These decks contain a finger that searches for a coating indentation or key well on the back of chromium dioxide cassettes. If the search is successful, the deck automatically adjusts for chromium dioxide. If not, it equalizes and biases for ferric oxide tape. These systems presuppose, of course, the use of chrome cassettes with the key well molded into the case, and an increasing number of tape manufacturers are obliging.

Some sort of noise reduction (usually Dolby B) has become virtually a must on cassette hardware with pretensions of high fidelity. The available Dolby models are legion; one alternative is the ANRS system, developed by JVC and now licensed to other manufacturers. (Technics was the first brand other than JVC to offer it.) In contrast to these compress/expand systems that must be used in both recording and playback, Philips introduced the playback-only DNL system some years ago. Although it will help reduce audible noise in any cassette, it is rarely offered today. (One notable exception is the Nakamichi 1000, which includes Dolby B.)

If noise reduction has successfully overcome one inherent weakness imposed by the cassette's low transport speed and narrow track width (the audibility of its tape hiss), several means are employed against another: the limited overload margins, particularly at high frequencies. The two together put a premium on the exactitude with which the signal is "placed" between overload (at the top of the dynamic range) and noise (at the bottom).

To this end, meters have been improved from the

"toys" of early cassette recorders to carefully designed "true VU meters" with or without overload indicators of various sorts. Some meters read in peak values (or, in one Technics model, are switchable for either peak or average values) to show maximum instantaneous demands being made on the tape; others are calibrated for a 0 VU several dB below the original reference standard to restore the missing headroom above average-reading values.

Akai offers its Automatic Distortion Reduction System (a feedback-type limiting technique to prevent tape overload) on some models. Akai's Compute-o-Matic control is similar to ALC, but it holds whatever recording level the highest previous peak has set it to and hence, unlike ALCs, involves no compression at all once it is set. These devices often will provide optimum levels with little or no audible side effects—certainly preferable to bungled home recordings with all-too-audible noise or distortion or both.

Ferrite heads are, of course, more common in cassette equipment than in any other format—though argument remains about their performance vs. that of conventional heads. There is no argument, however, about their ability to withstand tape wear and hence preserve like-new performance longer. Perhaps a more challenging development (since it brings new and readily apparent capabilities to cassettes) is the use of multiple heads. Sometimes they are used for improved high-frequency playback performance: the Advent 202 is a playback-only deck that has a narrow-gap playback head where the conventional (and necessarily broader-gap) record/play head normally goes, while such decks as the top Nakamichis and the Teac 850 use such a head for playback monitoring during recording as well. Other models (notably the Technics RS-279US) use the extra head for monitoring but a conventional record/play head for regular playback.

And an extra head is used in some bidirectional-recording decks, such as the Toshiba PT-490 [see
Grading the Tape Formats

After midterm examinations, we have graded home tape decks as a class on the basis of performance. The deck class is, of course, limited to tape units that might be used as one component in a stereo or quad system and excludes hybrids (radio/cassette portables, eight-track/phono compacts, and the like) and professional equipment. Since there's a wide variety of designs available in any given format, most of the grades represent a spread from the finest performance to the poorest that a purchaser can regularly expect in each format. The accompanying article discusses some of the factors that influence the grades a particular deck might earn if it were to be rated individually—as our test reports do. And of course the way you use the deck and the kind of program material you record will further influence the performance you achieve in your chosen format.

REPORT CARD
Name 5 Lps. Open-Reel
Class Home Tape Decks

<table>
<thead>
<tr>
<th>Subject</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency-response bandwidth</td>
<td>A</td>
</tr>
<tr>
<td>Frequency-response linearity</td>
<td>A</td>
</tr>
<tr>
<td>Signal-to-noise ratio</td>
<td>A</td>
</tr>
<tr>
<td>Headroom</td>
<td>A - B</td>
</tr>
<tr>
<td>Distortion</td>
<td>A</td>
</tr>
<tr>
<td>Wow and flutter</td>
<td>A</td>
</tr>
</tbody>
</table>

Remarks: Our star pupil generally has associated himself only with the fine projects in class work, preferring the company of advanced students in the professional class. (signature)

Achievement Value Scale
A = Exceptional
B = Very good; measurable but not audible deficiencies
C = Good; some audible deficiencies
D = Passing, but below standard
E = Poor; unacceptable for high fidelity purposes
F = Failing; student already expelled

REPORT CARD
Name 7 Lps. Open-Reel
Class Home Tape Decks

<table>
<thead>
<tr>
<th>Subject</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency-response bandwidth</td>
<td>A - B</td>
</tr>
<tr>
<td>Frequency-response linearity</td>
<td>A - B</td>
</tr>
<tr>
<td>Signal-to-noise ratio</td>
<td>B</td>
</tr>
<tr>
<td>Headroom</td>
<td>B</td>
</tr>
<tr>
<td>Distortion</td>
<td>A - B</td>
</tr>
<tr>
<td>Wow and flutter</td>
<td>A - B</td>
</tr>
</tbody>
</table>

Remarks: Often does his best work in association with his brother. Though his work is not always up to his best capabilities, he is looked up to by the other students as a class leader. (signature)

Achievement Value Scale
A = Exceptional
B = Very good; measurable but not audible deficiencies
C = Good; some audible deficiencies
D = Passing, but below standard
E = Poor; unacceptable for high fidelity purposes
F = Failing; student already expelled
REPORT CARD

Name: 8-Track Cartridge
Class: Home Tape Decks

<table>
<thead>
<tr>
<th>Subject</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency-response bandwidth</td>
<td>B - D</td>
</tr>
<tr>
<td>Frequency-response linearity</td>
<td>B - E</td>
</tr>
<tr>
<td>Signal-to-noise ratio</td>
<td>C - E</td>
</tr>
<tr>
<td>Headroom</td>
<td>C</td>
</tr>
<tr>
<td>Distortion</td>
<td>C - E</td>
</tr>
<tr>
<td>Wow and flutter</td>
<td>C - E</td>
</tr>
</tbody>
</table>

Remarks: Except in a few projects, Pat has demonstrated little capacity for improvement. He seems poorly motivated for performance goals.

Achievement Value Scale
A - Exceptional
B - Very good; measurable but not audible deficiencies
C - Good; some audible deficiencies
D - Passing, but below standard
E - Poor; unacceptable for high fidelity purposes
F - Failing; student already expelled

REPORT CARD

Name: Cassette
Class: Home Tape Decks

<table>
<thead>
<tr>
<th>Subject</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency-response bandwidth</td>
<td>B - D</td>
</tr>
<tr>
<td>Frequency-response linearity</td>
<td>B - D</td>
</tr>
<tr>
<td>Signal-to-noise ratio</td>
<td>B - D</td>
</tr>
<tr>
<td>Headroom</td>
<td>B - D</td>
</tr>
<tr>
<td>Distortion</td>
<td>B - D</td>
</tr>
<tr>
<td>Wow and flutter</td>
<td>B - D</td>
</tr>
</tbody>
</table>

Remarks: A highly motivated pupil. Pat is doing a fine job of rising above his own limitations, though the limitations show very clearly in some projects.

Achievement Value Scale
A - Exceptional
B - Very good; measurable but not audible deficiencies
C - Good; some audible deficiencies
D - Passing, but below standard
E - Poor; unacceptable for high fidelity purposes
F - Failing; student already expelled

REPORT CARD

Name: 3 3/4 ips Open Reel
Class: Home Tape Decks

<table>
<thead>
<tr>
<th>Subject</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency-response bandwidth</td>
<td>B - C</td>
</tr>
<tr>
<td>Frequency-response linearity</td>
<td>A - C</td>
</tr>
<tr>
<td>Signal-to-noise ratio</td>
<td>B - C</td>
</tr>
<tr>
<td>Headroom</td>
<td>B - C</td>
</tr>
<tr>
<td>Distortion</td>
<td>B - C</td>
</tr>
<tr>
<td>Wow and flutter</td>
<td>A - C</td>
</tr>
</tbody>
</table>

Remarks: All present work is done in association with brother 7 1/2, though work does not meet 7 1/2's generally high standards.

Achievement Value Scale
A - Exceptional
B - Very good; measurable but not audible deficiencies
C - Good; some audible deficiencies
D - Passing, but below standard
E - Poor; unacceptable for high fidelity purposes
F - Failing; student already expelled

REPORT CARD

Name: 7 1/2 ips Open Reel
Class: Home Tape Decks

<table>
<thead>
<tr>
<th>Subject</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency-response bandwidth</td>
<td>C - E</td>
</tr>
<tr>
<td>Frequency-response linearity</td>
<td>B - D</td>
</tr>
<tr>
<td>Signal-to-noise ratio</td>
<td>C - E</td>
</tr>
<tr>
<td>Headroom</td>
<td>C - E</td>
</tr>
<tr>
<td>Distortion</td>
<td>C - E</td>
</tr>
<tr>
<td>Wow and flutter</td>
<td>B - D</td>
</tr>
</tbody>
</table>

Remarks: 7 1/2 has been close to flunking out and has a growing record of absences. Crossfield grade is surprisingly well.

Achievement Value Scale
A - Exceptional
B - Very good; measurable but not audible deficiencies
C - Good; some audible deficiencies
D - Passing, but below standard
E - Poor; unacceptable for high fidelity purposes
F - Failing; student already expelled
HF test reports, January. Here, however, the extra head is for erasing in the second direction of tape travel, while recording and playback in both directions are handled by a single head. Bidirectional machines normally are equipped with dual capstans (one for each direction), though this feature originally was introduced into cassette decks (by Sony and others) to increase stability and precision in (unidirectional) tape motion past the heads.

The cassette medium puts no limitation on the type of motor—or motors—used. Some decks (the Tandberg TCD-310, for example) have a servo-controlled motor system for the capstan and a separate motor (or motors, though there is some argument over the desirability of a three-motor cassette deck) for tape tensioning and fast-wind functions. More conventional hysteresis-synchronous motors have become almost commonplace as a route to speed accuracy.

There are other recent developments that have been vigorously advertised, though one might question the importance of their contributions to the cassette medium. One is front loading, an approach that can be helpful if you must put your deck on a shelf at or near eye level but that tends to interfere with visibility of the cassette during use and sometimes makes for relatively complex mechanical design. Another is "memory rewind"—a feature that stops the rewind automatically at a spot predetermined by the counter setting and, in at least one model, automatically reverts to playback when the tape stops. Closely related are the various "search" modes introduced by several manufacturers as an aid to finding an exact spot on a cassette. Their utility (which can be considerable) will depend both on the operation of the specific design and on the use you expect to put it to.

The cassette obviously is unmatched for compact storage. Convenience is, for most purposes (other than background music), at least as great as that of any other tape medium. Costs are reasonable for any given performance level, and the range in both decks and tapes today is extremely wide. It's no wonder, then, that the cassette has achieved immense popularity among recordists in less than a decade.

**BASF's New Super-Hybrid**

Finally, there's that new format, the Unisette. Developed by BASF initially for instrumentation and professional use, the Unisette is an oversized cassette designed to overcome professional complaints about the conventional cassette. For example, it uses standard quarter-inch tape in a shell about half again as large as a conventional cassette (and therefore curiously reminiscent of an old—and un-successful—RCA design from precassette days). Thanks to a magnetic stripe on the label, it's possible to encode indexing, equalization, or other information magnetically, so the Unisette can be stored in an automatic retrieval system or used with a minimum of manual adjustments.

The first models come in 30-, 40-, and 60-minute lengths when recorded at 3 1/4 ips using both directions of tape travel. Actually, the Unisette can be recorded at any speed and might be used in a single direction only—say, for quad. These cassettes feature a large symmetrical opening for virtually any head configuration instead of the three small (and two tiny) openings on the Philips cassette that have been the bane of engineers wanting to introduce separate recording and playback heads.

There's a locking system that holds the tape firmly in place when the cassette is not in use. The tape guidance system is built into the playback unit, not the Unisette itself. The locking retracts when the Unisette is used, leaving the tape "floating" within the shell. The results are claimed to be much lower wow and flutter, increased fidelity, and greater flexibility in use.

For example, a super-slow-speed Unisette with multiple mono tracks might hold an entire talking book for the blind. A higher speed (perhaps 7 1/2 ips) might be used for high fidelity music reproduction or for field recording. And the mechanism should be more reliable in language laboratories than are conventional cassette decks. Like the cassette, the Unisette has a notch with a removable pin that prevents accidental erasure.

On paper, the system is intriguing. What has some observers wondering about its viability, however, is the tremendous head start of the other systems and the fact that the Unisette's advantages over both the open reel and the standard cassette seem to be marginal for home music purposes. That is, it seems to offer no improvement in fidelity over open-reel tape and little improvement in tape handling over the more compact conventional cassette.

Be that as it may, Aiwa has produced prototype players for home use, and Willi Studer (the company that makes Revox equipment) intends to market a professional Unisette deck. Other manufacturers (including Ferroplan) have been mentioned as possible producers of home audio equipment.

So far, manufacturers of cassette, cartridge, and open-reel equipment haven't greeted Unisette with the hostility they once displayed to tape formats other than their own. The detente that has developed among backers of the various systems—to say nothing of the hobbyists who use tape—has made it possible for each system to benefit from development of the others.
Not for everyone, it's true. But for those sophisticated audiophiles who can appreciate the 0.0024% tuning accuracy of the 700T Frequency Synthesizing Tuner ... the exceptional control flexibility of the 700C Preamplifier-Control ... the masterful power of the 700M Main Amplifier with its incredible 170 watts per channel Min. RMS (at 8 ohms, 20 to 20,000 Hz with no more than 0.1% total harmonic distortion) ... KENWOOD proudly presents the 700 Series. Priced approximately $2150.
Klipsch Talks Price

We recently raised prices 4.3% on items the public buys most. And this raises the question of the prices of our products compared with the value received.

For example, a KLIPSCHORN® loudspeaker in oiled walnut, style B, was recently raised to $1040. Ten years ago the price was $884. In that same period of time the humble Volkswagen has gone to about $2665 from $1565.

Value

Maybe I should have titled this ad "Value," because that's where my heart is right this moment, and really has always been, with regard to the audio buying public. That public of course, is not the reason for our success. They are our success.

Stable Design

To me, one of the most desirable features of the KLIPSCHORN has always been its stability. Its design remains today largely unchanged since it was stabilized in 1952. Our dealers relate to us what a joy it is to have their Klipsch customers who own five, six, or fifteen years old KLIPSCHORNS bringing in potential buyers for the same products they own.

No "Major Breakthrough"

Dealers seem particularly proud not to have to eat the "major breakthrough" of the previous selling season, or to worry about whether to buy this year's "Cosmic Muffin" or next year's speaker with the built-in waterfall and personal vibrator.

Lifetime Investment

We like for people to buy our loudspeakers. But we also like for them to use our loudspeakers the way they were meant to be used: as lifetime investments. Considering the small price increases and lifetime of enjoyment afforded by Klipsch speakers we believe you'll find no greater value in the enjoyment of reproduced sound.

Paul W. Klipsch

Send this coupon for information on all Klipsch loudspeakers.

Klipsch and Associates, Inc.
P.O. Box 688
Hope, Arkansas 71801

Please send me your latest brochure and list of dealers.

Name
Address
City State Zip

CIRCLE 31 ON READER-SERVICE CARD
How to Interpret Our Tape Recorder Tests

You don't have to be an engineer, but you should understand these basics.

by Edward J. Foster

When you open the pages of High Fidelity to the equipment review section, you are greeted with an abundance of technical data describing the performance of the newest audiophile equipment—receivers, amplifiers, loudspeakers, turntables, pickups, and, to an increasing extent, tape recorders. Tape equipment is significantly more complex than it was even five or ten years ago, and the tests required to document its capabilities naturally have become more complex too.

The HF reports are essentially based on two types of testing. There is a description of the deck, commenting on its physical and functional properties, on the uses to which they may be put in the home, and on the results of in-use listening tests. And there are technical data that tell you about the performance of the equipment. Both are important. The commentary provides the information you need in order to sift through the available equipment that suits your budget and to eliminate those machines lacking the features you will use. The technical data then let you select the unit with the best performance within the remaining group.

Technical data are not, in and of themselves, quite the absolute index of performance that they might appear to be; they require interpretation. This article is intended to help you in that interpretation. It is less concerned with the "how" of the tests than with the "why" and the "so what."

Being an electromechanical device, a tape recorder is tested in two categories. There are mechanical tests of speed accuracy, wow and flutter, and rewind and fast-forward times; and there are electrical tests of response, distortion, signal-to-noise ratio, erasure, crosstalk, sensitivity, output level, and meter action. Let's take the electrical tests first.

Electrical Tests

Before we discuss individual tests, one basic reference must be clearly understood: the "0 VU" against which so many factors are measured. High Fidelity's tests use a single, separate reference standard for each of the three tape formats: an NAB test tape for open-reel units, a standard test cartridge (produced by RCA) for eight-track decks, and a DIN test cassette for all cassette units. These standards are well defined for each area—particularly NAB standards for the higher open-reel speeds and the DIN standard (actually based on the original Philips cassette specifications) for cassettes.

All data derived from these references therefore represent absolute performance, readily comparable from one unit of a given type to another, in the sense that all share the same basis of reference—the nominal maximum recording level of the format represented by the "standard 0 VU." Thus when HF says a measurement is made at "-10 VU," the specified level is 10 dB below the 0 VU of the reference test tape. The manufacturer may set his meters against a different 0-VU "standard," however. If he does so, this will influence the actual performance (as opposed to the absolute performance of the test data) achieved in using the recorder, so will the way in which any given metering system is used by the deck's owner. Whenever unconventional metering systems make actual (in-
ard test tapes, however, have certain limitations the standard test tapes and indicate the deck's per-
be drawn for several different tape types and with designed to operate:. In addition,R/P

curves are measured on each track of the recorder you have a tested deck. (See “The Dolby Problem” should be expected to produce optimum results if the tapes mentioned in the reports are the ones that ports state what tapes were used, and normally the minimized for and use that tape for all testing-
required recording as well as playback. Every at-
tempt is made to determine what tape (or, partic-
ularly in cassette decks, tapes) the recorder is optimi-
ized for and use that tape for all testing—
cluding at least some of the listening tests. The re-
ports state what tapes were used, and normally the tapes mentioned in the reports are the ones that should be expected to produce optimum results if you have a tested deck. (See “The Dolby Problem” following this article.)

Response. Two types of response curves are pub-
lished in HF’s reports: playback-only response and record/playback (R/P) response. The response curves are measured on each track of the recorder and at each tape speed at which the recorder was designed to operate. In addition, R/P curves may be drawn for several different tape types and with built-in Dolby switched in and out.

The playback-only curves are measured using the standard test tapes and indicate the deck's performance when playing prerecorded tapes. Standard test tapes, however, have certain limitations that you must understand to interpret the data correctly. Their frequency response is limited to 15 kHz at 7½ ips, 7.5 kHz at 3⅓ ips, and 10 kHz on cas-
ette. The fact that the curves do not extend beyond that point, therefore, does not mean that the player will not perform at higher frequencies. It simply means that this is the limit of the current standards. If the recorder's response is flat to the highest fre-
quency on the test tape, it probably extends some-
what beyond—most likely in a manner similar to that shown in the R/P graphs.

The standard test tapes used are also recorded only at discrete frequencies: that is, they do not contain every frequency within the range they cover, but have only representative ones spotted across that range. The graph you see is a convenient and generally accepted way of displaying the data. But you should be aware that it is, in reality, a smooth curve drawn through the measured points. There could be eccentricities in the response be-	ween the measurement points that the graph does not accurately represent.

For example, there is the phenomenon called “contour effect,” which causes irregularities in the low-frequency response of a tape player. At low frequencies the playback head is shorter than the recorded wavelength. Depending on the particular wavelength (frequency) and on the head design, the head gathers a different percentage of the mag-
etic flux on the tape as the frequency changes; at some wavelengths it gathers more flux and pro-
duces a higher output than at others. This results in a “bumpy” response curve. Since the standard tape is recorded only at specific frequencies, the bumps generally do not appear; and there is no way of
AUTOMATIC PROGRAM FINDING...

With other cassette decks, finding your tape selection is hit or miss. You press fast forward — stop — rewind — stop — fast forward — over and over in a mad search for each selection. But not with Sharp’s RT-480. Just press fast forward or rewind. Our Automatic Program Finder finds the precise beginning of your selection. And it does it automatically. No fumbling, bumbling, or mumbling.

We eliminate the hiss as well as the miss. With a built-in Dolby "B" type noise reduction system. The RT-480 is professional all the way. With Micro Crystal Ferrite heads for CrO, tapes. A selector switch for normal, low-noise, and CrO tapes. Pause control for editing. Automatic shut off in every mode. Lighted, expanded scale VU meters. Advanced hysteresis synchronous motor for inaudible wow and flutter: 0.15%, W., rms. S/N ratio: 58 dB, with Dolby on. And the frequency response is from 45-15,000±3 dB, using CrO tape.

All this, plus great styling, 2 microphones and dust cover. And under $250. For the name of your nearest Sharp hi-fi dealer, contact "Audio", Sharp Electronics Corp., 10 Keystone Pl., Paramus, N.J. 07652.

* Dolby is a trademark of Dolby Laboratories, Inc.
From the makers of Marantz...
You don’t have to spend a lot of money to get your money’s worth.

Perhaps you’re not ready to make the commitment to high-priced stereo equipment. Or maybe you need a good second system. Then look into the modestly-priced Superscope line of receivers, components, tape decks, tape players and speaker systems.

Superscope products are designed and engineered by the same people who bring you world-famous Marantz stereo. And they’re backed by the same, strong, 3-year guarantee* that stands behind Marantz. So with Superscope stereo you’re getting quality at very modest prices. Your nearest Superscope dealer has a full line of equipment starting as low as $89.95** You’ll find him in the Yellow Pages.

Superscope—until you’re ready to step up to Marantz.

*Superscope, Inc. guarantees the original registered owner that all parts are free from operating defects for one year, two years or three years from purchase date depending upon product purchased. Product is repaired or replaced free of charge provided you bought it in the U.S.A. from an authorized dealer. Naturally the serial number cannot be altered or removed. **Manufacturer's suggested retail price at dealer's option. ©1974 Superscope, Inc., 8150 Vineland Ave., Dept. H, Sun Valley, Calif. 91352. In Europe: Superscope Europe, S.A., Brussels, Belgium. In Canada: Superscope Canada, Ltd., Ontario. Prices and models subject to change without notice. Consult the Yellow Pages for your nearest Superscope dealer. Send for free catalog.
there's only one thing cheap about these new Realistic stereo components...the Radio Shack price!

FREE New 1975 Radio Shack Catalog

OVER 2000 PRODUCTS EXCLUSIVES ON EVERY PAGE BEAUTIFUL FULL COLOR
Stereo • Quadraphonic • Phonographs TV Antennas • Radios • Citizens Band Kits • Recorders • Tape • Tools Auto Tune-Up • Electronic Parts Test Instruments • More!

164 pages of the finest in home and hobby electronics. Respected names like Realistic, Micronta, Archer, Science Fair—and they're available only at Radio Shack stores and dealers nationwide! See what's really new in electronics by sending for this exciting catalog.

SEND FOR YOURS TODAY! FILL OUT COUPON BELOW

1975 Catalog Mail to Radio Shack, P. O. Box 1052, Ft. Worth, Texas 76101. (Please print.)

Name Apt. No.
Street
City State ZIP

Realistic SA-101 Stereo Amplifier. Inside the handsome walnut-grain wood case is an ITL/OTL amplifier with plenty of power for compact speakers. It's versatile too, with inputs for a magnetic or ceramic phono, tuner and tape. And there are separate volume, balance and tone controls, a speaker in/out switch, and a stereo headphone jack for private listening. U.L. listed. #31-1983.

Realistic TM-101 Stereo Tuner. Our lowest priced tuner, but it pulls in FM stereo and AM the way you like it. You'll hear more stations and less noise thanks to three-ganged FM tuning, ceramic filter, advanced multiplex IC and external FM antenna terminals. Other features include a slide-rule dial, stereo beacon and walnut-grain wood case. It's a perfect "system mate" for the SA-101. U.L. listed. There's only one place you can find it...Radio Shack! #31-1984.

Save $34.80 on a Complete System

- Realistic SA-101 Stereo Amplifier
- Realistic TM-101 AM/FM Stereo Tuner
- Two Solo-1 Speaker Systems
- Realistic LAB-12C Changer with Base
- And $12.95-value Magnetic Cartridge

Master Charge or Bank Americard at participating stores.

OVER 3000 STORES • 50 STATES • 8 COUNTRIES

1975 Catalog

Radio Shack
A TANDY CORPORATION COMPANY

CIRCLE 42 ON READER-SERVICE CARD

Retail prices may vary at individual stores.
low-frequency response as the narrow track "sees" portion of the tape, there often is a gentle rise in track tape is reproduced by a head scanning only a frequently are "full track" (the entire width of the tape it is essentially a playback phenomenon. rather than from the playback curves, even though irregularities must be assessed from the R/P curves, rather than from the playback curves, even though it is essentially a playback phenomenon.

Another drawback of test tapes is that they frequently are "full track" (the entire width of the tape is recorded by the tape producer). When a full-track tape is reproduced by a head scanning only a portion of the tape, there often is a gentle rise in low-frequency response as the narrow track "sees" more and more of the width of the tape as the wavelength gets longer and longer. The phenomenon, called the "fringing effect," is similar to the one described above except that instead of "seeing" longitudinally along the tape (as it does in the contour effect), the head sees transversely across the tape width. To this extent, then, the use of standard test tapes imposes some inaccuracy on the test data; some rise (say, 3 to 5 dB) in the bass end of playback curves may simply be overlooked as caused by fringing.

Since R/P curves are made with the deck's own heads, the fringing caused by full-track tapes will not affect them. Nor, necessarily, will irregularities of playback equalization, which may be counteracted by reciprocal recording equalization adjustments. But with proper interpretation, the combination of both sets of curves gives you the information you need.

High Fidelity's R/P curves are measured with a sweep-frequency technique. An oscillator is slowly tuned across the entire band, and all frequencies are measured. Any low-frequency bumps from the contour effect are recorded in the R/P graphs, and the low-frequency playback response will show up more clearly in R/P curves than in the playback-only curves. And, if the deck has response beyond either limit of the standard tapes, only the R/P curves will display it.

So what use do the playback-only curves have? They tell you how well the deck adheres to standards. A manufacturer could produce an excellent R/P curve by using nonstandard recording and play equalization. Such a deck would not reproduce prerecorded tapes correctly, nor would tapes made on it be reproduced correctly on other decks. You can spot this by comparing the playback-only response with the R/P response. If both are reasonably flat and similar through most of the range, you can assume that the manufacturer is adhering to standards and that the playback response at the extremes is quite similar to that of the R/P graph. But if the R/P graph is flat and the playback-only curve is tilted, the manufacturer has deviated from the standards.

You will find that HF's reference level for making R/P response curves varies from format to format. Open-reel and cartridge decks are measured at -10 VU while cassette decks are measured at -20 VU (each, of course, representing so many dB below the respective 0-VU standard). This change in recording level is generally accepted in the industry and is a tacit acknowledgement of the limitations of cassette tape, which has approximately 10 dB less headroom with respect to its standard 0 VU than the other formats do with respect to theirs. If the decks were measured at a level higher than those generally accepted, one would see the high-end response drop off as the limitations of the tape (saturation) started to show, and the curves would reflect the capability of the deck/tape combination only in loud passages that are loaded with highs. Conversely, some manufacturers spec their decks at -30 VU in an attempt to get the tape "out of the picture," and the curves show the capability only with moderate levels or moderate high-frequency content. At higher levels you will not get equivalent high-end response. That's the main reason why a 7½-ips open-reel deck has a cleaner, crisper high end to your ears than a cassette deck with a similar frequency response. It maintains its high-end response to a greater recording level than the cassette deck does.

Two points should be made. Much music—especially in the classics—does not have a flat energy distribution; there is less high-frequency energy than midrange energy. Much synthetic music, however, does have high-level, high-frequency signals. When HF measures decks at reduced level it essentially is indicating the capability of the deck itself. To achieve this response on tape you may have to record well below 0 VU or, if the deck has "tape switching," choose the type with the best high-end response for which the deck is set up. HF repeats the R/P measurements with different tape types so you can see the response with the more potent tapes.

HF also measures the R/P response of Dolby-equipped decks with the Dolby circuit both on and off. For low-level, high-frequency signals, the Dolby playback circuit is essentially an expander. Thus it emphasizes response irregularities (as explained in "The Dolby Problem"). Furthermore, any mistracking between the encoding and decoding sections of the Dolby—that is, any miscalibration of the Dolby levels—will result in anomalies of high-end response that are not apparent with the Dolby switched off. If the R/P response with Dolby looks like the R/P response without it, you know that Dolby calibration and tracking are correct.

