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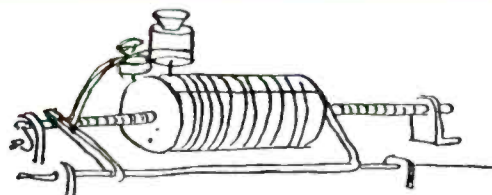
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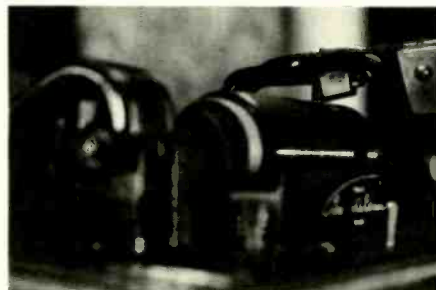
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Miles Krueger, shows a portion of the extensive collection to a scholar.



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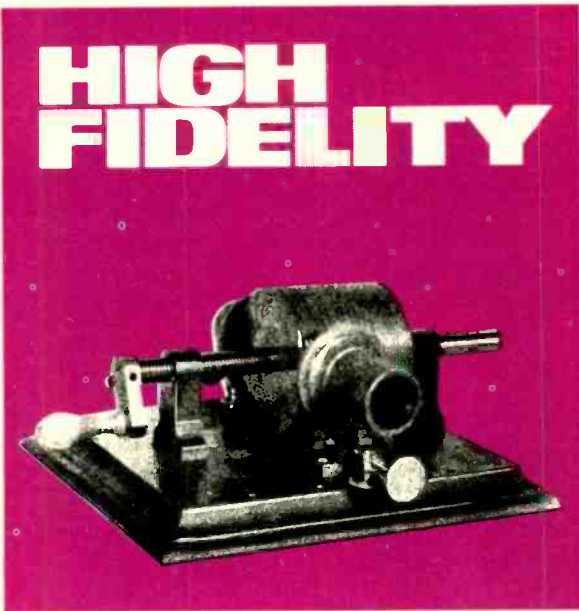
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CIRCLE 42 ON READER-SERVICE CARD

# HIGH FIDELITY



JANUARY 1977 VOLUME 27, NUMBER 1

- 58 Recordings Before Edison**  
*Leonard Marcus*  
Unearthing a surprising abundance
- 68 The Parallel Careers of Edison and Bell**  
*James A. Drake*  
Geniuses in sometime contact—and conflict
- 73 The Life and Labs of Thomas A. Edison**  
*Robert Long*  
An informal pictorial history
- 85 Edison as Record Producer**  
*Bridget Paolucci*  
His recording stars remember
- 90 The Original Painting of Nipper**  
*Oliver Berliner*  
His Master's Voice first came from a cylinder
- 92 100 Years of Sound Reproduction**  
A chronological history

## DEPARTMENTS

- 6 Letters**  
Fisher Hall  Record quality
- 17 Video's Soft Underbelly**  
*John Culshaw*
- 18 Judy Holliday**  
*Gene Lees*
- 22 Too Hot to Handle**
- 24 News and Views**  
Cassette look-alikes  A full-range Heil

- 26 Equipment in the News**
- 37 Equipment Reports**  
Luxman T-110 tuner  
Spectro Acoustics Model 202 power amplifier  
Supex SD-900/E Super phono cartridge  
Mark Levinson JC-1DC pre-preamplifier  
Nikko Model 7075 receiver
- 52 David Hafler**  
*Norman Eisenberg*  
Thirteenth in a series of High Fidelity Pathfinders
- 56 HiFi-Croctic**
- 98 Behind the Scenes**  
*The Mother of Us All*  Haitink's Beethoven

## RECORD REVIEWS

- 103 Toscanini Meets the Philadelphians**  
*Harris Goldsmith*  
An intriguing legacy arrives after thirty-five years
- 106 Haydn at the Keyboard**  
*Paul Henry Lang*  
A little-understood area of his work illuminated
- 110 Classical**  
Sills as Thaïs  Martinon's Berlioz  DG's *Macbeth*
- 111 Critics' Choice—Classical**
- 142 Lighter Side**  
Arizona  Cher  Robin Trower  April Wine
- 143 Critics' Choice—Pop**
- 145 Theater and Film**
- 145 Jazz**  
Fraser MacPherson  Herbie Mann  Soprano Summit
- 151 The Tape Deck**  
*R. D. Darrell*

## ET CETERA

- 19, 135 Product Information**  
An at-home shopping service
- 134 Advertising Index**



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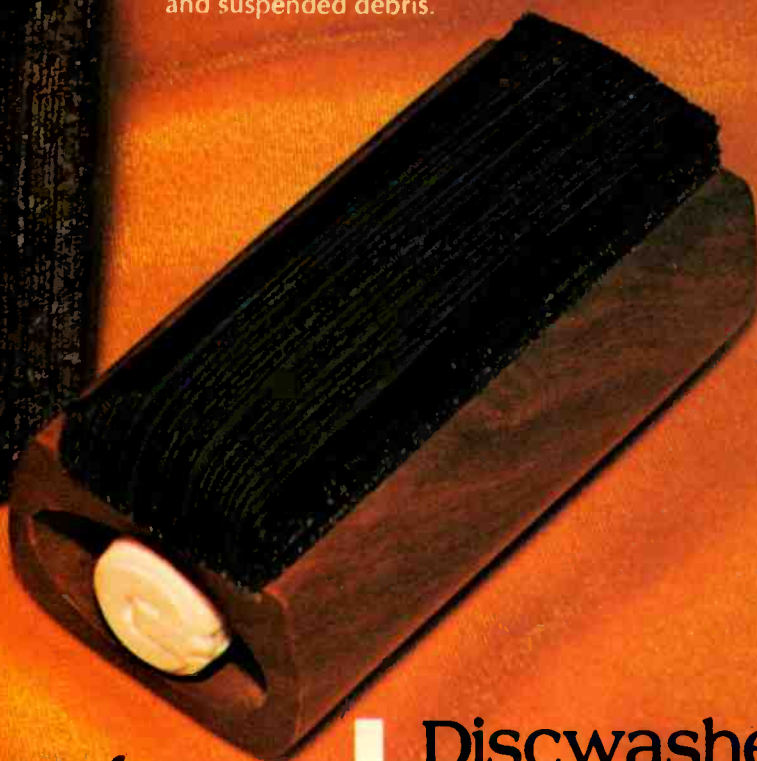
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1877-1977

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CIRCLE 27 ON READER-SERVICE CARD

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While winter skies scowl and icy winds howl, readers of our February issue can busy themselves with Robert Angus' exploration of **What Test Reports Don't Tell You About Blank Cassettes**—the inside story about cassette insides. Larry Zide will ponder the fate of the newest of the tape formats in **Whither the Elcaset?**, and Robert Long's **Taping a Vacation** extends the home recordist's leisure horizons. We'll also have a reminiscence of **Edgar Varèse in New York** by his widow, Louise Varèse, and Robert P. Morgan's comprehensive discography of the **Music of Varèse**. And we will introduce

### BACKBEAT

—a new 24-page section. For more about this, see page 139.

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Avery Fisher Hall—acoustically improved but organically unsound

### Avery Fisher Hall

Regarding Hans Fantel's article concerning the acoustics of Avery Fisher Hall at Lincoln Center, formerly Philharmonic Hall [October], I agree with the author's effort to present the often neglected views of Leo Beranek. However, I do not think that Mr. Fantel has dealt fairly with Heinrich Keilholz, with whom I was associated in the design and construction of the Juilliard building at the same time that he worked on various remodelings of Fisher Hall.

I question the statement that Keilholz "had—by his own admission—only limited experience in architectural acoustics." During the 1950s throughout Germany and Austria he was much involved in redesigning theaters, concert halls, and studios, working at times with Walter Unruh, the leading theater designer of the time. This activity brought him to the attention of George Szell, and Keilholz remodeled Severance Hall in Cleveland, vastly improving its acoustics. This was completed in 1958, four years before Fisher Hall was opened.

Having known Szell, I can imagine that he might have been put off by one of Beranek's assistants, but I doubt if he would have allowed personal pique to overrule his judgment had he confidence in the acoustic design concepts of the Beranek firm. It is my distinct impression, from conversations with Szell concerning acoustics, that before engaging Keilholz on the Severance Hall renovation he was in contact with Bolt, Beranek, & Newman.

Keilholz came on the Lincoln Center scene after Fisher Hall was opened. Unquestionably Szell's strong recommendation of him carried great weight, but Keilholz's reputation already was firmly established. When the Juilliard School was weighing the choice of an acoustic consultant for its new building, it had many strong recommendations of Keilholz. For instance, when the Juilliard String Quartet members heard that he was under consideration, they expressed unqualified enthusiasm, having played in German halls designed by him. Obviously, the success of four halls in the Juilliard building, including the widely praised Alice Tully Hall, testifies to his expertise.

His work at Fisher Hall, extending over nearly a decade, was basically an effort to

make the best of a bad situation. Beranek might have done as well, but Keilholz's work in a succession of renovations was invariably judged an improvement. He was never given the chance (nor was Beranek) to rebuild the hall as completely as Cyril Harris is doing. Nor was either Keilholz or Beranek given as free a hand with Fisher Hall as Harris reportedly has been. In this respect, Keilholz's work at Juilliard is far more representative of his achievement, for he was not subjected to vetoes from a variety of sources.

Philip Hart  
Santa Fe, N.M.

*The writer is a reviewer of classical music for HIGH FIDELITY.*

Hans Fantel's article on Avery Fisher Hall is certainly timely, informative, and well written. But his failure to deal with the question of the hall's organ—and its ultimate demise—constitutes a grave omission.

The idea that throwing the organ out would cure many of the hall's acoustic ills has been espoused for years. And now it has been implemented. What was overlooked was that, no matter what the outcome of the rebuilding, Avery Fisher Hall will forever remain but a satellite to one of its "acoustic models," Boston's Symphony Hall.

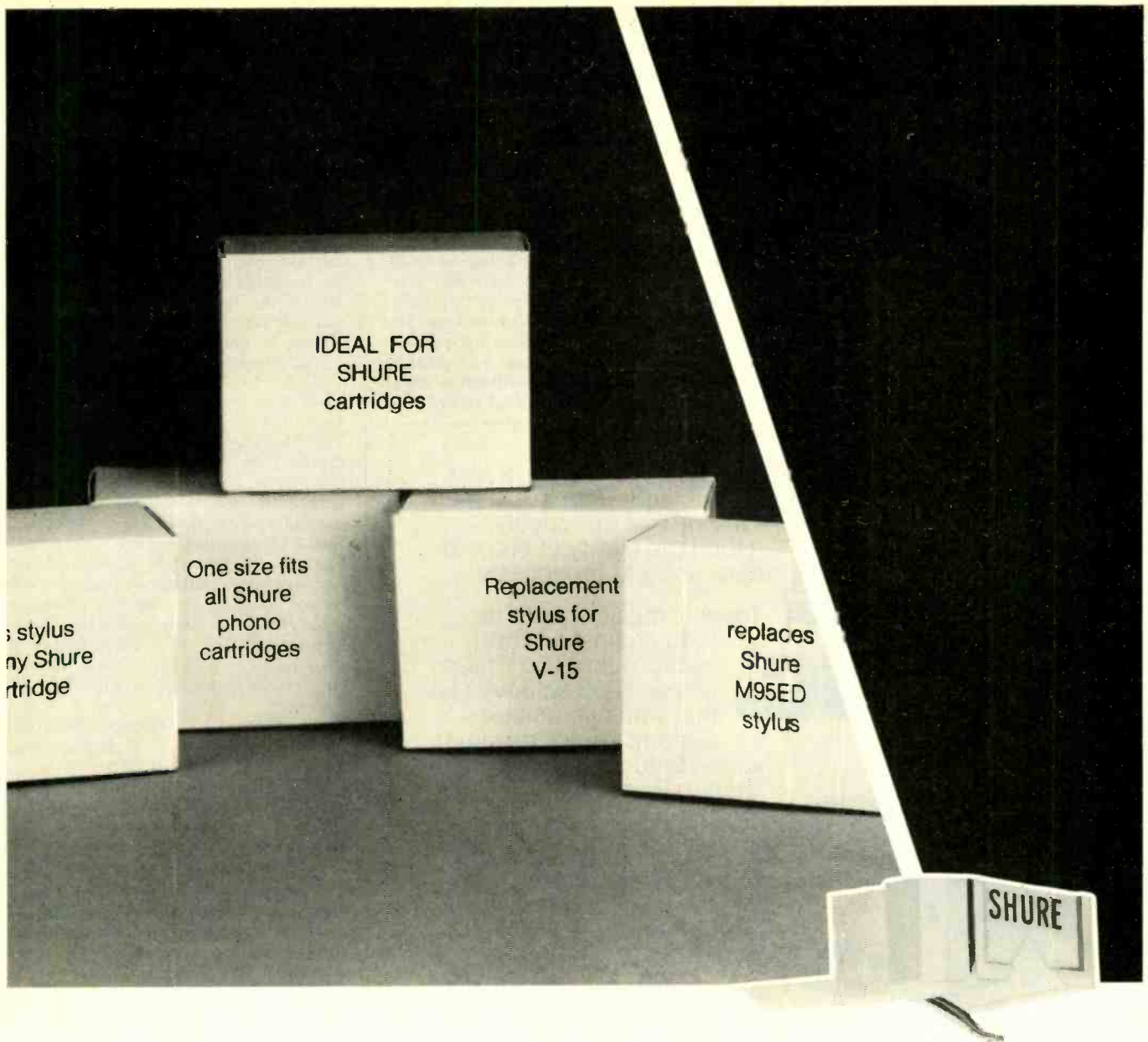
And Symphony Hall proves that a good hall and a good organ are not incompatible. The absence of a pipe organ in Fisher Hall will remain silent testimony to the fact that somewhere a whole flock of people simply didn't know what they were doing.

John Kellner  
Walpole, Mass.

### Record Quality (Again)

John M. Proffitt's letter concerning the quality of recent Deutsche Grammophon releases [September] at least gave me the dubious pleasure of learning that I am not alone in suffering what might be termed the "DG blues." After six months of trying to get a decent pressing of Daniel Barenboim's recording of the Brahms *German Requiem* (DG 2707 066) yielded three defective replacements, I finally gave up. To make matters worse, I have not purchased a single truly satisfactory DG album (in the pressing





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CIRCLE 39 ON READER-SERVICE CARD

department, that is) in the past year, and a few have been quite atrocious.

A letter from one of Polydor's vice presidents tells me that it is impossible to listen to every disc for defects. Granted, but there must be a reason for the quality increase of domestic pressings. Furthermore, I have noted a remarkable improvement in the surface quality of a great many American budget lines, and I have been getting some splendidly pressed discs from Odyssey, Seraphim, and Nonesuch, not to mention Musical Heritage Society.

Of course, any record company that can't seem to cram more than twenty minutes of music on a disc side (or on two sides, for that matter) probably doesn't possess the technical ingenuity to produce well-

pressed discs either. Perhaps all of DG's technical personnel defected to the U.S.

John M. Dobson  
Lexington, Ky.

I was particularly interested in the two items about off-center pressings in "Too Hot to Handle" [September] since I have complained of this problem both to HIGH FIDELITY and directly to record manufacturers. I'm not sure your solution—to return all "cock-eyed" records to the dealer—is realistic. In my ample experience, the proportion of records showing absolutely no visible deviation on either side is low, perhaps as little as a third. Since there is an amazing variety of other defects that threaten listening enjoyment, and since most record buy-

ers do not have the time and patience for endless exchanges, it is often necessary to settle for less than perfection.

Pressings that are markedly off-center certainly should be returned whenever possible. But collectors like me inevitably get stuck with some erratic discs that cannot be exchanged because they are out of print or otherwise difficult to obtain. I have a simple procedure for playing these records without incurring inner-groove wow: remove the turntable spindle and adjust the position of the record until the grooves are properly centered. This technique can, of course, be done only on multiplay turntables, which have removable spindles.

Daniel Morrison  
Albany, N.Y.

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CIRCLE 32 ON READER-SERVICE CARD

Your complimentary review of Bach's Partita for Solo Violin No. 2 and Sonata for Solo Violin No. 3 by Kyung-Wha Chung, London CS6940 [October], should have mentioned the high incidence of buzzing on Side 1. I believe this is caused by cramming more than twenty-eight minutes of wide dynamic range material on one side of the record, causing the heavily modulated grooves to be so closely spaced that they interfere with each other. When will record manufacturing companies learn that nothing (except distortion) is gained by this practice?

George Shinopoulos  
Boston, Mass.

Our reviewer reports that her disc had no buzzing on Side 1.

## Faith-ful

My sincere thanks and appreciation go to Gene Lees for his tribute to Percy Faith [August]. While it is quite true that Faith never received his due as a composer because of the scarcity of his film work, I'm not content with the recognition he received as an arranger either—despite the fact that his arrangements numbered in the thousands, nearly 1,200 of them recorded with his orchestra. Through the years critics have hurled contempt and scorn whenever an album of popular music given full orchestral treatment was reviewed, and Percy Faith's recordings were often victims along with the rest. It seems that Columbia never saw fit to advertise his LPs either, at least not with the fury with which rock albums are promoted today.

I am very pleased that HIGH FIDELITY cares enough about *all* kinds of music to publish Gene Lees and other writers who are willing to discuss the so-called middle ground of music.

Bill Halvorsen  
Gaithersburg, Md.

## Sine Quad Non

I must say I was disappointed when I saw how few releases listed in "Preview of Forthcoming Recordings" [September] are to be made available in quad. I was really shocked to see that Columbia, the company that made the biggest push in the past, plans only two SQ issues in whatever time period this list is supposed to cover. RCA, the first advocate of CD-4 in this country,

**His destiny was to die in poverty and disappointment.**

**Yet his genius gave the world some of the most**



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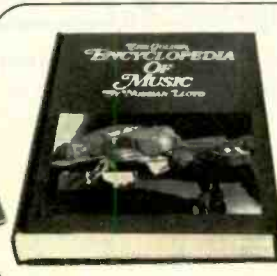
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listed no quad recordings, and even Vanguard had none. Only Angel and Turnabout had new quad releases in any great quantity, and that's far from satisfactory.

And you listed only classical recordings. Quad popular releases are, unfortunately, also becoming scarce. I fail to see any real reason for such a decline. I'm encouraged, however, to find that there are still some hardware manufacturers who won't give up without a fight.

I realize there are many who would like to see quadriphonics buried for good. I'm under the impression that they meant this to happen from the start. But I invested good money in an excellent, do-everything quad system, and I'll be damned if I'm going to sit on my woofers and let a few

skeptical so-and-sos brainwash the public into avoiding this advanced form of sound reproduction. Some people say the reason for the decline of interest stems from the recent recession, but that's over now. If the record companies would get together and decide on an industrywide standard for quad records (I vote for CD-4), we can make quad the medium for recorded sound.

Jay L. Rudko  
FPO, N.Y.

*There is a slackening in releases of quad recordings, but the situation may not be quite as grim as it looks. Keep in mind that the recordings we listed as quad releases are those that were definitely so planned at the time the information for the article was*

*gathered. It is likely that more of them will be issued as four-channel discs than we indicated.*

### Live vs. Recorded Music

I know I am supposed to enjoy concerts better than records because of the excitement and uncertainty that are integral to the live event. I have read the arguments of Glenn Gould, but these have always been presented from the performer's standpoint.

As a resident of Los Angeles, I have varied musical experiences at my fingertips. For the last twenty years I have attended concerts and have enjoyed many of them, for we do have a fine orchestra and conductor and many of the world's greatest artists have been guest performers. But it is the rare exception in a live concert when things really come together. There are times when either the distractions from the audience or the performer make it a sideshow. To me, the music is the main event. And I find that the music I am into usually is not what is available at concerts.

Over the years, my greatest rewards have come from private listenings. The music industry has gone through a revolution with LPs, stereo, quad, tapes, etc. But music listening is going through an evolution—not necessarily away from the concert hall, but toward private listening via recordings as a valid form of musical experience.

Michael Tov  
Los Angeles, Calif.

### Repository of Rights

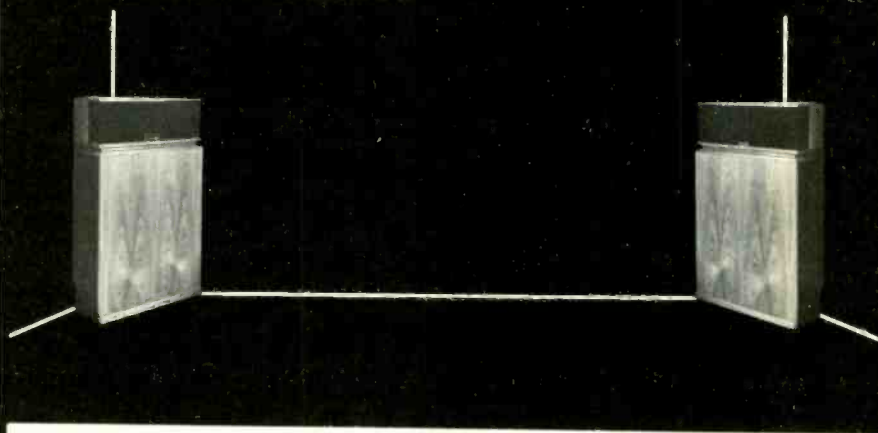
A survey of opinion from Felix Weingartner Society members on Leonard Marcus' proposal for a "Repository of Rights" [October] reveals a generally favorable reaction. It is distressing to think that three years' effort by the Society has produced only one substantial re-release of Weingartner material—and only in England, since EMI of Great Britain retains the rights to this material—and that its poor sales there betoken that this issue may be it for

### Correction

In my October editorial, "A Repository of Rights," I had a lapse of memory. I "remembered" the late Walter Toscanini commending to me activities of the Arturo Toscanini Society in keeping his father's name before the public. What he actually praised were the activities of New York station WRVR, which in the early Sixties was broadcasting some of the NBC Symphony programs. My thanks to Arthur Fierro, at the time Walter's assistant, who remembered the conversations better than I did.

The ATS itself seems to be alive, if not well, at P.O. Box 7312, Burbank, Calif. 91505. Prohibited from making Toscanini recordings available, the Society is planning to issue Cantelli recordings. Meanwhile, the Toscanini Collection, including the unavailable recordings, remains buried under the New York Public Library, inaccessible to all, awaiting a suitable Institution Charming. LEONARD MARCUS

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Weingartner, now and forevermore. Since it is too optimistic to believe that the record industry would agree to let money-losing historic items go into the public domain or that it would even encourage a record rights law to pass Congress, Marcus' proposal seems the only sensible solution to the impasse.

Any move to enlist foundation support for such a repository should be based on three preliminary steps. First, obtain a report on the law of property governing access to recordings and to the material recorded, obviously a job for a qualified lawyer. Second, determine which foundations might be a likely source of support; advice could be sought from The Foundation Center (1001 Connecticut Ave., Washington, D.C. 20036), an informational and consulting service for persons or institutions seeking foundation grants. And third, prepare a project proposal to be presented to the selected foundation.

Since most companies do not take care of their own recordings, the bulk of the rare material would have to come from collectors, who are often members of such groups as the Toscanini, Beecham, and Weingartner Societies. Recordings in these private collections, usually in near-mint condition, are the best potential source.

Prof. Jack Calderon  
Felix Weingartner Society  
Monterey Park, Calif.

## Penguin Record Guide

I would like to comment on two points in John Culshaw's column "A Paradise for Record-Collecting Browsers" [September]. Although Mr. Culshaw is technically correct when he writes that *The Penguin Stereo Record Guide* is not available in the U.S., it is readily available for roughly \$12 from the Long-Playing Record Library in England. The organization advertises monthly in *Gramophone*, so the address can be had for the price of the magazine.

As for asking the publishers to reset the book for the U.S., that is not necessary or even desirable if a few simple facts are kept in mind. Argo, Philips, Deutsche Grammophon, Telefunken, and Turnabout use the same numbering system in both countries. RCA and CBS (Columbia) are easily converted with the use of a Schwann catalogue. And if you remember that Decca is London and HMV is Angel, Schwann will again solve your number problems. The above-listed labels constitute about 90% of the entries in the *Penguin Guide*. The remaining 10% can be ordered directly from England.

Harold C. Verdun  
Syracuse, N.Y.

## Russian Exchange

I am interested in contemporary 12-inch stereo recordings of blues-rock, jazz-rock, country-rock, supergroup-rock, musical shows, pop, and beat music. For these I would like to exchange with your readers Russian classical and pop records, including rock of all types. Those interested can write to me at: CCCP/U.S.S.R./Russia, 190000 Leningrad, General Post Office, Poste Restante, Kazarinov Sergei Sergeevich.

Sergei S. Kazarinov  
Leningrad, Russia

HIGH FIDELITY MAGAZINE

# Our new CD-S200 has five LEDs to help stop distortion in your tracks.



That's four more than most other cassette decks.

The capability of eliminating distortion and noise from recordings is one of the major factors that distinguishes a run of the mill cassette deck from a JVC professional like the CD-S200.

One of the unique features of the CD-S200 is its LED peak level indicator system. Unlike most cassette decks on the market, the CD-S200 has five LED peak indicators. By simply watching the five flashing LEDs, you can set and adjust the sliding levers to perfect recording levels. This fail-safe system, which responds faster than VU meters, helps you eliminate the distortion that results when peak levels are exceeded. It also helps you to guard against noise when the input signal is too low. And when you hear the playback, you'll know it's as close as you can come to professional results outside a recording studio.

Then, to further assure top performance, JVC has developed for the CD-S200 its exclusive Sen-Alloy recording/playback head. Designed to exceed the capabilities of conventional perm-alloy and ferrite heads, it captures an exceptionally high frequency response with reduced distortion. And while it offers the extreme longevity of ferrite, it eliminates its major drawback. Noise.



5 LED peak level indicators help eliminate distortion.



Precise sliding recording level controls.



Long life Sen-Alloy head reduces distortion.

Simplified vertical cassette insertion.



Automatic Noise Reduction System reduces tape hiss.

3-position bias and EQ switches for every type of tape.

Speaking of noise, the CD-S200 uses JVC's highly effective ANRS switchable noise reduction system which minimizes tape hiss and improves signal-to-noise ratio.

While these features alone set the CD-S200 apart from conventional decks, JVC has also incorporated three-position bias and equalization switches for any tape on the market. And to protect your tape, there's an all-mode automatic tape-end stop system. There's even a novel and very handy automatic Start/Stop feature that lets you record with an electric timer when you're not there.

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## The Scott R336 Receiver.



Power is important. But power alone is not enough. That's why the popular Scott R336 gives you all the power you need. Plus the performance features you expect.

The Scott R336 provides 42 watts minimum continuous RMS power output per channel. More than enough for most listeners. And both channels are driven into 8 ohms from 20 Hz to 20 kHz with no more than 0.3% total harmonic distortion.

Power? Sure. But check these important performance features many other receivers in this medium price range have sacrificed.

**IM distortion (lower than 0.15%).** Far below the average. Provides cleaner sound and eliminates listening fatigue.

**Signal strength and center channel tuning meters.** Provide simultaneous visual indication of correct tuning and optimum signal strength.

**Phase locked loop multiplex section.** Maintains superior stereo separation. Remains in alignment for the life of the receiver.

**FET RF stage.** Assures higher sensitivity and overload immunity.

**Log-linear taper volume control with detents.** Spreads out volume levels. Provides finer control at low-to-moderate levels.

**Clutched bass and treble controls with detents.**

Allow altering the frequency response of one channel without affecting the other. Systems can be "custom balanced" to compensate for room acoustics, decor or speaker placement.

**Separate high-frequency noise filter.** Permits cleaning up of noisy tapes, discs or broadcasts.

**Three position FM de-emphasis switch.** Permits proper reception of domestic, Dolbyized or European broadcasts.

**Two completely independent tape monitors.** Allow two tape recorders to be used simultaneously for direct tape-to-tape copying without passing through the receiver's electronics.

**FM Muting.** Silences interstation hiss while the tuner scans the frequency spectrum.

**Pretuned LC notch filters in the multiplex.** Reduce interference to a minimum.

**Signal strength meter circuit.** Employs two point sampling for wider dynamic range.

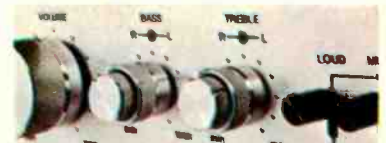
**Over 120 db IF gain.** Assures better limiting and better AM rejection.

**Instantaneous electronic protection circuit in the output stage.** Employs voltage/current sensing to prevent output transistor failure and speaker damage.

**AM section designed around a tuned RF amplifier using J-FET.** Improves signal-to-noise ratio.

And the Scott R336 is backed by a three-year, parts and labor limited warranty. Another very important plus.

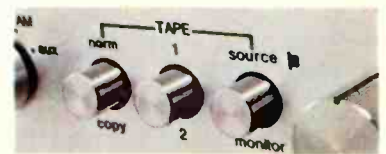
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Clutched bass and treble controls with detents.



Signal strength and center channel tuning meters.



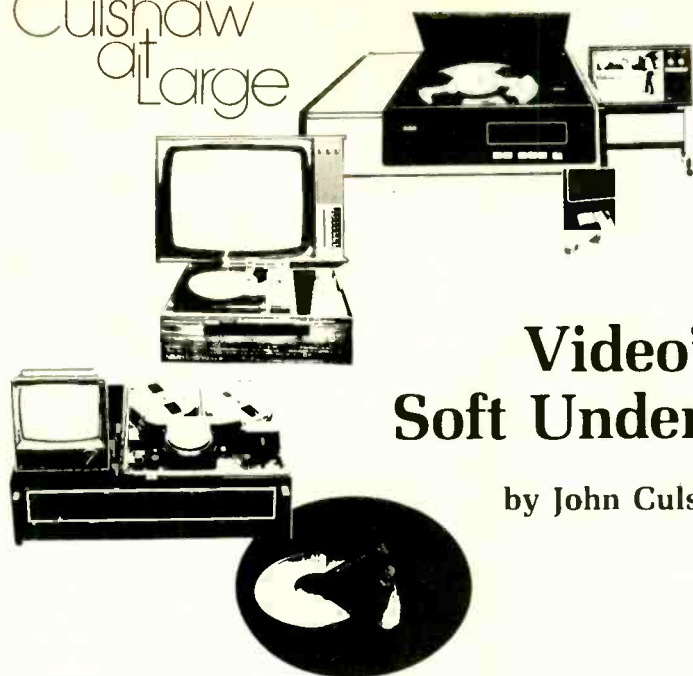
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## Video's Soft Underbelly

by John Culshaw

LAST MONTH I dealt with what the trade calls the hardware of video, namely the equipment. Now I want to take a look at the software: the prerecorded programs on video tape either available now in some countries or likely to be available in the near future.

My dictionary defines the word "soft" in fifteen ways, and quite a few of them seem very apt indeed when applied to prerecorded video music. Thus we have "yielding to pressure" and "not sharply defined" and "weak" and "feeble" and—well, it would be unkind to go on. "Yielding to pressure" is of course the unhappy experience of those companies that employ certain artists who will not raise a baton, put a finger on a keyboard, or scrape a bow on a string unless their efforts are recorded on video as well as audio tape. Even by now there must be a veritable mountain of such video tapes, and, although in some cases the costs have been partly amortized by sales on a limited-run basis to television companies, the real bonanza is expected to come when they are offered to the public in cassette form. I wonder.

I wonder for more reasons than I have space to cover, so I will limit myself to fundamentals and use the word "video" in general to include cassettes, films, and discs. At the center of my doubts is what I can only call repeatability—just how often is one likely to want to see a musical performance over and over again? It's a fact that the eye has a stronger memory than the ear, though doubtless that statement could be put more precisely by a doctor; but the eye *does* remember, with astonishing preci-

sion, and what it remembers most are the very things you would most like to forget. It remembers an awkward gesture in the middle of "*O patria mia*": it remembers trivialities that can arise as a result of careless editing, as when a conductor who has been seen in wide shot turning to his left is then seen in closeup turning to his right; and it is ruthless in remembering false continuity as when a conductor is seen agonizing in closeup, his face covered in sweat and his hair disheveled, followed by a wide shot of the chorus, followed by another shot of the conductor whose hair is now immaculately in order and whose brow has been powdered until it is as dry as the desert.

Now you can argue that these are all faults of production and therefore capable of correction, which is quite true. Unfortunately, the eye's memory applies just as strongly to the good as it does to the bad, which inevitably brings in the law of diminishing returns: That which knocked you out visually the first time 'round will not have quite the same impact on the second, and by the twelfth. . . .