Distortion. Both harmonic and intermodulation
distortion are measured on tape recorders. They are record/play figures only. Standard test tapes are not used, because distortion enters the picture mainly in the recording process. A well-designed recording amplifier does not introduce significant distortion, which results mostly from nonlinearities in the tape itself, augmented or ameliorated, as the case may be, by the bias level for which the recorder was designed. Extended (though not necessarily "flat") high-frequency response can be achieved by cutting back the bias level somewhat, but this increases the distortion.

By amplifier or receiver standards, the distortion level of tape recorders may seem excessive—frequently in the region between 1 and 2% for harmonic distortion and 3 to 5% for IM. Fortunately, most of the harmonics generated are of low order (mainly the third harmonic) and therefore are not too noticeable in practice. HF's reports show harmonic distortion numerically (as a percentage of THD for a specified frequency range) and usually provide the same information in graph form as well. The recording level at which harmonic distortion is measured is -10 VU.

You may be surprised to see the distortion curves end at 5 kHz on most cassette players and 10 kHz on open-reel decks. The reason is that the measured performance generally is meaningless above those frequencies since the playback head and electronics do not respond above about 15 kHz on cassette decks and 20 or 30 kHz on open-reel machines. Thus the harmonics generated simply don't show up in the output. Typical harmonic-distortion curves tilt up at low frequencies, reflecting the boost in recording equalization below 50 to 100 Hz and also the fact that bias high enough to achieve minimum distortion at low frequencies would be excessive for optimum performance at higher frequencies. Minimum distortion with normal bias generally occurs in the region between 400 Hz and 1 kHz and rises thereafter due to the reduced capability of the recording tape when faced with the rising high-frequency recording pre-emphasis. At still higher frequencies the measured harmonic distortion appears to drop as explained above.

IM distortion is measured at -10 VU by recording two tones simultaneously and measuring the difference frequency or "beat." Generally the IM distortion will be higher than the harmonic distortion.

In selecting a tape deck, the lower the distortion figures the better, but it is difficult to give firm guidelines. Again, tape distortion tends to be "soft"—that is, much less noticeable than corresponding amounts in strictly electronic component.

Signal-to-Noise Ratio. All S/N ratios published by HF are referenced to the standard 0-VU recording level for that format. All the measurements are limited to the audio bandwidth; any subsonic or supersonic noise is eliminated but no "weighting" is done. Such weighting is useful if you want figures that will more closely approximate audibility factors, though results can be equivocal unless you know precisely what kind of weighting is involved. Some manufacturers do weight their measurements, which improves the specified S/N ratios. Also, a manufacturer may use a higher-than-standard 0-VU recording level as a reference, which again improves the reported figure. By reporting unweighted noise referenced to the test tape's 0-VU level, HF publishes "conservative" figures that are measured in the same way for all units of a given format.

Two sets of measurements are made. One is the playback-only S/N ratio. This tells you the noise level of the playback head and electronics only and corresponds to what you can expect from an ideally recorded tape. In practice, however, you won't achieve as good a figure since most prerecorded tapes are not as quiet as a good deck is in the playback mode.

The second measurement is of the R/P signal-to-noise. This includes the effect of bias noise, tape noise, and recording amplifier noise. Furthermore, the HF measurements are made with the recording level control set wide open, giving you "worst case" figures, since any noise at the input stage will be amplified to maximum. Some manufacturers specify S/N with the level control at minimum, for a "best
case” figure. You normally will be using the equipment somewhere between the two extremes. The precise setting of the recording controls will depend on the levels delivered by ancillary equipment, the nature of the signals, and the way you “read” the level indicators on the deck. But the S/N ratio you achieve will be at least as good as that printed in the report—though not necessarily as good as the manufacturer’s specs.

All published S/N-ratio measurements are made with the Dolby circuit (if the deck has one) switched off. Unweighted S/N measurements through Dolby B would be misleading, since the circuit reduces noise only in the range where it is most audible (the upper portion of the frequency range), audibility-weighted measurements are necessary to document the subjective improvement that it achieves. (Depending on the weighting curve used, such measurements can be made to show that the 10 dB of improvement claimed for Dolby B actually is achieved within narrow margins in home equipment.)

Sensitivity and Maximum Output. These two figures are given so that you can check the compatibility of the deck’s signal levels with the rest of your equipment. The sensitivity figures tell you how many volts (or millivolts) you need at the input to reach a 0-VU recording level with the recording control set at maximum. If there is more than one input, the sensitivity of each is given. You should make sure that your signal source—i.e., preamp, microphone, etc.—delivers at least that much signal at normal levels. Otherwise you will not be able to get a full-level recording. Actually you’re better off if your source produces from 3 to 10 times that level so you can operate with the recording-level control turned up only part way. (Again, with inputs of very high sensitivity, noise from the input stage may be unduly amplified if the level controls are set too high.)

The maximum output measurement tells you how many volts you will get out of a deck from a 0-VU tape with the playback level fully advanced. The figure should be at least equal to (preferably about 3 to 10 times as great as) the sensitivity spec of the tape-monitor input of your receiver or amplifier. An output level control, if the deck has one, can be used to give you the exact level you want as long as the maximum shown is above this level.

Erasure and Crosstalk. These two specs deal with “unwanted” signals. The erasure spec tells you how “cleanly” the tape is erased of previous signals when rerecording. It is measured by recording a 0-VU signal, backing up and rerecording with no signal, and then replaying to see how much of the original is left. The test signal is 400 Hz for open-reel decks and 333 Hz for cassettes—a reflection of the difference between the U.S. NAB standards for open-reel tapes and the German DIN standards for cassettes. The difference is not significant. A rather low frequency is chosen since the lows are harder to erase than the highs. The larger the figure, the cleaner and better the erasure.

Crosstalk is measured by recording a 400-Hz (333-Hz for cassette) signal at 0 VU on one track and playing another to determine how much signal “leaks” between them. The crosstalk will be worse for low frequencies than for the midrange because the head “sees” more of the tape width at long wavelengths. (See the “Response” section.) Sometimes the high-frequency crosstalk will also be a little worse than midrange if the two track elements in the head are not well shielded from each other. The tests keep both tracks energized with bias during recording (this is how they are used in practice), and the results generally yield a poorer crosstalk figure—i.e., a more conservative measurement—than they would with the second track unbiased. You can expect crosstalk in cassette decks to be significantly poorer than in open-reel machines, reflecting the adjacent location of the two stereo tracks in the cassette format.

In these two formats, in fact, the “crosstalk” figure actually represents channel separation. When it comes to the eight-track format, however, HF measures the crosstalk between adjacent “programs.” That is, the measurements are made between two side-by-side tracks on the tape, rather than between channels of a stereo pair. This is because the mechanical head-shifting necessary to change programs on eight-track decks must be well designed if it is not to result in poor head alignment—measurable as leakage between adjacent tracks. The other two formats normally present no comparable problem. But no matter which format we are talking about, the higher the dB figure, the lower the crosstalk or the better the channel separation.
Meter Action. HF used to call this section “meter accuracy” and reported therein the level you would see on the meter when recording a standard 0-VU tone. That is, if the meter read +2 VU when a standard-level tape was being made, the report would say the meter read “2 dB high.” This no longer is termed “accuracy,” because the standard DIN cassette 0-VU recording level is very high—satisfactory, perhaps, for voice recordings but leaving no headroom for music. Manufacturers realized that if they set their meters “accurately” (i.e., to the DIN standard) the user would over-record the tape, with muddled results. Owner’s-manual warnings about this phenomenon aren’t necessarily read; a better plan would be to set the meters so that they read high with respect to the standard, thus reducing the recording level for a 0-VU indication and producing cleaner tapes. Since this is all to your benefit and really is the outcome of a poorly chosen standard, HF felt it was not correct to call meters set this way “accurate.”

Lest there be any confusion, all of HF’s tests—response, distortion, S/N, etc.—are referenced to the accepted standards. The “meter action” section tells you what the meters will read when producing the standard level. You should look for the two meters to read correspondingly high and realize that, while an open-reel deck should have meters that are close to “exact,” there frequently is an advantage to having cassette meters read “high.”

Again, this measurement also has importance in evaluating the others. If the meters read 6 dB high (the meter’s 0 VU is 6 dB lower than standard), recordings made so that the meter never goes beyond the 0-VU point will have 6 dB more headroom than “standard” and 6 dB less S/N. The actual values you obtain in your own recordings, therefore, will depend on the way you use your meters; and the “meter action” figure will tell you what sort of leeway you have in the use of the meters, relative to other units of the same type.

Mechanical Tests

Though you may look at the electrical measurements (particularly response) first, some of the mechanical parameters are no less important to fine musical reproduction. Fortunately for those who tend to overlook such things in favor of the more “famous” specs, mechanical performance of the better decks today (particularly in cassette and open-reel equipment) generally is very good indeed in the sense that performance seldom is audibly substandard in any respect.

Speed Accuracy. Unless you have a perfect ear or wish to “play along” with a tape recording, absolute speed accuracy is not very important. There are few people who can tell if the pitch of a note is true within 0.5% without a reference—providing the pitch is stable. What is of more interest is how the speed varies with line voltage. You’re better off with a deck that is consistently high or low, especially if you wish to edit the tape or lay down additional, synchronized recording tracks later, than you are with one that varies on either side of absolute accuracy, depending on the AC voltage supply. Such a machine can be “out of tune” with itself if the voltage changes between recordings.

Wow and Flutter. Wow and flutter, other forms of speed inaccuracy, are much more noticeable than the voltage-dependent type. Because of eccentricities in the capstan, variations in tension, and similar factors, the instantaneous speed of the tape varies somewhat on all machines. These “warbles” in tape speed result in corresponding pitch warbles. They can be heard most easily in piano and woodwind music. Wow refers to slow speed variations while flutter refers to more rapid variations. HF reports the combined average percentage of wow and flutter, weighted by the standard (ANSI/IEEE) curve representing the audibility of the disturbance.

Wow-and-flutter measurements are made both in playback only, measured from a standard test tape, and in record/playback, where the signal is recorded and then reproduced on the same deck. Usually the R/P figure is higher than the play-only figure. On exceptionally good decks, however, you may not see much difference. This is an indication that the deck is able to produce tapes whose speed variation is comparable to that in the test tapes.

Fast-Wind Times. This measurement is really given for your convenience. While the time it takes to transport tape in the fast modes is not an indication of quality, it can be of some importance to you if you do a lot of fast shuttling. The figures given are based on the time it takes to transport a standard length of tape completely. They have most importance in the few eight-track decks offering the fast-wind option, since winding speeds generally are extremely slow. If, for example, a 60-minute cartridge (15 minutes per “program”) takes 8 minutes to wind once around (that is, back to the starting point), you will save only 7 minutes maximum each time you use the feature with this cartridge length.

Summary

HIGH FIDELITY’s tape-deck reports are based on many hours of testing. The results of those tests are distilled into the graphs and tables you see, and this article is meant to help you to interpret the data reliably. But the data are by no means the whole report. For a valid understanding of the unit’s potential and operation you must study the writeups as well, since it is only through verbal explanation that a report can convey a true picture of the way a tape deck fits into the scheme of things.
THE ONLY THING WE DON'T GUARANTEE ABOUT A MIRACORD IS THAT YOU'LL FIND ONE.

We're so particular about the quality that goes into every Miracord, we guarantee all parts and service for one full year. But we're also so particular about what stores sell our equipment, we can't guarantee you'll find one.

That's somewhat of an exaggeration. It's just that you don't find a Rolls Royce dealer on every corner. The way we figure it, anything worth listening to is worth looking for. And when you hear your records on a Miracord automatic turntable, you'll hear what we mean.

For instance, the Miracord 760 is engineered with our unique "jostle-proof" push-button control system. It tracks with dead accuracy at as low as 1/2 gram stylus pressure, even if the shelf you put it on isn't level! And one of the leading magazines in the field reported that the Miracord 760 had the lowest rumble figure measured (report available on request).

Pitch control? You can vary the speed over a 5 percent range. That's about a semi-tone in pitch. And a built-in stroboscope allows you to return to the standard speeds simply and accurately. The Miracord 760 naturally has a built-in anti-skate control.

The precision continues. The twelve inch, one-piece die-cast turntable platter is a work of art in itself. It's dynamically balanced for smooth, steady performance and speed that will not vary.

And it is run by a specially designed asynchronous motor whose speed constancy is just about unsurpassed in its class. The details about the Miracord 760 go on and on. If you'd like the full story on our full line, just drop a line to:
Miracord Products, Benjamin Electronic Sound Co., 40 Smith Street, Farmingdale, N.Y. 11735.

After you find your Miracord, we'd like to make this one last promise: We doubt you'll ever have to use its guarantee.
The A-2340...

a stereo deck

Play pre-recorded stereo tapes, or even make them yourself. With the records you own (and the ones you can borrow) you can build up a library of music tailored to your specific tastes, your changing moods.

a 4-channel deck

If you ever decide to expand your present system to 4-channel, you won't have to worry about expanding your tape system. Everything you need for discrete 4-channel tape reproduction is already in the A-2340.

a 4-track multichannel recorder

If you play a musical instrument, or know someone who does, you can take full advantage of the A-2340's music making capabilities. Simul-sync lets you concentrate on each part of the tune, one track at a time. Add echo, revise and overdub until it's right. Until it's together, your way.

Eight source mic/line mixing with individual level controls...independent 4-track source/tape monitoring...all the essential features and functions you need to control the process, so that the music is the best it can be.

a superb machine for only $739.50

No matter how you use the A-2340—to learn, to create, to enjoy—you can count on using it for a long time. There's a two year warranty of confidence, for example. And we don't just mean the A-2340 will pull tape—we mean it will meet its original specifications for two years. Something no other machine, that we're aware of, in its price category is guaranteed to do.

We'd like you to know what those specifications are, and the audible difference they make. We invite you to hear the A-2340, to operate it yourself.

You'll find that our retailers are well-informed and helpful in general. Rare qualities, so there can't be many of them. You can find the one nearest you by calling (800) 447-4700.* We'll pay for the call.

*In Illinois, call (800) 322-4400.

THE TEAC 2-YEAR WARRANTY.

For two full years from date of purchase any TEAC TAPE DECK returned with warranty card and freight prepaid by the original registered purchaser to TEAC or its nearest authorized service station will be repaired free of charge for defects in workmanship or material. The same applies to TEAC car stereo decks for a period of one year. This warranty only covers TEAC products purchased in the U.S.A.
"The Dolby Problem"

Why does the best-known noise reduction system work better with some tapes than others?

by Robert Long

HIGH FIDELITY magazine recently published an inquiry from a reader and an answer from the editor that reflect the confusion created among users of tape recorders when manufacturers fail to specify the brand of tape for which the recorders have been set up at the factory. It is obvious to those who know something about the subject that incorrect bias settings can lead to considerable difficulty. However, the wide variety of cassette tapes currently being offered to consumers and the dependence of Dolby noise reduction on uniform frequency response have increased the importance of providing a clear and accurate specification of the tape the manufacturer has used in setting bias and equalization. I am sure you agree it is pointless for manufacturers of cassette recorders, or manufacturers of tape for that matter, to advertise frequency response specifications that sound impressive and exotic but that apply only under bias and equalization conditions unknown to the user.

Although I know the subject has been mentioned in various articles in your magazine, it remains one of the most important, and neglected, areas of user ignorance in the field of tape recording. The matter is especially important, because the typical user will not be able to make these adjustments himself. If you are looking for a good reason to stir things up, I think this is one.

ROBERT BERKOVITZ
Head of Advertising and Information
Dolby Laboratories, Inc.

We agree with Mr. Berkovitz that this subject seems to be misunderstood—both by some of our readers and by some manufacturers. When we test any recorder, in any format, the first question we ask the manufacturer is: What kind of tape is it optimized for? (See the separate article on interpreting recorder test results in this issue.) Often the answer is not easy to come by. Though the manufacturer obviously must have set some standard against which bias, Dolby reference level, and similar factors can be adjusted, the company and its instruction manuals are not always very communicative on the point.

This is, on the face of it, surprising. If the machine is adjusted for a given tape, it presumably will perform best with that tape. Switch tapes on a well-adjusted machine, and one can expect changes in the linearity of response (usually for the worse), distortion (often for the worse), and breadth of response (sometimes for the worse). For correct results we would test the machine using the tape for which it has been adjusted, and the purchaser
should consider that tape his “quality standard”—to be departed from only at the risk of losses somewhere in the unit's performance pattern.

Sometimes the manufacturer recommends a tape that we suspect is not the one for which the machine has actually been adjusted. Let's say that we are told to test it with Maxell UD, which has a particularly hot high end. and that we discover a peak at the top end of the record/playback response curves. This suggests the unit is to some extent underbiased for UD.

Is that because the manufacturer hasn't checked the bias carefully enough, or because the machine actually is adjusted for a “less hot” tape—perhaps a brand that is more readily available in discount stores and pharmacies across the country, simplifying supply problems for the user? There's no way to tell for sure. But we're left with the nagging suspicion that the manufacturer wants to have its cake (by adjusting for a more “average” tape so that several readily available brands will work reasonably well) and eat it too (by specifying that we test with a tape the company believes will yield more dramatic response figures—even though other performance measurements may thereby be compromised).

**Emphasizing the Positive—and Negative**

Dolby B noise-reduction circuits tend to emphasize some of these compromises. The Dolby compression/expansion action will restore exact signal relationships (that is, its input will look identical to its output) as long as nothing happens to the signal between the two passes through the Dolby circuit. But if the tape or the recorder (or both) should alter properties of the signal within the Dolby's operating range, it will “misinform” the Dolby decoder about the nature of the encoded signal. And since the decoder is basically an expander, it will tend to exaggerate whatever changes have taken place after encoding.

There are three areas in which these changes can be spotted easily in record/playback response curves and even heard (though much less easily) in the reproduced sound: high-frequency saturation effects, incorrect biasing effects, and misadjustment for tape sensitivity. When you substitute one tape for another you can affect all three performance areas, and they are to that extent interrelated though they are easier to grasp when considered individually.

Saturation is related to wavelength on the tape and hence is a function of both signal frequency and tape speed. This means that on open-reel decks at 15 ips and often at 7 1/2 ips saturation (and even misbiasing effects) can occur above the limit of the audible range. i.e., beyond 20 kHz, and therefore is of no practical importance. Saturation is also a function of recorded level. If response curves are carried high enough at any transport speed and at any recording level (and assuming, of course, that the electronics pass everything that's on the tape), you eventually will see the effects of tape (or head) saturation. The lower the transport speed and the higher the recording level, the lower the frequency at which they will show up on record/play curves. When this point is reached, the tape system simply can no longer handle all the signal being fed into it (remember that recording equalization progressively boosts high frequencies), and the curve will drop off dramatically.

Add Dolby processing, and the effect will be exaggerated at normal recording levels not only because Dolby compression is boosting the highs still further during recording, but also because the saturation misinforms the Dolby decoder and causes it to further reduce playback levels at these frequencies. Hence in a typical cassette deck that, with the Dolby switched off, can reach 15 kHz at -20-VU levels before saturation forces response down by more than 3 dB below midrange values, the Dolby circuit may reduce the -3-dB point to perhaps 14 kHz or even 13 kHz. On paper this looks like a surprising compromise of frequency response, but the difference is difficult or impossible to hear unless the signal is selected specifically to demonstrate it. Certainly the Dolby's 10 dB of effective noise reduction is far more important to most listeners than the loss of two or three notes in the overtone range.

Incorrect biasing and/or equalization (and the two often occur in tandem) can have far more audible results. Underbiasing for the tape in use produces a peak in high-frequency response; overbiasing drives down high-frequency response with a much more gradual rolloff than saturation effects. The greater the misadjustment, the greater the departure from “flat” response and the lower the minimum affected frequencies. Misadjustment of recording equalization may “compensate” for bias misadjustment to the extent that, for example, a tape with too much bias and too much high-frequency boost can look reasonably flat in a record/play curve. But under these circumstances distortion will not be at optimum, and the reverse condition (low bias and insufficient high-frequency boost) still can exhibit a peak toward the top of a curve that is otherwise “bent” downward in the treble region.

Dolby processing, again, exaggerates these effects by small amounts (say, no more than 1 dB or so unless the misadjustment is very severe indeed). The effects themselves often can be heard as a sibilance (low bias or high equalization) or a dullness (the reverse) in the sound. In other words, choosing the wrong tape can easily turn a fine recorder into a mediocre one, and the application of Dolby processing then will make it poorer.

If the “wrong” tape has a difference only in sensi-
tivity—that is, if it will produce a different output level for a given input level without otherwise altering the sound—the tonal balance won't be affected unless you're using Dolby processing. So-called high-output tapes obviously are designed to deliver more signal for a given recording level than garden-variety tapes. If Dolby reference levels in your equipment are set for the garden variety, the higher output will "fool" the Dolby decoder into thinking they were fed in at a higher level and hence need less downward expansion during playback.

The Dolby B circuit affects only the higher frequencies (say, approximately 1 kHz and up), and a significant change in tape output level (perhaps 3 dB or more—which is a fairly large difference as tape sensitivities go) will begin to make a slight change in the output level through the Dolby circuit at normal music levels. (Peaks at or near the Dolby reference level will remain unchanged because the Dolby circuit has no effect at these signal levels.) A record/play response curve at -20 VU, for example, will show a slight "shelving" with the upper range a little higher or lower than the bass portion of the curve. But the chances of your ever being able to hear this type of nonlinearity are very slight indeed.

What Happens When You Turn on "The Dolby"?

These three graphs demonstrate points made in the accompanying article and are based, roughly, on the sort of curves that might be expected with top-grade cassette equipment. Graph 1 shows the effect of tape saturation (in the 15-kHz region) and how it is exaggerated to some extent by the application of Dolby B processing. Graph 2 represents the type of high-frequency peak often encountered in switching from the "correct" tape (the one for which the deck has been adjusted) to the one that ideally would require greater bias. Graph 3 illustrates the "shelving" that occurs—with Dolby only—when a tape with higher output (that is, with greater sensitivity) is substituted for the one for which the deck was adjusted.
Introducing the KLH Research X Model Sixty Turntable: A solid triumph in human engineering.

There are more manual turntables to choose from these days than ever before. And most of the better models share many of the same fine features and specifications.

So why make a turntable? (And we are making it—not just slapping our name on someone else's product. Every part is hand assembled in our plant in Cambridge, Mass.)

The answer is in the product itself. The Model Sixty is a two speed, belt-driven, transcription quality turntable that combines all of the most wanted features with exceptional performance and a maximum of something we call 'human engineering'.

What is human engineering?

It's designing an electro-optical system that automatically shuts off the turntable at the end of the record and gently lifts off the tonearm. This is achieved through the use of a light detector resistor (shown here) rather than a mechanical device which would have to be tripped by the side force of the tonearm. Since our system requires no side force, it virtually eliminates all potential distortion and side thrust problems.

Human engineering is designing a special low mass aluminum tonearm and unique low friction pivot block and post assembly to such exacting standards that usage deterioration and performance deviation is all but eliminated.

Human engineering is designing all of the electronic controls into an upright module for incredibly simple and convenient operation. It's also making the controls feel as good as they look.

(Just one touch and you know there's something substantial here.)

In short, human engineering is finding out what people want and need in a product and putting it there. That's why the Model Sixty also features push-button electronic cueing, anti-skating control, a discrete suspension system that minimizes rumble, acoustic feedback and vibrations, one piece dynamically balanced platter, 24-pole synchronous motor and every other important feature you could want in a precision turntable.

For more information, visit your KLH dealer or write to KLH Research & Development Corp., 30 Cross St., Cambridge, Mass. 02139.

Specifications

- Rumble: -58 dB (CBS-RRLL), exceeds DIN requirements
- Wow & Flutter: .09%, lower than one half of DIN requirements
- Tracking Force: Continuously adjustable from 0.5 to 4.0 grams, with precision calibrated scale
- Average Absolute Tracking Error: 0.9° less than 0.01 radian
- Arm Structure: Low inertia, precision ground, high strength aircraft aluminum alloy
- Suspension: Tripoint seismic suspension of arm and turntable on single precision casting, damped to minimize influence of external vibrations causing high order resonances
- 300 RPM Motor: Precision polyphase synchronous low speed motor for minimal vibrations and optimum instantaneous speed accuracy and freedom from counter rotation
- Timing Accuracy: Better than 5 seconds per average LP side; twice as good as DIN requirements
- Speeds: 33⅓ & 45 RPM
- Record Sizes: 7" 10," 12"
- Operates on: 105-125 volts, 60Hz only, pilot light indicates power "ON"
- Dimensions: 17"(W) 13½"(D) 6¼"(H) with dust cover

KLH Research & Development Corp.
30 Cross St. Cambridge, Mass. 02139

February 1975

CIRCLE 30 ON READER-SERVICE CARD
So What Became of the Controls?

You can compensate for sensitivity mismatches if your tape deck has Dolby adjustments in its output circuits. But judging from the parade of new Dolby cassette equipment, such controls seem to be a thing of the past. Why? Because Dolby Laboratories (of all people) wants it that way. From what tape-equipment manufacturers tell us, Dolby Labs has been quite insistent that its licensees hide the Dolby adjustments inside (or at least on the back of) its consumer equipment.

The argument runs like this. Dolby “mistracking” due to a mismatch in sensitivity between the tape on which the recorder was designed and the tape in use is, at the very worst, barely audible. Mistracking effects due to gross misadjustment of readily accessible Dolby controls can be disastrous in high fidelity terms. So it’s better, the Dolby people apparently figure, to prevent disaster than to plan for perfectionism.

This attitude has caused a relatively small group of perfectionists to cry “Big-Brotherism!” Initially I felt this way too; but on seeing how rapidly Dolby cassette decks were finding their way into the hands of readers who had never before been turned on by Dolby-adjustment instructions, I’ve begun to see the wisdom of the approach.

To me, the usual Dolby alignment controls are less important in terms of sonic quality than the bias and equalization controls—whatever one may think of the “necessity” of adjusting for tape sensitivity. And most true high fidelity tape decks today have some sort of “tape” switching that will adjust bias or equalization or both. The correct use of these controls is at least as important to Dolby tracking as the “Dolby” adjustments that now linger on only in older decks or in models with professional pretensions.

Tape switches, however, are proving just as problematic. It’s all very well to say they will match the properties of the deck to those of the tape; but what tape? The “high” position may be for a high-output, low-noise tape; but whose? Without adequate answers, the deck owner may never get the performance he has paid for—the performance implied by the specifications.

Toward a Solution

One reason answers are hard to come by is that manufacturers don’t want to be locked into the use of one tape. As better tapes come along, they may change production policy on some models and optimize for a formulation that wasn’t even on the market when these models first appeared.

Some months ago, for example, we were testing an NAB-reel model that had been optimized, according to the manufacturer, for BASF LH. One day we were informed that, because of the fine performance the manufacturer had found in testing Scotch 212 and because it figured that tape to be more readily available on NAB reels to its customers in this country, its entire stock of the model we were testing was being realigned for Scotch 212. Hence by the time our report appeared and our readers would be able to buy the deck, our BASF data would be out of date. We had to start all over with a new sample.

I don’t say this by way of complaint. Particularly if a manufacturer finds it can improve its product simply by adjusting for a different tape (which wasn’t necessarily the case in the aforementioned example), we’d like to see users benefit from the change. But they can’t if they don’t know what tape the unit has been set up for. And knowing that a tape change might occur, some manufacturers are loathe to include in their owners’ manuals (which must be printed in quantity to keep costs down) an unequivocal statement about recommended tapes.

All right, why don’t manufacturers print information about tape types on a separate sheet, to be inserted into the owner’s manual at checkout? When a change is made on the production line, the old tape sheet (not the entire manual) could be discarded and an updated one substituted.

Ideally this sheet should show the exact type for which each switch position is optimized. Since there will be other brands and types that the manufacturer will know to give a reasonably good match because of their similarities to the “reference” tape or tapes, a table of suggested switch positions for other appropriate tapes would be in order. If you like one of these brands better than the “reference” brand, you’ll know it should give similar (though not identical and presumably not quite as good) results. An unlabeled tape would be presumed a try-at-your-own-risk proposition.

Let’s say a manufacturer adopts such a policy. As the newer tapes come along it’ll be trying them to see whether they will yield still better results and whether they will produce satisfactory results even without a unit realignment. This is information of considerable importance to the owner of a fine deck. Why not make it available to him? It seems to me that if the manufacturer kept everybody on its warranty-registration lists posted on such things, that would be just one more reason for buying its products.