Yet there are some things all of us would like to preserve on the video shelf, given that the price is right. There was a blazing performance of *Tosca*, Act II, given by Callas and Gobbi on commercial television in the U.K. some eighteen years ago; there was Stravinsky conducting the *Firebird* Suite in the Royal Festival Hall and giving an endearing wrong cue to the horns, captured by the cameras and recorded by the BBC, which also has a complete *Peter Grimes* conducted by Britten with Peter Pears in the role he created, and a costumed

performance of Schubert's *Winterreise*. (The latter should be preserved not because I happen to have directed it, but simply because, in terms of musical performance, it is even better than the disc.) But a handful of goodies do not make a commercial proposition, and that is the problem.

Over the past fifteen years gigantic sums have been spent on tapings for the anticipated video market. Karajan has led the field with Beethoven and Brahms symphonies, *Carmen*, *Otello*, and God knows what else; Bernstein has not been far behind. And factories in Germany pour out one catastrophic opera after another, presumably getting some of the money back from German television while remaining ever hopeful for the great day when the entire population of New York storms the doors of Sam Goody's to buy that dreadful *Meistersinger* or the even more dreadful *Freischütz*. I am not a professional prophet, but I can say with total conviction that that day will not come, and it will not come because, even leaving aside such major considerations as the poor quality of sound offered to a generation brought up to appreciate the values of fine sound, the product simply isn't good enough.

If from all this you reached the conclusion that I am saying there is no future for video, you would be wrong. For a start, I believe that in ten to fifteen years a video recorder in the home will be as common as high fidelity equipment today. But notice that I wrote "recorder" rather than "player." I think there will be a market for certain kinds of prerecorded material—children's programs, teach-yourself programs, and other kinds of educational programs that are not too expensive to produce and therefore to sell, and in which the sound quality is not of paramount importance. But I predict that the machines will be used mostly for off-the-air taping: the movie you want to keep until you tire of it and decide to wipe the tape and use it for something else, or a documentary you might like to see again, or a sporting event, or indeed a musical occasion that happens to be televised. The choice to store or wipe is then yours, the determining factor perhaps being the cost of a new blank tape.

Those who try to draw a parallel between the audio disc and prerecorded video are, I am convinced, working on a false premise, at least so far as music is concerned. Meanwhile, the number of stillborn video projects mounts every month, and the day of reckoning is still not at hand. Yet the true definition of software is staring us straight in the face: It is a blank tape. ●

## Judy Remembered

by Gene Lees

Judy Holliday  
in *Bells Are Ringing*



I HAVE BEEN THINKING about her all morning. Now it's noon, and the sun is warm—and I'm alive, and she's not. I have known few people whose death left such a hole, not only in her profession, but in the lives of those around her. It's surprising to find, after eleven years, how much we all still miss her.

Her real name was Judy Tuvim, and she was Jewish. *Tuvim*, or *tovim*, means "good," *yom tovim* means "holidays," and she became Judy Holliday.

One would think that being introduced to one of your movie-star heroines would be a vivid and imperishable memory. It's incredible to me that I can't remember meeting her. I only remember that I knew her through Gerry Mulligan, the composer and baritone saxophonist. He and Judy were immersed in a complex love affair for years.

Judy stumbled into stardom when the actress who was to play the part of Billie Dawn in *Born Yesterday* on Broadway took sick. Legend has it that Judy learned the role in two or three days and then went on and tore the house down. The legend is correct. But the role that launched her became an albatross to her. She was anything but the girl she portrayed. The producers kept sending her scripts about still another Billie—despite *Bells Are Ringing*, despite films like *The Solid Gold Cadillac* and *Full of Life*. She kept turning them down. She appeared in a musical called *Hot Spot*, a turkey that lasted as long as it did only because of her performance.

When she was complaining one day about the silly scripts she kept receiving, I said, "Judy, why don't you take one of them, just to be working?"

"I did that once," she answered. "It was called *Hot Spot*, remember?"

I offered no further advice.

She didn't particularly like actors or the theater world, and she really

wanted to write. Her friends were mostly writers—Joseph Heller was one of them—and music people. She sang very well, as you can hear if you have the original cast album of *Bells Are Ringing*, but she was far more musical than the public ever knew. Indeed, before Judy became known as an actress, she worked in a Greenwich Village cabaret with lyricists Betty Comden and Adolph Green and a little-known pianist named Leonard Bernstein.

Judy wrote marvelous lyrics herself. She and Mulligan were writing a musical version of Anita Loos's play *Happy Birthday*. She had not completed the lyrics when she died, and Mulligan asked me to finish them. I studied her work and found it brilliant. I felt strange about tampering with it and so never did. Mulligan's wonderful score is virtually complete—somebody should produce that show.

Judy was in love with words. The late composer Gary McFarland told me once of spending an evening with her, Mulligan, and Paul Desmond. "Man," he said, "it was like being caught in the middle of an acrostic."

One of the puns I remember involved the ferns in her apartment. Waving her hand toward them, she said, "With fronds like these, who needs anemones?"

Judy was not conventionally pretty. She was stocky and worried about her weight. But she had those crazy dimples and that smile and those eyes illumined from within, and she was beautiful. There was a haunted quality about her, too, a loneliness that I only half understood. Part of it, I think, lay in the fact that she was too intelligent for the world around her. I always had the feeling that she was holding her brain in check, for fear of intimidating people.

Even so, as I once told a mutual

friend of ours, "In some ways I was a little afraid of Judy."

"You shouldn't have been," he replied. "Judy was a healer."

Around 1960, Mulligan organized a superb, unforgettable orchestra and took it to Chicago. (Some of its records, on the Verve label, can still be found.) At night after work he would get on a plane and fly east to see Judy, who was in the hospital after a mastectomy. He would sit by her bedside during the day, then fly back to Chicago to perform at night. I never understood how he survived it. One of the bitchy New York lady newspaper columnists wrote that Judy had feigned illness to get out of a show she didn't like.

She recovered from that phase of her illness, and she was well for a few years. I remember some funny and happy moments, like riding up Madison Avenue in a taxi late one night with her and Mulligan, singing theme songs from long-gone radio shows, and laughing. Mulligan, by the way, is the only man I ever met who knew all the words to "Wave the flag for Hudson High, boys. . ."

Mulligan, out of town with his quartet, called me one day. "Judy has been in the hospital for a checkup," he said. "She's waiting for the results, and she's alone. I can't get back tonight. Will you go over and spend the evening with her?"

She was in bed, wearing a bed jacket—yellow, as I recall. We watched television. There was little I could say to console her, but somehow it didn't matter, because somebody was there.

A week or two later, when I ran into her and Mulligan in a restaurant, she told me the results of those tests were negative. I asked her how she felt. "Terrible," she said, and gave that funny little laugh, "but at least I know I'm not going to die."

I left for Paris a few days after that and was gone several weeks. About an hour after I got back to New York, I was passing a newsstand. It was June 7, 1965. I looked down at a large stack of *New York Posts*. A big black headline said, "Judy Holliday Dies."

Only one show, *Bells Are Ringing*, ever displayed Judy's potential in musical theater. No show displayed her writing, although *Happy Birthday* could still do it. She was admired for comedy, but had she lived, Judy Holliday would without question be one of our major dramatic actresses. You can see that in *Full of Life*. I have given up watching her movies on television, because they sadden me. I always want to talk to her. ●



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## The McIntosh MC 2205 Power Amplifier always "Sounds Clean" . . .

### . . . Because of inventive "POWER GUARD"

Amplifiers when driven to clipping are capable of delivering up to twice their rated power with more than 40% harmonic distortion. The extra energy content of the clipped signal will damage most speakers. McIntosh leadership in engineering has developed a new circuit that . . .

(1) dynamically prevents power amplifiers from being overdriven into hard clipping . . . (2) which protects speakers by preventing clipping . . . (3) assures that the amplifier will produce its maximum output without increased distortion. That new circuit is "POWER GUARD".

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Bipolar epitaxial output transistors and the McIntosh output circuit allows the amplifier to operate as cool as possible. When there is limited program demand of the amplifier only the optimum number of output devices operate. Conservative McIntosh engineering keeps operating temperatures low assuring long life.

### . . . Because of Inventive Speaker Matching

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Shown in optional walnut veneer cabinet.

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## Too Hot to Handle

I have owned a Teac A-360S for months and have had no difficulty with playback or recording except with some recordings made on LH Super 90 BASF cassettes. Each of these cassettes now has a high-pitched "scratch" superimposed on the music. The scratch, however, is present only when more than half of the tape is played and is independent of head condition—I have noted the noise is present even after cleaning and demagnetizing the heads. A friend, who also has a Teac, has experienced the same difficulty. The scratch is not present on any other recordings made with Maxell, Scotch, and TDK tapes.

It seems that the difficulty lies in the BASF cassettes, not my tape deck. Have you ever heard of this problem before? What can I do to salvage some of my favorite recordings?—Sidney D. Machefsky, Nashville, Tenn.

We have not been able to duplicate your problem with LH Super (which, incidentally, is no longer in the BASF line), but it sounds like a variety of so-called scrape flutter, which can be influenced by changing tape tension on the supply side as the size of the "pancake" decreases. Scrape flutter can produce extraneous noises during recording, in which case the only remedy is filtering in playback. If the noise is produced only in playback, however, it may disappear if you play the cassette on another deck. If it does, you can then copy the music onto a cassette that you know to work well in the Teac.

In your June 1976 issue a reader complained of excessive cone vibration in his speakers. You advised either the use of a subsonic filter or backing off on the bass. (He was a "bass freak.") I have the same problem. My twelve-inch Lafayettes vibrate so much as to produce distortion. Cutting back on the bass does not help much. And, besides, I like bass. When I play FM on my receiver (Technics SA-5200A), I get perfect reproduction. But when I put on my turntable (Pioneer PL-12D II), I get this fluttering distortion and the cones go crazy. If it's the turntable, would a subsonic filter help? Does it (audibly) affect the sound (dampen it)? Where could I get one? Would I be able to push my bass up without fear of distortion if using one of these? Perhaps I should send these speakers back while they're in warranty.—Gary Grebstein, Binghamton, N.Y.

Perhaps we did not make this point clear in June: There is nothing wrong with the speakers. They are simply trying to reproduce rumble that originates elsewhere—probably, in your case, in the turntable or as feedback between the Lafayettes and the pickup. The Pioneer PL-12D II has a rated signal-to-noise ratio on the order of 48 dB, a figure that is

acceptable in a low-priced turntable but far from outstanding. The newer (just under \$200) PL-510, in contrast, is rated at 60 dB. (CBS labs measured 63 dB with ARLI weighting.)

You can get good results from a unit like the PL-12D II as long as your speakers do not have extended bass response (which your Lafayette speakers seem to have). The first thing to try is greater vibration isolation for the turntable. There are a number of products marketed for this purpose, though foam or fiber pads such as are used under office machines often are effective and cheaper. If that doesn't help—or doesn't help enough—the next solution is a new and quieter turntable. If that doesn't work completely, a low-cut filter (available, as far as we can tell, only as part of a receiver or preamp) is the next thing to try. Using the filter may involve a small sacrifice in bass response, but this is minimal if the filter has a steep enough roll-off (say 12 or 18 dB per octave) and a low enough turnover point (around 30 Hz).

In "What You Should Know Before Buying a Speaker" [October], you stated that a 6-dB-per-octave crossover introduces no phase distortion and that 12- and 18-dB crossover networks will produce phase distortion. After reading *Passive Audio Network Design* by Howard M. Tremain, I find that to be incorrect. A 6-dB network is 90 degrees out of phase at the crossover frequency. Although you can cure this, it often is impractical to do so because it requires physically separating the transducers by one-quarter the wavelength (of the crossover frequency) in depth. The 18-dB crossover (M-derived type) is approximately 221 degrees out of phase. This can be cured also, but it requires more time and patience to position the drivers correctly. The 12-dB crossover is 180 degrees out of phase. This is corrected by switching the leads to the one driver.

I think Bang & Olufsen is trying to be deceptive, because changing the polarity to the speaker couldn't affect its rolloff characteristics. Even if it did, an "audible suckout" couldn't exist, because the speaker transition would occur 6 dB down. (The crossover frequency would change.) At that point the combined acoustic output would be 3 dB louder, and the total dropoff would be only 3 dB down, which is truly a big difference from the audible suckout that they picture.—Greg Aiken, DelMar, Calif.

Bang & Olufsen may have confused you, but the statements made by this company concerning the phase response of crossover networks can in no way be called deceptive. If we assume that we are working with drivers whose acoustic output is a perfect replica of

their electrical input, we can proceed by looking at the outputs of the sections of the network. At the crossover frequency of a first-order (6 dB per octave) network, the high- and low-pass sections are down by 3 dB; that is, the voltage output of each is 0.707 of that delivered in the passband. Also at this frequency, the output of the low-pass section is shifted in phase by -45 degrees, that of the high-pass by +45 degrees—adding up to a 90-degree phase difference between the two. Note, however, that the sum of the voltage outputs (0.707 + 0.707) is greater than 1. The response peak that this would imply does not materialize because the magnitudes of waves that are 90 degrees out of phase must be added via the Pythagorean theorem. Therefore we have  $(0.707)^2 + (0.707)^2$ , which adds to 1. Since the square root of 1 is 1, the output of the two networks is correct in amplitude. And since we have dealt with the phase shift, it is also correct in phase. Looking at this from another viewpoint, there is just enough "excess" output from the two sections of this network to make up for the phase shift.

We have assumed tacitly that the two drivers occupy the same position in space. It is the impossibility of meeting this requirement that makes the positioning of B&O speakers for any listening location fairly critical.

With a second-order (12 dB per octave) network, the phase shift increases to 180 degrees between the two sections, which means that the outputs exactly cancel and leave a total of zero—a suckout, if you will. While this can be "corrected" by reversing the leads for one driver and causing the outputs to add, the net result is a 3-dB peak that in and of itself implies a phase shift in the total output.

For higher-order networks (18 dB or more per octave) the situation is more complex and the analysis more tedious. But it can be shown that the total output will not be correct in phase however the drivers are connected and, further, that the associated phase shifts may exceed 360 degrees. Positioning drivers in space so as to compensate for a crossover's phase deficiencies is obviously not viable, as phase (time) response is then incorrect for all frequencies away from the crossover point.

I have sent my solid-state preamplifier for repairs, and while waiting I called on my old tubed version of the same preamplifier. I found that in general there is little difference in sound, but the tubed version reproduces more realistic string sound than the solid-state version does. I see no advantage to the solid-state instruments. Besides, the tubed preamp can be repaired locally; not so the solid-state. How about a 200-watt triode amplifier? I will buy one at once if somebody makes one.—David Fonseca, East Ridge, Tenn.

An output of 200 watts per channel translates to 23 dBW. If you can settle for just a hair less, the Audio Research D-150 at 22 dBW (150 watts) per channel comes to mind. Another possibility would be a pair of Dynaco Mark VI mono power amps, which will produce 21 dBW (120 watts) each. Our files don't reveal whether the output devices in either of these are in fact triodes, but we know of no other tubed amps designed for such high output power. We, by the way, do find advantages to solid-state circuitry.

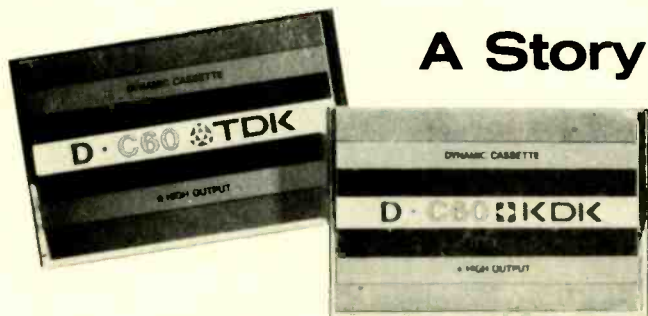
# Beauty in sound. By Fuji.

Every Fuji cassette means beauty and purity in sound. No hiss, no dropouts. Widest frequency response and dynamic range. Total reliability. Fuji high-fidelity cassettes such as the FX will give you the best performance possible on your tape recorder. Already widely recognized by experts as the finest cassette in the world. Fuji. The cassette of the pro.



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## A Story of Look-Alikes

If you have looked carefully enough at the two cassettes pictured above (and shown in color on our cover), you will see that the packages are not identical—not quite. One is a TDK product, the other is from KDK, a new competitor in the tape market. It seems obvious that KDK has taken great pains to make the visual resemblance between its

product and that of TDK very close—a move that we find confusing, if not downright deceptive.

Beyond superficial features the resemblance is not great at all. The TDK cassette shell is the more rigid of the two by a good margin. The KDK's tape is visibly duller, suggesting poor surface polish, less intimate tape-to-head contact, and poor dropout count. When we dubbed sections of a disc onto both cassettes, the TDK (which, be it noted, is not one of its premium formulations) gave an audibly greater output and a cleaner, brighter top end. Also, when unrecorded sections of each tape were played back, the KDK produced significantly more low-frequency noise.

At first glance, then, the look-alike is no match for the TDK. We'll have more on the subject of cassette construction in our tape issue next month.

## A Full-Range Heil at Last

ESS, Inc., of Sacramento, California, has introduced the Transar/ATD (Air Transformation Device), a new loud-speaker system in which the now familiar Heil Air Motion Transformer is mated with a Heil low-frequency driver. The driver, developed after three years of research by both ESS and Dr. Heil, is significantly different from conventional designs and operates on principles similar to those of the Air Motion Transformer.

The new transducer consists of five vertically stacked Lexan diaphragms interconnected by sets of four carbon-fiber drive rods, with a final set of rods connected to a driving coil at one end of the array. The driving force is thus distributed over the surface of each diaphragm in a manner intended to eliminate breakup and resonances. Carbon fiber is the stiffest known material and has a very high sound-propagation velocity, so all of the diaphragms are driven in phase. Due to the way in which the diaphragms interact with the static sections of the system, air is squeezed rather than pushed, and the vertical stacking contributes to wide dispersion of upper bass frequencies. Like the Air Motion Transformer, the low-frequency transducer operates as a dipole, radiating equally (but in opposite phase) forward and backward.

Since most conventional dynamic drivers have resonances that tend to influence the way in which they respond to a driving signal, conventional amplifiers (using voltage feedback) are designed with very low output impedances in order to damp these resonances. (That is

what damping factor is all about.) Lacking such resonances, the Heil low-frequency driver can be "trusted" by its amplifier without such damping. ESS has found, therefore, that the Heil woofer works best with an amplifier that uses current feedback and has a high output impedance (low damping factor). That way the current (which is, after all, what provides the driving force in any dynamic driver) is kept an accurate replica of the input signal regardless of variations in the driver impedance.

We have had the opportunity to hear a Transar/ATD system in prototype and were favorably impressed by it. The sound (like the general dimensions) reminds one of a full-range electrostatic speaker with an extremely large dynamic range. But Transar, which ESS indicates will be fairly expensive, really does not imitate the sound of other systems. As should be expected of a high-quality speaker, it has very little sound other than the music it plays.

## FYI: The FYF System

If what you always needed but were afraid to ask for is another quadriphonic system, FYF Studios of Athens, Georgia, is ready to provide satisfaction. The new system eschews such artifices as surround sound and places all four speakers in front of the listener—two on the floor, two at the ceiling. The record producer is thus enabled to "place the sounds of musical instruments in their proper physical location. That is . . . bass drum sounds are heard from near the floor, snare drum sounds from two feet



"...in the same class with a number of more expensive products, including many of the direct-drive record players we have seen."

This quote, from the Hirsch-Houck Labs' report in *Stereo Review*, refers to the Dual 510, a semi-automatic belt-drive turntable. Since direct-drive models (especially our own) are accepted as *the* standard of performance, Hirsch-Houck's comparison is not to be taken lightly.

# We'll let someone else tell you how good our belt-drive turntables really are.

The 510 also benefits from comparison with other semi-automatic turntables. Dual's unique sensor locates the 12-inch and 7-inch lead-in grooves for you. You don't have to guess where they are. And there's no way to bump the tonearm accidentally; the cue-control lifts it automatically at the end of play and supports it until you release it.

You might also compare the 510 with your present turntable, or any other you may be considering. When you do, keep in mind the 510's many other features and refinements described below. Your old records will sound better, your new ones last longer.

## Dual

**United Audio Products**, 120 So. Columbus Ave., Mt. Vernon, N.Y. 10553

**Dual 510.** Semi-automatic, single-play. True four-point gimbal tonearm suspension. Synchronous motor, precision-ground belt, unique Vario-pulley, dynamically-balanced platter, 6% pitch-control, illuminated strobe. Lead-in groove sensor. Cue-control viscous-damped in both directions. Less than \$200.

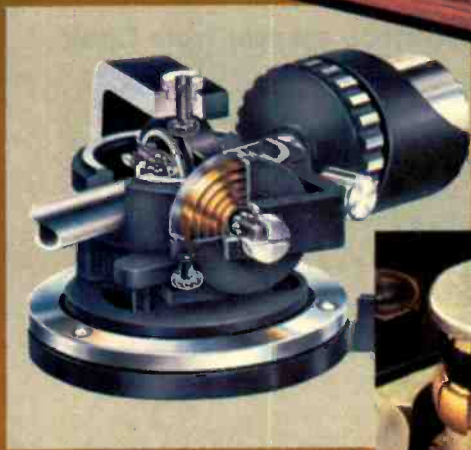
**Dual 502.** Similar except less sensor, pitch-control and strobe. Less than \$160.

**Dual 1249,** fully automatic single-play/multi-play. Less than \$280.



True four-point gimbal centers and pivots the tonearm mass at intersection of horizontal and vertical axes. Tonearm is dynamically balanced in all planes. The four needle-point pivots are first hardened, then honed—a process which produces microscopically smooth surfaces. The precision ball-bearing races are only 0.157 inch diameter. Bearing friction: vertical, <math><0.007</math> gram; horizontal, <math><0.015</math> gram.

Stylus force, applied by long coiled spring around vertical pivot, remains perpendicular to record even if turntable is not level.



Unique Vario-pulley used in Dual's three belt-drive models is precision-machined for perfect concentricity and balance. Speeds are adjusted by expansion and contraction of pulley circumference; belt is never twisted or distorted.

Specifications (DIN B): Rumble, >63dB; Wow and flutter, <math><math>\pm 0.05\%</math></math>

above that, guitar sounds from the right or left, vocals about five feet above the floor, etc. . . ." One subject under investigation is which of the three current systems—CD-4, QS, or SQ—will work best with FYF-system recordings. Single inventory, anyone?

### **BSO Adds QS**

The Boston Symphony Trust has decided once again to record its syndicated programs in the Sansui QS quadriphonic-matrix format as well as in the SQ format. Reintroduction of QS was partly due to subscriber demand, notably that of WFMT in Chicago, which has been receiving QS four-channel tapes for several months. Indications from Sansui are that other prestigious broadcasters are interested in switching to QS, which is widely used in "all-

quad" FM to simulate quadriphony with two-channel programs as well.

### **Microphone Cluster "Hears" Four Channels**

A new microphone system capable of picking up surround sound or program-plus-ambience from a single location has been developed by the CBS Technology Center. Still in prototype, it contains four pickup elements and a special matrix, and produces an SQ-encoded two-channel output. The Ghent microphone system, as the new development has been called after the city in which it was conceived, allows live orchestral broadcasting and recording without the conventional "forest" of microphones and without mixing. It also allows speakers or dramatic performers, miked from a single location, to move about freely.

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## Equipment in the News



### **Marantz's budget front-loader**

The Marantz 5020 cassette deck has independent mixing mike and line level controls plus a separate master gain control. The 5020 also features three individual buttons (for ferric, ferrichrome, and chrome tapes) that adjust both tape equalization and bias. Dolby broadcasts can be decoded via a built-in Dolby FM de-emphasis circuit. A peak limiter circuit reduces tape saturation and distortion by automatically guarding against accidental overload. The 5020, which has professional-size VU meters, disengages the tape transport at the end of play. It costs \$269.95.

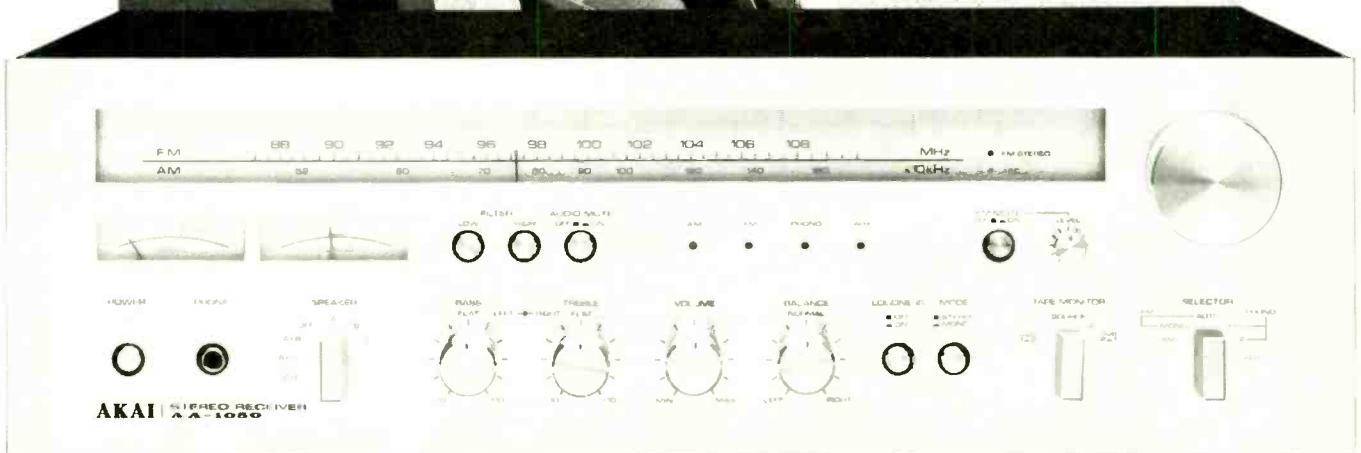
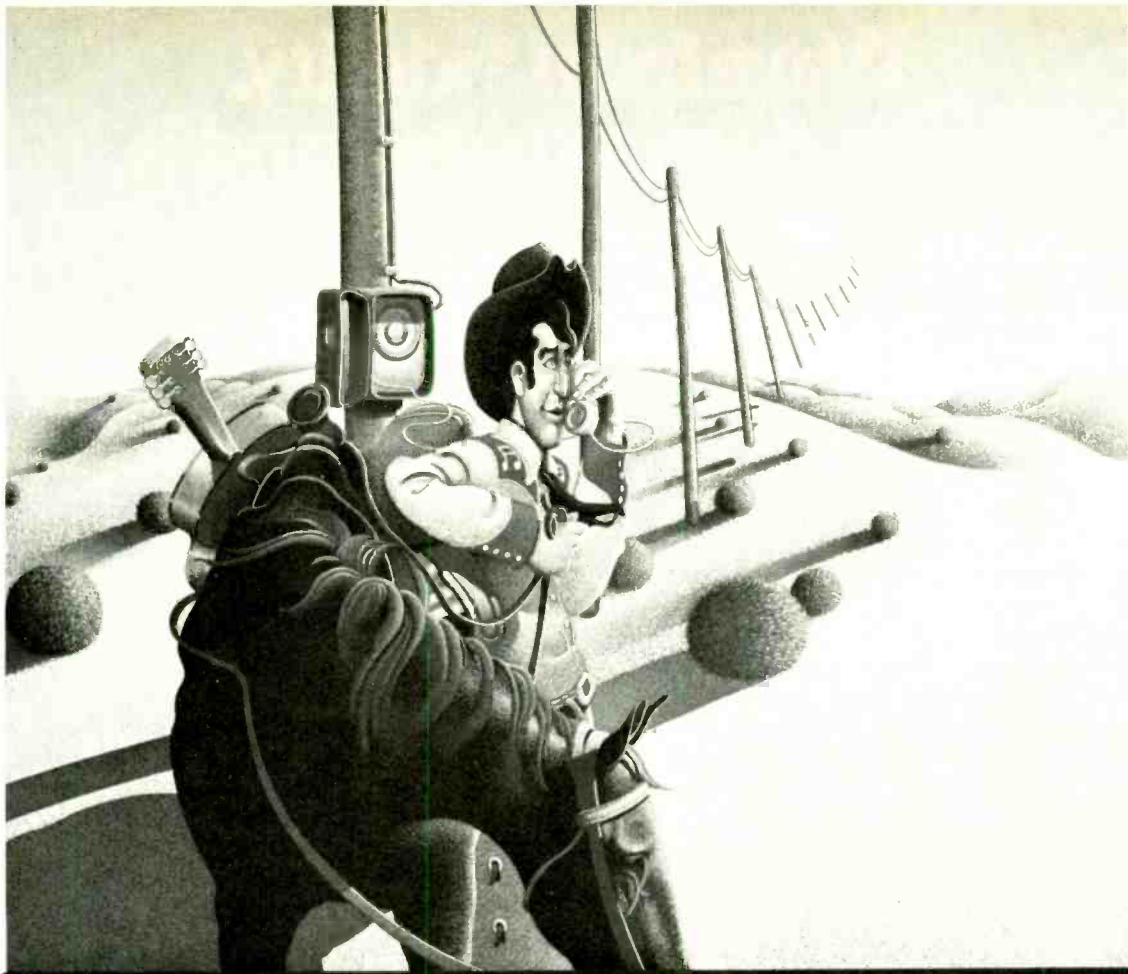
CIRCLE 136 ON READER-SERVICE CARD

### **Flat-impedance speaker from Cizek**

A new company, Cizek Audio Systems, Inc., has announced marketing plans for a line of wide-range acoustic-suspension speakers. The Cizek Speaker, as its first product is called, has a "compensated crossover circuit" that is said to give exceptionally flat impedance and to eliminate midrange roughness. Three front-panel controls adjust the sonic balance for room acoustics. Frequency response is rated at 38 Hz to 17 kHz (+1½, -2 dB); the crossover is at 1.5 kHz. The minimum recommended continuous amplifier power is 15 watts (12 dBW) into 4 ohms, and power-handling capability is rated at 150 watts (22 dBW). The Cizek Speaker is priced at less than \$200.

CIRCLE 137 ON READER-SERVICE CARD





# Akai receivers.

## Spread the word.

Howdy, pardner. I'm spreadin' the word about Akai receivers.

Them there Akai receivers sound as clear and sharp as a cowboy playin' his geetar by a prairie campfire.

Why, they sound *so* powerful

good, it's like bein' right there!

Just consider the Akai AA-1050.

It's got 50 watts per channel continuous output power at 8 ohms from 20 to 20,000 Hz with no more than 0.15% total harmonic distortion.

Ain't that an earful.

And Akai stereo receivers go for \$200 to \$900 suggested retail price. Nobody, I say nobody gives you more for the money.

So spread the word. Akai! A right fine name in stereo receivers.

# AKAI™

Akai America, Ltd., 2139 East Del Amo Boulevard, Compton, California 90220

# Waveform fidelity. If you don't understand it, you could be making a \$350 mistake.

Today a good amp and tuner can easily cost you \$350, \$500, \$700 or even more. But no matter how much a component costs, if it doesn't have waveform fidelity, the music that's put into it won't be the music that comes out. And that's an expensive mistake to make.

It's also a mistake Technics won't let you make. Because Technics' two new integrated amps, the SU-7600 and the SU-8600, as well as our two new tuners, the ST-7600 and the ST-8600, have superb waveform fidelity.

With both tuners, the waveform being broadcast will be the waveform you'll receive, with virtually no distortion or cross modulation. Because both have flat group delay filters in the IF sections. So the time delay is constant for all frequencies.

There's also a Phase Locked Loop IC in the MPX sections. That's why, for example, with the top of our line, the ST-8600, you'll get stereo separation of 45dB

at 1kHz and 35dB at 10kHz. And a frequency response that's as flat as it is wide, 20Hz to 18kHz (+0.2dB - 0.8dB).

And with an 8-ganged tuning capacitor (5 for FM and 3 for AM) and a Technics developed 4-pole MOS FET, broadcasts with the ST-8600 will sound more like master tapes than FM.

You'll also find waveform fidelity in both amps. Including our most powerful one, the SU-8600. With 73 watts per channel, minimum RMS, both channels driven into 8 ohms from 20Hz to 20kHz, with no more than 0.08% total harmonic distortion.

And the SU-8600 will stay 73 watts regardless of the power-hungry transient bursts found in many musical waveforms. The reasons: Sixfold independent power supplies for the control voltage and power amplifiers. The results: Virtually no transient cross-talk distortion. And optimum waveform fidelity.

So before you make a \$350 mistake, or an even more expensive one, listen to our new amps and tuners. Your Technics dealer has them. Along with Technics waveform fidelity.