But, as a bare minimum, any recordist who plunks down his inflated dollars for a deck should be told how to make the most of it; he should know what specific tape the manufacturer had in mind in setting up its checkout procedure.
If you're ready to take a bold new step into the world of music listening, here it is. Because the new Koss Phase/2+2 is the culmination of years and years of research and design experience into the way we hear and perceive music. That makes it the first real breakthrough in the psycho-acoustical aspects of both 2-channel and 4-channel stereo.

From the moment you slip on a pair of Koss Phase/2+2 Quadrafones and hold the unique Programmer in your hands, you'll become your own recording engineer. Not just in control of the 2-channels or 4-channels of music you're used to hearing from your music source, but in control of a whole panorama of musical perspectives you never even knew existed in your tapes or records.

The intricacies of the new Koss Phase/2+2 are really too vast to cover here. You really have to hear them and try them at your Audio Specialist's. But there are a number of things about Phase/2+2 that we can discuss to introduce you to a new phase in music listening.

First, if you're into 2-channel stereo, simply insert the black plug into your equipment. Or if you're into 4-channel, insert both plugs. In either mode, the eight controls on the Programmer will lead you into an exciting journey thru the world of psycho-acoustics.

Second, as you flip each of the four Ambience Expander switches to the "E" position, you'll alter the ambience of each channel relative to the other channels. Thus each switch will dramatically change your position within the sound sphere, drawing you closer to one sound than another.

Third, by flipping the unique Koss Binauralators to the "On" position, you'll find yourself totally surrounded by the performing group. Indeed, with either 2-channel or 4-channel source material, you'll feel completely immersed in a new experience of musical presence and intimacy.

Fourth, with the Koss Quad Field switch in the "4π" position, you'll recreate the full spherical environment of a live performance. And even with the switch in the "2π" position, the sounds will seem to spread out in front of you in a hemispherical perspective.

Fifth, the Quad Comparator switch lets you make an instant comparison between ordinary 4-channel sound and the psycho-acoustic experience of Phase/2+2 sound.

And finally, when you buy the new Koss Phase/2+2 Quadrafone, you'll also receive a free record album designed and engineered by Koss to enhance the enjoyment of your journey thru a whole new phase in music listening. And that makes Phase/2+2 worth hearing no matter what stereo mode you're into.

Introducing the new Phase/2+2 Quadrafone that's so advanced it multiplies your listening perspectives 127 ways.

Koss stereophones from the people who invented Stereophones.
What would the ideal “Das Lied Von Der Erde” be like?

It would have to be conducted by the Mahler conductor, Leonard Bernstein.

Only a handful of soloists would be acceptable. And nobody could perform a more heartwrenching “Abschied” than Christa Ludwig.

As for the tenor, an obvious choice would be Rene Kollo.

Further, this ideal performance should be recorded in a concert hall, with all the warm and realistic sound of a live performance.

Presenting the Bernstein/Ludwig/Kollo “Das Lied Von Der Erde.” Recorded with the Israel Philharmonic at the Mann Auditorium in Tel Aviv.

On Columbia Records
the new releases

Peter Pears as Gustav von Aschenbach and John Shirley-Quirk as the Elderly Fop in the Metropolitan Opera production of Death in Venice.

FEW CONFRONTATIONS between subject and composer have ever seemed quite so inevitable as Death in Venice and Benjamin Britten. Perhaps it did not appear so at first when Britten announced early in 1971 that he was writing an opera based on Thomas Mann's 1911 novella—how, one wondered, could anyone fashion a workable piece of musical theater from such interior, dramatically low-keyed, intensely literary material? But now that the work has become familiar, from the Metropolitan performances last fall and from London's new recording, Death in Venice clearly represents a rare sort of artistic testament, an opera that draws on and synthesizes many of the musical and dramatic themes that have occupied the composer throughout his creative life.

Whether or not this musical translation works, whether the verbal perfection of Mann's tale should ever have been disturbed at all, is quite another question and one that begs a straightforward answer. Here, at any rate, is what Britten and librettist Myfanwy Piper have done.

The basic progress of the action adheres faithfully to Mann. Gustav von Aschenbach, a famous novelist honored for the stylistic purity of his prose, widowed, past fifty, his creative energies spent, weary of spirit, travels to Venice. At his hotel he encounters Tadzio, a fourteen-year-old boy vacationing with his family. Aschenbach is struck by the boy's physical beauty, a fascination that soon develops into an obsession, and a symbolic struggle arises between the intellect and the senses, between Apollonian rationality and Dionysian sensuality. Aschenbach ignores the warnings of an incipient cholera plague in the city, feverishly shadows Tadzio (to whom he never speaks), wrestles with the unfamiliar passions that possess him, and ultimately dies of the sickness, his last vision being that of a beckoning Tadzio who disappears into the ocean.

In Mrs. Piper's skillfully structured libretto we follow the plot through the observations of Aschenbach himself. Tadzio, his mother, sisters, and friends are dancers; the only other major roles are intended to be sung by one baritone, who portrays seven nemesis characters, each of which acts as a catalyst that edges Aschenbach closer toward death: a mysterious traveler, an elderly fop, an old gondolier, the hotel manager, a barber, the leader of the players, and finally the voice of Dionysus. Here is the major deviation from Mann, who allows Aschenbach very few words of his own and relates the tale in discreet, detached, sophisticated anonymity. In the opera we are constantly brought face to face with an individual and invited to empathize with his dilemma. This was far from Mann's intention but very important to Britten, who has in a sense re-created Aschenbach to reflect a composite image of Peter Grimes, Albert Herring, Billy Budd, Captain Vere, Queen Elizabeth, Owen Wingrave—all the questing, isolated, spiritually flawed protagonists that populate the composer's earlier operas.

Although the emphasis in Britten's Death in Venice is wholly different from the original novella, the layers of meaning are just as ambiguous. It is possible to view the opera autobiographically. Critics unfavorably disposed to Britten's economical late style may draw parallels between two greatly honored creative artists who feel the well of inspiration running dry. There's no denying, too, the homosexual leitmotif in Britten's work. The "beautiful boy" has been a central image in his oeuvre from the early song cycle Les Illuminations right up to Death in Venice—in fact, all of his operas save one (The Rape of Lucretia) contain boys' roles, many of them crucial to the drama. The suppressed homosexual motives lurking behind the actions of Peter Grimes, Albert Herring, Claggart, Captain Vere, and Peter Quint become explicit in the character of Aschenbach.

Yet to view the opera as a tragic study of a "closet
case" is to miss more important general issues raised by Aschenbach's emotional and intellectual crisis. Britten has not written Death in Venice solely to work out his personal preoccupations any more than Mann did: The invasion of order by chaos, the proportionate balance of the senses and reason in human behavior, the ongoing dialogue between Apollo and Dionysus in all of us are universal, basic problems that must be dealt with in every area of experience. Mann, Britten, and Aschenbach are perhaps more intensely sensitized to these opposing forces, for the creator must come face to face with them every time he puts pen to paper. Mann has articulated the debate in a short book with incomparable verbal virtuosity; Britten has attempted to match the author's achievement by replacing words with the even more ambiguous language of music. And on a sheeively technical level he has succeeded, for this score is as subtle and cunningly organized as anything he has ever written.

One's immediate impression of the opera is that of a constantly flowing, almost cinematic unfolding of events as we follow Aschenbach from Munich to Venice, from hotel to beach, from the Lido to the Piazza San Marco. Controlling the musical progress is a complex web of thematic motifs that develop, combine, and redefine each step of his journey.

The novelist himself is characterized by several themes, the first being a proud set of declamatory octaves in the brass that tell us of his secure position as an artist ("I, Gustav von Aschenbach, famous as a master writer . . ."). Yet the octaves instantly slip into grindingly dissonant ninths, suggesting his dissatisfaction with such official and wholly meaningless recognition (Britten used a similar method thirty years ago to establish Peter Grimes's detachment from the community). An ascending E major scale set in four-part string harmony accompanies Aschenbach's decision to travel to the south—an innocent phrase at first, but a figure that becomes more and more insistent throughout the first act until it ultimately reveals itself as a surging Dionysian invitation that wrings the confession "I love you" from Aschenbach's lips at the conclusion of Act I.

Tadzio's music is always heard, unaltered and expressionless, on the marimba, vibraphone, and high percussion—an ingenious idea, for these pure, passionless tones instantly set him apart as an object of unreal, abstract beauty. The seven nemesis figures are related through a common wheedling vocal phrase, but Britten has attempted to give each one a separate musical identity: The gruffly laconic gondolier, the smooth-talking hotel manager. Voice of Dionysus. The Traveler. Elderly Fop, Old Gondolier. Hotel Manager; Voice of Dionysus. The Traveler. Elderly Fop, Old Gondolier; Hotel Manager. Voice of Dionysus. The Traveler. Elderly Fop, Old Gondolier; Hotel Manager.

One important germinating aspect of this opera remains to be mentioned: Peter Pears, the tenor for whom so much of Britten's music has been written over the past thirty-five years. The composer has provided his longtime friend and associate with a tour de force that Pears, now sixty-four, performs with astonishing vocal virtuosity. Although the role of Aschenbach is a long one—in fact, the entire opera might be regarded as a monologue for him—he never flags or fails to project the full musical weight of the vocal line. Of course, Britten knows precisely what this voice can and cannot do, and he has centered all the intense outbursts, the floating pianissimo cantilena, the rhythmically free recitatives in a tessitura that cleverly exploits the unusual timbre and flexibility of what has always been a very special instrument. As with so many Britten operas, it becomes difficult to separate the music from Pears's performance of it, and future interpreters of Aschenbach will doubtlessly find themselves in the unenviable position of being compared to Pears for years to come.

John Shirley-Quirk is a model of efficiency in his seven roles, James Bowman's pure-toned countertenor fits the voice of Apollo to perfection, and all the many small roles are deftly handled by the original Aldeburgh cast. Britten, who is still recuperating from heart surgery performed just before the world premiere in June of 1973, could not of course conduct, but Steuart Bedford gives an eloquent account of the score—the precision, rhythmic vitality, and warm sonority of the orchestra have all the virtues of Britten's own work on the podium. London's engineering is sonically plush and beautifully proportioned to mirror the opera's constantly shifting perspectives. The recording is, in short, a superb realization of a fascinating opera that one wishes to know better and, hopefully, learn to love.

BRITTON: Death in Venice, Op. 86
The Traveler. Elderly Fop. Old Gondolier. Hotel Manager; Gisel von Aschenbach; Peter Pearls (t); Voice of Apollo. John Shirley-Quirk (b).

Members of the English Opera Group. English Chorister, Steuart Bedford, cond. [Ray Minshull, prod.] LONDON OSA 13109, $20.94 (three discs, automatic sequence).
The Evolution of the Classical Symphony

Neville Marriner’s set of the early Mozart symphonies traces the development of the form as well as the composer.

To many lovers of music, Philips’ new eight-disc set of early Mozart symphonies may seem a pleasant oddity, yet it is the equivalent of a small wing of eighteenth-century paintings in a good museum. If we arrange these thirty-one symphonies in proper sequence, we gain a fascinating panorama not only of the extraordinary development of a young genius, but also of the formation of the classical symphony, the transformation of the Italian sinfonia into the German Symphonie.

But our homework is not so simple. Kochel’s great catalogue of Mozart’s works has been revised several times, numbers, dates, and places changed, some ten symphonies added to the forty-one until recently listed, and there has been considerable traffic from the supplement to the body of the catalogue and vice versa. The old numbering, which unfortunately is still used, is now askew. There are instances of groups of symphonies separated by several numbers though they were composed together, and so forth.

Mozart’s musical mind had the sensitivity of a seismograph. He was no innovator, like Haydn, but a fulfiller; whatever he picked up he assimilated in short order and, to a first glance, because in these minuets Mozart falls into the evolving third part, the development section based on thematic elaboration.

The Italian sinfonia was indeed different from the symphonies being composed in Vienna and Mannheim, and it did not take Mozart long to realize that a reconciliation is needed to proceed beyond the pleasant surface of the sinfonia avanti l’opera. The Italian sinfonia is purely opera-descended—aria style and buffo patter transferred to instrumental music. This caused subtle idiomatic changes and developments, because the breathing spells required by the singers do not apply to the instruments, notably to the strings, which formed the standard Italian opera orchestra by 1730. Later the sinfonia often added trumpets and drums, but on the whole the concert sinfonia preferred the basic preclassical orchestra of two oboes, two horns, and strings.

By the time Stamitz died in 1757, the German symphony was ready in its main features, two years before Mozart made his first tentative steps in this area. Now there commences a rapprochement between north and south. We notice that whenever Mozart returns from Italy and composes in Salzburg, the symphonies begin to admit this Germanic element; he experiments, at times seeming uncertain about what to do.

There are abrupt changes from one symphony to the next, as for instance in K. 129 and K. 130, both composed in Salzburg. The first of this pair is an Italian sinfonia pure and simple, while the second has a fourth movement, a minuet, and shows a hint at cyclic construction. As a matter of fact, a number of the four-movement symphonies clearly show that the minuet was added at a later date to make them conform to “German usage,” as Leopold says in one of his letters. This is often apparent at first glance, because in these minuets Mozart falls back on the French tone and style.

The great change, however, not only in these symphonies, but in the history of the symphony itself, comes with the rise of the string quartet. For a long time historians failed to see that the quartet was the catalyst and that the old orchestral suite had very little to do with the true symphony. Even the minuet was not taken over from the dance suite, but added to the three-movement Italian sinfonia to provide a transition from the aria-style slow movement to the fast finale, which in turn came from the divertimento and the opera buffa finale. This interaction between quartet and symphony (as well
The Richness and Profundity of Moses und Aron

Philips restores Schoenberg's extraordinary opera to the catalogue in a "fully worthy" performance under Michael Gielen.

by David Hamilton

Anyone who has already heard Schoenberg's Moses und Aron, whether in the old Columbia recording stemming from the 1954 world premiere in Hamburg or in one of the numerous performances—nationally Zürich, Berlin, London, Düsseldorf/Duisburg abroad. Sarah Caldwell’s remarkable Boston staging, or Solti’s extraordinary concert version in Chicago and New York—will not, I think, need much urging to attend to this new recording. It can be stated right away that Michael Gielen has led the Austrian Radio ensemble in a reading fully worthy of this great score, and Philips has registered it with fitting clarity and impact. For others, this may be a first opportunity to hear the opera (although not the last, for by the time these words appear in print Pierre Boulez will have conducted yet another recording, in London, for Columbia) and it is to them that these words are primarily addressed.

We are all more fortunate than Schoenberg, who never heard his opera. Only one scene had received a concert performance, a few days before his death. His libretto comprises three acts, but only two of these were set to music, between July 1930 and March 1932. The composer agreed before he died that the (relatively brief) third act could simply be spoken, and this has sometimes been done: In the Berlin production under Scherchen, taped music from the first scene was played behind the speech, while the Dusseldorf/Duisburg performances used the Genesis Prelude as accompaniment. Mostly, however, only the first two acts are played, and they have generally been found to constitute a satisfactory whole. (The old Columbia set and the new Philips both include the text of Act III in the libretto booklet, but it is not recorded.) Schoenberg drew his text from the Old Testament (particularly Exodus 3, 4, and 32), but with many modifications of that repetitive, often muddled narrative. The "unique, eternal, omnipresent, invisible, and inconceivable God" who calls to Moses in the opera’s first scene is a far cry from the vain deity of Exodus 14 ("I will make Pharaoh obstinate, and he will pursue them, so that I may win glory for myself at the expense of Pharaoh and all his army..."). Schoenberg makes the Lord speak as six solo singers from the orchestra pit, each doubled by an instrument, and the echoing Voice from the Burning Bush is a speaking chorus. The musical texture of this scene is formed around these choruses, sometimes reinforced by a sparse, glassy orchestral texture that also underlines the words of Moses—spoken, so as to make corporeal, in the opera’s musical cosmos, his lack of eloquence (“I am slow and hesitant of speech,” says the Biblical prophet). The voices tell him that his brother Aron will be his mouth, to convince the people of Israel...
that they can be free of Pharaoh's yoke.

In the second scene we meet Aron, the glib, self-confident, silver-tongued orator—a tenor, naturally. The two brothers talk without actually engaging, as Schoenberg described it in his manuscript notes about the production of the opera, this scene “is to be staged in such a way that the two characters ostentatiously talk 'past' each other instead of to each other (to put it trivially). For instance, Aaron might stand left front and Moses right centre; they should not look at each other.” The cool scherzando flute solo over dancing accompaniment figures that opens the scene gives way to more flowing lines as Aron warms to his own eloquence; Moses' abstract thoughts remain rooted in speech, except for three lines of commandment near the end, which—uniquely in Moses' part—are permitted to be sung (and are sung on both recordings).

The people of Israel now learn, in the third scene, of Moses' new God; many, led by a Priest, are unconvinced and wish to be left alone. When Moses and Aron arrive, they begin together their speaking-singing duet, but Moses soon yields the floor to Aron, who eventually wins over the people with the visible miracles of the rod-into-serpent, the leprous hand, and the Nile-water-into-blood. The people rejoice in their elected status and prepare to depart for the Promised Land. Throughout this scene, the choral writing is of enormous impact and variety, while Aron's cantilena grows ever freer and more fluent. The miracles are vividly depicted—the hissing sibilants of the whispered German word “Aussatz” (leprous) exploited to marvelous effect; violin harmonics and trills in piccolo and celesta to depict the Nile water—and the enthusiasm of the people is channeled into a rousing march and then into a full version of the music which the voices had, in the first scene, announced the election of the people of Israel as the Chosen of the Lord. At the end, the march tune returns to build a mighty climax.

Act II is preceded by a brief and breathtaking Interlude, for small chorus, sotto voce, in canon, expressing the people's bewilderment and fear at Moses' long absence. (It will be noted that Schoenberg abjures the lengthy persuasion of Pharaoh—all the plagues that make up such a memorable part of Handel's Israel in Egypt—as not germane to his subject, which is the relation of the Chosen to the Lord.) Now, before Mount Sinai, the Elders of Israel plead with Aron; after forty days, the people are restless. Indeed they are. They storm in, demanding the return of their old gods. Aron grants them their wish, and the golden calf is built. An elaborate, and almost unstageable, scene ensues: Animals are slaughtered for sacrifice, an invalid woman is cured, some old men kill themselves in homage to the new god, a protesting youth is slain, gifts are given, wine is drunk, four naked virgins are sacrificed, and all culminates in orgies of destruction and lust. There is nothing quite like this in all of the literature, for Schoenberg's music is of an inventiveness, variety, and scope available only to the greatest composers, and there are enough “tricks” of orchestral scoring and color here to fill a hundred Hollywood film scores.

As the last sounds of the orgy wind themselves into sensuous repose, a shout is heard: “Moses has returned from the mountain!” The crowd and the golden calf disappear, and an epic confrontation takes place between the two protagonists. Moses insists that Aron has distorted his idea with images and words, but Aron points to the Tables of the Law, which Moses has brought down from Mount Sinai: “They, too, are only images, a part of the idea.” In despair, Moses smashes the Tables. In the background the chorus moves past, singing as at the end of the first act, led by the pillar of fire and the pillar of cloud. Moses, alone, laments that his idea cannot be made articulate. This uniquely downbeat conclusion—Moses speaking against a wide-arching line in the violins, suddenly plunging in despair to the lowest notes of the orchestra, then slowly reaching up again—is one of the most moving in the operatic literature.

Like Aron, the reviewer can string together a lot of words, but he cannot convey the richness and profundity of a work such as this. Its various resonances are readily apparent: religious, political, artistic; some of them are explored in an interesting interview with Michael Gielen included in the libretto booklet. Gielen is one of our best conductors, as Schoenberg connoisseurs have known ever since the old Brendel/Marschner recording of Schoenberg's concerts in 1954 (now on Turnabout TV 34051, electronic stereo), and he marshals his considerable forces here with a master's hand. The late Hans Rosbaud, who conducted that 1954 Hamburg concert performance of the opera on a few days' notice, was a very great conductor, and his achievement was a remarkable one—but we all know the opera a great deal better now. Gielen is able to characterize more precisely, to change tempos more securely, to judge climaxes more accurately.

In one respect, however, the old disc remains superior: The Aron. Helmuth Krebs, had a more beautiful voice, a more searching and passionate quality. The Aron for the Boulez recording, Richard Lewis, is Aron as I had not thought of him—no attempt to imitate but to create a role. Gielen is able to characterize more precisely, to change tempos more securely, to judge climaxes more accurately.

If I have a slight reservation about the new recording, it concerns the size of the chorus, a well-schooled and accurate group that lacks ultimate impact at the climaxes. Particularly in the shouted exchanges at the end of Act I, Scene 3, we become aware that these people are not very numerous—doubtless an aid to good ensemble, but at a tangible cost in effectiveness. Most of the time, however,
we do not notice this, nor are we often made aware that the orchestra is not quite a first-line band. I noted a few burbles, but nothing significant is missed (in the old recording, several quite significant matters were missing altogether), despite the enormous difficulty of much of the writing.

Austria did not do well by Schoenberg during his first hundred years, but this recording of his greatest work is a noble beginning to the second century. Boulez' version is yet to come, and I await it with impatience. But while I wait I shall be listening avidly to Gielen's.

by Susan T. Sommer

Monteverdi: from Fable to Fleshpot

Jürgen Jürgens' new Orfeo enters a crowded field, but Nikolaus Harnoncourt's imaginative, full-length Poppea sets a new standard.

Monteverdi's masterpiece, L'Incoronazione di Poppea, has recently been dusted off after three centuries of neglect and is now practically a repertory piece in music festivals. It has even appeared as a regular-season staple in several opera houses here and abroad. Despite this popularity, Poppea does not seem particularly at home in the expanses of the twentieth-century operatic stage. Musically and dramatically this is a chamber work of great subtlety, a quality that is often lost in terrain designed to exploit the broad gestures of Verdi or Puccini.

The libretto for The Coronation of Poppea is a splendid story, even if at first it seems to glorify the triumph of evil. The evil Nero needs no introduction. Poppea herself will be familiar to readers of Jacqueline Susann as the girl who sleeps her way to the top. Many of the key scenes—Nero's cajoling by Poppea, her rejection of Ottone, the disposal of Seneca, and Poppea's final triumph—revolve around this fascinating character. Yet there is a second skillfully wrought plot of crucial importance often overlooked or pushed aside in production, to the detriment of the opera as a whole. Ottone, Poppea's rejected lover who is blackmailed into an attempted assassination, is a key figure whose internal conflicts make him potentially as interesting as the title character.

Unfortunately the role for male alto is not easy to fill, yet given a strong performance Ottone's saga makes a perfectly good story all by itself. Cast off repeatedly and rather cruelly by Poppea, he turns to the willing and starstruck Drusilla. But still torn by love and resentment, Ottone is easy prey for the jealous queen Octavia, who first begs, then forces him to agree to kill his former mistress. He turns again to Drusilla, a touchingly smitten Patty Hearst who will do anything for her lover, and borrows a disguise to attempt the assassination. Thus he and Poppea are set on a collision course that reaches its climax at the end of the second act as, dagger in hand, Ottone approaches the sleeping Poppea. At the last minute Love stays his hand, a neat allegorical manifestation of a psychological condition, and Ottone is apprehended.

Seen from this direction, the often cut trial scene in the last act, where Drusilla is first confused, then anxious to sacrifice herself, becomes both dramatic and exciting. Ottone's confession to save Drusilla is the sign of a strong character, not a weak one, and Nero's pardon seems suitable in the triumph of love. Ottone and Drusilla are united; Octavia, who like Seneca is basically unloving, is banished; and Nero and Poppea are free to enjoy the raptures of their final duet alone together.

This view of the opera is not realized in most productions. Raymond Leppard's score, which is the basis for most staged versions, rearranges scenes in such a way as to confuse the Ottone plot considerably. The recorded version makes such drastic cuts (about half the opera is excised) that only the outlines of the story are clear. Alan Curtis sticks close to Monteverdi's original form, although he makes some cuts in the trial scene, but his use of an almost inaudible countertenor in the role of Ottone on his recording robs the character of any believability.

Two major difficulties have beset recorded versions of Poppea. First is the problem of accompaniment to the vocal parts, for, as most knowledgeable listeners know, Monteverdi has supplied only the bass part and a few string ritornellos, leaving the conductor with a variety of decisions as to how much accompaniment to add and what form it should take. Then there is the problem of voice parts. Poppea, like most seventeenth- and eighteenth-century opera, is scored almost entirely for high voices. The part of Nero, especially, is intended for a male castrato, mercifully unavailable today.

The previous recordings have chosen different solutions to these problems, none entirely satisfactory. Leppard's Glyndebourne performance, now on Scarchim, is lushly orchestrated to the point of suffocation. Many of the roles are transposed into lower registers, bringing the sound into familiar territory for us, if not for Monteverdi. Curtis has chosen the opposite path, clinging to the composer's notes with scholarly reticence and leaving vast portions of the score, aria and recitative alike, punctuated only by the dry sound of the harpsichord. But even Curtis in his quest for authenticity has not dared to bring us a soprano Nero.

Nikolaus Harnoncourt has, to my mind, provided the best solution to date. His accompaniment finds a middle
ground, closer to Curtis than Leppard yet tasteful and discreet. Arias and ariosos are enhanced by restrained support from a variety of authentic instruments, which seldom interfere with Monteverdi's original vocal line. In the matter of vocal range, Harnoncourt goes whole hog. Everything is at original pitch, to marvelous effect.

There are set arias in L'Incoronazione di Poppea, but for the most part these are reserved for minor characters. Arnalta, Valletto the page, the lady-in-waiting, the nurse, Amore, and all the mythologic-allegorical characters have neat, enclosed, often strophic solos. The more important figures employ a more flexible kind of speech, moving freely from recitative to melodically controlled arioso and thence to full-blown aria.

As he did in his recording of Il Ritorno d'Ulisse in patria, Harnoncourt brings a variety of continuo instruments—harpischord, virginals, chitaronne, lute, harp, and chamber organ—to accompany most of the speech, subtly varying the color of the sound to fit the character and the situation. A small string ensemble reinforces the arius and arioso sections. To this Harnoncourt occasionally adds a pair of obbligato wind instruments: recorders, oboes, or trumpets. In some sections—the coronation itself, for example, which wants a grand effect—these work quite well; at other points—for instance, in duet passages that are already busy enough—I felt the additional parts crowded the texture unduly. Arioso passages are supported by a melodic bass line.

The cast is a strong one, with a few exceptions the singing is excellent. Choosing a soprano Nero could have been a disaster, given a weaker singer. The castrato voice, which combined male chest capacity with short vocal chords, was famous for its brilliance (competitions between castratos and trumpets were popular), and it is especially hard for a woman to match that sound in a soprano/tenor counterparts in other versions sound remarkably little action. What does happen involves one character, Orpheus, who loses his bride Euridice in an accident, descends to hell to rescue her, fails when he disobeys Pluto's command not to look back, and finally is restored to happiness and heaven by the intervention of Apollo. As was common in contemporary court entertainments, spectacle, dancing, and choruses play a large part in the proceedings.

Musically the opera relies on set numbers and expressive recitative. Besides the numerous choruses, which are often extended by internal solos and duets, there are several big strophic arias for Orfeo himself and major declamatory scenes, notably the prologue sung by La Musica, the messenger's tale of Euridice's death, and Orfeo's own laments. Monteverdi's orchestra, too, financed by the court festival expenses, differed greatly from the later ensemble designed for the public theater. A great variety of instruments were assembled, winds and continuo instruments predominating, and the composer chose among them for special effects. The buzzing sound of the regal, for example, heralds the appearance of Charon, and Orfeo's elaborate song to him is decorated with flourishes successively from two cornetti, two harps, and two violins.

There have been several good complete recordings of Orfeo: the mono Archie release conducted by August Wenzinger with Helmut Krebs in the title role. Musical Heritage Society's version conducted by Michel Corboz with a generally weaker cast but featuring a breathtaking performance by Eric Tappy as Orfeo, and the strong over-all entry from Telefunken under Harnoncourt.

Perhaps it was the presence of so many choruses in the opera that appealed to Jurgen Jürgens. He is best known as conductor of the Hamburg Monteverdi Choir, an ensemble that has been performing for many years in the German choral tradition. I confess that I have often found the choir's big, soggy sound inappropriate, and I cannot hear it without envisioning the singers in maroon robes, serried on risers obediently holding up their black music folders. Imagine, then, my surprise when they appeared to my ear en masse in the first act of Orfeo like some celestial throng rebuking the nymphs and shep-
herds frolicking in a Florentine meadow. They seem to be a bit more at home as infernal spirits in the third and fourth acts, but all in all they are an intrusion.