Cabinetry is simulated wood.

## Technics by Panasonic





## Kenwood introduces antiresonant turntable base

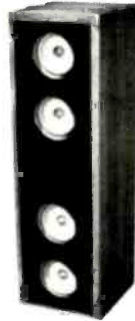
The semiautomatic KD-2055 turntable is the first to use Kenwood's antiresonance resin concrete base, known as ARCB. The compression-molded base—made of limestone particles, unsaturated polyester resin, and limestone and glass powders—is designed to achieve damping characteristics below 1 kHz. The material, which looks like polished marble, is better able to absorb vibration and prevent resonance because its high density increases mass without increasing physical size, according to Kenwood. Acoustic feedback is also said to be eliminated. The KD-2055 is belt-driven and has a statically balanced S-shaped tone arm with antiskating device. The price is \$139.95.

CIRCLE 138 ON READER-SERVICE CARD

## White Electronics' Big Mouth

Big Mouth is the name of White Electronics' new speaker line, including the Shotglass model. The moisture-resistant speaker features the proprietary Glasscone driver, which is stiffer than paper cones and thus prevents breakup over the frequency range. The Shotglass also employs a patented parabolic surround, six-layer voice coils, and port loading for smoother bass. The cabinet, whose hand-carved design is cast in urethane, comes in either Colonial style or a "patio" version for \$189.50.

CIRCLE 139 ON READER-SERVICE CARD



## A "four-dimensional" Lafayette receiver

One of the stereo receivers in Lafayette Radio Electronics' new line is the LR-3030. The AM/FM receiver features illuminated signal-strength and FM center-tuning meters and a "four-dimensional circuit" that derives a quad effect from two-channel sources when speakers are hooked to all four sets of output terminals. The amplifier's continuous power rating is 30 watts (15 dBW) into 8 ohms from 20 Hz to 20 kHz with no more than 0.5% total harmonic distortion. Dual tape monitors allow dubbing and simultaneous recording with two recorders. The LR 3030 costs \$299.95.

CIRCLE 140 ON READER-SERVICE CARD



## Memory Man echo unit

Electro-Harmonix has announced a solid-state echo/analogue-delay-line unit dubbed Memory Man. Small enough to hold in one hand, Memory Man is constructed—without moving parts (tapes, drums, discs, or even springs)—of 3,072 linked analogue storage registers and produces delays of from 5 to 320 milliseconds. The controls, which include variable delay, feedback, and blending, are said to offer a wide range of effects extending to "slap back" echo and spatial, repeating reverberation. The unit costs less than \$230.

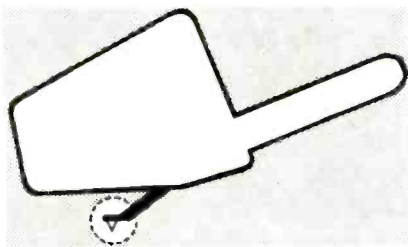
CIRCLE 141 ON READER-SERVICE CARD



## Parabolic replacement styli from Walco

The Extended Range Replacement Stylus assembly is designed to fit a wide variety of pickups. A reduction in tip mass is said to be responsible for exceptionally clear, effortless sound. Size has been reduced by bonding the diamond tip to the underside of the cantilever only, rather than drilling a mounting hole, so a smaller cantilever arm can be used. According to Walco, this mounting method improves stylus motion, extending frequency response to 50 kHz. The parabolic-shaped tip is suitable for all recordings, including Quadradiscs. The stylus costs \$29.95 and is covered by a two-year warranty.

CIRCLE 142 ON READER-SERVICE CARD



Only three turntables in  
the world offer

## **True Tangent Tracking.**

Bang & Olufsen, Rabco,  
and the new Garrard GT55.

They play your records  
precisely the way the  
original masters were cut,  
with the stylus held at a  
90° tangent to the groove.  
They eliminate harmonic  
distortion caused  
by tracking error.

One of the three is  
also fully automatic in  
both single and multiple  
play. Its tonearm is low-  
mass magnesium, balanced  
on jewel pivots.

Yet it sells for the lowest  
price of all three —  
as much as \$400 lower!

The new GT55.

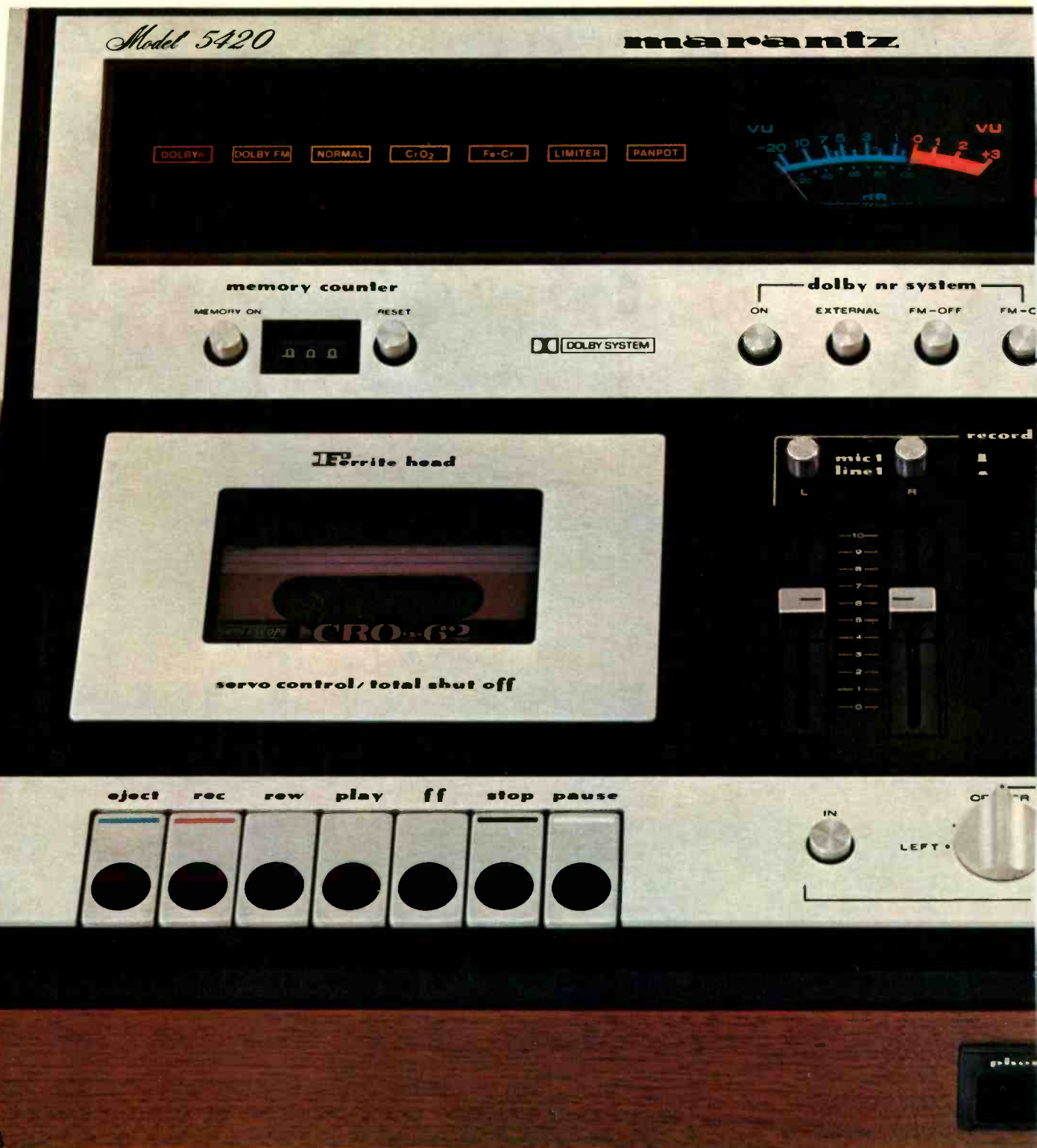
**By Garrard.**



# Marantz Stereo Cassette Decks...

1.

3-1/2-inch professional VU meters with peak LED overload and lighted function indicators. Exceptionally large, readable VU panel features special Light Emitting Diodes that illuminate when recorder is overdriven by a high level signal. Illuminated function indicators tell you at a glance which function is in operation.



Marantz 5420 Top Loading Deck with Dolby

(The enclosures for these units are constructed of plywood, finished in real walnut veneer).



# the decks that live up to their name.

2.

**Built-in Dolby® System that works with built-in mixing console; also permits external Dolby processing on other tape recorders.**

Instantly switches for external Dolby encoding on reel-to-reel decks. Has 25 microsecond de-emphasis switch for FM Dolby. Works in conjunction with built-in mixer for Dolbyizing multiple input sources.



**One button each for Normal, CrO2 and FeCr tapes automatically selects both bias and EQ.**

Eliminates confusing combination adjustments of separate bias and EQ switches. Single control calibrates both bias and EQ automatically for best frequency response on any cassette tape.

3.

Marantz cassette decks. Performance and sophistication that surpasses every other deck line on the market. Quality and technical excellence equalled only by Marantz receivers, components and speaker systems.

Top loading. Front loading. With Dolby. Without Dolby. The Marantz cassette deck line lets you select a model that exactly suits your needs. Six decks in all, with design features as exciting as their performance.

The Marantz 5420 top loading deck with Dolby for example, keeps wow and flutter down to 0.07%. Plus, it offers a wide frequency response (30 Hz to 17 kHz) and an exceptionally high signal-to-noise ratio (up to 60 dB).

Other outstanding features include long-life ferrite heads, sophisticated DC servo drive systems with total shut-off and memory tape counters.

See the complete Marantz line at your local Marantz dealer. Send for a free catalog.

4.

**Full 4-Input mixing console with pan pot and master gain control.**

Four inputs—any combination of mic and line—are operated by four individual slide potentiometers plus one master gain control for fade-in/fade-out. Two pan pot controls permit inputs 3 and 4 to be assigned to either left, center or right stage. Can operate as a separate mixing panel for master-quality recordings with external tape recorders.

5.

**Built-in adjustable stand that changes the angle of the control panel from flat to 20 degrees.** Angles top loading decks for most suitable viewing and operation.

**marantz.**  
We sound better.

Marantz 5120 Top Loading Deck with Dolby



Marantz 5220 Front Loading Deck with Dolby (Cabinet optional)

\*\*Not shown: Marantz 5400 Top Loading Deck without Dolby, Marantz 5200 Front Loading Deck without Dolby, and Marantz 5020 Front Loading Deck with Dolby.

# Introducing an evolutionary idea. The New Empire 698 Turntable

Great ideas never change radically.

Instead, they are constantly being refined to become more relevant with time.

So it has been with Empire turntables. Our latest model, 698, is no exception. Basically, it's still the uncomplicated, belt-driven turntable we've been making for 15 years. A classic.

What we're introducing is improved performance.

The lower mass tone arm, electronic cueing, quieting circuitry and automatic arm lift are all very new.

The rest is history.

## **The Tonearm**

The new 698 arm moves effortlessly on 32 jeweled, sapphire bearings. Vertical and horizontal bearing friction is a mere 0.001 gram, 4 times less than it would be on conventional steel bearings. It is impervious to drag. Only the calibrated anti-skating and tracking force you select control its movement.

The new aluminum tubular arm, dramatically reduced in mass, responds instantly to the slightest variation of a record's movement. Even the abrupt changes of a warped disc are quickly absorbed.

## **The Motor**

A self-cooling, hysteresis synchronous motor drives the platter with

enough torque to reach full speed in one third of a revolution. It contributes to the almost immeasurable 0.04% average wow and flutter value in our specifications. More important, it's built to last.

## **The Drive Belt**

Every turntable is approved only when zero error is achieved in its speed accuracy. To prevent any variations of speed we grind each belt to within one ten thousandth of an inch thickness.

## **The Platter**

Every two piece, 7 lb., 3 inch thick, die cast aluminum platter is dynamically balanced. Once in motion, it acts as a massive flywheel to assure specified wow and flutter value even with the voltage varied from 105 to 127 volts AC.

## **The Main Bearing**

The stainless steel shaft extending from the platter is aged, by alternate exposures to extreme high and low temperatures preventing it from ever warping. The tip is

then precision ground and polished before lapping it into two oilite, self-lubricating bearings, reducing friction and reducing rumble to one of the lowest figures ever measured in a professional turntable: -68 dB CBS ARLL.

## **The Controls**

Electronic cueing has been added to the 698 to raise and lower the tone arm at your slightest touch. Simple plug-in integrated circuitry raises the tone arm automatically when power is turned off.

A see-through anti skating adjustment provides the necessary force for the horizontal plane. It is micrometer calibrated to eliminate channel imbalance and unnecessary record wear.

Stylus force is dialed using a see-through calibrated clock mainspring more accurate than any commercially available stylus pressure gauge.

A new silicon photocell sensor has been added to automatically lift the arm at the end of a record.

New quieting circuitry has also been added. Now, even with the amplifier volume turned up, you can switch the 698 on or off without a "pop" sound to blow out your woofers.

At Empire we make only one model turntable, the 698. With proper maintenance and care the chances are very good it will be the only one you'll ever need.

# EMPIRE

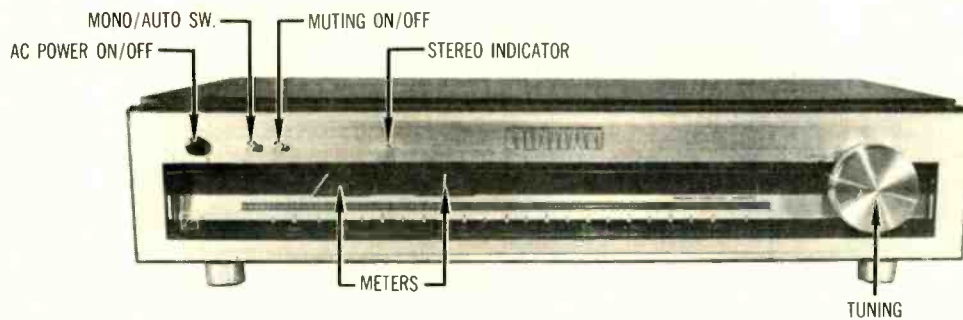


*The Empire 698 Turntable*  
Suggested retail price \$400.00

For more information write:  
EMPIRE SCIENTIFIC CORP.  
Garden City, New York, 11530.

Preparation supervised by  
Robert Long and Harold A. Rodgers  
Laboratory data (unless otherwise noted)  
supplied by CBS Technology Center

# New A CONSUMER'S GUIDE Equipment Reports



## Luxman T-110, a Tuner with a Mission

**The Equipment:** Luxman T-110, an FM tuner in rosewood case. Dimensions: 19 by 4½ inches (front panel); 10 inches deep plus clearance for controls and connections. Price: \$525. Warranty: "full," three years parts and labor. Manufacturer: Lux Audio, Japan; U.S. distributor: Lux Audio of America, Ltd., 200 Aerial Way, Syosset, N.Y. 11791.

**Comment:** Lux Audio is a specialist in sophisticated separate components, and the T-110 impresses immediately as a sophisticated separate. Its sleek styling, its unconventional dial grille through which the pointer's illumination shows (and flashes a warning when you're not tuned to a station), the two tiny buttons and one huge tuning knob that are its only front-panel controls beside the on/off button, its rich rosewood case—all proclaim this to be an extraordinary tuner. And it is.

There are some other controls, of course—on the back panel, since all apparently are conceived of as esoteric functions that you won't need to alter in normal use. One is only arguably of that type: the antenna attenuator. Since the manual suggests that it be switched in only by listeners who are close to transmitters—and who still might want to switch it out to "reach for" a weak station (hence the arguableness of its placement)—the tuner was tested with the attenuator switched out. The de-emphasis switch (with one position for Dolby, one for non-Dolby broadcasts) seems even more arguable, since more stations all the time seem to be offering Dolby transmissions,

while no broadcast community we know of has gone all-Dolby.