Possibly conditioned by the soft choral sound, Jürgens' tempos tend to be on the slow side in instrumental sections as well. One lugubrious set of ritornellos at the end of the first act, which should be in recognizably cheerful triplet meter, is particularly offensive.

Nigel Rogers is a magnificent Orfeo. This fine tenor has done years of service in relatively minor roles, in this repertoire and others, and it is high time he got star billing for a change. The part of Orfeo does not call for ringing high notes, but it requires a firmly masculine tone, a strong sense of rhythm, dramatic subtlety of expression, and an extraordinary coloratura. When Monteverdi wrote out "Possente spirto," the aria where Orfeo charms Charon to sleep, he included a version ornamented with staggeringly difficult embellishments for the star singer who was to take the part, and a simplified version, presumably for lesser mortals. Rogers' performance is astonishing. He has a natural voice for coloratura and is so at home in the style that for the first time it is possible to get some idea of how seventeenth-century singers amazed a knowing and demanding audience.

After this high level, the quality of performance falls off rather sharply. The low bass roles of Pluto and Charon are admittedly difficult, but the singers on both the Telefunken and the old Archiv recordings reach resonant depths impossible for the pinched tones of Stafford Dean and Alexander Malta. James Bowman hits all the notes in the mezzo role of Speranza, but his performance is otherwise undistinguished. Both John Elwes and Emilia Petrescu suffer from wobbly voices.

The instrumentalists are all competent enough; a nice feature in the notes is an elaborate chart showing exactly which groupings were chosen to accompany precisely which sections of the score. The sound is good but not as exciting as that of the Telefunken release.

**MONTEVERDI: L'Incoronazione di Poppea.**

Fortuna; Damigella; Pallade: Silvia
Jane Gartner (s)
Rotraud Hansmann (s)

Pallida: Caterina Berton (s)
Sperlicia; Cupido: Caterina Berton (s)

 Narcissus: Helen Donath (s)
Valletto: Vincenzo Grassi (b)

Hamburg Monteverdi Choir; soloists of the Hamburg Camerata Academica; Hamburger Blaserkir für alte Musik, Jürgen Jürgens, cond. [Werner Mayer, prod.] ARCHIV 2710 015, $23.94 (three discs, manual sequence).

**MONTEVERDI: Orfeo.**

Pastore I; Speranto: John Elwes (b)
Pastore II; Speranto: Stafford Dean (bs)
Pastore III; Speranto: Alexander Malta (bs)
Pastore IV; Speranto: Lottore: Enrico Fissore (b)

Hamburg Monteverdi Choir; soloists of the Hamburg Camerata Academica; Hamburger Blaserkir für alte Musik, Jürgen Jürgens, cond. [Werner Mayer, prod.] ARCHIV 2710 015, $23.94 (three discs, manual sequence).

**Comparisons—Poppea:**
Liszt & Lewis, Leppard/Glyndebourne
Bogard, Bressler, Curtis/ensemble
Sera. SIB 6073
Cam. ORS B1951

**Comparisons—Orfeo:**
Deringer, Kozma, Harnoncourt/Concertus Musicus
Cam. CRS 81901
Mus. Her. MHS 939/41
Tel. SKH 21
classical
reviewed by
ROYAL S. BROWN
ABRAM CHIPMAN
R. D. DARRELL
PETER G. DAVIS
SHIRLEY FLEMING
ALFRED FRANKENSTEIN
KENNETH FURIE
CLIFFORD F. GILMORE
HARRIS GOLDSMITH
DAVID HAMILTON
DALE S. HARRIS
PHILIP HART
PAUL HENRY LANG
ROBERT C. MARSH
ROBERT P. MORGAN
ANDREW PORTER
H. C. ROBBINS LANDON
JOHN ROCKWELL
SUSAN THIEMANN SOMMER

MOZART: Divertimento in B flat, K. 287. Joseph Szegiti, violin; Anders Foldes, piano (in the Debussy); chamber orchestra, Max Goberman, cond. (in the Mozart): ROCOCO 2062, $6.95 (mono) from various COLUMBIA 78 rpm originals, recorded in the 40's (40's) (Rococo Records, Box 175, Station K, Toronto 12, Ont.).

All Szegiti devotees will want to know about this Rococo reissue of some of his most cherished violin work.

The Bach, a companion to the G minor Sonata reissued in Columbia's great six-disc tribute (M6X 31513) honoring the violinist on his eightieth and last birthday, is if anything even more highly prized by Brahms fans. For the most part, Newman does not even try to change the tempo of the six stops he has at his disposal, but opts for one in which the coupling is more gradual and restrained. Many of the liberties taken with theC if in the C major Fugue, Richter uses a cut-and-dried divisions. But Richter's pianism, which in this case seems to do more justice to Richter than to the composer himself. Richter's pianism, which in this case seems to do more justice to Richter than to the composer himself.
Yehudi Menuhin and Henryk Szeryng—fiddle playing with an individual point of view.

Szel/Cleveland. Maestro and players are uniformly up to their task, but the whole thing is sabotaged by an absurd cut in the finale.

That leaves the aging and rather hard-bitten Reiner/Chicago (Victrola VICS 1110), the slightly glossy Ormandy/Philadelphia (Columbia MS 6626), the pungent but thick Bernstein/New York (Columbia MS 6/40) and the later Boulez/New York (Columbia M 32132), which holds a slight (and admittedly subjective) edge, at least until we discover what DG's forthcoming Kubelik/Boston collaboration portends.

A.C.


Alexis Weissenberg, for all his obvious temperamental and technical ability, lacks two important facets: artistry and sensitivity. What good is it to know about every inner voice if one can't project any of them in a meaningful way? What's the use of having strong, incisively brilliant fingers if at least half of the filigree detail is smeared and unclear through bluster's impatience? Weissenberg appears never to have gained the ability to listen to himself with a critical ear. Rarely does he produce a beautiful sound: Fortissimos are usually hard, flinty, and ugly assaults on the listener's sensibilities; pianos, conversely, are more often than not pallid.

This tonal deficiency, though serious, is not necessarily fatal. Rudolf Serkin, never particularly noted for sensual sonority, has played both of these concertos memorably. What does damage Weissenberg's playing—seriously in the Beethoven, irreparably in the Brahms—is his crassness of spirit and his deadpan, inept way of making transitions. In the second theme of the Brahms first movement, for example, the pianist understandably wants to increase the feeling of motion at one point but does so only by taking off in a spurt of feverish, fitful, unconvincing rubato.

The tempo in the Brahms is depressingly slow, and Giulini's direction is surprisingly lackluster. There are many passages of loose chording that surely ought to have been remade, and the LSO strings sound decidedly seedy. I don't know of a less attractive extant Brahms D minor.

The Beethoven, thanks to Karajan's firm leadership and a more conventional approach from the pianist, is on an altogether higher level. But even so, there are sloppy ensemble details and an over-all superficiality in the soloist's work that prevent this otherwise large-scaled, massively forthright reading from challenging those of Fleisher, Schnabel, Arrau/Galliera, and Ashkenazy.

H.G.

BEETHOVEN: Concerto for Violin and Orchestra, in D, Op. 61. Henryk Szeryng, violin; Concertgebouw Orchestra, Bernard Haitink, cond. PHILIPS 6500 531, $7.98.

Szeryng's third recording of the Beethoven concerto—and, everything considered, his best—is a slow performance that gives the impression of melancholy. That impression is the conductor's doing: From the opening drum taps, Haitink is careful to delineate the structural and rhythmic aspects of the orchestral framework, with salutary effect. As a result, the pacing may be the same as in some of the overtly "Romantic" interpretations, but the feeling is akin to the strict classical approach of, say, Fritz Busch (with Adolf Busch) or Toscanini (with Heifetz, still available in RCA VCM 7067), both of whom set a secure pulse and maintain it.

Szeryng plays with his well-known purity of tone and line, but also with his equally well-known lack of involvement. As always, his suave technique and intellectual phrasing are to be admired, but there is a point at which objectivity must yield to the emotions. Szeryng rarely loses himself in this radiant music—there are few rapturous nuances, no silvery pianissimos to take the breath away. Even his choice of the luscious cadenzas rather than the more often heard Kreisler ones is completely characteristic of this analytical, rather cool point of view.

Phillips' engineering is brilliant and impacative. The Concertgebouw ensemble's dark strings are aptly caught, but again the emphasis is more on clarity than on sonorous sensuality.

H.G.
BIZET: Carmen (sung in German).

Carmen: Emmy Destinn (s); Minnie Nast (s); Hermann Bachmann (b); Julius Lehman (t); Felix Dahm (v); Mario Falchi (b). Chorus and orchestra, Bruno Seidler-Winkler, cond. Discophilia KS 1 1/3. $23.94 (three discs, manual, manual sequence) [recorded in Berlin, 1908] (distributed by German News Co., 218 E. 86th St., New York, N.Y. 10028).

This is a historical document to satisfy curiosity about early complete recordings of opera, but not a set that even the most avid admirers of Emmy Destinn imagine, will want to play very often.

The G&J Carmen, recorded in Berlin in 1908, was originally released on thirty-six 78-rpm sides (so we call them for convenience, though speed in those days could vary), some of them 12-inch and some of them 10-inch. The orchestra, for more nearly complete than I expected it to be (there are even a few bars added to the score: the bugle call of the relief guard and a reprise of the first subject form a new close to the prelude, after the fate motif). The sound quality varies from side to side and is at its best surprisingly good. The voices come through in stereo only two or three of several (the German) words. Those of Morales and Micaela (Felix Dahm and Minnie Nast) are especially easy to follow. Destinn's are occasionally difficult to catch. No libretto is provided with the set.

There is nothing about Destinn's familiar records, excellent though some of them are, to suggest she would be a remarkable Carmen. (She sang the role in London only twice, in the 1905 season, before her, Emma Calvé was the usual heroine, and, after her, Maria Gay). German dramatic sopranos often tackled the part, Olive Fremstad deemed it one of her best. It was in Wagner, Verdi, and Puccini that Destinn made her greatest impression. As Bizet's heroine she is very secure, but there is very little character and almost no seductive or charm. All the big numbers tend to be a shadow-paint and somewhat commonplace in interpretation.

It would, of course, be hazardous to try to deduce what her theater performance was like from something so special, so novel at the time, as a complete recording. But it can fairly be said that here she is a straightforward, non-nonsense Carmen, agreeably definite in her singing, if one without Calvé's vividness or Gay's passion or—to move later into the century—Conchita Supervia's allure and musical, dramatic finesse. Often, but not always, she takes the soprano alternatives of the Bizet-Guébrard score.

Minnie Nast (Richard Strauss' first Sophie in Der Rosenkavalier) is a delightful Micaela—pure, clear, and precise. The bright, staccato note is always pleasing. But in the aria (Side 2 of which seems to have been transcribed from a somewhat worn copy) she lets on to certain notes too early and does not unfailingly join notes into one smooth line. Although Hermann Bachmann's Escamillo is not always dead in tune, he sings the "Toreador Song" with great panache and makes a good deal more out of it than most baritones do today. Karl Jörg (best known internationally as a Walther) is an able Don Jose, but one who hurries the passages in the "Flower Song" where a slight increase of speed is indicated.

In general, there seems to be a slight feeling of rush to get the passages before the wax runs out. On the other hand, the conductor (anonymous on the Discophilia reissue, identified elsewhere as Bruno Seidler-Winkler) does encourage some freedoms not practiced now, but enfolding to the flow of the music. The ebh and flow of tempo in the course of the two girls, during the first section of the Card Scene, is very pretty managed.

The orchestral playing employs portamento more amply than we are accustomed to, and that is welcome. The higher winds are well recorded, the male choruses sound rather tubby, and the orchans are evidently German matter of the two girls, during the first section of the Card Scene, is very pretty managed.

But it can fairly come through clearly, and so do most of the words. The voices and the orchestral recording technique are well demonstrated by the start of Act III: All goes well until the chorus enters, but then the orchestra turns into a harmonium-drone.

Itch is not always happy in the transfer. It seems to climb in the quintet (this number, and the "Quand au douairier" ensemble, evidently defeated the recorders). The first finding, I believe, has been sharpened, which gives Destinn's voice a pinched quality. Her "En vain pour éviter" (in the Card Scene) does not match with the recitative at the close of the preceding side; and Side 2 of the final duet is also. I believe, sharp—something odd happens between the sides. I seize the opportunity to mention that, in addition to variations of turntable speed between sessions, some of the traditional transpositions were made and that the Discophilia engineer had difficulty in joining the various sides together convincingly.

Questions of speed apart, the sound quality of the transfers—so far as one may judge without access to fine originals—is first-rate. This is not an "odd scratch," but a smooth recording of Carmen, limited only in range and capacity. If the set were of appeal to more than a few specialists and historians. I would complain about the lack of discographic and biographical information: but those who want to acquire a 1908 Carmen are likely to have those details on their shelves already. Discophilia, by the way, pays contemptuous ("Fraulein Fuhrmann, also with Destinn and Jörg, with Paul Knöpfler as Mephisto."

AP

BRAHMS: Concerto for Violin and Orchestra, in D, Op. 77. BEETHOVEN: Romance for Violin and Orchestra, No. 2, in F, Op. 50. Yehudi Menuhin, violin, Lucerne Festival Orchestra (in the Brahms) and Philharmonia Orchestra (in the Beethoven), Wilhelm Furtwängler, cond. Philips 6500 767. $7.98 (mono) [from HMV/VICTOR originals, recorded 1949 (Brahms) and 1953 (Beethoven)].

Furtwängler's performance style, frowned upon by a generation of purists, is back in favor. Better mind-expanding performances than mind-expanding drugs!

In many ways, the analogy holds up: Opuntia, say, will soften the hard lines of conscious reality and enable one to draw greater attention to incidental beauties that might ordinarily be overlooked. Similarly, this performance of the Brahms concerto loosens the work's over-all structure, eases the basic flow of tempo, dissolves fundamental rhythmic details (the celebrated Brahmsian threes—against—twos, for example) are often quite imprecise in this freely generative reading), and lets the willing listener indulge himself to the utmost, freed temporarily of puristic responsibilities.

Furtwängler admires often claim that he brought insight and structural clarity to the music he interpreted so freely. (The Seraphim liner includes a typically flowers tribute by Menuhin.) To my hearing, though, the often ravishing interpretations on this disc are inspired distortions of the music. For all their eloquence, they are quite without structure—ever, at times, downright undisciplined. What I hear is an unrehearsedly somber, mournful auscultation when the music plummets out ofAccent, drama, impassioned gaiety. Why must the finale be so somber? Why must Menuhin persist in disrupting the principal theme of that movement with those awful L. Articolazioni? Why must the music grind—or rather moan to a standstill—before the three final chords?

Menuhin writes fulsomely of Furtwängler as "the boatman, the oarsman, borne along by the continuous flow and skillfully riding the torrents." In plainer English, he follows where the orchestra leads him. The orchestral ensemble is, in fact, disturbingly ragged.

Listeners unfamiliar with these works will get only a garbled impression of their ress of a musical line with a coy Lafitte or simpering pianissimo. Nor are Brahms's rich, massive, bass-oriented textures well served by Furtwängler's thrilling fortissimos alternating with insubstantial soft playing without vibrancy or definition.

Furtwängler does his least satisfactory work here in the distinctly less heroic writing of the third and fourth movements. heightening the impression of a small-scaled realism trying to prove his worth in the blockhuiss concertos' repertoire. Despite Hatink's contribution, this version is outclassed by the Arrau/Hatink (with a less forceful orchestral statement), Ashkenazy/Melita, Backhaus/Bohm, Fleisch-Szell, Gilels/Jochum, Gilels/Keimer, Rubinstein/Ormandy, and Serkin/Szigeti. Sev eral of 1953 (Beethoven).
Britten: Death in Venice. For a feature re-
view, see page 79.

Bruckner: Symphony No. 6, in C minor
(ed. Nowak). Los Angeles Philharmonic Or-
chestra, Zubin Mehta, cond. [Christopher
Raeburn, prod.] LONDON CSA 2237, $13.96
(two discs, automatic sequence).

Mehta has given us a quite respectable Bruck-
ner Fourth and, with the Vienna Philhar-
monic, a massive Ninth that is my favorite of
its type. This wayward Eighth, however, has
nothing going for it. The opening movement
lingers from note to note without pulse: the
scherzo is almost bereft of accentuation; the
Adagio is pulled every direction tempo-
wise; the finale somnambulates. The Los An-
geles Philharmonic is no amateur ensemble,
but it is swamped by this exhausting and
knotty score. The sound is thick and muggy
with swishy surfaces.

My recommendations remain the monu-
mental but incisive Szel/Cleveland (Colum-
bia M2 30070) of the Nowak edition (essen-
tially Bruckner's final version) and the
spacious, translucent Haitink/Concertge-
houw (Philips 6700 020) of the Haas edition
(a hybrid of Bruckner's various editions). A.C.

Chopin: Piano Works. Vladimir Horowitz, pi-
an. [Richard Killyough, prod.] COLUMBIA M
32932, $6.98. Tape. 16 M 32932, $7.98;

MA 32932, $7.98.

Etudes. Op. 10 No. 3, in E; No. 4, in C sharp minor; No. 12,
in G minor (Revolutionary); Mazurkas. No. 7, in F minor;
Op. 7, No. 3; No. 20, in D flat; Op. 30, No. 3; No. 23;
Op. 33, No. 2; No. 27, in E minor; Op. 41, No. 2; No. 32, in C
sharp minor; Op. 50, No. 3; No. 38, in F sharp minor; Op.
59, No. 3: Polonaise in A; Op. 40, No. 1 (Military); Prelude
in B minor; Op. 28, No. 6. Waltz in C sharp minor; Op. 64,
No. 2.

My dictionary of Horowitz the concert pian-
ist and Horowitz the ivory-tower recording
artist is again highlighted by this new an-
thology. The latter gentleman is responsible
for most of this undeniably engaging record-
ing, but the C sharp minor Waltz, from a Bos-
ion concert in 1966, and the F minor Mazurka
from a Chicago recital the same year, show
how much more alluring Horowitz becomes
when he has an audience of people as well as
microphones. Oddly enough, the sound is also
better on the "on location" items: rounder,
fuller, warmer. The others, 1972-73 studio
recordings, are rather bloodless and metallic,
though never so much so as to preclude enjoy-
ment.

The mazurkas have always been spécialités de maison, and Horowitz continues to play them with lively individual voicing and little
caprices of rubato, but over the years his ap-
proach has become milder, more reflective.
Take the D flat, for instance: On his 1950 RCA
recording (formerly on LM 1109), his fortis-
mity and content from these willful accounts.
As a supplementary edition, however, the disc
can be recommended. Menuhin was in es-
cially good form for both works, and the
Brahms is of further interest for his use of the
Kreisler cadenza rather than the more fre-
quently encountered Joachim.

The sonatas—brightly detailed and cleanly
resonant in the Beethoven, a bit more diffuse
but still warmly agreeable in the Brahms—are
completely serviceable.

H.G.

Delius: Sonatas for Violin and Piano, Nos.
1-3. Ralph Holmes, violin; Eric Fenby, piano
[Kevin Barrett, prod.] UNICORN RHS 310,
$7.98 (with spoken introduction by Eric
Fenby, distributed by H.H. Distributors, Box
222, Evanston, Ill. 60204).

Delius: Sonatas for Violin and Piano, Nos.
1-3. Wanda Wilkomirska, violin. David Gar-
vey, piano. [E. Alan Silver, prod.] CONNOIS-
sieur SOCIETY CSO 2069, $6.98 (SO-encoded
disc).

Delius' three violin sonatas are less diverse
than, say, the Brahms and Grieg trios. Yet it
would be a mistake to assume that hearing
one is hearing them all. (Actually the com-
poser wrote two other works for this combina-
tion: the unpublished and unrecorded 1892
sonata, and the Legend of the following year,
which is played occasionally and exists alter-
nately in a version with orchestral accompa-
niment.)

The official Sonata No. 1, composed be-
 tween 1905 and 1915, is the most extended of
the group and the most typically Delian in its
long-breathed musings. The bulk of the piece
is a dreamy rhapsody on a wistful, mournful
motif made up of five descending notes. So-
 nata No. 2, written in 1924 shortly before pa-
ralysis was to render Delius helpless to com-
pose on his own, is more assertive. Its hushness
and declamatory style are Sraussian to some
degree. Sonata No. 3, from 1930, was dictat-
ed to the blind composer's amanuensis, Eric
Fenby. Its three-movement structure is the
most classical of the series, and the tensely
melancholy mood is particularly French in
character.

In 178 days, some important English per-
formers dealt with this music in recordings of
presumably authentic style, including Al-
bert Sammons' readings of the last two sonatas
and, even more beautifully done. Henry Holst
and Gerald Moore's English Columbia disc of
the Legend. May Harrison and no less a pian-
ist than Sir Arnold Bax recorded a voluptuous
(if dim-sounding) First Sonata for HMV,
while Lionel Tertis made a stunning viola
version of No. 2 (now on HMV HLM 7055).
The early LP era brought workmanlike rendi-
tions of these pieces, but nothing like the ro-
manic glow and convolution of the aforementioned
shellacs, which have long since achieved col-
lector's-item status.

It remained for the undeclared Delius re-
versation of the Seventies to bring these works
back into their own for the record buyer. The
Unicorn disc appeared in England about two
years ago and was naturally assured an unex-
aorthy aura by Fenby's own presence at the piano.
(He even reminisces about the Delius he knew
in a brief talk at the beginning of Side 1.) It
was followed shortly by a pairing of Sonatas
Nos. 2 and 3 with the Legend, played by David
Stone and Alan Schiller, on a label with the
quaint name of Saydisc Amon Ra (SAR 2).
And now we have the Connoisseur Society is-
tue in compatible SQ, the first microgroove
version by a violinist of international repute.

The Stone/Schiller edition is the closest to
the unburdened ardor of the old-fashioned
Delians of the first half of the century. The
violinist plays with a "heart throb" vibra-
tio that calls to mind Menuhin, although he is
also inclined often to nose in under the pitch.
Yet the Saydisc is acoustically the livest and
most vivid of the three recent collections, and
since the Legend is otherwise unavailable one
is reluctant to dismiss this record simply be-
cause it is not readily obtainable in the U.S.
and because the First Sonata is more music for
the money than the Legend.

Ralph Holmes is an assured and accurate
fiddler who dovetails adroitly with Fenby in
readings that are controlled, reserved, trim,
and even a bit cool. Fenby's execution is more
Delian tradition as anyone could be: yet instead of the
tonal jazz, marked rubato, and sentimental
dawdling one would expect, he favors a point-
classicism that serves well the larger contours of the music and allows the fantasy
to speak for itself without meandering or ita-

cization.

Wanda Wilkomirska, by contrast, pursues
the passion of the works with her typical inten-
sity. All that turgid energy and bravura man-
ner is effective enough in small doses, but the
over-all line goes a bit limp in this treatment.
Rather than indulging in all the out-glissandos
and ornaments of the closer, the players
documented on the above-cited 78s, she
tends to stick to running and off attacks and
releases with coy, quarter-tone slides, which can only
lead and comfort to the anti-Delians who
is stereo obsolete?

$50 out of every $100 you spend on a hi-fi system may be wasted on an obsolete receiver!

JVC 4-channel receivers are designed to let you listen in stereo without robbing you of half the power you paid for. They offer as much power as comparable stereo receivers, but won’t become obsolete like stereo. When you start out with a JVC 4-channel receiver, you can listen in stereo using 2 speakers. JVC’s BTL... Balanced Transformer Less... circuitry takes all the power from the rear channels and puts it right up front... where you can hear it. No wasted watts!

Later, to enjoy all the excitement of 4-channel sound, all you need is just two additional speakers. Not a whole new system. All of JVC’s 4-channel receivers feature built-in CD-4... the world’s most advanced 4-channel record playback system. And all of your present stereo records will sound much better thru the built-in matrix decoders for SQ, RM and QS.

So don’t sink your money into an obsolete receiver. Ask for a JVC 4-channel receiver with BTL and CD-4... for stereo and quad.

JVC HI-FI. The best value your money can buy.

<table>
<thead>
<tr>
<th>MODEL</th>
<th>Watts Per Channel, Minimum RMS Power, at 8 Ohms From 20 Hz to 20 kHz</th>
<th>Maximum Total Harmonic Distortion</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2 Channel Output</td>
<td>4 Channel Output</td>
</tr>
<tr>
<td>4VR5426</td>
<td>30</td>
<td>13</td>
</tr>
<tr>
<td>4VR5436</td>
<td>35</td>
<td>15</td>
</tr>
<tr>
<td>4VR5446</td>
<td>55</td>
<td>21</td>
</tr>
<tr>
<td>4VR5456</td>
<td>100</td>
<td>43</td>
</tr>
</tbody>
</table>

Watts Per Channel, Min. RMS Power, at 8 Ohms From 20 Hz to 20 kHz, With No More Than 0.5% Total Harmonic Distortion

Guaranteed spec for Model 4VR-5456
Previn conducts his second complete Tchaikovsky ballet recording. Like his "Nutcracker," he interprets it as an orchestral spectacular, not merely as a dance piece. Elegantly packaged, too.

The first volume of Melodiya's newly recorded 7-part cycle. Here Rachdevsny conducts the poetic mood picture of snow-clad roads and far-reaching winter dreams.

Soloist and conductor agree. This is Beethoven at the summit of his creative powers, and at his most heroic. A diamond-hard performance.

Haydn here continues his traversal of the Haydn "London" symphonies: that such a project would be attempted early in the quad period is evidence enough that Haydn has come fully into his own.

Bernstein has been a Haydn enthusiast from the beginning of his career, a commitment that is probably part of the legacy of his great teachers. Reiner and Koussevitzky, each of whom, in his quite different way, was a notable champion of the composer in the days when he rated a weak third to Beethoven and Mozart. In his Haydn performances Bernstein reflects both of these influences: the strong pulse, clean articulation, and firm rhythmic foundation that were fundamental to Reiner, and the orchestral virtuosity and big gleaming ensemble sound that Koussevitzky loved.

Haydn in London was writing for a large orchestra, with the exception of Paris the largest ever available to him. Bernstein plays this music in that spirit, reminding us that the difference between Haydn's orchestra and that of the Beethoven symphonies (works we regard as in no way antiquarian) is very slight. Bernstein plays this music with the enthusiasm that was fundamental to Reiner, and the orchestral virtuosity and big gleaming ensemble sound that Koussevitzky loved.

Haydn in London was writing for a large orchestra, with the exception of Paris the largest ever available to him. Bernstein plays this music in that spirit, reminding us that the difference between Haydn's orchestra and that of the Beethoven symphonies (works we regard as in no way antiquarian) is very slight. Bernstein manages these symphonies with the greatest of ease. These symphonies are filled with animational effects and striking contrasts, lyric phrases and heroic gestures. When you seem to be listening from a midway point in the orchestra, with solo voices (and there are some gorgeous solos for strings and winds) you may well wonder how he could possibly have used such an orchestra to best advantage.

Haydn's "London" symphonies are some of the most Mozartian music ever written. In their symphonic structures, their thematic material, and their orchestral treatment, they reflect Mozart's influence on Haydn, and are among his most Mozartian works. Bernstein has brought his own sensibility to these works, and the result is a performance that is fresh, original, and uncompromisingly Haydnesque.

The Non-Giant Economy Size.

Unlike so many of our giant competition, Sherwood doesn't make a full line of audio equipment. No radios. No tape decks. No headphones. No turntables. Versatility may never be our claim to fame.

But the limited scope of our output does have benefits. We can concentrate on refining each of our products, engineering them for maximum performance.

A case in point is the S7310. It has minimum RMS power output @ 0.5% total harmonic distortion, both channels driven, of 38 watts per channel @ 8 ohms, 20-20,000 Hz. Which means that this receiver outpowers all other units in its price range. With exceptional selectivity and sensitivity ratings.

We also utilize only the finest and most advanced of proved componentry: Dual gate MOS FET's and phase lock loop circuitry, the latest integrated circuitry and Solid-State FM IF Ceramic Filtering devices. Equally important, we've eliminated the gimmickry and gadgets that add nothing to the equipment except a potential for malfunction.

In short, if you look at receivers that do as much as Sherwood's S7310, they probably cost more than $379.95. Or, if they cost the same, do less. Which only proves that, in hi-fidelity manufacturing, good things come from small packagers.