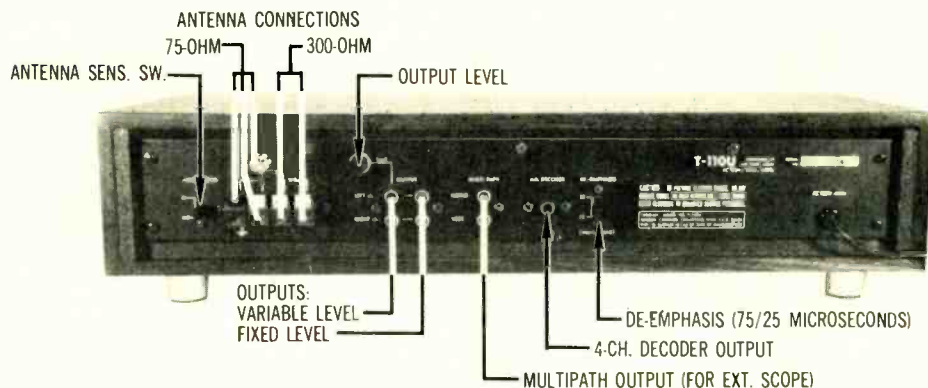
Considering both the nature of the remaining controls and the performance characteristics of the T-110, it strikes us as a tuner that, above all, is exceptionally well adapted to listening in the suburban and exurban areas—neither next door to transmitters nor really remote from them—where the vast majority of the FM listening is done today. The ubiquitous high-frequency blend used to de-noise weak stereo signals is conspicuously absent. And the muting (which cuts in at 16 dBf, just about 2 dB below the point at which the tuner's attempts at stereo reception cease) rejects mono signals while they still boast signal-to-noise ratios in excess of 50 dB. (The muting can be disabled, of course, and the tuner can be manually switched to mono.)

The usable sensitivity ("usable" defines a quieting point at which any unit sounds about as good as a CB radio)

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**REPORT POLICY** Equipment reports are based on laboratory measurements and controlled listening tests. Unless otherwise noted, test data and measurements are obtained by CBS Technology Center, Stamford, Connecticut, a division of Columbia Broadcasting System, Inc., one of the nation's leading research organizations. The choice of equipment to be tested rests with the editors of HIGH FIDELITY. Manufacturers are not permitted to read reports in advance of publication, and no report, or portion thereof, may be reproduced for any purpose or in any form without written permission of the publisher. All reports should be construed as applying to the specific samples tested; neither HIGH FIDELITY nor CBS Technology Center assumes responsibility for product performance or quality.

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measured at CBS labs is competitive with that of other fine tuners, but more germane to ordinary listening levels are the superlative harmonic distortion, IM distortion, and signal-to-noise ratio figures. Capture ratio is 1 dB, so multipath interference is held well in check. (Note that there are outputs on the back panel for oscilloscope analysis of multipath, should it still prove a problem.) Similarly, the alternate-channel selectivity (72 dB) effectively suppresses strong stations that happen to be near the tuned frequency. Stereo separation is extraordinary and remains well in excess of that required of broadcasters all across the audio band.

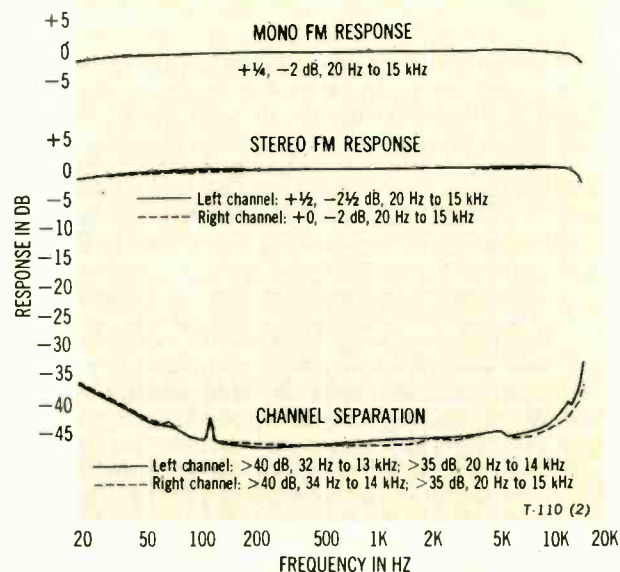
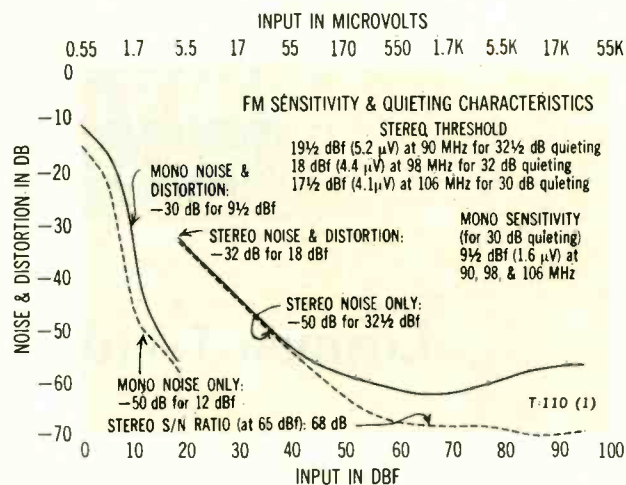
The only mole we could find on the cheek of the Luxman T-110 is the slight rolloff in audio-frequency response from about 100 Hz down. While not unusual in FM equipment, and just detectable audibly in A/B tests with a tuner that some consider the finest on the market, it is one point on which we must stop short of complete enthusiasm.

For the listener who is seeking to wring the last bit of quieting out of the tuner with signals of only marginal strength, the T-110 also was audibly a notch below its more expensive stalking horse in the A/B tests, though it is better than most in this respect as well. All this means is that, though it is not the ultimate tuner for hayseeds, it is among the ultimate tuners for the in-town sophisticates with whom its over-all personality would seem most at home.

CIRCLE 132 ON READER-SERVICE CARD

### Luxman T-110 Tuner Additional Data

Capture ratio	1 dB		
Alternate-channel selectivity	72 dB		
S/N ratio (mono)	77 dB		
THD	Mono	L ch	R ch
80 Hz	0.057%	0.073%	0.073%
1 kHz	0.052%	0.079%	0.079%
10 kHz	0.160%	0.28%	0.28%
IM distortion	0.07%		
19-kHz pilot	-66 dB		
38-kHz subcarrier	-68½ dB		



# Spectro Acoustics' Rugged Power Amp



**The Equipment:** Spectro Acoustics Model 202, a stereo power amplifier in optional wood case. Dimensions: 15 by 6 inches (front panel); 11½ inches deep. Price: \$375; optional wood case, \$40. Warranty: "limited," three years parts and labor. Manufacturer: Spectro Acoustics, Inc., 1308 E. Spokane St., Pasco, Wash. 99302.

**Comment:** The light-heavyweight division of power amps—19 to 21 dBW or so—is becoming rather densely populated these days, and this new entry from Spectro Acoustics has the requisite muscle for a contender (20 dBW, or 100 watts per channel) in addition to ruggedness and reliability. Each channel of the Model 202 is a self-contained amplifier module (called SCAMP by the manufacturer) that can be replaced in a few minutes with only a screwdriver if a malfunction occurs. The generally heavy-duty construction suggests, however, that such occurrences will be rare.

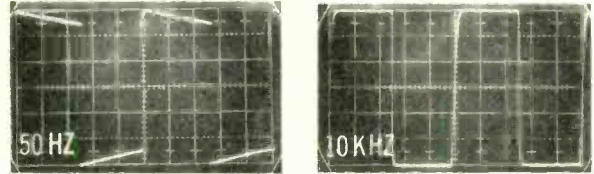
The amp has no control features (on/off switching is to be done via a preamp), and the front panel is simplicity itself. The manufacturer's logo is illuminated when the unit is on, and a light for each of the two channels flashes to indicate clipping.

According to data taken at the CBS Technology Center, the 202 has about 1 dB of midband headroom above rated power with both channels driven. Total harmonic distortion measurements are very good—in fact all are below the manufacturer's 0.25% spec with comfortable margins at the higher power levels. IM distortion is not equally low. The figures for the neighborhood of 1 watt (where the amplifier often will be driven in normal listening) are somewhat higher than we are accustomed to seeing in an amplifier of this class and increase as power output drops. In this area they exceed the 0.25% spec. It is difficult to say whether or not IM of this magnitude noticeably impairs the amp's listening quality. When we compared the sound of the Spectro Acoustics 202 with that of an amplifier of similar ratings (but less IM), the differences we noted were subtle indeed—although the model with lower distortion won out by a whisker.

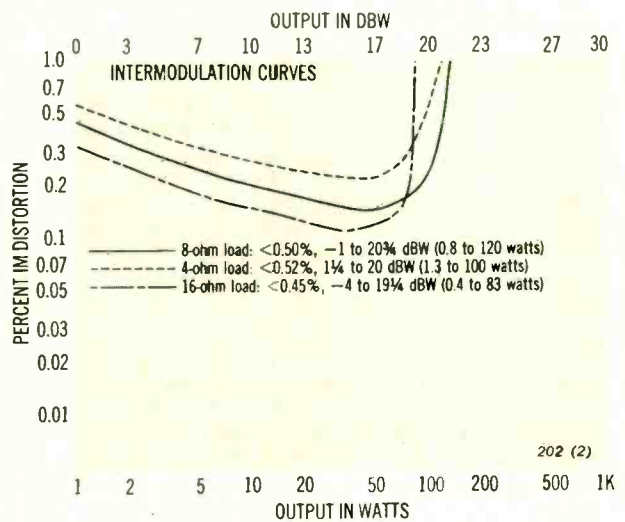
Frequency response is very good; performance with respect to noise is excellent. Sensitivity measures 1.15 volts in for 20 dBW out—a good match to typical preamp outputs. Damping factor is high. Though the lab measures it at barely half the manufacturer's rated value, it is well into territory where further increases can't be expected to make any audible difference.

Listening to the Spectro Acoustics 202 confirms a higher regard for the product than for its rather optimistic specs; the amp sounds just fine. It controls the loudspeakers well and does nothing audible to draw attention to itself. This amp can effortlessly pour out clean audio all day long. And its ruggedness and ease of repair (if something does go wrong) are worthwhile plusses.

CIRCLE 135 ON READER-SERVICE CARD



Square-wave response



## Spectro Acoustics 202 Additional Data

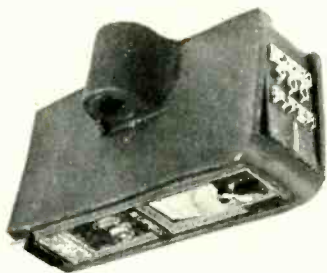
Power output at clipping (channels driven simultaneously)  
L ch 21 dBW (130 watts) for 0.68% THD  
R ch 21 dBW (130 watts) for 0.33% THD

Frequency response  
± ¼ dB, 20 Hz to beyond 100 kHz  
+ ¼, -1 dB, 10 Hz to beyond 100 kHz

Input characteristics (for rated output at full gain)  
Sensitivity 1.15 V Noise -81 dBW S/N ratio 101 dB

Total harmonic distortion (20 Hz to 20 kHz)  
at 20 dBW (100 watts) L ch: <0.17% R ch: <0.15%  
at 10 dBW (10 watts) L ch: <0.15% R ch: <0.17%  
at 0 dBW (1 watt) L ch: <0.22% R ch: <0.24%

Damping factor at 1 kHz 63



## A Super-Subtle Pickup from Supex

**The Equipment:** Supex SD-900/E Super, a stereo moving-coil phono cartridge with elliptical stylus. Price: \$150. Warranty: "limited," one year parts and labor. Manufacturer: Supex Audio Products, Japan; U.S. distributor: Sumiko, Inc., P.O. Box 5046, Berkeley, Calif. 94705.

**Comment:** Of all cartridges, moving-coil types are among the most exotic and fussy. In addition to their relative rarity (they are made by just a few companies and are not widely distributed), they typically require high tracking forces, produce minuscule output voltages (requiring the use of a step-up transformer or extra preamplification), and must be returned to the factory for stylus replacement. Yet they are in many respects quite impressive, and a significant number of listeners find enough virtue in moving-coil cartridges to pay premium prices for them.

The Supex SD-900/E Super is unusual even among moving-coil designs, for its range of tracking force, while narrow at 1.2 to 1.7 grams, is fairly light and its output voltage (0.072 millivolt per centimeter per second, as measured at CBS) is such that it can very nearly be used in direct connection with a quiet, high-gain preamp. In our experience, however, the pickup's high output is put to better use in improving the signal-to-noise ratio that can be obtained with a transformer or pre-preamp.

The CBS labs verified that the unit is capable of tracking full-range sweep tones at the minimum tracking force. The remainder of the tests were carried out at the recommended value of 1.5 grams. Published response (10 Hz to 50 kHz,  $\pm 3$  dB) also was verified within our test range. Measured midrange separation is very good at around 25 dB; though some other pickups may produce slightly better numbers in this test, a higher number should not be expected to produce audibly improved performance. More important to us, the separation is consistent, remaining at 20 dB or better from 40 Hz all the way up to 20 kHz. Low-frequency resonance (measured in an SME tone arm) is close to the ideal frequency at 10 Hz, and, as one would expect, we experienced no problems with warped discs or heavy modulation at low frequencies.

The stylus tip is an elliptical diamond that, under the microscope, measures 16 by 8.6 micrometers (0.7 by 0.4 mils), and in this examination it reveals excellent symmetry, geometry, polish, and alignment. Though (as the stylus shape suggests) the SD-900/E was not designed as a CD-4 cartridge, its response was checked out to 50 kHz with the JVC test record the lab uses for such cartridges. This test confirmed that the rise toward 20 kHz in our graph does not represent the high-frequency resonance, which appears to be above 45 kHz. In fact both response and separation in this range are comparable to those of many CD-4 cartridges; more important, the resonance of the pickup is (as the importers claim) well beyond the audible range.

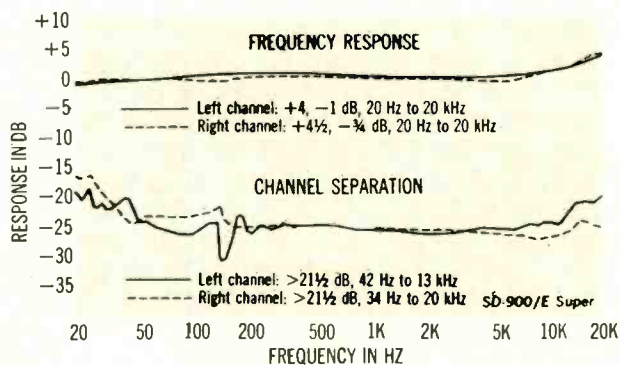
In the square-wave test the SD-900/E Super shows a fast rise with moderate overshoot and some ringing, but

only in inaudible ultrasonic regions. The other lab data reveal figures typical of most high-quality phono cartridges. Whether the extremely low output impedance of this pickup (3.5 ohms) has anything to do with its sound is a matter of conjecture. We suspect that it contributes to a better interface between the cartridge and the preamplifier into which it works.

The sound of the Supex is without a doubt exceptional, but not in a way that seizes one's attention at first. On the contrary, the unit possesses a rare subtlety. Upon first acquaintance, the listener is tempted to simply accept it and think, "Yes, that is the way music sounds." But after listening to a familiar record for a while one begins to notice the precision (or lack of it) in musical ensembles—because the transients that result when the various instruments make their attacks are separately reproduced rather than smeared together. Also unusual is the ability of the Supex to keep soft instruments clear when loud ones are playing. Polyphony is reproduced as an interplay of voices rather than a wrestling match, with one voice dominant at a time and the others struggling for space. In short, the listener and not the cartridge decides what features of the music are worthy of attention. We were amazed to find recorded textures that had previously struck us as excessively dense and reverberant now airy and well defined. Nothing is spectacular; it is all simply there.

Without entering the great debate over principles of transduction, let us say that we find this to be one terrific phono cartridge. It has its fussy side, but what virtuoso hasn't? Perhaps most squarely in the virtuosic tradition, the Supex Super makes it all seem easy.