Sherwood Electronic Laboratories
4300 N. California
Chicago, Illinois 60618

Sherwood.
The word is getting around.
are Boult's steadiness and bluff assurance, and his richer, warmer songfulness. To his credit, he does avoid the unidiomatic idiosyncrasies and sonic coarseness of the 1973 Bernstein/Columbia version. He avoids too the absence of personality projection and true sonic buoyancy in the 1971 Mehta/London version. But when I compare the present recorded performance point-by-point with the one I've slowly come to find the most thoroughly satisfactory, I find Previn offering no serious competition to Haitink's glowing warmth and dramatic conviction; nor do his engineers, skilled as they are, achieve the full technological lucidity and auditorium authenticity of the 1972 Philips recording.

Yet if I still put Haitink's edition at the top of my personal Planets discography, this time it's only after new comparisons and rethinking prompted partly by the appearance of Previn's recording, but even more by the reappearance of one of the composer's own versions. Thanks primarily to the pioneering efforts of English Columbia's Louis Sterling (long before he became Sir Louis) in giving contemporary composers a showcase for their own works, Holst first recorded his Planets acoustically in 1924 and again by the then-new electrical process in the summer and fall of 1926. It's the latter version, of course, that has been recently reissued as an LP in the HMV Treasury series, available in this country via Peters International.

Heard after so many years (I reviewed the Columbia '78 release in the Phonograph Monthly Review for May 1928), the shock of recognition has been eclipsed by the greater shock of realizing how much I had forgotten. For not as well as for every Holstian who has never heard the recording before and who has smugly assumed that the Boult reading represents the composer's own approach, this is a bombshie! Nevertheless, I can't agree with The Gramophone's reviewer, Trevor Harvey, even though he claims support from both Sir Adrian and Holst's daughter Imogen (herself an able exponent of her father's works) in de- nying that this 1926 performance accurately represents the composer's intentions.

When I reviewed it in 1928 I found no radical interpretive difference from the earlier acoustical version, which I had also discussed in print. Early in 1932 I not only heard Holst rehearse and perform the work with the Boston Symphony, but had the privilege of discussing it and his 1926 recording in a personal interview. And nothing in my published story or my still-preserved notes (to say nothing of anything left in my less reliable memory) gives any indication that Holst's 1926 approach to The Planets—different as it was and is from Boult's and everyone else's—was then considered in any way eccentric or aberrant.

However, it now does sound startlingly fast-running a couple of minutes less than even the supposedly far-too-fast Steinberg/DG version, eight minutes less than either Boult's or Previn's, incredibly fourteen minutes less than the 1970 Herrmann/London version. More significantly than in any choice of tempo, though, Holst is far more high-tensioned, electrifyingly exciting, and vital than any of his competitors, including Steinberg.

And while the technological age of this invaluable documentary is of course most evident where atmospheric evocation is demanded (as in Venus and Neptune, especially the dying-away of the latter movement's distant unaccompanied choral ending), the recording can still amaze present-day audiophiles' ears by how much of the complex scoring detail it miraculously captures. There were giants in the engineering world in those days. And when now—believing in not-the-mono sonics as well as the music in this recording can be heard with genuine pleasure and admiration.

At the very least, this release is a living monument with which to celebrate—even better than with the special centennial release of the Previn Planets—the highly individual genius born September 21, 1874, and died May 25, 1934. For me the 1926 version reflects the fiery, vaultingly imaginative Holstian inner man as illuminatingly as Haitink's glowing version reflects the engaging outer man. Where I can trust my memory of over forty years ago is in the still-vivid picture of a man who in both rehearsal and private conversation was disconcertingly (for a celebrity) shy, gentle, and schoolmasterish. I remember exactly what he said when one of the usually impeccable Bostonian brasses blared out in the rehearsal the opening union motto theme of Uranus in the wrong key: "Now, now, gentle- men! That doesn't sound very nice, does it?" And I remember too how taken aback I was when I tried to quiz him on some of the details of his British recording experiences and he protested that, when it came to technical matters, "You should tell me about them, not I you." That struck one brassier youngster, still learning his trade, uncharacteristically dumb!

Holst may not have been one of the great composers, but he deserves better than the neglect suffered by so many of his works ex-
Monteverdi: Orfeo. L’Incoronazione di Poppea. For a feature review, see page 84.

Mozart: Die Entführung aus dem Serail. Pasha Selim Otto Weiler (oppl) Constantia Arleen Auger (s) Biondchen Peter Schreier (t) Belmondo Kurt Moll (bs) Pedrillo Hans Neukirch (t) Osmin Karl Moll (bs) Der Schauspieldirektor Kurt Moll (bs) Monsieur Vogelsang Peter Schreier (t) Madame Herz Arleen Auger (s) Mademoiselle Silberklang Ren Grist (s) Madame Herz Arleen Auger (s) Leipzig Radio Chorus (in Entführung), Staatskapelle Dresden, Karl Bohm, cond. (El- len Hoffmann, prod.) Deutsche Grammophon 2709 051, $23.94 (three discs, manual sequence)

Entführung is a wonderful and touching musical experience, but it is hard to realize dramatically. All operatic characterization is dependent, first of all, on vocalism adequate to the composer’s demands, and in Entführung Mozart’s demands are technically awesome. Yet, of course, virtuoso singing is not enough. A bass who could sail with ease through the passagework (including a dozen triplets and a trill) in the middle of “Ich will, wie ich triumphieren” but was unable to invent the aria with glibly evocative language would hardly be an outstanding Osmin. So it is with Constanze. Though one is grateful for a decently sung “Martern aller Arten,” one also demands nobility, defiance, distinction.

In the matter of such imponderables Bohm’s Entführung is not. I hear, entirely satisfactorily. The cast, by and large, is intelligent, yet a certain blandness pervades everyone’s work. Even the carefully characterized Osmin of Kurt Moll in the last resort lacks individuality, the ability to create the sense of a unique personality finding utterance in music.

Yet this is a very good Entführung indeed and, so far as I’m concerned, quite the best available. For one thing, the musicianship of Karl Bohm is an almost constant source of pleasure. He secures beautiful playing from the excellent Dresden orchestra. Colors, balances, and textures are marvelously judged. Though occasionally his tempos drag (in “Traurigkeit,” for example, the quartet, and the Belmonte/Constanze duet), most of the score sounds natural and unforced. Bohm’s conception is pervaded by lyric sweetness, yet he does not scant Mozart’s high spirits, and there is a wonderful snap to the livelier sections of the score.

Except for the Pedrillo, Bohm has a worthy cast. Though Moll does not command the gift of vivid characterization that some of his rivals do (especially Kurt Bohm on DG 2709 021), under Jochem, he is by far the best vocalist of Osmin on records. Apart from a few moments of excessive vibrato, his tone is admirably firm; he can produce a fine low D; he manages the coloratura easily (with, it’s true, a little aspiratory help), he can trill passably well. He shows signs of strain on his high Fs, but he is that rare creature: a vocally secure Osmin.

Peter Schreier’s Belmonte is also a little tame, but he is a very sympathetic musician. He deploys a far from outstanding voice with imagination and sensitivity. His accentuation and coloring of the text are noteworthy. He has agility and breath control enough to meet even the tremendous demands of “Ich habe ganz.” I only wish he did not avail himself of aspirates so often.

Arleen Auger, the Constanze, sings very prettily. Her scale is even, her top is free and bright, though like most Constanze she lacks solidity in the lowest reaches of “Martern aller Arten.” Her liettituras are vigorous, precise, and attractive. Like Schreier, her breath control enables her to attack even the most extended passages without fear. The voice, however, sounds small. In the midst of one’s considerable pleasure, one tends to notice that she lacks color and eloquence, that she never thrills. Ren Grist is a pert, likable Blondchen, weak on low A, screechy on high E, a bit thin in between.

Harald Neukirch, alone of the cast, is hard to listen to—the kind of tight-voiced, whiny Spieleaner whose notions of interpretation begin and end with the stortzando.

The dialogue, slightly ascribed, is spoken by actors. As usual, their voices do not really match up with the singers. All the musical numbers are included.

In the case of Der Schauspieldirektor only the musical numbers have been recorded: an aria for each of the soprano rivals, a trio, and...
The ultimate others only approach.

Thorens knows that an exceptional turntable requires the match of precision, refined strength and sensitivity. The Thorens TD-125AB Mark II electronic transcription turntable has achieved the ultimate in this delicate balance.

It's the reason Stereo Review said: "This beautiful instrument provides a mark for others to aim at."

If owning the ultimate in sound equipment is important to you, owning the Thorens TD-125AB Mark II is inevitable. Why not now?

Elpa Marketing Industries, Inc.
East: New Hyde Park, N.Y. 11040
Canada: Tri-Tel Assocs., 3000 O'Connor Ave., Suite 600, Ottawa, Ont. K2G 1L2.

The TP-16 aerospace tonearm combines the gimbal suspension system with frictionless, magnetic anti-skating control. Wien Bridge oscillator assures precise speed control. Incorporates highly reliable, micro-miniaturized IC chips.

The belt-driven 16-pole synchronous motor provides almost instant start-up. Precise speed in 1.5 seconds!

Split-level suspension system isolates the tonearm and platter from the drive system for shock-free operation.

Simplified operation with all controls conveniently accessible on the front panel. Features sliding lever cueing control.

98

HIGH FIDELITY MAGAZINE
The 1973 Salzburg Festival premiere of this formidable grandiose work proved that Carl Orff is one of the most distinctive earlier musical traits. He may have turned from evocations of medieval Germany and classic Greece and Rome to apocalyptic anticipations of the end of the universe, but he stubbornly retains his obsession with such primitive formulas as predominantly percussive textures and unexceptionable—particularly triple—repetitive patterns. (He’s evidently a devout subscriber to the folk belief that if one says a thing three times it must be true.)

The present Plat About the End of Time: A Fugue certainly is a monumental conception, calling for twenty singer/speakers (in German, Latin, and Greek), three choruses, orchestra minus violins but plus over ninety percussion instruments. Needless to say, its combined musical and spectacle novelties scored a sensational triumph at Salzburg—a triumph that I can well imagine might at least be approached in a TV production: perhaps even in a quadriphonic home experience, which one’s hearing could be sharpened by following full texts-translations.

Even in stereo only and lacking texts (the lavishly packaged disc incredibly offers only a trilingual booklet of notes and texts-synopses), there are at least moments when these eerie ululations, subterranean declamations, and percussive clamors have a Medusa-like fascination. Certainly all the participants do their frantically persuasive best: the nine anchorites in Part I, nine anchorites in Part II, mezzo Christa Ludwig, tenor Peter Schreier, speaker Rolf Boshy, and the various choristers who give “The Last Beings” tragically eloquent voice in the Dies Irae Part III. The recording, too, is marvelous in both its powerful sonic authenticity and its effective spacing (in depth as well as laterally) of sound-source locations—this in stereo only! A quadriphonic version (undoubtedly made at the same time) should be more impressive by a full order of magnitude when it eventually appears.

Until then, though, this home listener finds it possible to suspend disbelief only momentarily. He feels let down when, after a long stretch of the hardest kind of attentive auditions, a threefold shout of “Das Ende!” promises a relief that is belied by an indefatigable continuation, finally concluded by viola-quartet canons in notes of equal length that only too effectively express the idea of infinity. Worst of all, too often when I am just about to be solemnly awed by apocalyptic visions of the Alpha and Omega of Time and the Cosmos, my only too earthy mind falls from the Sublime to the completely Ridiculous, irresistibly swapping transcendental for comic images; in particular those of an infant in a tantrum, beating frantically on the bars of his crib while insistently screaming a demand to “Stop the world. I want to get Off!”

R.D.D.

PAGANINI: Works for Violin and Guitar. Gyorgy Terebesi, violin, Sonja Prunnbauer, guitar. TELEFUNKEN SAT 22548, $6.98.

Four of these works come from the collection (“centone”) of eighteen sonatas for violin and guitar that were probably written in 1828 in Prague and published posthumously: Op. 2 was among the relatively small number of works Paganini published in his lifetime. As usual when Paganini brings the violin and guitar together, the violin predominates and the guitar accompanies, but in the Cantabile and portions of the Sonata concertata this pattern yields somewhat, and the guitar steps forth for a bit of melody on its own.

All these pieces are tuneful and engaging. A few movements are particularly beautiful, such as the poignant Largo con precisione of the Op. 2 sonata and the affecting Larghetto cantabile of the Centone di Sonate No. 3. Paganini’s melodies pour out with the simplicity of popular songs, some of them so vocal in quality that you can easily imagine them sung to a text. The violin has its work cut out for it, but the real virtuoso trickery of the fiddle showpieces—the caprices and the concertos—does not crop up at all. The main requirement here is to sing and dance.

Violinst Terebesi is superb and commands a pungent, slightly snappy tone that gives the music a certain grit and strength. The guitarist—although relegated to the background by both the composer and the recording engineers—deports herself handsomely nonetheless.


DEUTSCHE GRAMMOPHON 2530 432, $7.98.

The 1973 Salzburg Festival premiere of this formidable grandiose work proved that Carl Orff is one of the most distinctive earlier musical traits. He may have turned from evocations of medieval Germany and classic Greece and Rome to apocalyptic anticipations of the end of the universe, but he stubbornly retains his obsession with such primitive formulas as predominantly percussive textures and unexceptionable—particularly triple—repetitive patterns. (He’s evidently a devout subscriber to the folk belief that if one says a thing three times it must be true.)

The present Plat About the End of Time: A Fugue certainly is a monumental conception, calling for twenty singer/speakers (in German, Latin, and Greek), three choruses, orchestra minus violins but plus over ninety percussion instruments. Needless to say, its combined musical and spectacle novelties scored a sensational triumph at Salzburg—a triumph that I can well imagine might at least be approached in a TV production: perhaps even in a quadriphonic home experience, which one’s hearing could be sharpened by following full texts-translations.

Even in stereo only and lacking texts (the lavishly packaged disc incredibly offers only a trilingual booklet of notes and texts-synopses), there are at least moments when these eerie ululations, subterranean declamations, and percussive clamors have a Medusa-like fascination. Certainly all the participants do their frantically persuasive best: the nine anchorites in Part I, nine anchorites in Part II, mezzo Christa Ludwig, tenor Peter Schreier, speaker Rolf Boshy, and the various choristers who give “The Last Beings” tragically eloquent voice in the Dies Irae Part III. The recording, too, is marvelous in both its powerful sonic authenticity and its effective spacing (in depth as well as laterally) of sound-source locations—this in stereo only! A quadriphonic version (undoubtedly made at the same time) should be more impressive by a full order of magnitude when it eventually appears.

Until then, though, this home listener finds it possible to suspend disbelief only momentarily. He feels let down when, after a long stretch of the hardest kind of attentive auditions, a threefold shout of “Das Ende!” promises a relief that is belied by an indefatigable continuation, finally concluded by viola-quartet canons in notes of equal length that only too effectively express the idea of infinity. Worst of all, too often when I am just about to be solemnly awed by apocalyptic visions of the Alpha and Omega of Time and the Cosmos, my only too earthy mind falls from the Sublime to the completely Ridiculous, irresistibly swapping transcendental for comic images; in particular those of an infant in a tantrum, beating frantically on the bars of his crib while insistently screaming a demand to “Stop the world. I want to get Off!”

R.D.D.

PAGANINI: Works for Violin and Guitar. Gyorgy Terebesi, violin, Sonja Prunnbauer, guitar. TELEFUNKEN SAT 22548, $6.98.

Four of these works come from the collection (“centone”) of eighteen sonatas for violin and guitar that were probably written in 1828 in Prague and published posthumously: Op. 2 was among the relatively small number of works Paganini published in his lifetime. As usual when Paganini brings the violin and guitar together, the violin predominates and the guitar accompanies, but in the Cantabile and portions of the Sonata concertata this pattern yields somewhat, and the guitar steps forth for a bit of melody on its own.

All these pieces are tuneful and engaging. A few movements are particularly beautiful, such as the poignant Largo con precisione of the Op. 2 sonata and the affecting Larghetto cantabile of the Centone di Sonate No. 3. Paganini’s melodies pour out with the simplicity of popular songs, some of them so vocal in quality that you can easily imagine them sung to a text. The violin has its work cut out for it, but the real virtuoso trickery of the fiddle showpieces—the caprices and the concertos—does not crop up at all. The main requirement here is to sing and dance.

Violinst Terebesi is superb and commands a pungent, slightly snappy tone that gives the music a certain grit and strength. The guitarist—although relegated to the background by both the composer and the recording engineers—deports herself handsomely nonetheless.


DEUTSCHE GRAMMOPHON 2530 432, $7.98.

The 1973 Salzburg Festival premiere of this formidable grandiose work proved that Carl Orff is one of the most distinctive earlier musical traits. He may have turned from evocations of medieval Germany and classic Greece and Rome to apocalyptic anticipations of the end of the universe, but he stubbornly retains his obsession with such primitive formulas as predominantly percussive textures and unexceptionable—particularly triple—repetitive patterns. (He’s evidently a devout subscriber to the folk belief that if one says a thing three times it must be true.)

The present Plat About the End of Time: A Fugue certainly is a monumental conception, calling for twenty singer/speakers (in German, Latin, and Greek), three choruses, orchestra minus violins but plus over ninety percussion instruments. Needless to say, its combined musical and spectacle novelties scored a sensational triumph at Salzburg—a triumph that I can well imagine might at least be approached in a TV production: perhaps even in a quadriphonic home experience, which one’s hearing could be sharpened by following full texts-translations.

Even in stereo only and lacking texts (the lavishly packaged disc incredibly offers only a trilingual booklet of notes and texts-synopses), there are at least moments when these eerie ululations, subterranean declamations, and percussive clamors have a Medusa-like fascination. Certainly all the participants do their frantically persuasive best: the nine anchorites in Part I, nine anchorites in Part II, mezzo Christa Ludwig, tenor Peter Schreier, speaker Rolf Boshy, and the various choristers who give “The Last Beings” tragically eloquent voice in the Dies Irae Part III. The recording, too, is marvelous in both its powerful sonic authenticity and its effective spacing (in depth as well as laterally) of sound-source locations—this in stereo only! A quadriphonic version (undoubtedly made at the same time) should be more impressive by a full order of magnitude when it eventually appears.

Until then, though, this home listener finds it possible to suspend disbelief only momentarily. He feels let down when, after a long stretch of the hardest kind of attentive auditions, a threefold shout of “Das Ende!” promises a relief that is belied by an indefatigable continuation, finally concluded by viola-quartet canons in notes of equal length that only too effectively express the idea of infinity. Worst of all, too often when I am just about to be solemnly awed by apocalyptic visions of the Alpha and Omega of Time and the Cosmos, my only too earthy mind falls from the Sublime to the completely Ridiculous, irresistibly swapping transcendental for comic images; in particular those of an infant in a tantrum, beating frantically on the bars of his crib while insistently screaming a demand to “Stop the world. I want to get Off!”

R.D.D.

PAGANINI: Works for Violin and Guitar. Gyorgy Terebesi, violin, Sonja Prunnbauer, guitar. TELEFUNKEN SAT 22548, $6.98.

Four of these works come from the collection (“centone”) of eighteen sonatas for violin and
This IC150 ... is the finest and most versatile control unit I have ever used. For the first time I can hook all my equipment together at once. I find many semi-pro operations possible with it that I have never been able to pull off, including a first-class equalization of old tapes via the smooth and distortionless tone controls. I have rescued some of my earliest broadcast tapes by this means, recopying them to sound better than they ever did before.

--Ed Canby, AUDIO

Among the things you can do with an IC150:

Produce your own taped programs! Record from any of seven inputs: 2 phone, 2 tape, 1 tuner, 2 auxiliary (tape player, cassette deck, guitar, microphone, etc.)

Clean up record scratch, tape hiss and turntable rumble with filters which scarcely alter program material.

Improve frequency response with bass and treble controls for each channel.

Enhance stereo image with the IC150's exclusive panorama control.

Record two copies of a program at once, and monitor source and tape for each. Or, record on one tape deck while listening to a second tape.

Recreate original placement of soloists, small groups and actors, regardless of speaker position.

The IC150 performs all these functions and more with lower distortion and noise than any other preamplifier. This combination of clean sound and versatility cannot be bought anywhere else for less than $600. But you can buy it for only $349 at your Crown dealer. See him today to make your own comparison.

For independent lab test reports on the IC150, write CROWN, Box 1000, Elkhart, Indiana, 46514.
tage, MHS 1201, is definitely worth your time) and a truly impressive opera-ballet, *Prishnitorë*, that is apparently scheduled for recording.

Certainly, the Third Symphony (1929-30) must be considered quintessential Roussel. It is busy, rough-hewn music with transparent, formal structures in which the dynamic flow is seldom broken, even in the meditative (and somewhat rambling) second movement. Out of this dynamism, Roussel is often capable of generating considerable excitement, as in the first movement's opening theme, with its soaring and rather jagged string melody pitted against an almost ominous ostinato in the brass and percussion. (The strings-versus-brass alchemy is typical of the composer.)

At other moments, the wit and sparkle of some of the figures and their forward motion remind one of a rather un-urbane William Walton. Yet Walton would never be so brash as to break into a first movement with a brassy Bruckneresque climax as Roussel does; nor would he introduce, as Roussel does, a fanfare theme in an off key over the skipping string passage that opens the Third Symphony's fourth movement.

In contrast to all this, the Fourth Symphony (1934) is much more subdued and less jolting than its predecessor, and it lacks the Third's drive, even though it still contains the same nonstop flow and is filled with the composer's dynamic flow is rarely broken, even in the meditative (and somewhat rambling) second movement. Out of this dynamism, Roussel is often capable of generating considerable excitement, as in the first movement's opening theme, with its soaring and rather jagged string melody pitted against an almost ominous ostinato in the brass and percussion. (The strings-versus-brass alchemy is typical of the composer.)

At other moments, the wit and sparkle of some of the figures and their forward motion remind one of a rather un-urbane William Walton. Yet Walton would never be so brash as to break into a first movement with a brassy Bruckneresque climax as Roussel does; nor would he introduce, as Roussel does, a fanfare theme in an off key over the skipping string passage that opens the Third Symphony's fourth movement.

In contrast to all this, the Fourth Symphony (1934) is much more subdued and less jolting than its predecessor, and it lacks the Third's drive, even though it still contains the same nonstop flow and is filled with the composer's characteristic motor rhythms. And in spite of the prominence of the strings and brass, the Fourth has a somewhat more subtle orchestration that includes the softening presence of the harp. Furthermore, while the Third's first movement crashes right into the opening theme, the Fourth begins with a moody introduction setting an elegiac tone that never entirely leaves the symphony. (In both cases, the first movements are far the most impressive of their respective symphonies.)

Musical Heritage has considerably de-harmonized the rather unpleasant sonics of the disc's previous domestic release. This improvement, combined with Charles Munch's beautifully contrasted and exhilaratingly paced interpretations, makes the Musical Heritage version of these symphonies the one to have, even though Ansermet's (Stereo Treasury STS 15025) gets better playing from the Suisse Romande orchestra.

Schoenberg: Moses und Aron. For a feature review, see page 82.


The incidental music for *The Tempest* is the last of Sibelius' eleven stage works and the only one based on Shakespeare. The incidental music was arranged into two orchestral suites portraying, with impressive economy of means (the twenty-odd pieces run an average of two minutes apiece), the play's various characters and landscapes and seascapes. They comprise far less than the complete score, of course; even omitting the prelude, a more extended version of the onomatopoeic section "The Storm," which concludes Suite No. 1.

The contrast between *The Tempest's* charm, tenderness, and imagination and the roughly contemporaneous *Tapiola* parallels that between the Sixth and Seventh Symphonies, also dating from the 1920s. They are the two sides of the visionary detachment that is quintessentially Sibelian—one sanguine and coolly felicewhat the other hoary, gnarled, and epochal in scale.

Sir Thomas Beecham was the first phonographic champion of *The Tempest,* recording the prelude in the Thirties for the old HMV/Victor Sibelius Society and a nearly complete account of the two suites for a ten-inch European Philips LP of the Fifties. These are long since vanished, as is a more abbreviated Westminster mono recording of the suites under Stig Wernerberg. For most of the Sixties, the music was unavailable on discs. In typical fashion, two new recordings come simultaneously to fill this gap, both of high quality.

Jalas' *Tempest* is weightier and more sharply accented than Groves's. The Finnish conductor thus has a decisive edge in the oafish "Caliban's Song," in the repetitive figurations that dominate "The Harvester," and in "The Storm," which gains in intensity.
Everyone claims to be the finest. We're no different. But our receivers are. With guaranteed performance and 40 years of electronic experience to back it up.

For colorful, illustrated brochures on our TR-1055 and TR-1020A stereo receivers, send in coupon today!

We're our only competitor

TANDBERG OF AMERICA INC.

Tandberg of America, Inc.
Labriola Court
Armonk, New York 10504

I want to hear more!
Please send free brochures to:
Name
Address
City State Zip

TANDBERG

thermore, the Hungarians dig in with more impassioned lyricism for the "Chorus of the Winds," for the haunting "Miranda" portrait, and to some extent for the "Berceuse" (though hardly enough, in the latter, to erase memories of the searing Stokowski/Philadelphia shellac).

Sir Charles' more posed and reserved interpretation is aided by vastly superior instrumental forces, especially the winds. Thus the Liverpool rendition has a chilling mystique in "The Oak Tree" (one of the most phenomenal inspirations of the entire work) and a matchless grace and smoothness for "Utrennaya" revisions. Specifically, he does not play the second version of the Danse sacrale, which the composer prepared in 1943. For Solti the second version is weaker than the first, and on a trip to Los Angeles some years ago he went to see Stravinsky to ask why the changes were made. (The visit is commemorated by an autographed inscription in Solti's score in which the conductor's name is misspelled.) As Solti tells the story, Stravinsky's reply was, "Because I can no longer conduct the original!" Historians can deal with that as they see fit. The important points for me are that by 1943 the original Sacre had acquired an artistic identity of its own, an identity, indeed, as one of the half-dozen most important scores in twentieth-century music, and that Solti's desire to present the music with the blazing fury of youthful genius is perfectly valid.

Those who want Sacre in the revised form have a wide choice of recordings in the 1943 text, among them a 1960 version by Stravinsky himself and the recent Haitink disc in full-bodied sound. The Stravinsky-conducted counterpart to the new Solti is a 1940 recording that survived for many years in the long-play catalogue.

For the majority, I suspect, these textual matters will be far less compelling than the sound of the record itself. Made in early May of 1974 in Medinah Temple, Chicago, it well may be taken as the ultimate expression of London's engineering technique, in which the players are very closely miked and some two dozen mike channels are separately equalized and mixed down into a final master. The presence, especially if played through four speakers, is absolutely phenomenal: the dynamic range is very wide, and the stunning quality of the performance—its precision, thrust, clarity, and energy—are projected in a manner that makes this a genuine confrontation with the composer and the musicians.

It takes no great aptitude for soothsaying to predict that this record will win its share of awards, sell like mail, and take this music to thousands of new listeners. Sixty-one years after that premiere, Sacre is sexier and more relevant than anything a pop music producer can imagine. What has been produced instead is a glorification of the spirit of that performance, employing an orchestra far superior to any that might have been available to the Diaghilev ballet.

The exact text of the 1913 premiere was never published. On the basis of the lessons of the early performances, Stravinsky revised the score slightly before it first appeared in print in 1921. Solti takes that 1921 text and adds to it such material from the later editions as he regards as corrections rather than revisions. Specifically, he does not play the second version of the Danse sacrale, which the composer prepared in 1943. For Solti the second version is weaker than the first, and on a trip to Los Angeles some years ago he went to see Stravinsky to ask why the changes were made. (The visit is commemorated by an autographed inscription in Solti's score in which the conductor's name is misspelled.) As Solti tells the story, Stravinsky's reply was, "Because I can no longer conduct the original!" Historians can deal with that as they see fit. The important points for me are that by 1943 the original Sacre had acquired an artistic identity of its own, an identity, indeed, as one of the half-dozen most important scores in twentieth-century music, and that Solti's desire to present the music with the blazing fury of youthful genius is perfectly valid.

Those who want Sacre in the revised form have a wide choice of recordings in the 1943 text, among them a 1960 version by Stravinsky himself and the recent Haitink disc in full-bodied sound. The Stravinsky-conducted counterpart to the new Solti is a 1940 recording that survived for many years in the long-play catalogue.

For the majority, I suspect, these textual matters will be far less compelling than the sound of the record itself. Made in early May of 1974 in Medinah Temple, Chicago, it well may be taken as the ultimate expression of London's engineering technique, in which the players are very closely miked and some two dozen mike channels are separately equalized and mixed down into a final master. The presence, especially if played through four speakers, is absolutely phenomenal: the dynamic range is very wide, and the stunning quality of the performance—its precision, thrust, clarity, and energy—are projected in a manner that makes this a genuine confrontation with the composer and the musicians.