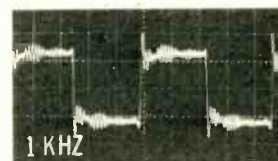
CIRCLE 133 ON READER-SERVICE CARD

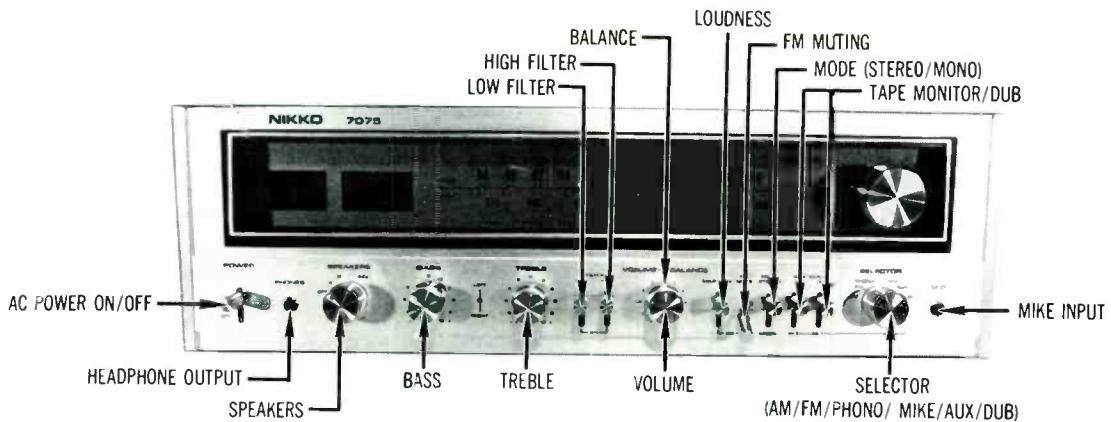


### Supex SD-900/E Super Additional Data

Maximum tracking levels (1.5 grams VTF; re RIAA 0 VU)	
at 300 Hz	+12 dB
at 1 kHz	+9 dB
10 to 20 kHz	>-5 dB

Square-wave response





## Nikko's Best Receiver Yet

**The Equipment:** Nikko Model 7075, an FM/AM stereo receiver in wood case. Dimensions: 19 by 4¼ inches (front panel); 13¾ inches deep plus clearance for controls, connections, etc. Price: \$399.95. Warranty: "limited," three years on parts, two years on labor, transportation not included. Manufacturer: Nikko Electric Mfg. Co., Ltd., Japan; U.S. distributor: Nikko Electric Corp. of America, 16270 Raymer St., Van Nuys, Calif. 91406.

**Comment:** The Nikko components we have examined in the past seem to have fallen into two categories. Most have been budget models, with all that the term implies; at least one has been an attempt at something grander in which the more striking features were accompanied by others of much less merit. The 7075 is another matter. It is a good midpriced receiver, designed from stem to stern with an eye for features and performance levels that are consistent with that price point. Therefore—and though it is by no means the fanciest Nikko we've assessed (there are in fact two more powerful and expensive models in the current line)—the 7075 is the most consistent, capable, and attractive Nikko we've reviewed to date.

The controls are well-organized and functional. They include both high and low filters (the former must be used to cancel FM multiplex noise, since there is no "blend" feature) and an FM-muting switch. Monitoring—and dubbing—with two tape decks is provided for. The tone controls have calibrated detent stops for repeatable settings. And—perhaps most important—handsome lever switches are used in place of the pushbuttons that we find irksome because they are difficult to label unequivocally, and hence to use. With the 7075 you are left in no doubt about the control settings.

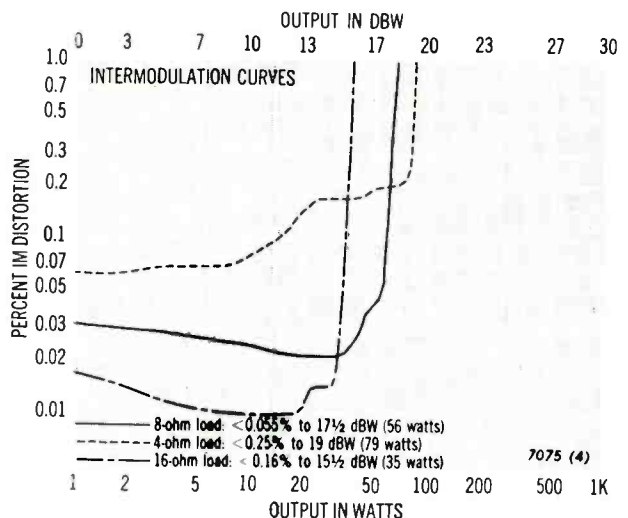
The amplifier section's output rating (38 watts or 16 dBW per channel) puts it in the class that might be characterized as ample for one speaker pair and adequate for two, under typical home conditions. Actually the CBS tests show this rating, and the related 0.5% distortion ratings, to be conservative. The amp can pump out about ¾ dB more power before clipping, and distortion still stays somewhere around one-tenth of the rating point at that power level. And even at 20 dB below rated power both harmonic and intermodulation distortion remain in the 0.05% range or better.

Noise measurements are good (numerically not quite as

low as the published specs, though with our worst-case, full-gain test method this is normal), as is phono overload. The only feature in the amp/preamp area that we don't think much of is the (mono) mike input. After having made similar statements about virtually every receiver so equipped that we've reviewed, we can only repeat that perhaps a receiver is just not the place for a mike input. That on the 7075 can't be mixed with other inputs (as it can on most mike-input models), though it can be fed to the regular tape-recording jacks (which is unusual). It therefore is appropriate for public-address use and for mono speech or other recordings not requiring mixing—neither of which strikes us as having much to do with high fidelity.

The tuner section is comfortably good. An exception to that description is the excellent channel separation in stereo, but the emphasis here—as in the rest of the design—is on keeping performance bobbing buoyantly above the mainstream of the acceptable, not on taking wing into any airy heights. Some might call this level of competence "unspectacular," but that would be missing the point. The 7075 does well exactly the job it is designed to do; that is a valuable faculty and one that should find a ready market.

CIRCLE 131 ON READER-SERVICE CARD



# sui 9090 DB.

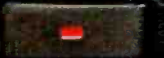
*Stereo receiver* 9090DB



FM  
AM

POWER

OFF  
ON



PROTECTOR

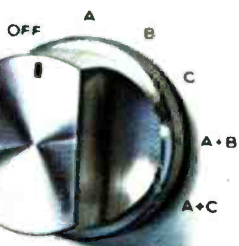
FILTERS  
LOW HIGH



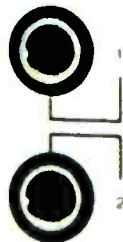
AUDIO MUTING  
-20dB



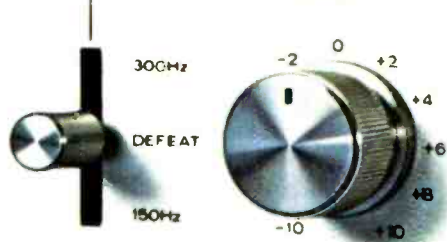
SPEAKERS



PHONES



BASS



MIDRANGE



TRIPLE TONE C



# The new Sansui

The new 9090 DB is not only Sansui's new top receiver. We believe it is the finest on the market. Read its description and we believe you will believe as we do.

Imagine yourself at the controls of the Dolbyized\* 9090 DB, just as you see them, lifesize, on these pages. As you touch them in real life you will be thrilled at the beautiful way the 9090 DB responds to your every wish. You will love how the controls give you a sense of power, and how this magnificent receiver permits that instant surge, that instantaneous response you want to hear through your speakers.

The built-in Dolby\* Noise Reduction System does more than correctly equalize and decode Dolby FM. With it you can make and play your own Dolby-processed tapes from any source, even if your recorder lacks its own Dolby circuitry. The 9090 DB's triple tone controls give you a choice of 2 different frequencies where the treble and bass action begins, as well as a studio-type equalizer for the wide "presence" midrange. And our easy-to-read twin power meters show you at a glance just how much power your speakers are getting.

Look at what the Model 9090 DB stereo receiver offers. Even better, listen to it for yourself at your nearest franchised Sansui dealer.

## AUDIO SECTION

### Power Output:

125 watts/channel, min. RMS with both channels driven into 8 ohms from 20Hz to 20kHz, with no more than 0.1% total harmonic distortion.

### THD Distortion:

less than 0.1% at rated min. RMS power output (20Hz to 20kHz = 4:1, SMPTE method)

### Frequency Response (1 watt):

10Hz to 30kHz  $\pm 1$  dB from Aux to speaker terminals

### RIAA Phono Equalization:

$\pm 0.3$  dB, 30Hz to 15kHz

### Phono 1, 2 Sensitivity/Impedance:

2.5mV/50k ohms

### Phono 1, 2 Maximum Input Capability:

180mV at 1kHz, less than 0.2% total harmonic distortion.

### Hum and Noise:

better than 80 dB (Aux, Tape Monitor)

better than 70 dB (Phono)

## FM SECTION

### IHF Sensitivity:

9.3 dBf (1.7  $\mu$ V)

### 50 dB IHF Quieting Sensitivity:

Mono: 14 dBf (3  $\mu$ V)

Stereo: 36.3 dBf (26  $\mu$ V)

### Signal-to-noise ratio:

better than 70 dB

### Total Harmonic Distortion:

Mono: less than 0.2%

Stereo: less than 0.3%

### Alternate Channel Selectivity:

better than 85 dB

### Spurious Response Ratio (HF):

better than 85 dB

### Stereo Separation:

better than 40 dB

### Frequency Response:

30Hz to 15kHz +0.5, -2.0 dB

## A whole new world of beautiful music.



### SANSUI ELECTRONICS CORP.

Woodside, New York 11377 • Gardena, California 90247

SANSUI ELECTRIC CO., LTD., Tokyo, Japan • SANSUI AUDIO EJRDPPE S.A., Antwerp, Belgium  
In Canada: Electronic Distributors

# Sansui unveils its

More power. More features. Finer specs.  
And all the excellence of Sansui.

A receiver is the heart of any high fidelity system. And that's where Sansui built its reputation.

Sansui receivers are all distinguished by a perfect integration of the tuner, amplifier, and preamplifier sections to give beautifully balanced musical reproduction; by clarity, the absence of noise and truest fidelity over an extremely wide range.

MODEL 9090 DB and MODEL 8080 DB.

Dolby® Noise Reduction circuitry.

FM 25  $\mu$  sec de-emphasis.

Two power output/Dolby® calibration meters.

Two tuning meters. -20 dB muting switch.

2 pre-amplifier outputs.

Mic-mixing with mic level control.

Triple tone controls.

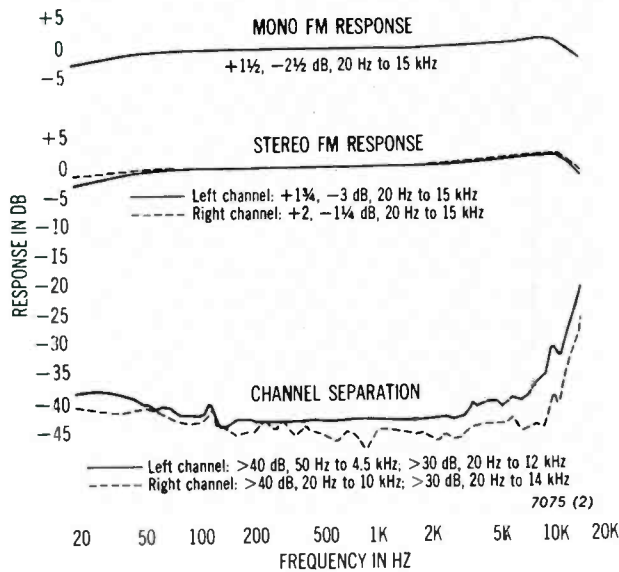
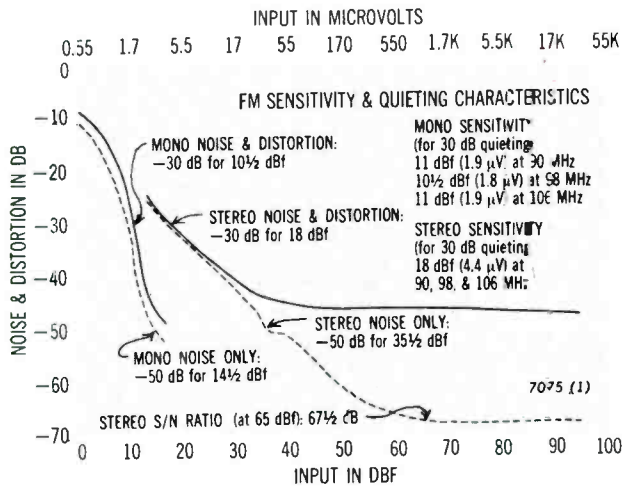
Turnover switches with tone defeat and two stereo headphone jacks are exclusive to the 9090 DB.

8080 DB



9090 DB





## Nikko 7075 Receiver Additional Data

### Tuner Section

Capture ratio	1¼ dB		
Alternate-channel selectivity	72 dB		
S/N ratio	68½ dB		
THD	Mono	L ch	R ch
80 Hz	0.11	0.99	0.79
1 kHz	0.17	0.49	0.55
10 kHz	0.14	0.88	0.66
IM distortion	0.26%		
19-kHz pilot	-66 dB		
38-kHz subcarrier	-69 dB		

### Amplifier Section

Power output at clipping (channels driven simultaneously)

L ch	16¼ dBW (47 watts) for 0.070% THD
R ch	16¼ dBW (47 watts) for 0.045% THD

Frequency response +¼, -1 dB, 10 Hz to 25 kHz  
+¼, -3 dB, below 10 Hz to 50 kHz

RIAA equalization ±1 dB, 20 Hz to 20 kHz

Input characteristics (for rated output at full gain)

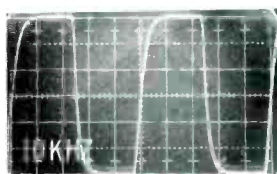
	Sensitivity	Noise	S/N ratio
phono	2.1 mV	-52 dBW	68 dB
mike	13.5 mV	-48 dBW	64 dB
aux	160 mV	-74 dBW	90 dB
tape 1, 2	160 mV	-74 dBW	90 dB

Phono overload (clipping point) 125 mV

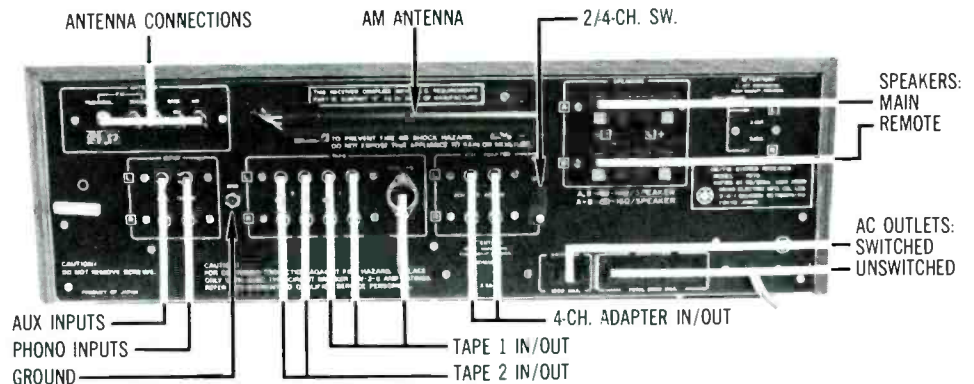
Total harmonic distortion (20 Hz to 20 kHz)

at 15¼ dBW (38 watts)	L ch: 0.062%	R ch: <0.043%
at 10 dBW (10 watts)	L ch: <0.048%	R ch: <0.038%
at -4½ dBW (0.38 watts)	L ch: <0.055%	R ch: <0.043%

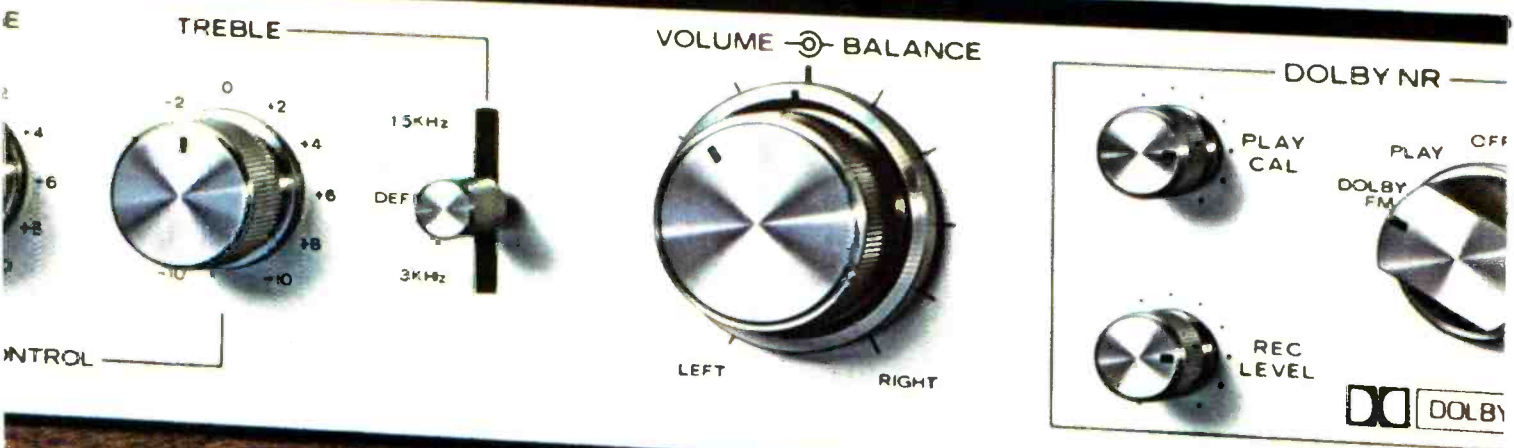
Damping factor at 1 kHz 35



Square-wave Response



# Big as life.



Hz  
00  
Hz



METER  
REC CAL TONE  
OFF  
ON

POWER  
LEVEL  
DOLBY NR  
LEVEL



REC-1  
REC-2  
SYSTEM

SELECTOR  
PHONO-1 FM AUTO AN  
PHONO-2 AUX



MIC LEVEL



MIC



# new top receivers.

SPECIFICATIONS	9090 DB	8080 DB	7090	7070	6060	5050
Power Output Min RMS per channel, both channels driven into 8 ohms at rated Total Harmonic Distortion.	125 watts @ 0.1% THD	85 watts @ 0.1% THD	110 watts @ 0.2% THD	60 watts @ 0.3% THD	40 watts @ 0.4% THD	30 watts @ 0.5% THD
FV Sensitivity	9.6 dBf	9.8 dBf	9.8 dBf	10.3 dBf	10.8 dBf	11.2 dBf
Dolby* Circuitry	Yes	Yes	No	No	No	No
Twin Power Meters	Yes	Yes	Yes	Yes	No	No

9090 and 9080 DB, walnut veneer. All other cabinets simulated walnut grain.