It takes no great aptitude for soothsaying to predict that this record will win its share of awards, sell like mail, and take this music to thousands of new listeners. Sixty-one years after that premiere, Sacre is sexier and more relevant than anything a pop music producer is likely to bring us.

R.C.M.

STRAVINSKY: Le Sacre du printemps. Chicago Symphony Orchestra, Georg Solti, cond. LONDON CS 6885, $6.98

The Chicago Symphony is the most exciting orchestra before the public today, and this is very probably the most exciting record it has ever made. Solti—in his other job as chief conductor of the Orchestre de Paris—has been working since 1972 in the Théâtre des Champs Elysées, the very hall where, in 1913, the premiere of this music produced the most celebrated artistic riot of the century. His intent was to try and recapture that Sacre, a Sacre that is truly "pictures of pagan Russia," untouched by the neoclassicism and old age of the composer. What he has produced instead is a glorification of the spirit of that performance, employing an orchestra far superior to any that might have been available to the Diaghilev ballet.

The exact text of the 1913 premiere was never published. On the basis of the lessons of the early performances, Stravinsky revised the score slightly before it first appeared in print in 1921. Solti takes that 1921 text and adds to it such material from the later editions as he regards as corrections rather than revisions. Specifically, he does not play the second version of the Danse sacrale, which the composer prepared in 1943. For Solti the second version is weaker than the first, and on a trip to Los Angeles some years ago he went to see Stravinsky to ask why the changes were made. (The visit is commemorated by an autographed inscription in Solti's score in which the conductor's name is misspelled.) As Solti tells the story, Stravinsky's reply was, "Because I can no longer conduct the original!" Historians can deal with that as they see fit. The important points for me are that by 1943 the original Sacre had acquired an artistic identity of its own, an identity, indeed, as one of the half-dozen most important scores in twentieth-century music, and that Solti's desire to present the music with the blazing fury of youthful genius is perfectly valid.

Those who want Sacre in the revised form have a wide choice of recordings in the 1943 text, among them a 1960 version by Stravinsky himself and the recent Haitink disc in full-bodied sound. The Stravinsky-conducted counterpart to the new Solti is a 1940 recording that survived for many years in the long-play catalogue.

For the majority, I suspect, these textual matters will be far less compelling than the sound of the record itself. Made in early May of 1974 in Medinah Temple, Chicago, it well may be taken as the ultimate expression of London's engineering technique, in which the players are very closely miked and some two dozen mike channels are separately equalized and mixed down into a final master. The presence, especially if played through four speakers, is absolutely phenomenal: the dynamic range is very wide, and the stunning quality of the performance—its precision, thrust, clarity, and energy—are projected in a manner that makes this a genuine confrontation with the composer and the musicians.

It takes no great aptitude for soothsaying to predict that this record will win its share of awards, sell like mail, and take this music to thousands of new listeners. Sixty-one years after that premiere, Sacre is sexier and more relevant than anything a pop music producer is likely to bring us.
It may be a heretical admission, but there are stretches of *Aida* that, during a phonograph performance of the opera, I listen to with impatient ears, wishing they were done. This does not happen in *Otello*, in *Falstaff*, in *Un ballo in maschera*—nor in *La Traviata*, except during the Spanish divertissements at Flora's party. But the popular muster of the triumphal scene and its ballet, the choral dance of the temple scene and the little scamper of Amneris' Moorish pages, even the off-stage trial of Radames—divorced from the theatrical context they are revealed as grand-opera framework stuff, albeit of excellent quality. Without the last two, Amneris' splendid interjections, amorous in the first case and desperate in the second, would not be possible. Still, there are just two recordings of the opera during which such reflections do not occur: Toscanini's (*RCA Victrola VICS 6113*, rechanneled), in which the force and sense of the instrumental writing prove so gripping, and Karajan's (*London OSA 1313*), in which the sonic beauty of the score is so exquisitely captured.

Many recorded *Aidas* are currently available. The two under review form a striking contrast, which can be summarized in the word "portamento." Carlo Sabajno was not a Scala conductor, but the Scala orchestra in 1928, when the earlier recording was made, was Toscanini's. Sabajno conducts the prelude with a flexibility, and the Scala strings play it with an ample employment of portamento, that make it almost a different piece from the clean-cut movement in a very regular 4/4 conducted by Riccardo Muti in the new Angel recording.

Muti continues squarely, and Placido Domingo sings "Celeste Aida" with a clean articulation, not a smooth bridging, of the rising interval at the end of each phrase. Even where Verdi specially asks for "carrying of the voice," on "pensiero," Domingo eschews portamento. He is in full, easy voice—and one could use his performance as a model of wrong style in Verdi interpretation. Aureliano Pertile, on the other hand, is exemplary, with all the vigor, variety, and delicacy that Domingo lacks. Pertile is not a favorite tenor of mine, but this account of the aria does much to explain his fame. The contrast between "ergeriti un trono," and "vicino al sol," is beautifully achieved. Neither tenor essays a morendo close, but it is unrealistic to make a fuss about that. The Amneris of Fiorenza Cossotto lacks portamento too (even where Verdi specially calls for it, on "quanto"), while that of Irene Minghini-Cattaneo has it.

But in other respects the two versions are not comparable. One is an uneven and at times pretty dim transfer of an ancient electrical recording. More of it later, after considering the new Angel, which has a big, bright, genuine Shibata tips that permit response to 45,000 Hz and above, while minimizing record wear and offering superb tracking. Write today for free literature and list of audio-technica dealers nearest you.

**The Amplifier Tester:**

Only one name in headphones—**STAX**—can transduce musical depth to actually tell you which amplifiers are "thin" sounding (some are very expensive) and which amplifiers are "musical" in their sound definition.

**STAX**—a courageous small company dedicated to ultimate high-fidelity. **STAX** Electrostatic Headphones: so definitive they are known as the "Amplifier Testers". Ask for them where the best audio products are tested first—then sold. **$235.00**

Exclusively distributed in the USA, with integrity, by American Audioport Inc. 909 University Avenue, Columbia, Missouri 65201

American Audiport Inc. 909 University Ave., Columbia, Mo. 65201

---

**VERDI: Aida**

Aida
Amneris
Radames
Amonasro
Ramtis
The King
A Messenger

Dusolina Giannitti as Amneris, Irene Minghini-Cattaneo as Radames, Aureliano Pertile as Amonasro, Giovanni Inghelini as Ramtis, Luigi Manzini as The King, Giuseppe Nesi as A Messenger

La Scala Chorus and Orchestra, Carlo Sabajno, cond. **DISCOPHILIA KS 7/9, $23.94** (three discs, mono, manual sequence) [from HMV/VICTOR 78-rpm originals, recorded August 1928] (distributed by German News Co., 218 E. 86th St., New York, N.Y. 10028).

Now that the AT 12S with genuine Shibata stylus is here... all other stereo cartridges over $50 are obsolete!

---

Better performance from existing stereo records, and ideal operation of any CD-4 discrete playback system is yours when you select an audio-technica four channel cartridge.

Now four models, including the new AT12S at only $49.95 suggested retail. All with genuine Shibata tips that permit response to 45,000 Hz and above, while minimizing record wear and offering superb tracking. Write today for free literature and list of audio-technica dealers nearest you.
B·I·C VENTURI
speakers turn
low-power amps
into tigers.
high-power amps
into pussycats.

Trying to coax a throaty
growl from a little
pussycat of an ampli-
fier? Try B·I·C VENTURI, the
speaker with exceptionally high
efficiency so you get
more sound power out
of each watt.

Still searching for
speakers that can take
plenty of power and
won't go up in smoke?
Again, try B·I·C VENTURI.

Looking for speakers
that can reproduce the
music's full dynamic
range so you can hear
the loudest lows and
softest softs?
B·I·C VENTURI does it all
without sacrificing
frequency range,
accuracy, size or price.
Visit your B·I·C VENTURI
dealer... and purr. For
brochure, write: HF-275

British Industries Co., a div of Avnet Inc.
Westbury, New York 11590
Canada C W Poirion Ont

104 HIGH FIDELITY MAGAZINE
A.P.

VERDI: Ballet Music for Paris. Monte Carlo Club were wont to roll in after a leisurely dinner. The system is guaranteed for 1 year.

Italian audiences of the nineteenth century liked ballet with their operas but generally preferred it as dessert following the evening’s main course, a tradition that lasted at least as late as 1893, when the world premiere of Falstaff was followed by a performance of Bayer’s “Die Puppenfee. Ballet in the abstract, as an inscription. metals, a fully adjustable headband, and 15 foot coil cord. Comes with a trouble-free, self-energized console. The system is guaranteed for 1 year.

All of those products are made to the same high acoustic and mechanical quality that has set standards throughout the world. For example, if your finances do not quite run to a new Revox tape recorder, try to find a second-hand one—in stock condition it will outperform other makes of new equipment at the same price!

All of our family is described in great detail in a series of technical data sheets and application charts. If you are at all interested in better equipment, we will send you this information. Just mail the attached coupon to:

Revox Corporation, 115 Michael Dr., Syosset, New York 11791.

Our companies have been in the microphone and tape recorder business now for over forty years. In that time we have built up quite a family . . . professional mixers, tape recorders, microphones, headphones—the lot.

All of these products are made to the same high acoustic and mechanical quality that has set standards throughout the world. For example, if your finances do not quite run to a new Revox tape recorder, try to find a second-hand one—in stock condition it will outperform other makes of new equipment at the same price!

All of our family is described in great detail in a series of technical data sheets and application charts. If you are at all interested in better equipment, we will send you this information. Just mail the attached coupon to:

Revox Corporation, 115 Michael Dr., Syosset, New York 11791.

Our companies have been in the microphone and tape recorder business now for over forty years. In that time we have built up quite a family . . . professional mixers, tape recorders, microphones, headphones—the lot.

All of these products are made to the same high acoustic and mechanical quality that has set standards throughout the world. For example, if your finances do not quite run to a new Revox tape recorder, try to find a second-hand one—in stock condition it will outperform other makes of new equipment at the same price!

All of our family is described in great detail in a series of technical data sheets and application charts. If you are at all interested in better equipment, we will send you this information. Just mail the attached coupon to:

Revox Corporation, 115 Michael Dr., Syosset, New York 11791.

Our companies have been in the microphone and tape recorder business now for over forty years. In that time we have built up quite a family . . . professional mixers, tape recorders, microphones, headphones—the lot.

All of these products are made to the same high acoustic and mechanical quality that has set standards throughout the world. For example, if your finances do not quite run to a new Revox tape recorder, try to find a second-hand one—in stock condition it will outperform other makes of new equipment at the same price!

All of our family is described in great detail in a series of technical data sheets and application charts. If you are at all interested in better equipment, we will send you this information. Just mail the attached coupon to:

Revox Corporation, 115 Michael Dr., Syosset, New York 11791.

Our companies have been in the microphone and tape recorder business now for over forty years. In that time we have built up quite a family . . . professional mixers, tape recorders, microphones, headphones—the lot.

All of these products are made to the same high acoustic and mechanical quality that has set standards throughout the world. For example, if your finances do not quite run to a new Revox tape recorder, try to find a second-hand one—in stock condition it will outperform other makes of new equipment at the same price!

All of our family is described in great detail in a series of technical data sheets and application charts. If you are at all interested in better equipment, we will send you this information. Just mail the attached coupon to:

Revox Corporation, 115 Michael Dr., Syosset, New York 11791.

Our companies have been in the microphone and tape recorder business now for over forty years. In that time we have built up quite a family . . . professional mixers, tape recorders, microphones, headphones—the lot.

All of these products are made to the same high acoustic and mechanical quality that has set standards throughout the world. For example, if your finances do not quite run to a new Revox tape recorder, try to find a second-hand one—in stock condition it will outperform other makes of new equipment at the same price!

All of our family is described in great detail in a series of technical data sheets and application charts. If you are at all interested in better equipment, we will send you this information. Just mail the attached coupon to:

Revox Corporation, 115 Michael Dr., Syosset, New York 11791.

Our companies have been in the microphone and tape recorder business now for over forty years. In that time we have built up quite a family . . . professional mixers, tape recorders, microphones, headphones—the lot.

All of these products are made to the same high acoustic and mechanical quality that has set standards throughout the world. For example, if your finances do not quite run to a new Revox tape recorder, try to find a second-hand one—in stock condition it will outperform other makes of new equipment at the same price!

All of our family is described in great detail in a series of technical data sheets and application charts. If you are at all interested in better equipment, we will send you this information. Just mail the attached coupon to:

Revox Corporation, 115 Michael Dr., Syosset, New York 11791.

Our companies have been in the microphone and tape recorder business now for over forty years. In that time we have built up quite a family . . . professional mixers, tape recorders, microphones, headphones—the lot.

All of these products are made to the same high acoustic and mechanical quality that has set standards throughout the world. For example, if your finances do not quite run to a new Revox tape recorder, try to find a second-hand one—in stock condition it will outperform other makes of new equipment at the same price!

All of our family is described in great detail in a series of technical data sheets and application charts. If you are at all interested in better equipment, we will send you this information. Just mail the attached coupon to:

Revox Corporation, 115 Michael Dr., Syosset, New York 11791.

Our companies have been in the microphone and tape recorder business now for over forty years. In that time we have built up quite a family . . . professional mixers, tape recorders, microphones, headphones—the lot.

All of these products are made to the same high acoustic and mechanical quality that has set standards throughout the world. For example, if your finances do not quite run to a new Revox tape recorder, try to find a second-hand one—in stock condition it will outperform other makes of new equipment at the same price!

All of our family is described in great detail in a series of technical data sheets and application charts. If you are at all interested in better equipment, we will send you this information. Just mail the attached coupon to:

Revox Corporation, 115 Michael Dr., Syosset, New York 11791.
are you missing the surprise in Haydn's Surprise Symphony?

It was probably intentionally sacrificed by the record or tape manufacturer (for reasons we explain in our literature). The dbx 117 Dynamic Range Enhancer Noise Reduction Unit restores up to 20 db of the dynamics missing from records, tapes, and FM broadcasts and puts life back into the music. The Model 117 also lets you make professionally noise-free, full dynamic range recordings on even a modestly priced tape recorder.

The stereo dbx 117 is available from better audio dealers at $159. dbx, Incorporated, 296 Newton Street, Waltham, Massachusetts 02154

dbx inc.

WRITE FOR QUOTATION
FACTORY SEALED CARTONS
FRANCHISED DISTRIBUTOR
QUICK SHIPMENT

WE GIVE DISCOUNTS ON HI-FI COMPONENTS

SOUND REPRODUCTION INC.
460 CENTRAL AVENUE
East Orange, New Jersey 07018
(201) 673-0600

Little of this music is unavailable. Gardelli's Macbeth. Levine's Vespro, and the aforementioned Otello give us the complete ballet sequences. The Bodlani recording of Don Carlos (MK: D 014469/76), while it includes the opening chorus and Eboli's scena—sung in Russian, of course—as well as the ballet, has had limited distribution here, and Charles Mackerras once made a record including the Trovatore music. As for Jerusalem, the 1963 Venice revival (in Italian)—and the pirate recordings derived from it—omitted the ballet, so this recording may well be the first modern performance. De Almeida gets reasonable brio and accuracy from his two orchestras, if nothing excep-
It is good to have Elisabeth Rethberg's Aida Nil act recordings collected in sequence. The side begins with "Qui Radames verra" and continues to the end of the act. The first verse of the aria proper, "O cieli azzuri," is missing; we cut from "... oboi" to "O fresche valli." An unnamed Amneris sings "Tradir:" toward the end (how mezzi must dislike hanging around all that time just to utter this single word!), and Ramfis' two exclamations are omitted. Rethberg recorded "O patria mia" three times; the version here represented is the third of them, the HMV Berlin recording, conducted by Zweig, of November 1927. The Victor duet with De Luca dates from 1930, and the other sides are from 1929.

Rethberg was a marvelously secure singer; her Aida, heard after Caballe's, is likely to be found lacking in finesse, somewhat plain and unemotional. A brief note on the sleeve quotes Strauss's 1927 opinion that "Frau Rethberg is generally reckoned the best German singer, with the loveliest voice and perfect technique." Strauss, shortly before this "O patria mia" was recorded, had conducted a Frau ohne Schatten in Dresden with Rethberg as "a magnificent Empress," and he wanted her to create the Egyptian Helen. (Holmanna- thal insisted on the more glamorous but very expensive Jeritza and deemed Rethberg "worse than mediocre as an actress.") The assurance that nothing will go wrong, the evenness and solidity of the voice through all its range and at all dynamics, the sound and sure musicianship—these made Rethberg a great singer. In her first recorded "O patria mia," the acoustical Brunswick made in Dresden in about 1920, she ascends to the high C, we are told, in a single breath; but in the electrical Brunswick and this HMV she breaks, after the A flat. (Giannini, in the 1938 complete Aida reviewed above, breathes after the F; Caballe takes the whole phrase in one breath.)

De Luca is a subtle and beautiful Amneris, if less forceful than most. Lauri-Volpi is rather disappointing—not heroic in "Nel fero anelito," which he breaks into two-bar sections, missing the sense through the segments. He suggests a tenor thinking about the quality of his tones, rather than Radames in a dramatic action.

The Lombardi and Attila tries, recorded in 1930, formed a famous record that lingered on in the catalogues well into the mid-Fifties. The Attila is excellent; in Lombardi: Gigli as the dying Otello soba far too much (compare Caruso, with Aida and Journet). The Otelio Willow Song and Ave Maria present Rethberg at her very finest; these are most moving performances. And so are the two Ballo arias. Surprising, though, that the singer never quite dropped the German way of pronouncing a final -e, saying "Buona not-uh" to Emilia, "e parch-uh fors-uh" in "O patria mia," etc.

Rethberg deserves—and on some reissues has received—transfers of the highest quality, from perfect pressings. She does not receive that here. There is more to the voice than emerges from the Discophilia dubbings. In any case, the transfer has been made slightly sharp, and so the disc is useless without a variable-speed turntable.

D.H.

Verdi: Operatic Excerpts. Elisabeth Rethberg, soprano; orchestral accompaniment. DISCOPHILIA KG-R-5, $7.98 (mono) (recorded 1927-30) Aida: O patria mia... Geti, mi padre. Pur ti morrro... Ma dimmi, per quale via... (with Giacomo Lauri-Volpi, tenor; Giuseppe de Luca, banjone.) I Lombardi: Qual volta trascorrere... (with Beniamino Gigli, tenor; Ezio Pinza, bass). Attila: Se so quest anima... (with Gigli, Pinza.) Un Ballo in maschera: Ma dall'arido stelo... MorrO, ma prima in grazia. Otello: Willow Song. Ave Maria.

Choose one: 1.4 cubic feet or 12 cubic feet

Interface: A or Sentry III. Systems with different names and substantially different appearances. Yet both issues rom a common technology and what we believe to be the important performance criteria.

Flat frequency response, uniform total acoustic power output, extended bass without lumps, low distortion... these goals are reflected in the actual performance of the Sentry II and Interface: A. What then, is gained from the large size of the Sentry III? Higher efficiency and larger dynamic range. The Sentry III offers 6 dB more efficiency and an additional 3 dB power handling capacity. Not that the Interface A is any slouch: a pair can produce a sonic pressure level of 107 dB "very loud" in an average living room. It's just that the Sentry III can reach 116 dB.

The Interface: A is a vented, equalized system with a low-frequency limit of 32 Hz. The vented Sentry 11 reaches 40 Hz; the optional equalizer extends its low-frequency limit to 23 Hz.

Interface: A is a home system finding professional application. Sentry II is a studio monitor well suited to home use. Either way, you will find incorporated the latest technology and outstanding performance. Let us send you full information on these systems, plus a list of dealers where they may be auditioned.

NOVA AUDIO
The Brightest Super Star In Stereo Today
At Last!

- MAIL ORDER — Plus —
- SERVICE — Plus —
- FINANCING — Plus —
- TOP MAJOR BRANDS

Nationwide Financing
Also Bank Americard & Mastercharge
We carry all the Fair Trade Brands
Whenever Possible these makes are quoted 'In Systems'
We quote on ALL Major Brands
Large complete inventory on everything we sell
We provide our own Factory Authorized Service on everything we sell

You can trust us!
Write for our price quotes and quotations on complete systems or individual items. Whatever your needs, we'll fill them and save you money, time and worry!

Box 542, 2940 A Prosperity Ave.
Fairfax, VA 22030
(703) 280-4500

Circle 37 on Reader-Service Card

Now Available...

Records in Review

1968, '69, '70, '71 Editions

"Comprehensive coverage of each year's recordings gives a surprisingly well-rounded picture of what's available on records, and most reviews describe the work as well as the performance, providing each annual with a permanent use." — Saturday Review

"...a gratifying wide range...informative and useful..."—Notes (Music Library Association)

WYETH PRESS, 2160 Patterson Street, Cincinnati, Ohio 45214
Please send the following copies of Records in Review

- 13th Annual (1966) $9.95
- 14th Annual (1968) $9.95
- 15th Annual (1970) $9.95
- 16th Annual (1971) @ $9.95
- To Save, I enclose payment (check or money order only). Publisher pays postage. Include sales tax in the states of New York, Ohio, Tennessee, California, Massachusetts, New Jersey.
- Bill me, plus postage.

Name ____________________________
Address __________________________
City ___________________________
State __________ Zip _______ 1857

Broadway, New York, N.Y. 10023)


When is a review not criticism? When a record like this comes along, so fine as to be beyond criticism.

This 1971 English Lyrrica release reaches us in time to be a distinguished centenary addition to the Holst discography. The Japanese Suite, in six sections, is probably more authentically Oriental in feeling and texture than the slightly better-known Beni Mura suite. Bliss's Médée fantasque is a big, splashy rhapsody, alternately restful and breathtakingly furious. The Walton Music for Children is orchestrated from ten piano duets that range from whimsical parody to guileless tenderness. The Britten-Berkeley Mont Juic—a real joint effort, not one's arrangement of the other's creation—is a suite of four Catalan dances, of which the third is a lament for Spain's tragic civil war and the last starts out with rhythmic surpises and winds up in a giddy climactic free-for-all.

In each of these scores, the deft use of the orchestra—low winds and brass in particular—is typical of the contemporary English ear for such things. The various composers (with Sir Adrian Boult filling in for Holst) are evidently first-rate podium spokesmen, for both the LSO and the LPO turn in their most brilliant playing here. The sound is also extremely flexible, and unpredictable rhythmic flow. And the sound, which has very little resonance, doesn't help matters. Unfortunately the performance is only fair.

Another interesting disc of new music from the CRI. The chief attraction here is Rolf Yttrehus' sextet, a very strong work of twelve minutes' duration. A tightly controlled twelve-tone piece, it is also a work of considerable dramatic power. Although in one continuous movement, it is clearly divided into several shorter sections, each of which carries the argument convincingly forward to its conclusion. The writing is fragmented in the sense that lines are pushed from one instrument to another; yet the general effect is one of a broad and continuous motion. This is a serious work, one that requires effort on the listener's part: a sort of inner continuity that acts as a cohesive force for the entire work.

Unfortunately the performance is only fair. Although generally accurate, it is much too hesitant to give a convincing picture of the underlying rhythmic flow. And the sound, which has very little resonance, doesn't help matters. Also impressive is John Heiss's quartet for three flutes and the piece has an extremely flexible, and unpredictable, rhythmic quality that is especially attractive. I found the Four Movements for three flutes somewhat less interesting. Here Heiss seems to have been concerned mainly with exploiting various kinds of sonic tricks, and the musical substance suffers accordingly.

For a lesser extent this is also true of Herbert Brun's Gestures for Eleven, although the basic ideas are of more interest. But despite the composer's assurance in the liner notes that after repeated hearings the various gestural ideas will add up to "one continuous event and one large gesture," I was left with the impression of a series of effective but isolated moments.

The performances of the Heiss and Brun works are quite good. I was especially taken with the University of Illinois Chamber Players, a student group that clearly has had considerable experience playing difficult new music.

R.P.M.

Anna Moffo: The Incomparable. Anna Moffo, soprano; various orchestras. RCA Red Seal ARL 1-7072. $6.98


On one side of this disc we have Moffo Then, reissues predating her vocal crisis a few years back. But only the Turandot arias show her to real advantage; the voice at its best was fresh and pretty but limited in color, range, and size. Moffo as Semiramide's "Bel raggio" (from the same recital disc as the Turandot excerpts, which would make an attractive reissue) is negotiated, but barely. The Lucia Aria I scene is from the complete recording with Prêtre, which I like very much, but not because there's anything distinctive about Moffo's Lucia—out of context it was neutral.

The other side of the disc, Moffo Now, is Eurodisc material not previously released here. I assume it poculates the worst of her troubles, since it's reasonably handled. Moffo now sings creditably within a severely restricted range of pitch. None of these excerpts respond to such treatment: "Senza mamma" sounds positively jolly.

We will refrain from any of the obvious quips about the album title. RCA provides full texts.

K.F.
scends all the usual vogue characteristics of the general brass, and trumpet in particular, discography.

First, and perhaps most important of all, this program eschews works written either for solo trumpet or for "mixed" brass ensembles.

Five of the eleven selections feature two trumpets, one of them (Rathgeber's) along with two violins. Gabrieli's sonata stars three trumpets. Molter's "symphony" and one of the younger Biber's sonatas four, the elder Biber's sonata six plus timpani, and the younger Biber's sonata for two choirs no less than eight. And all of these (except for the Molter) include a continuo part, played here by cello and/or bassoon and harpsichord or organ.

Moreover, the percentage of transcriptions is less excessively high than customary in most baroque-era trumpet programs. Both Biber's and Rathgeber specifically wrote for trumpets, and Molter authorized them as alternatives to horns. The remaining works (except for the Gabrieli sonata originally scored for "three violins or other instruments and continuo") were originally intended for cornetti, to be sure, but in all the present instances they are admirably suited for the closely related more brilliant instrument. In any case, the illuminating jacket notes (by Alexander Blachly) provide full documentation not only of the original sources, but also of the modern editions actually used.

Second, the music itself is unusual in several respects. It represents both the early (Gabrieli to Pezel) baroque era and the later period (Rathgeber to Biber fils) when the high baroque merges into the rococo, or even early classical, era. Except for Carl Heinrich Biber (?-c. 1750), whom I'd never even heard before now, and Johann Valentin Rathgeber (1682-1750), who has been only rarely represented on discs previously, the composers' names are familiar, at least to connoisseurs.

But their present compositions (save the grandly ceremonial Sonata a 7 by the elder Biber) seem to be mostly if not all record firsts. Moreover, the percentage of transcriptions is spectacular transcriptions ranging from the dazzlingly brilliant (Albinoni's oboe-concerto for an Albinoni oboe-concerto movement. the "Arrival of the Queen of Sheba" from Handel's Solomon, and five Purcell and Stanley trumpet tunes with organ only) through the musically ridiculous (the two Queen of the Night arias from Mozart's Magic Flute, the acrobatic Frosini-Camara Carnival of Venice, and the "Alleluia" from Mozart's Exsultate, jubilate) to the grotesquely godawful (Schubert's Ave Maria, Gluck's "Dance of the Blessed Spirits," and the Prelude in G from Book II of Bach's Well-Tempered Clavier).

The tastelessness of both the disarrangements and the unabashed executant exhibitionism is well matched by overheavy groove modulation and exaggeratedly vivid and brilliant recorded sonatas guaranteed to pierce the toughest eardrums even at normal playback level settings.


Since neither ear nor eye will tell you. I should note that Wilbraham is a perfectly respectable British trumpet virtuoso who has recorded serious baroque concerto programs for Argo and HMV with no less-musicallyologically esteemed an ensemble than Neville Marriner's Academy of St. Martin-in-the-Fields. And he was featured first of four trumpeters in the Phase-4 "Magnificent Sound of Baroque Brass" program I reviewed in June 1974.

Here and now, however, he appears as Britain's answer to Al Hirt in a medley of eleven transcriptions ranging from the dazzlingly spectacular (an Albinoni oboe-concerto movement. the "Arrival of the Queen of Sheba" from Handel's Solomon, and five Purcell and Stanley trumpet tunes with organ only) through the musically ridiculous (the two Queen of the Night arias from Mozart's Magic Flute, the acrobatic Frosini-Camara Carnival of Venice, and the "Alleluia" from Mozart's Exsultate, jubilate) to the grotesquely godawful (Schubert's Ave Maria, Gluck's "Dance of the Blessed Spirits," and the Prelude in G from Book II of Bach's Well-Tempered Clavier).

The tastelessness of both the disarrangements and the unabashed executant exhibitionism is well matched by overheavy groove modulation and exaggeratedly vivid and brilliant recorded sonatas guaranteed to pierce the toughest eardrums even at normal playback level settings. R.D.D.
The Spectacular Charles Ives. I welcomed the arrival of two Ives symphonies on RCA Quadradiics with real excitement. Both were reviewed (from stereo pressings) in our October issue. But Ives in quad!

What a disappointment, then, to discover that the quad review pressing of the Second Symphony (Red Seal ARDI 0663, with Ormandy and the Philadelphians; $7.98) is excessively noisy and possessed of such a severe high-frequency warp that it will not track adequately to maintain quad separation at any reasonable setting of my equipment. The sound is, however, discernibly similar to that of other Philadelphia quad recordings: The back channels are used for ambience, and the orchestral textures are well defined.

The Fourth (Red Seal ARDI 0589, Jose Serebrier and the London Philharmonic with the John Alldis Choir, $7.98) is much better as a pressing. And since it presents music that is far more complex in texture and unconventional in scoring, its use of the surround technique is welcome. As the liner notes emphasize, Ives wrote the Fourth with little regard for the practicalities or preconceptions of the concert hall, and I see no reason why the music should be presented in concert hall perspective.

Serebrier's notes, however, do say that "the orchestral seating was mapped in order to resemble Ives's suggestions as closely as possible," and a picture shows him in the usual podium position with musicians filling 180 degrees of the space in front of him. The 360-degree spread of the recording, then, appears to be RCA's idea. I think it's a good one. The Fourth is an easy symphony to lose your way in: I, for one, need all the help that quad can give me.

The Great Everest Scandal. It's no secret that there has been a lot of marching behind the quad scenes. Nor is it any secret that the fortunes of Sansui's QS matrixing in this country have been hampered by a scarcity of high-name recording stars to grace its lists of available discs. So it's not surprising that Sansui would welcome any and all newcomers to the QS fold.

One of the more recent is Everest. Last June it issued a list of "QS-encoded" discs, bearing various labels in the Everest group, for imminent issue; and almost immediately the listings were being passed out by Sansui. The catch, as a few insiders with long memories realized immedately, was that the list seemed to contain nothing but reissues from mono days—old Oceanic opera recordings, classics from the palmier days of jazz, and the like—that could not possibly be quad of QS or any other sort.

Well, the storm of protest was headed off almost before it started. The Sansui people said, "Sorry; we took the Everest list at face value. We're removing the discs from our QS list." The Everest people said, "Sorry; we used the QS encoder, so we thought the listings were legitimate. And anyway we're not going to promote the recordings as quad."

But they had been labeled as quad. To the unsuspecting, the legend "QS regular matrix; compatible for stereo and 4-channel quadriphonic equipment" would seem even more unequivocally up-to-date than the familiar euphemism "rechanneled stereo." How could anybody take mono for quad?

The answer lies in a technique that is, frankly, as dear to Everest as it is repugnant to me: the rechanneling itself. That company seems to have done more experimenting in essen I stereo than any- body—or at least more unsuccessful experimenting. Unless you've had a whole carton of Everest issues to sample your way through (and as a reviewer of sorts I've repeatedly had the displeasure), you have no idea how many changes a single company can ring on that one cracked bell. All sorts of filterings, phase shift-ings, and echo effects can be used to alter a mono original and derive from it as many variants as you please. Play two carefully related variants simultaneously through a pair of speakers and you have a surprisingly convincing suggestion of stereo: play two extravagantly unrelated ones and you have a travesty. And you can do the same thing with four versions and four speakers for "quad."

The Other Rhymin' Simon. One pops record in the review stack before me really stands out: Carly Simon's Quadradiic (Elektra EQ 4082, $6.98). Not only are her songs unusually sensitive, but I particularly like the way quad is used (i.e., not abused) in realizing them. Though there's plenty of evidence that many of the effects were created by overdubbing and to that extent depend on "multiple mono" quadriphonics, the sound hangs together unusually well. Where some tracks (notably guitar) have a different aural space around them than the others, they still seem to play against the others, responding to them instead of going a separate way.

This feeling of musical (if not spatial) togetherness works well with her songs. In some ways the spatial isolation helps emphasize the inventiveness of detail that the tracks contain. And in "That's the Way I've Always Heard It Should Be," for example, the quad certainly contributes to the sense of time and place ("The living room is still; I walk by, no remark," etc.). A fine job all around.

Renaissance on CD-4. The Western Wind, a group I admired in its disc of early American music, has turned its phonographic attention to quite another time and place. Orazio Vecchi's madrigal comedy L'Antiparano (1594) (Nonesuch HQ 1286, $3.98). I find it equally admirable in this music. Further, the quadraphonic image on this Quadradiic seems a bit firmer and fuller than that of the (presumably remixed) American-music disc.

By modern standards, it's quite a tour de force to sustain almost an hour's worth of music with only five unaccompanied voices, but Vecchi and Western Wind, between them, manage easily—and without any "help" from quadriphonic gimmickry. This is a straightforward ambience recording in which the voices remain firmly on stage with plenty of breathing space around them but with no hint of falsely reverberant perspective. Most attractive.
Music Listener’s Book Service


The sixth volume of Oxford’s massive historical series, this is the first to discuss music that is generally played and has more than an historical interest. A number of specialists contribute, and the articles—of particular use to the scholar and researcher—are crammed with facts and musical examples.

LOUISE HOMER AND THE GOLDEN AGE OF OPERA. Anne Homer.

A quiet and unassuming biography of the great American contralto, written by her daughter. Besides showing much of this warm woman’s deep roots in family life, the book evokes a vivid picture of the times in which Louise Homer grew up.

THE GERSHWINS. Robert Kimball and Alfred E. Simon.

A lavish and beautifully produced book honoring the seventy-fifth anniversary of George Gershwin’s birthday, with an introduction by Richard Rodgers. Containing many photographs, the volume is a combination of scrapbook, journal and lively biography.


Four decades of bands and bandleaders examined both in musical terms and in their social and economic context. Unlike previous histories, this includes the great English and European bands. Lists of selected recordings with each chapter.

BRAHMS: A CRITICAL STUDY. Burnett James.

Burnett James, moreover, has not written the usual dates-and-places biography, but rather a loosely biographical exegesis on Brahms’s life and music... The book is highly discursive for James likes to make analogies and to conjure up ideas: we range from the composer to such figures as Freud, Hemingway, Sibelius, and back.—Patrick Smith. HIGH FIDELITY/MUSICAL AMERICA

LOUISE HOMER: A BIOGRAPHY. Don McDonagh.

This is the first full-length biography of Louise Homer, whose influence in her own field has often been compared to Picasso’s and Stravinsky’s in theirs. The author traces her life in repertorial style, bringing into the picture the not-so-peripheral people who influenced and supported her.

THE CARMEN CHRONICLE. THE MAKING OF AN OPERA. Harvey E. Phillips.

Leonard Bernstein, James McCracken, Marilyn Horne were the all-star team that opened the Met with Carmen in 1972 and went on to record the performance for DG. The wear, tear, and exhilaration of these tapping sessions are captured here humor and a fine eye for detail. Many photographs.


A stimulating critique of the Metropolitan Opera since Bing’s departure, based on interviews with stars and management and on Rubin’s own perceiving view of the trials and traumas facing the company today. Not always kind or cheerful reading, but unflaunlingly provocative.

STOCKHAUSEN: CONVERSATIONS WITH THE COMPOSER. Jonathan Cott

One of today’s most provocative and articulate composers is explored in Cott’s wide-ranging book, which brings into focus the unity among the arts, philosophy and science as Stockhausen sees it. There is, too, some hard, detailed musical analysis, and an occasional catty story as well. A good introduction to an extraordinary mind.


Four decades of bands and bandleaders examined both in musical terms and in their social and economic context. Unlike previous histories, this includes the great English and European bands. Lists of selected recordings with each chapter.

THE GREAT AMERICAN POPULAR SINGERS, by Henry Pleasants.

A provocative study by a well-known critic, who balances a muscologists background with an understanding of the pop field. In illuminating discussions of twenty-two singers (Bessie Smith, Ethel Waters, Louis Armstrong, et al.) he draws parallels in style and technique between twentieth-century popular singing and the bel canto tradition. He also traces the effect of Afro-American influences.


Anyone involved or just interested in the music record tape industry needs this unique and indispensable reference book. No other single volume contains comparable information arranged for easy reference and readability, on the complex legal, practical, and procedural problems.

Get your copy today! We do the rest!

The big deal is that Paul McCartney wrote a tune for Peggy Lee called "Let's Love," and he produced that track, and they used it as a title song and a reprise, which is more than it deserves. McCartney is a heavy-weight writer, as we all know. But when you're not, you're not.

Now that that's out of the way, let's move on to the fact that this is a lovely album. I don't know how Ms. Lee does it, and I suspect she doesn't either, but she keeps on happening. Along with a cast-iron talent, she has always had the brains to surround herself with the best musicians. In this case that means Dave Grusin.

Grusin has been best known as a film composer (*The Graduate, The Heart Is a Lonely Hunter, Winning, many more*) and as the best of the TV theme writers ("Name of the Game," "Mausle"). He is also a contender for best pianist in a field of giants.

The level of taste on this album is as high as you'll find anywhere in today's music, without making a federal case out of it. Ms. Lee and Grusin have found some contemporary material that sits easily into the project: "You Make Me Feel Brand New," familiarized by the Stylistics: "Easy Evil," an Alan O'Day song that everyone has tried to make into a hit; and James Taylor's "Don't Let Me Be Lonely." McCartney wrote "Little Billy," for example, was written as an antimoking public service commercial but never used as such.

The songs don't stand on their own. The only interest is that a few of them contain riffs that showed up later in *Tommy,* the rock opera for which the Who is justly famous.

Townshend says he never throws anything out. I hope he does not intend to rename this fine hand "The Collier Brothers." M.J.

**POWER OF ATTORNEY: From the Inside.** Charles McDowell, bass and vocals; Wilbur C. Brown, keyboards; William Smith, guitar; Stanley Watkins and Marion Wilson, saxophones; Ronald Aikens, percussion and vocals; Gilbert Albuza, conga; Otis J. Graham, drums and vocals; Brother Edward J. X. Smith, guitar. Life Is Nowhere in the Ghetto: Loving You, I've Been Thinking; six more. [Stan Vincent, prod.] POLYDOR PD 6031, $6.98.

The Power of Attorney consists of nine prisoners and former prisoners—some convicted for the most serious of crimes—who formed this group when they met in Pennsylvania's Graterford Prison. This most unusual ensemble fuses rock and jazz in an attractive, commercial, rhythmic way. The vocals are especially gritty and soulful. Indeed, this disc would be musically attractive even if these were men who were merely musicians rather than convicts who decided to make music.

"From the Inside ..." is probably one of the few nice things to ever happen in a prison.

**Gladys Knight and the Pips: I Feel a Song.** Gladys Knight, Bubba Knight, vocals; Don Kirschner, producer. MCA 2126, $6.98. Tape: T 2126, $7.98. C 2126, $7.98.

In his liner notes, Peter Townshend gives the impression John Entwistle threw together this batch of unreleased songs as a hedge against boredom while the other three members of the Who were otherwise engaged. It sounds it.

The songs are short, many of them are hasty ideas recorded hastily, and in all this package would appeal only to those who must have every record the group ever put out. If indeed there are such people, "Little Billy," for example, was written as an antimoking public service commercial but never used as such.

The songs don't stand on their own. The only interest is that a few of them contain riffs that showed up later in *Tommy,* the rock opera for which the Who is justly famous.

Townshend says he never throws anything out. I hope he does not intend to rename this fine hand "The Collier Brothers." M.J.

**ETHEL MERMAN: Ethel's Ridin' High.** Ethel Merman, vocals; London Festival Chorus and Orchestra, Stanley Black, cond. Gee, but it's Good to Be Here; Whispering, Some People; People, seven more. [Raymond Few, prod.] LONDON PS 909, $6.98. Tape: L 80909, $7.97. CS 80909, $7.97. C 80909, $7.97.

At sixty-five, Ethel Merman. First Lady of the American Musical Theater, has never been in better voice and has never delivered a more appealing set. On "Ethel's Ridin' High," she strikes her way through material that has previously been associated with her (Happy Hunting's "Gee, but It's Good to Be Here," Gipsy's "Some People"). Material she has never before recorded ("Someone to Watch Over Me," "Impossible Dream," "On a Clear Day"), and a truly authentic golden oldie ("Whispering"). These are traditional, intelligent choices made less suitably because the singing is so vibrant. "Ethel's Ridin' High" demonstrates that superstar Merman is not only brassy, but capable of evoking the full range of emotions that are the hallmarks of the best pop singers.

Still, this disc is not an authentically contemporary effort. There are ways one can make the transition from the singing of traditional pop songs to today's music without losing one's dignity. Peggy Lee's new LP, "Let's Love," is a prime example. Richard Perry, Bob Ezrin, or Snuff Garrett should produce the next Ethel Merman LP. On it Ms. Merman should sing the songs of the new singer/songwriters in the process giving them the workout they deserve. The notion of Ethel and an electric rhythm section is a notion that could get lots of people high.


In his liner notes, Peter Townshend gives the impression John Entwistle threw together this batch of unreleased songs as a hedge against boredom while the other three members of the Who were otherwise engaged. It sounds it.

The songs are short, many of them are hasty ideas recorded hastily, and in all this package would appeal only to those who must have every record the group ever put out. If indeed there are such people, "Little Billy," for example, was written as an antimoking public service commercial but never used as such.

The songs don't stand on their own. The only interest is that a few of them contain riffs that showed up later in *Tommy,* the rock opera for which the Who is justly famous.

Townshend says he never throws anything out. I hope he does not intend to rename this fine hand "The Collier Brothers." M.J.

**EXPLANATION OF SYMBOLS**

- **Exceptional recording**
- **Recorded tape:**
  - Open Reel
  - 8-Track Cartridge
  - Cassette

**THE LIGHTER SIDE**

**Peggy Lee—comfortable in any style.** Peggy Lee, vocals; Dave Grusin, arr. and cond. *Hello One; Make Me Feel Brand New, Always, eight more.* [Dave Grusin, Peggy Lee, and Paul McCartney, prod.] ATLANTIC SD 18108, $6.98. Tape: CS 18108, $7.97. TP 18108, $7.97.

The big deal is that Paul McCartney wrote a tune for Peggy Lee called "Let's Love," and he produced that track, and they used it as a title song and a reprise, which is more than it deserves. McCartney is a heavy-weight writer, as we all know. But when you're not, you're not.

Now that that's out of the way, let's move on to the fact that this is a lovely album. I don't know how Ms. Lee does it, and I suspect she doesn't either, but she keeps on happening. Along with a cast-iron talent, she has always had the brains to surround herself with the best musicians. In this case that means Dave Grusin.

Grusin has been best known as a film composer (*The Graduate, The Heart Is a Lonely Hunter, Winning, many more*) and as the best of the TV theme writers ("Name of the Game," "Mausle"). He is also a contender for best pianist in a field of giants.

The level of taste on this album is as high as you'll find anywhere in today's music, without making a federal case out of it. Ms. Lee and Grusin have found some contemporary material that sits easily into the project: "You Make Me Feel Brand New," familiarized by the Stylistics: "Easy Evil," an Alan O'Day song that everyone has tried to make into a hit; and James Taylor's "Don't Let Me Be Lonely." McCartney wrote "Little Billy," for example, was written as an antimoking public service commercial but never used as such.

The songs don't stand on their own. The only interest is that a few of them contain riffs that showed up later in *Tommy,* the rock opera for which the Who is justly famous.

Townshend says he never throws anything out. I hope he does not intend to rename this fine hand "The Collier Brothers." M.J.

Gladys Knight keeps sizzling on, and so does her group. (The only thing I like about calling them the Pips is that it’s short and easy to say.) It is always a pleasure to see a group in its prime and ready to handle it, as opposed to those who are ruined by its pressures. These people seem to thrive on pressure.

They are also excellent choosers of material. Take their new hit, “I Feel a Song” by Tony Camillo and Mary Sawyer. There is nothing much original about it. yet it pops out at you, lightens you. And Ms. Knight’s version of “The Way We Were,” recorded live in Michigan, is the first one I’ve really liked.

Bill Withers threw in for one track. “Tenderness Is His Way,” which he wrote and produced and on which he sings. It’s one of the best moments of the set.

The weirdest is an effort by Burt Bacharach called “Seconds.” with oddly trite lyric by Neil Simon (if he wants to do lyrics, he’d better look up composers such as Manen and Johnnies Mandel, who think in longer lines). Bacharach produced the track, but the Dionne Warwick period is over, and the riff-at-the-end shot sticks out uncomfortably.

The energy level of this patchwork album sizzles. Ms. Knight was getting ready to get married when it was made, so feelings must have been particularly positive. Married or not, she has a superb voice and, if that’s not enough, the Pips are the best dancers of all the singers. Bravo to them for winning so well. M.A.

Cleo Laine: A Beautiful Thing. Cleo Laine, vocals; strings, rhythm, and horns accompaniment. All In Love Is Fair; Skip-a-long Sam; Send In the Clowns; seven more. [Mike Berniker, prod.] RCA CPL 1-5059, $6.98. Tape: • CPS 1-5059, $7.95. • CPK 1-5059, $7.95.

“A Beautiful Thing” is Cleo Laine’s first American-produced and recorded studio album.

Britain’s “Empress of Song.” Cleo is the superlative singer with the four-octave range who can brilliantly sing any kind of song. On this disc she has been produced by Mike Berniker, who has guided the likes of Barbra Streisand through the recording studio. Berniker and Laine have joined forces to present an accessible collection of ballads that have been selected to demonstrate Cleo at her most commercial. She sings standard selections by Stevie Wonder, George Gershwin, Stephen Sondheim. Buffy Sainte-Marie, and Michel Legrand. and she does each superbly. “A Beautiful Thing” is a lovely LP featuring a most distinguished artist.

H.E.

Phoebe Snow. Phoebe Snow, songs, vocals, and lead acoustic guitar; rhythm accompaniment organ sweeteners by Bob James. Let the Good Times Roll; Poetry Man; It Must Be Sunday; six more. [Dino Aarafl and Phil Ramone, prod.] SHELTER SR 2109, $6.98. Tape: • T 2109, $7.98.

Phoebe Snow is a natural, born to write songs, sing, and play guitar—and make records. She is totally comfortable, as if she had been doing this work forever.

So impressive is Ms. Snow that, despite some litigation going on between the artists and Shelter Records (Leon Russell and Denny Cordell’s label distributed by MCA), the album is already pushing up through the charts like an air bubble. Nor is it a commercial album, in the sense that hits are usually designed to formula. Once in a great while talent is enough. Laura Nyro, Joni Mitchell. Phoebe Snow is such an original, as strange and riveting as her name, and, if she’s not too crazy, her future is solid.

Ms. Snow’s voice is also strange, with a wide, slow vibrato that makes her agility surprising. Her style is simultaneously racy and wise. Her playing is right down the middle of the time, sparse and to the point, yet not quite simple.

Her songs are understated and elegant: “Sometimes these hands get so clumsy that I drop things and people laugh; sometimes these hands seem so graceful I can see them signin’ autographs. What I want to know from you when you hear my plea: Do you like or love either or both of me? Sometimes this face looks so funny that I hide it behind a book, but sometimes this face has so much class that I have to sneak a look. Sometimes this life gets so empty that I become afraid; then I remember you’re in it, and I think I might still have it made.

This album is sensitively produced by Dino Aarafl, whom I never heard of, with production and engineering by Phil Ramone, whom everybody in music has heard of. There are some excellent and unusual sweeteners by Bob James, using organ programmed to sound like strings. Among the first-rate musicians who lend a classy hand are Steve Mosley, Chuck Delmonico, Chuck Israels, David Bromberg, Ralph MacDonald, and even Teddy Wilson, Zoot Sims, and the Persuasions. All these folks are used in superb taste.

Congratulations to everyone, particularly to Phoebe Snow.

MA.

Ronnie Hawkins: The Giant of Rock ‘n’ Roll. Ronnie Hawkins, vocals; vocal and instrumental accompaniment. Dream Lover; Bo Diddley; Brand New Tennessee Waltz; Kinky; High Blood Pressure; six more. [Fred Foster, prod.] MONUMENT K7 32940, $5.98. Tape: • ZA 32940, $6.98.

Hawkins once claimed to be the only man who...
has been singing rock for twenty years without ever having a hit record.

That was two years ago, and he still hasn't had one. He probably won't get one from this album, either. Not that it's a bad album. It is, in fact, rather enjoyable, old-style "beat" music of the sort that made Jerry Lee Lewis, Carl Perkins, and Elvis Presley famous during the period when they all recorded for Sun Records.

As usual, Hawkins is at his best on the uptempo tunes, such as "Dream Lover" and "Bo Diddley." But he now seems hit-proof. Even his hilarious good humor and Falstaffian antics have proved unable to make him more than a very popular singer in Canada, where he lives. It's too bad. In this age of pale-faced, undernourished British pop stars wearing rouges, America could use a popular idol who has been singing rock for twenty years with -

**DORY PREVIN**

Dory Previn, songs and vocals; string and bazouki arrangements by Perry Botkin Jr.; background vocals by Marty McCall. Did Jesus Have a Baby Sister? Coldwater Canyon. The Crooked Christmas Star. 73.

As for the voice: the less it is perfect, the more I like this fact better than I like her songs, and I like her songs better than I like her singing—though it is tidy.

So long as you want to breathe the entire being of your conscious attention into songs, Dory Previn is your writer. She is not for casual listening. But for moments of total disregard for self ego, check these statements: "Brando" involves a common feminine fantasy about famous men: "I'll bet I could have handled him if only we had met." (Is the key word in that thought "handle"?) "Did Jesus Have a Baby Sister?" touches on Women's Lib with beautiful whimsy, and "Coldwater Canyon" smiles cleverly at the latest styles in vain mail seducers.

Fortunately or unfortunately, Ms. Previn is at her best on the subject of cynicism and love, such as "Crooked Christmas Star" ("Star of wonder, star of doubt, ragged beauty, burning out . . . "). "The Empress of China" captures the uncaptable in song: the notion that in our most negative moments we are often possessed by our parents, repeating broken records of fights overheard in childhood—known to be true by all veterans of The Couch. "An echo hears an echo, and my mother's fist is raised, the hand I clench at you shows her distrust. The way one behaves is determined in the graves of all the great-grandparents gone to dust . . . Our fathers fight through us as they fought their fathers' war, and the same old scene's repeated as before . . ." Previn at her most incisive.

The other nice thing about Ms. Previn's new set is that she has kept a good hold on her humor, which is the safest way to stay off the ledge. She is a crashing bore.

Most of the rhythm tracks are simple and nice, as are Perry Botkin's arrangements and Marty McCall's background vocals. Congratulations to Nick Venet for his able production.

JEFFERSON STARSHIP: Dragon Fly. Paul Kantner, vocals and rhythm guitar; Grace Slick, vocals and piano; David Freiberg, bass, and keyboard; Craig Chaquico, lead guitar; John Barbata, percussion; Papa John Creauch, violin; Peter Sears, bass, and keyboards. Ride the Tiger. That's for Sure, Be Young You live more. [Jefferson Starship and Larry Cox, prod.] GRUNT BFL 1-0717, $7.95. Tape: M 52195, $7.97. BOF 1-0717, $7.95.

"Dragon Fly" is a serious, thoughtful disc made by a group of multitalented composer/performer/instrumentalists whose nucleus comes from the Jefferson Airplane. The first performance out of a language barrier.

As usual, Hawkins is at his best on the up-tempo tunes, such as "Dream Lover" and "Bo Diddley." But he now seems hit-proof. Even his hilarious good humor and Falstaffian antics have proved unable to make him more than a very popular singer in Canada, where he lives. It's too bad. In this age of pale-faced, undernourished British pop stars wearing rouges, America could use a popular idol who has been singing rock for twenty years with -

**JEFFERSON STARSHIP**

Paul Kantner, vocals and rhythm guitar; Grace Slick, vocals and piano; David Freiberg, bass, and keyboard; Craig Chaquico, lead guitar; John Barbata, percussion; Papa John Creauch, violin; Peter Sears, bass and keyboards. Ride the Tiger. That's for Sure, Be Young You live more. [Jefferson Starship and Larry Cox, prod.] GRUNT BFL 1-0717, $7.95. Tape: M 52195, $7.97. BOF 1-0717, $7.95.

"Dragon Fly" is a serious, thoughtful disc made by a group of multitalented composer/performer/instrumentalists whose nucleus comes from the Jefferson Airplane. The first performance out of a language barrier.

This is in defense of Frank Sinatra, a man who is always in his prime one way or another, by nature. I'm tired of the smirks of people who handle their youth as if it were something earned, like a judgeship.

I like the fact that Sinatra could not stay in retirement. That's my kind of inconsistency. It concerns me, for I think that singing is more fun than not; being an ass with the Australian press is more alive than planting daffodils around your golf course or grave. What other singer of Sinatra's roots has the outrageous nerve to take Steven Wonder's 1974 Grammy winner, "Sunshine of My Life," and translate it into his own terms, with no apologies to anyone? The same goes for Neil Diamond's "Sweet Caroline" and the late Jim Croce's "Bad Bad Leroy Brown" (the last fits the singer by default).

For those of us attuned to today's attitudes and rhythm sections, this album takes a moment's getting used to. But to deny the effort is to be as mean and narrow as the contingent that must shrink all artists into their own cute little skull sizes. The conservativeness of youth is a crushing bore.

Frank Sinatra operates from the same intuitive sense of style as ever. Despite the album title, many of these songs are not his kind of thing, but he spits right in their eye with a respectful challenge, ready to make a performance out of a language barrier.

The ballads of the set are a more likely fit for the singer, since he was father to most of them. On "What Are You Doing the Rest of Your Life?" by Michel Legrand and Alan and Marilyn Bergman, Don Costa reminds us and himself that, when he's feeling inspired and exquisite, he can still outwrite any song arranger in the entire business. Let us also note that, in a business totally dominated by its rhythm sections, necessitating adjunct horns and/or string sweetening sessions after the fact, Sinatra still works live with an orchestra—the same guys who have shared record dates with him for years. The same producers too.

As for the voice: the less it is perfect, the more it is human. And about time.

Styles change like the laundry. In with one, load, and out with another. God help Elton John in a few years when we fall out of love with him, when he must express his strength against our tides instead of with them. Ask Burt Bacharach. But I still find it an operative privilege to work in the same industry with Mr. Frank Sinatra.

FRANK SINATRA: Some Nice Things I've Missed. Frank Sinatra, vocals; orchestral accompaniment; Don Costa and Gordon Jenkins, arr. The Summer Knows; It, Sweet Caroline; seven more. [Don Costa, Jimmy Bowen, and Sonny Burke, prod.] REPRISE F 2195, $6.98. Tape: M 52195, $7.97. BOF 82195, $7.97.

He's Still—Well, Sinatra

by Morgan Ames
San Francisco rock band to receive national acclaim way back when in the mid-1960s. Once again Airplane superstars Grace Slick and Paul Kantner and the Starship band, including the busy, flashy violin gymnastics of Papa John Creach, are up to snuff. Then why does it all sound so strange?

The basic Starship sound is the same as that of its predecessor, the airplane. Throbbing harmonies and relentlessly eerie melodic effects predominate. These were indeed among the highlights of rock's psychedelic era. Now this music does not sound so much dated as something new one can't grow accustomed to. "I want to ride the tiger/"I want to ride the tiger/It will be black and white in the middle of the night/Eyes flashing in the clear moonlight/I want to ride the tiger." write and sing Slick and Kantner. The days of riding the tiger may have passed. It all does seem most peculiar in 1975.

GEORGE BENSON: Bad Benson

George Benson, guitarist, has been making "cover albums" (covering other artists' music) that sell steadily if not explosively. For years this skilled arranger has known what to make of synthesized music. The first time I ever actually saw a Moog synthesizer in use on a record date was in Los Angeles about 1968. The user was Hugo Montenegro. While most of us in pop music didn't yet know what to make of synthesized music, he has been using it. But Montenegro should do an all-synthesized tribute to the music of Stevie Wonder. Different though they are, both are masters of electronics and great respecters of quality. The difference between the two shows up most strongly in the rhythm section. Wonder's time is at once tight and mellow, while Montenegro's is crisp and forthright.

Good music works both ways. Montenegro also uses some of our best rhythm players, such as Ronnie Tutt, Larry Carlton, Carol Kaye, Wilton Felder, Bobby Hall and Larry Muhalibeanu. "Superstition" is one of the most interesting tracks, full of fascinating sound devices. I only wish I'd been there to see who did what and how. The most beautiful ballad is "All In Love Is Fair," with superb woodwind solo by Tom Scott (sounds like alto flute run through a synthesizer) and a clean flugelhorn solo by Gary Barlow. It's hard to believe that the string background is really a bunch of tape loops brilliantly programmed to sound "real," but that's probably the case.

Hugo Montenegro has always struck me as a fiercely hard worker. He must be in order to sound anything like he does in Wonder's world as well as all the others before it. He has my thorough respect for a first-rate piece of work.

RCA has long recognized Montenegro's value. They record him as perfectly possible, such as with this disc available in stereo and in quad. Either way, the sound has a crystal clarity that never disappoints.

It is fitting that Montenegro should do an all-synthesized tribute to the music of Stevie Wonder. Different though they are, both are masters of electronics and great respecters of quality. The difference between the two shows up most strongly in the rhythm section. Wonder's time is at once tight and mellow, while Montenegro's is crisp and forthright. Good music works both ways. Montenegro also uses some of our best rhythm players, such as Ronnie Tutt, Larry Carlton, Carol Kaye, Wilton Felder, Bobby Hall and Larry Muhalibeanu. "Superstition" is one of the most interesting tracks, full of fascinating sound devices. I only wish I'd been there to see who did what and how. The most beautiful ballad is "All In Love Is Fair," with superb woodwind solo by Tom Scott (sounds like alto flute run through a synthesizer) and a clean flugelhorn solo by Gary Barlow. It's hard to believe that the string background is really a bunch of tape loops brilliantly programmed to sound "real," but that's probably the case.

Hugo Montenegro has always struck me as a fiercely hard worker. He must be in order to sound anything like he does in Wonder's world as well as all the others before it. He has my thorough respect for a first-rate piece of work.

M.J.


The first time I ever actually saw a Moog synthesizer in use on a record date was in Los Angeles about 1968. The user was Hugo Montenegro. While most of us in pop music didn't yet know what to make of synthesized music, he has been using it. But Montenegro should do an all-synthesized tribute to the music of Stevie Wonder. Different though they are, both are masters of electronics and great respecters of quality. The difference between the two shows up most strongly in the rhythm section. Wonder's time is at once tight and mellow, while Montenegro's is crisp and forthright. Good music works both ways. Montenegro also uses some of our best rhythm players, such as Ronnie Tutt, Larry Carlton, Carol Kaye, Wilton Felder, Bobby Hall and Larry Muhalibeanu. "Superstition" is one of the most interesting tracks, full of fascinating sound devices. I only wish I'd been there to see who did what and how. The most beautiful ballad is "All In Love Is Fair," with superb woodwind solo by Tom Scott (sounds like alto flute run through a synthesizer) and a clean flugelhorn solo by Gary Barlow. It's hard to believe that the string background is really a bunch of tape loops brilliantly programmed to sound "real," but that's probably the case.

Hugo Montenegro has always struck me as a fiercely hard worker. He must be in order to sound anything like he does in Wonder's world as well as all the others before it. He has my thorough respect for a first-rate piece of work.

M.A.
rant still seems to me not nearly funny enough to offset its hastiness. The "Hello" dialogue (two pedestrians catch up on old times, though they've never seen each other before) makes its point quickly and continues predictably if amusingly from there. "Six of the Best" has less point on disc than on stage. Where there is some mild amusement in the image of showboy Cook towering over headmaster Moore.

It's tempting to compare Cook and Moore with our own Bob and Ray, who always seem so gentle however cutting their material. One always expects biting satire from Cook and Moore (you know those acid British humorists), but in Good Evening, at least, there isn't much.

The jacket reprints the performers' malicious program bio of each other, as well as an out-of-order list of contents (correct on the labels). Theories are invited as to why Cook doesn't sound anything like himself.

* * *

**Burn.** Original film soundtrack recording. Composed by Ennio Morricone. United Artists. UA-LA 303G, $6.98 Tape • UA-EA 303H, $7.98

Although Gillo Pontecorvo's *Burn* was released in 1970, this is the first time Morricone's outstanding score for it has appeared on these shores.

As usual, Morricone establishes a unique and utterly apropos instrumental atmosphere that immediately sets the character for both the music and the film. In addition to the various electric sounds heard in many of his scores (organ, bass, etc.), the music for *Burn* evokes the film's setting (an African slave uprising on a Portuguese island named Quemada) by using a large assortment of drums and a chorus that, in the title theme, for example, sings what is apparently an African chant. (No information is given on this in the liner notes, which simply recount the film's plot.)

These basic sounds pervade the score in varied contexts, with the emotional impact constantly shifting. In the cut entitled "The Battle for Quemada," for instance, Morricone initially instills a feeling of suspense through the use of the organ and African drums. These are later joined by the organ, playing a type of chorale theme that has come to characterize Morricone's style, and the chorus, vocalizing a somber theme that creates an incredible mood of both tension and tragedy. It is to the composer's immense credit that he has been able to combine a nonchalance used of certain ethnic materials with his own cinematically oriented idiom in a convincing amalgam.

Incidentally, the soundtrack of another excellent Morricone-Pontecorvo collaboration, *The Battle of Algiers,* recently was reissued by United Artists.

**Jazz**

* Modern Jazz Quartet: In Memoriam. John Lewis, piano; Milt Jackson, vibes; Percy Heath, bass; Connie Kay, drums; orchestra: Maurice Peress, cond. In Memoriam: Jazz Ostinato. Concerto de Aranjuez: Adagio. Little David 3001, $6.98. Tape • M 53001, $7.97 • M 83001, $7.97

This is ostensibly the final record by the Modern Jazz Quartet. The group broke up in July after playing together for twenty-two years (nineteen years without a change in personnel) and, although the musicians got together for one farewell concert in New York in November, it isn't likely that there will be any more appearances until and unless Milt Jackson, whose desire to go out on his own caused the breakup, decides that he will be better off in the quartet and it is reorganized on a permanent basis. Because John Lewis is a perfectionist and the music of the Modern Jazz Quartet means so much to him, it seems unlikely that he would consent to any further one-night-stand reunions.

While this disc's title is apt, it was not intended to apply to the quartet when the recording was made. "In Memoriam" is a work in two movements that takes up one side of the disc, composed by Lewis in memory of a piano teacher and other musicians, from Louis Armstrong to Béla Bartók, whom he admired. With an ensemble of strings and woodwinds added to the quartet, Lewis' composition comes out as a fresh, gentle, and melodic work in his most charming and polished direction. As was the case in his earlier "Sketch," he does not try to make the strings swing. He uses

**Chinatown.** Original film soundtrack recording. Composed and conducted by Jerry Goldsmith. [Tom Mack, prod.] ABC Recorders ABDP 848, $6.98

Jerry Goldsmith's title theme for Roman Polanski's *Chinatown* is not only one of the best he has written, but also manages to capture the film's 1940s atmosphere without indulging in the campy imitations that are glutting soundtracks these days. This theme dominates the majority of the cuts, which include some typically jagged Goldsmith action sounds and three bands of source music ("Easy Living," "I Can't Get Started," and "The Way You Look Tonight") that have been electronically rechanneld for stereo (I suppose this means Schwann-I will have to give the listing as Chinal."

R.S.B.
them as rich coloration and lets the quartet handle the rhythmic material.

The second side is divided between Lewis' "Jazz Ostinato," originally written for Eric Dolphy and Phil Woods, and his third recording of the Adagio from Joaquin Rodrigo's Concierto de Aranjuez. Although the "Jazz Ostinato" has a basically sprightly quality, it builds to much more powerful climaxes than the group usually goes in for, something that Lewis has not been able to translate into terms related idiomatically to the quartet.

If this is indeed the last recording, the Modern Jazz Quartet's career has ended in appropriate fashion. That emphasizing Lewis' constant search for a balance between jazz and the European tradition and with two pieces that were, as Lewis' work always seemed to be, in the process of development.

J.S.W.

Harry James and Woody Herman:
A Batch of Jazz. Harry James and his orchestra, 1944: Shady Ladybird; Rose of Washington Square; five more. Woody Herman and his orchestra, November 2, 1944: Straighten Up and Fly Right; The Man I Love; five more. Tupee 107, $5.50 (Tulip Records, Box 3155, San Rafael, Calif. 94902).

Two 1944 radio broadcasts show Woody Herman's first Herd on its way up (just three months before it cut the first of its records for Columbia, which lifted it to the top of the big-band heap in the mid-Forties) while Harry James' band, complete with string section, is riding the crest of the wave of its popularity.

James' side includes two of his classics of the period—"The Mole" and "9:20 Special"—and a Helen Ward vocal that is a reminder of what an easy, open-voiced singer she was.

Herman's broadcast has Frances Wayne singing ballads and Woody singing novelty, working in a moderate, middle range, with no exclamations, but finding a deep well of provocative phrasing, melodic variations, and warm sounds within his self-imposed limitations. Rowles' piano is seductive—soft but swinging and filled with unexpected deviations. The two musicians are ideal complements, and with the help of Bob Cavanaugh and Mickey Roker they have produced a very convincing example of the enticing middle-ground jazz that currently seems to be on the rise.

J.S.W.

Albert Ammons, Pete Johnson,
Meade Lux Lewis: Boogie-Woogie Kings.
Albert Ammons, piano: Hersal Blues; Monday Struggle; Shout for Joy; five more. Pete Johnson, piano: Four O'Clock Blues; G Flat Blues; Meade Lux Lewis, piano: Closing Time; Enemies of Love 1208, $9.98 (mono).

Meade Lux Lewis, Cripple Clarence Lofton: Boogie-Woogie Kings. Meade Lux Lewis, piano: Bear Cat Crawl; Try Again; Chapel Blues; three more. Cripple Clarence Lofton, vocals and piano: Streamline Train; Pitchin' Boogie; Mistaken Blues; three more. Euphonic 1208, $9.98 (mono).

Albert Ammons, who died in 1949, was always the calmest, the coolest of the three boogie-woogie pianists who moved into Cafe Society in New York late in 1938 and lit the fuse for the boogie-woogie explosion of the next few years. Meade Lux Lewis was a rumbled, round little man who poked at the keyboard with stubby fingers. Pete Johnson was massive and solid and always seemed to be sweating—even when he might not have been. But Ammons just leaned back, stretched out his arms, tickled the keys, and rolled through finger exercises that were an ideal balance to Lewis' jabs and Johnson's rolling power.

All three were so closely associated with boogie-woogie that they rarely got a chance to do anything else, at least on records, although Lewis did record a few slow, probing blues.

This record has the fingerprints of Charlie Burrett, who has been George Wein's right-hand man for the past twenty-five years, is a connoisseur of fine pianists, fine pianos, fine singers, and fine songs, as well as fine wine and fine Chinese food. It has been through his persistent urging that pianists such as Dave McKenna and Jimmy Rowles have been brought to New York in the past couple of years. Similarly he keeps talking up singers—Mabel Mercer, Teddi King, Sylvia Syms, Helen Merrill, and Anita Ellis.

And for both pianists and singers he has new songs—actually unknown or forgotten old songs—to suggest. Two of his songs appear along with one of his pianists in this collection: "Dream Dancing," a charming Cole Porter tune, and "Restless," a hauntingly constructed melody of the 1930s. To these Zoot Sims has added a discovery of his own, "Fred," a Neal Hefti tune written for a Fred Astaire TV special, with three familiar standards—one of them, "Getting Sentimental over You." played with a swinging drive that one does not expect to hear on the old Tommy Dorsey theme.

Sims is an unctuously consistent and imaginative saxophonist, working in a moderate, middle range, with no exclamations, but finding a deep well of provocative phrasing, melodic variations, and warm sounds within his self-imposed limitations. Rowles' piano is seductive—soft but swinging and filled with unexpected deviations. The two musicians are ideal complements, and with the help of Bob Cavanaugh and Mickey Roker they have produced a very convincing example of the enticing middle-ground jazz that currently seems to be on the rise.

J.S.W.

Zoot Sims: Party. Zoot Sims, soprano and tenor saxophones; Jimmy Rowles, piano; Bob Cavanaugh, bass; Mickey Roker, drums. Caravan; The Very Thought of You. four more. Choice 1006, $6.98.

This record has the fingerprints of Charlie Burrett, whose has been George Wein's right-hand man for the past twenty-five years, is a connoisseur of fine pianists, fine pianos, fine singers, and fine songs, as well as fine wine and fine Chinese food. It has been through his persistent urging that pianists such as Dave McKenna and Jimmy Rowles have been brought to New York in the past couple of years. Similarly he keeps talking up singers—Mabel Mercer, Teddi King, Sylvia Syms, Helen Merrill, and Anita Ellis.

And for both pianists and singers he has new songs—actually unknown or forgotten old songs—to suggest. Two of his songs appear along with one of his pianists in this collection: "Dream Dancing," a charming Cole Porter tune, and "Restless," a hauntingly constructed melody of the 1930s. To these Zoot Sims has added a discovery of his own, "Fred," a Neal Hefti tune written for a Fred Astaire TV special, with three familiar standards—one of them, "Getting Sentimental over You." played with a swinging drive that one does not expect to hear on the old Tommy Dorsey theme.

Sims is an unctuously consistent and imaginative saxophonist, working in a moderate, middle range, with no exclamations, but finding a deep well of provocative phrasing, melodic variations, and warm sounds within his self-imposed limitations. Rowles' piano is seductive—soft but swinging and filled with unexpected deviations. The two musicians are ideal complements, and with the help of Bob Cavanaugh and Mickey Roker they have produced a very convincing example of the enticing middle-ground jazz that currently seems to be on the rise.
FRESH SCOTCH NEW LOW NOISE 3600' metal reel 5 for $33.00. Sound, POB 88338, Atlanta, Ga. 30338

SHOTGLASS. As seen in Equire. Glasscone Column Speaker. $129.50 each. F.O.B. Moneyback Guarantee. TACHYON®, Box 1012, Roselle, Illinois 60172.

miscellaneous

DIAMOND NEEDLES and Stereo Cartridges at Discount prices for Shure, Pickering, Stanton, Empire, Grado and ADC. Send for free catalog. All merchandise brand new and factory sealed. LYLE CARTRIDGE, Dept. H, Box 69, Kensington Station, Brooklyn, New York 11218.

SLEEP-LEARNING—HYPNOTISM! Strange catalog free. Autosuggestion, Box 24-F, Olympia, Washington 95801

Protect your records Poly sleeves for jackets 86 Roundbottom inner sleeves 66 Poly lined paper sleeves 156 White jackets 30C Postage $1.00 Record Supply House, Hillburn, New York 10931

PROVEN SCHEMATICS. Mixer-Compressor. $2.00. Microphone preamp drives unshielded line, $1.00. Millers, 156 White jackets 30C Postage $1.00 Record Supply House, Hillburn, New York 10931

CONGRATULATIONS! YOU ARE NOW READING ONE OF HIGH FIDELITY’S best read pages! Use it yourself when you want to sell equipment, or a service, or want to let the avid music listener know about anything. High Fidelity Classified, 130 East 59th St., N.Y. 10022

new equipment for sale

DON’T PAY THE HIGH MAIL ORDER PRICES. THIEVESWAREHOUSE OF TAMPA, 1331 SOUTH DALE MABRY, TAMPA, FLORIDA 33609.

DON’T PAY THE HIGH MAIL ORDER PRICES. THIEVESWAREHOUSE OF TAMPA, 1331 SOUTH DALE MABRY, TAMPA, FLORIDA 33609.


WRITE FOR QUOTES ON STEREO COMPONENTS or揚 SOUL. SYSTEM QUOTES, Unbelievable treasure and rarities—ALSO LP RECORDS. Ed Rosen, 66-33 Saunders St., Rego Park, N.Y. 11374

OPERATRONICS, LOWEST PRICES. Catalog. 25 cents. Write for catalog. 35% to 55% Discount on Professional Guitars. Amplifiers. Specializing in PIONEER, MARANTZ, SANSUI, DUAL, and SONY. Write for catalog on over 60 brands. Including color televisions. DISCOUNT SOUND, P.O. Box 6346, Washington, D.C. 20015

AUDIO COMPONENTS at guaranteed lowest prices. Specializing in PIONEER, MARANTZ, SANSUI, DUAL, and SONY. Write for catalog on over 60 brands. Including color televisions. DISCOUNT SOUND, P.O. Box 6346, Washington, D.C. 20015

LISTEN TO TELEVISION IN STEREO

There is no need to strain your eyes when you watch TV. The T-200 TELEVISION EASILY CONNECTS TO ANY TV & STEREO SYSTEM. Our signal coupled and matrix process technique takes care of the reflection from any TV, without altering picture quality. Frequency response is maintained so you can hear the details of sound or music that you would hear on stereo TV. For complete acoustic information about the T-200, send $1.00 or a check or money order. Guarantee to make your TV sound 100% more enjoyable.

OUR NEW T-200 VHF UHF TUNER IS NOW AVAILABLE. A complete and self-contained 110 volt unit. Visit Televisortown now and get a view of our new T-200.

CONGRATULATIONS—YOU ARE NOW READING ONE OF HIGH FIDELITY’S best read pages! Use it yourself when you want to sell equipment, or a service, or want to let the avid music listener know about anything. High Fidelity Classified, 130 East 59th St., N.Y. 10022.

ALL TIME CLASSIC SOFTCOVERS. Catalogue free or send $3.00 to include literature airpost. Goodwins, 7 The Broadway, Wood Green, London, N.22. 6DU. Phone BBBB 0077. Visitors Welcome.

WRITE FOR QUOTES ON STEREO COMPONENTS or扬 SOUL. SYSTEM QUOTES, Unbelievable treasure and rarities—ALSO LP RECORDS. Ed Rosen, 66-33 Saunders St., Rego Park, N.Y. 11374

OPERATRONICS, LOWEST PRICES. Catalog. 25 cents. Write for catalog. 35% to 55% Discount on Professional Guitars. Amplifiers. Specializing in PIONEER, MARANTZ, SANSUI, DUAL, and SONY. Write for catalog on over 60 brands. Including color televisions. DISCOUNT SOUND, P.O. Box 6346, Washington, D.C. 20015


SOUNDTRACKS, Lowest Prices. Catalog. 25 cents. Write for Hi-Fi, Box 715, Florissant, MO 63033

SOUND TRACK-RECORD-ALBUMS—MAIL AUCTION—FREE LIST—Whalon, 2321-C-Hill, Redondo Beach, Calif. 90278


LIVE OPERA PERFORMANCES ON OPEN REEL TAPES Incredible performances. 1924-75. Catalog. MR TAPE, Box 138, Murray Hill Station, N.Y.C. 10016

Golden Age Radio—your best source for radio tapes Box 25215-J, Portland, Oregon 97225

FILM-STAGE SOUNDTRACKS. Large free list. A. Lutsky, Box 557342, Miami, Fl. 33155.

tapes & records

OPERA TAPES—DISCS OPEN REEL AND CASSETTES—historical performances of last 45 years—Unbelievable treasure and rarities—ALSO LP RECORDS. Ed Rosen, 66-33 Saunders St., Rego Park, N.Y. 11374

Bay State Tape, Box 138, Murray Hill Station, N.Y.C. 10016

Audio Components at guaranteed lowest prices. Specializing in PIONEER, MARANTZ, SANSUI, DUAL, and SONY. Write for catalog on over 60 brands. Including color televisions. DISCOUNT SOUND, P.O. Box 6346, Washington, D.C. 20015

HIGH FIDELITY Classified Advertising Department 130 East 59th St., New York, N.Y. 10022 Phone: 212-581-7777

Michael Littleford, Classified Advertising Manager

Please run the following classified advertisement in the next available issue.

Name:
Address:
City State Zip:

Telephone: RATE: For Regular and Display, see schedule above. *CASH MUST ACCOMPANY ORDER. Closing two months prior to issue.
Euphonic 1208, which includes his two special variants on his piano playing: "Whistlin' Blues" and "Doll House Blues," is a bit of virtuoso display on the celesta. Lewis was primarily a blues man, and his mastery of the slow blues is made evident on this disc on "Dupree Blues."-Cripple Clarence Lofton, a much more limited pianist than Ammons, Lewis, or Johnson, takes up one side of Euphonic 1208 with his walking boogie figures and pinched-voice vocals.

J.S.W.

in brief

JORMA KAUkonEN: Ouah! GRUNT BFL-1-0209, $5.98. Tape: • BBS-1-0209, $6.95. This is a dulcet set of songs written primarily by Hot Tuna's Kaukonen and sung attractively by Tom Hobson. "Ouah!" is a gentle and unexpected treat.

BOBBY WOMACK: Greatest Hits. UNITED ARTISTS LA 346G, $6.98. Tape: • CA 346H, $7.98, • EA 346H, $7.98. Not all of these selections qualify as "greatest hits," but many of them are intriguing soul performances.

EARTHQUAKE: Original film soundtrack. MCA 2081, $6.98. Tape: • C 2081, $7.98, • T 2081, $7.98. John Williams is one of our finest film-score composers. Like all his scores, this one is clear and slick and professional. They can find themselves in the recording studio into a deep freeze with their virtuoso display on the celesta. Lewis was primarily a blues man, and his mastery of the slow blues is made evident on this disc on "Dupree Blues."-Cripple Clarence Lofton, a much more limited pianist than Ammons, Lewis, or Johnson, takes up one side of Euphonic 1208 with his walking boogie figures and pinched-voice vocals.

J.S.W.

in brief

JORMA KAUkonEN: Ouah! GRUNT BFL-1-0209, $5.98. Tape: • BBS-1-0209, $6.95. This is a dulcet set of songs written primarily by Hot Tuna's Kaukonen and sung attractively by Tom Hobson. "Ouah!" is a gentle and unexpected treat.

BOBBY WOMACK: Greatest Hits. UNITED ARTISTS LA 346G, $6.98. Tape: • CA 346H, $7.98, • EA 346H, $7.98. Not all of these selections qualify as "greatest hits," but many of them are intriguing soul performances.

EARTHQUAKE: Original film soundtrack. MCA 2081, $6.98. Tape: • C 2081, $7.98, • T 2081, $7.98. John Williams is one of our finest film-score composers. Like all his scores, this one is clear and slick and professional. They can find themselves in the recording studio into a deep freeze with their virtuoso display on the celesta. Lewis was primarily a blues man, and his mastery of the slow blues is made evident on this disc on "Dupree Blues."-Cripple Clarence Lofton, a much more limited pianist than Ammons, Lewis, or Johnson, takes up one side of Euphonic 1208 with his walking boogie figures and pinched-voice vocals.

J.S.W.
the tape deck

BY R.D. DARRELL

Optimum Quadriphony: The Reel McCoy. Since 1971-72, the vigorous propaganda battles over the relative merits of the two major quadriphonic disc systems have tended to obscure the plain fact that it was tape that not only pioneered with quadriphony in 1969, but that still excels—and will for the likely future—as its ideal medium. Yet for most home listeners taped quadriphony has been known only in the Q-8 cartridge format, one handicapped partly by its intellectual debut in 1970, partly by the relatively slow progress made in eight-track. 3¼ ips technology, but mainly (where large-scale classical works and home rather than mobile listening are involved) by the jolting playback-head shifts between "programs" that are unavoidable in any endless-loop format.

Four-channel open reels, on the other hand, have the marked advantages of a wider track, higher speed (7½ ips), and far longer uninterrupted playing time. They also have the mixed advantages of semicompatibility: Conventional stereo reel machines can reproduce the two front channels of Q-reels (generally doing satisfactory justice to recordings in which the rear channels contain ambience-only materials), while Q-reel machines can of course be switched for normal frontal-stereo playback of conventional four-track stereo reels. The major inevitably counterbalancing disadvantage is that, since all four tracks are used simultaneously in fully discrete four-channel recording and playback, Q-reel programs run in one direction only and, like the original two-track stereo reels of 1956-59, must be rewound before replaying. As a consequence, they demand twice the tape-length of a stereo-only program—and of course cost more.

Then a further, if only temporary, disadvantage is that the classical Q-reel repertoire is still extremely limited, especially in comparison with that of Q-8 cartridges. Nevertheless, the Q-reel pop repertoire has been showing promisingly accelerated growth, and it seems sure, that the classical catalogue—long confined almost exclusively to the pioneering Vanguard contributions but since 1973 markedly expanded by Stereotape/ Magiee processes of RCA and None-such programs—will follow suit.

Such considerations have long dampened my own hankering to invest in a Q-reel player so I can hear and write about quadriphony in its ideal format. But finally that hankering, sharpened by the need to replace my well-worn Ampex 1165, has practically forced me to pur-
The fire started on the first floor...

...worked its way to the second floor where my Marantz 2270 was, and finally engulfed the third floor. The floors collapsed and fell into the basement where the Marantz remained buried in debris and water until March when the wrecking company came.

While the men were lifting the debris into trucks I noticed a piece of equipment I thought could be the Marantz. I asked the man to drop the load, and the receiver fell 20 feet to the ground.

Out of sheer curiosity, I brought the damaged receiver up to my apartment and after attaching a new line cord to it, I plugged it in. All the blue lights turned on. I connected a headphone and the FM played perfectly. I then tested it with my tape deck, and finally the turntable and speakers. They all played perfectly, too.

Francisco Espina
Newport, Rhode Island

Mr. Espina's Marantz 2270 receiver still meets factory specifications. We design all Marantz equipment to perform under extreme conditions for unmatched reliability year after year after year. Like the new Marantz 2275—even better than its incredible predecessor. See the complete line of Marantz receivers, components and speaker systems at your Marantz dealer. He's in the Yellow Pages.

Marantz. Almost indestructible.

*Mr. Espina's notarized statement is on file with the Marantz Company. Marantz Co., Inc. guarantees the original registered owner that all parts are free from operating defects for three years from purchase date except tubes which are guaranteed for 90 days. Products are repaired or replaced free of charge during this period provided you bought them in the U.S.A. from an authorized dealer. Naturally the serial number cannot be altered or removed. © 1974 Marantz Co., Inc., a subsidiary of Superscope, Inc., P.O. Box 99D, Sun Valley, Calif. 91352. In Europe: Superscope Europe, S.A., Brussels, Belgium. Available in Canada. Prices and models subject to change without notice. Send for free catalog.
Why nearly every record player is like a car that doesn't steer straight.

If you've ever driven a car with badly aligned front wheels or a defective steering mechanism, you know what we're talking about. It's a queasy feeling when you can't make the car point in the same direction as the road is pointing.

There happens to be a distinctly comparable problem with record players, except that it's a nearly universal deficiency, not just a malfunction.

Of course, in this case there's no human life at stake, only the fidelity of the reproduced sound. And sometimes the life of the record.

Like a car, the phono cartridge (or pickup head) should point where it's going. Right down the middle of the groove. Not at an angle to it.

A more scientific way of saying the same thing is that the head should remain perpendicular to the line drawn through the stylus tip and the turntable spindle.

Any deviation from this ideal is known as tracking error. It's measured in degrees and it causes distortion. Inevitably.

The trouble is that there's no way to avoid tracking error and the resulting distortion with any conventional pivoted tonearm. Why? Because the head swings in an arc and is therefore at a continuously changing angle to the groove as it travels across the record.

The problem has remained fundamentally the same since the Emile Berliner gramophone of 1887. It has been minimized, thanks to improvements in tonearm geometry, but it hasn't been eliminated.

With one important exception.

In the current line of Garrard automatic turntables, the top models are equipped with Garrard's unique Zero Tracking Error Tonearm.

This remarkable invention ends tracking error once and for all. The head is always properly lined up with the groove because it's hinged instead of fixed and keeps adjusting its angle during play. A simple idea, yes, but the engineering details took the world's leading manufacturer of turntables seven years to perfect.

The Zero Tracking Error Tonearm is a major technological coup, not just a glamour feature. You can hear the difference.

The "Acoustics" column of Rolling Stone magazine, for example, reported that the original Garrard turntable equipped with the new arm "sounded markedly 'crisper' than the other turntables" under otherwise identical test conditions.

"It probably is the best arm yet offered as an integral part of an automatic player."

--High Fidelity Magazine

It's true. Just like a car that doesn't steer straight, tracking error can make a nasty sound.

It can even cause unnecessary record wear. The information engraved in the grooves of the new CD-4 discrete four channel records is so finely detailed that it can be partially wiped out by a stylus that doesn't sit absolutely square and true.

Ask your nearest Garrard dealer about the Zero Tracking Error Tonearm. It's absurd to tolerate a problem that somebody has already solved.

Top of the line: Garrard Zero 100c, $299.95. Other Garrard automatic turntables from $49.95 up. To get your free copy of the new 16 page full color Garrard Guide, write Garrard, Dept. G-9, 100 Commercial St., Plainview, N.Y. 11803.

Garrard Division of Pleassey Consumer Products. 100 Commercial Street, Plainview, New York 11803

CIRCLE 22 ON READER SERVICE CARD