## MODEL 9090

Two power output meters. Two tuning meters.  
Triple tone controls. Turnover switches with tone defeat.  
-20 dB muting switch. Mic-mixing with mic level control.  
Two stereo headphone jacks.

## MODEL 5050

Two tuning meters.  
Mic-mixing with mic level control.  
High filter. Speaker Selector.



## MODEL 6060

Two tuning meters.  
-20 dB muting switch.  
Mic-mixing with mic level control.  
High and low filters.  
Speaker selector.

## MODEL 7070

Two power output meters.  
Two tuning meters.  
Triple tone controls.  
Mic-mixing with mic level control.  
-20 dB muting switch.  
7 position tape/play switch.  
Speaker selector.

\*Dolby, Dolbyized are trademarks of Dolby Laboratories, Inc.

CIRCLE NO. 38 ON READER SERVICE CARD

# A High-Definition Pre-Preamp from Mark Levinson



**The Equipment:** Mark Levinson JC-1DC Moving-Coil Cartridge Preamplifier, a pre-preamp in metal case. Dimensions: 5¾ by 7¾ inches plus clearance for connections (top); 2 inches high plus clearance for controls. Price: \$100. Warranty: "full," five years parts and labor. Manufacturer: Mark Levinson Audio Systems, Hamden, Conn. 06514.

**Comment:** Moving-coil phono cartridges (such as the Supex model reported on in this issue) characteristically have low output and impedance, preventing them from being used effectively in direct connection to a normal 47,000-ohm phono input. The conventional solution to this problem for a long time has been the use of a transformer that steps up the voltage and impedance and thus provides a better match. This approach works quite well, but since transformers possess irreducible nonlinearities larger than those of active amplifying devices (such as transistors) some audio designers thought that an extra high-gain stage would improve performance with respect to distortion. They were right, although early pre-preamps (so called because their outputs are delivered to a normal phono preamp) had too much noise. More recent refinements appear to have this difficulty under control.

The Mark Levinson JC-1DC is described as a low-feedback Class-A design with high slew rate and open-loop bandwidth. As such, it would be expected to show very little harmonic distortion, and this is in fact the case. Even at the extremely high signal levels (200 millivolts output) used by CBS labs (and the manufacturer) to provide reliable data, the pre-preamp produces barely half of its rated 0.1% THD at 20 kHz and even less elsewhere. IM distortion (measured at 100 millivolts output) is likewise well controlled. Frequency response is flat out to 20 kHz falling off by a mere 1 dB at 40 kHz. The unit shows a slight rolloff (only ¾ dB) at 20 Hz and reaches -1 dB at 16 Hz. The gain of the JC-1DC is adjustable via a two-position switch; the high position gives a nominal 47 dB (49 measured), the low position 30 dB (31½ measured). Although the lower gain is adequate for all but a few moving-coil cartridges, all lab data were taken at the high setting.

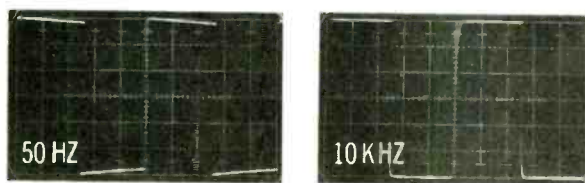
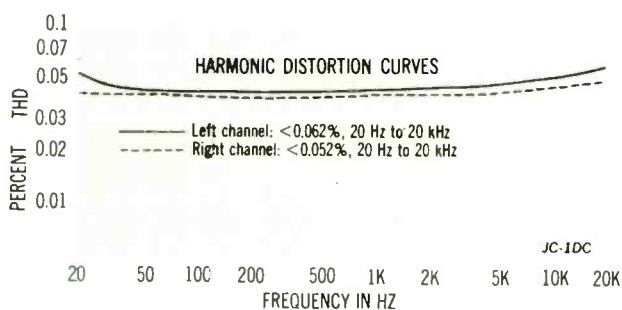
Measured noise performance (-69½ dB re 1 millivolt input, input terminals shorted or open, -70 dB with 30-ohm source impedance) is excellent for such low signal levels. The manufacturer claims about 10 dB better performance, but it should be borne in mind that noise measurements at these low levels are sensitive and that small differences in technique can have large effects on the results. With a cartridge connected to its input and its output connected to a phono input, the noise that the Levinson delivers to a speaker is slightly less than that produced when a

standard magnetic cartridge is connected directly to an identical phono input.

In putting the JC-1DC to use, a few caveats are in order. The unit is sensitive to hum and (as the instructions suggest) must be placed well clear of power transformers and motors. Our sample is slightly microphonic and so should be kept away from loudspeakers as well. Since power is provided by four D cells (alkaline types are recommended) and there is no pilot light (that would take far too much current), you must remember to switch it off (turn the gain down first!) when you're finished listening or you will be buying a lot of D cells. In normal use, one set is good for about a year.

But the bottom line for a fairly exotic piece of audio hardware such as this has to be its sound—although all we have to comment on in this case is the lack of it. We were not able to detect any audible "effects" that we could trace to the Levinson. It is quieter than all but a few phono stages, which is remarkable considering the high gain, and its definition should beat any transformer hands down. If your low-output phono cartridge is looking for a work partner, the JC-1DC is one you should consider.

CIRCLE 134 ON READER-SERVICE CARD



Square-wave response

## Mark Levinson JC-1DC Additional Data

Frequency response  
+0, -¼ dB, 40 Hz to 25 kHz  
+0, -1 dB, 16 Hz to 40 kHz

S/N ratio (for 1 mV input) 69½ dB

Intermodulation (at 100 mV output) 0.05%

# All other turntables

## Introducing the Accutrac™ 4000.

**Its father was a turntable.  
Its mother was a computer.**

The Accutrac 4000 is the most radical new idea in record-playing technology since the introduction of the L.P.

It's a marriage of solid-state integrated circuitry, infra-red electro-optics and the latest in direct-drive engineering. We've replaced hundreds of mechanical parts with efficient, silent electronics: in fact, the functions of nearly 10,000 transistors are being performed by just two logic chips.

The result: The Accutrac 4000 is the most accurate, reliable, noiseless turntable ever invented. And it even lets you re-arrange selections on a record to hear them in the order you want.

### **The Accutrac 4000 reaches new lows.**

Wow and flutter are down to a completely inaudible 0.03% W.R.M.S. Rumble, -70dB (DIN E). Tracking force a mere 3/4 gram. And tonearm resonance, the ideal 8-12 Hz.

Our direct-drive motor brings the massive die-cast platter to full speed instantly. And keeps it there with the help of electronic sensors which adjust for power fluctuation.

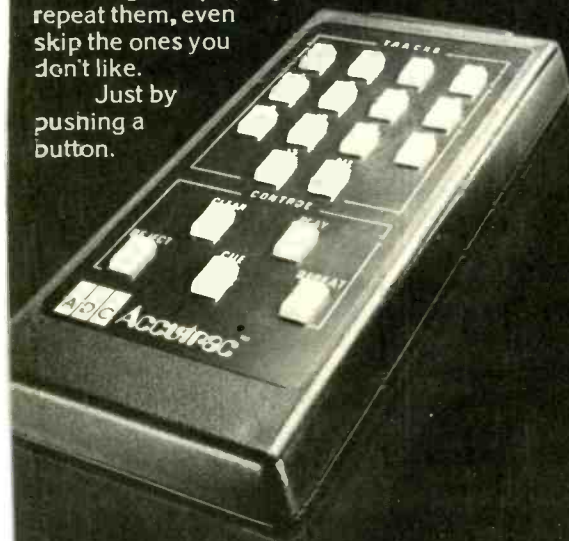
There's no way a turntable can be any more precise.

### **Now, listen to the selections on a record in the order you want.**

Once we developed the electronic control system, it was a logical step to extend its capabilities.

So now, instead of just listening to a record, you can re-arrange the playing order of the selections, repeat them, even skip the ones you don't like.

Just by pushing a button.



Suppose you want to hear selections 5, 3 and 7. Simply press the buttons marked 5, 3 and 7. In fact, you can pre-set the sequence of any combination of up to 24 commands.

And if you don't want to leave your chair to give the orders, beam them by cordless remote control with the transmitter (lower left) and receiver (above).

The Accutrac 4000 system: not only plays records as sensitively as possible, it also takes better care of records than is humanly possible.

### **The arm your fingers never have to touch.**

Because the tonearm is electronically driven, not manual, you never risk dropping it accidentally and scratching a record, or damaging the stylus.

The reason for this miracle is the minute infra-red scanning beam in the head that reads the surface of the record and directs the tonearm to follow your instructions.

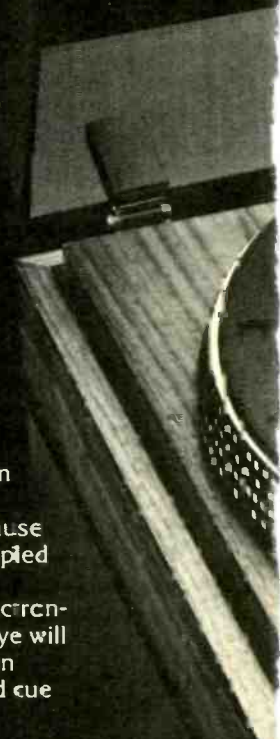
And it does it with absolute freedom, because the servo-motor that drives the tonearm is decoupled the instant the stylus goes into play.

You don't have to cue manually, either: electronics takes care of that, too. In fact, the infra-red eye will return the stylus to the same groove it left, within a fraction of a revolution. Even the best damped cue lever can't provide such accuracy. Or safety.

### **The Accutrac 4000: the great protector.**

Everything about the Accutrac 4000, from the perfect freedom of the tonearm to the logical placement of the controls outside the dustcover, has been done for one reason: to extend the life of a record.

Which is why, once you've played the Accutrac 4000, you'll never be able to trust your records to another turntable again.





are now obsolete.



# The Accutrac 4000



ADC Professional Products Group.  
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CIRCLE 1 ON READER-SERVICE CARD

by Norman Eisenberg

# High Fidelity Pathfinders

The Men Who Made an Industry

DAVID HAFLER

*Thirteenth in a series*



JUST BEFORE THE U.S. entered World War II, David Hafler started a career as a statistician, having just graduated as a mathematics major from the University of Pennsylvania. His spare time was spent tinkering—one project involved trying to get a record player to play through a radio set. Hafler's interest was part musical and part mechanical: He had studied violin but never developed real proficiency at it, and he loved to modify things to see if he could make them work better.

This project was interrupted by a stretch of service in the Coast Guard, but not before he had picked up some valuable "nuts-and-bolts" electronic insights. As executive officer of a shorthanded vessel, he had to double as communications officer, which got him up to his elbows in high-grade equipment circuitry. He avidly read the manuals that explained how the gear worked and how to repair it.

At the war's end, Hafler headed back to his Philadelphia home, dusted off his radio-phono project, turned on the juice, and saw the whole rig promptly go up in smoke. He began to study in earnest—taking enough time out to earn his living in market research—and read everything available on radio and electronics. He recalls that one of his main texts was the *Radio Amateur's Handbook*. Soon he began buying parts from radio suppliers around town and, guided by a schematic diagram, built his own set, even fashioning and punching the chassis. He picked up a speaker, built a box for it, and hooked up the system. This time it worked.

Delighted, Hafler continued to make modifications, mainly following circuit diagrams published in such periodicals of the time as *Radio News*. His amplifier then had a triode (three-element tube) output stage, and he had added his own feedback loop for reduced distortion. One day in the late 1940s a friend named Herb Keroes, an electrical engineer employed by a transformer company, took a look at the homemade sound setup. Keroes was impressed, and he suggested only that an output transformer of his own design be substituted for the one in the circuit. The swap was made, and both men were ecstatic over the improved sound—wider in range, more powerful, and with less distortion than either had heard before.

They soon began speculating about manufacturing amplifiers, but their plans did not crystallize until the fall of 1949, when the first big high fidelity show (then called the Audio Fair) took place in New York City. Hafler visited the display of Sun Radio, a large New York dealer, with the hope of selling output transformers for use with the amplifier kits that Sun had put on the market earlier that year. He found that Sun was getting its transformers from Peerless, which was present with its own display to demonstrate how good its transformer design was by running square-wave tests. Hafler offered to submit his own transformer to testing. It outperformed the Peerless model.

That did it. On the train home to Philadelphia, Hafler and Keroes decided to form their own company—

called Acro—to produce and market audio transformers. Essentially, Hafler's power amplifier circuit was built around the transformer, which was sold by promoting the idea of building one's own amp from circuit diagrams published by Acro.

An outstanding feature of the circuit was the "ultralinear" design (patented by Hafler) that, in a sense, combined the best aspects of the then two differing approaches to amplifier design: the lower distortion of the triode and the high power of the pentode. It also lowered output impedance for a better match with the speaker.

Eventually, Hafler proposed supplying all the amplifier parts. Keroes demurred, but Hafler was adamant. As a result, they severed their connection. Hafler sold his interest in Acro to his partner and, in 1955, launched Dynaco, the first full-time manufacturer devoted exclusively to high fidelity kits. Dynaco was unique in another way at that time: It was the first kit company to sell through regular high fidelity dealers. The first product was the Mark II (Mark I never got to the market), a 50-watt mono power amp kit that retailed for \$69.50. (It was also offered wired for \$10 more.)

The Mark II proved an astonishing success. Its cost—less than half that of comparably powerful conventional amplifiers—was the lowest per watt of any amp. It was built by legions of audio enthusiasts, got rave reviews in the press, and virtually set a new standard for home music systems. Fortunately, too, for Dynaco, the acoustic-suspension speaker—intro-

# WHY MOST CRITICS USE MAXELL TAPE TO EVALUATE TAPE RECORDERS.

Any critic who wants to do a completely fair and impartial test of a tape recorder is very fussy about the tape he uses.

Because a flawed tape can lead to some very misleading results.

A tape that can't cover the full audio spectrum can keep a recorder from ever reaching its full potential.

A tape that's noisy makes it hard to measure how quiet the recorder is.

A tape that doesn't have a wide enough bias latitude can make you question the bias settings.

And a tape that doesn't sound consistently the same, from end to end, from tape to tape, can make you question the stability of the electronics.

If a cassette or 8-track jams, it can suggest some nasty, but erroneous comments about the drive mechanism.

And if a cassette or 8-track introduces wow and flutter, it's apt to produce some test results that anyone can argue with.

Fortunately, we test every inch of every Maxell cassette, 8-track and reel-to-reel tape to make sure



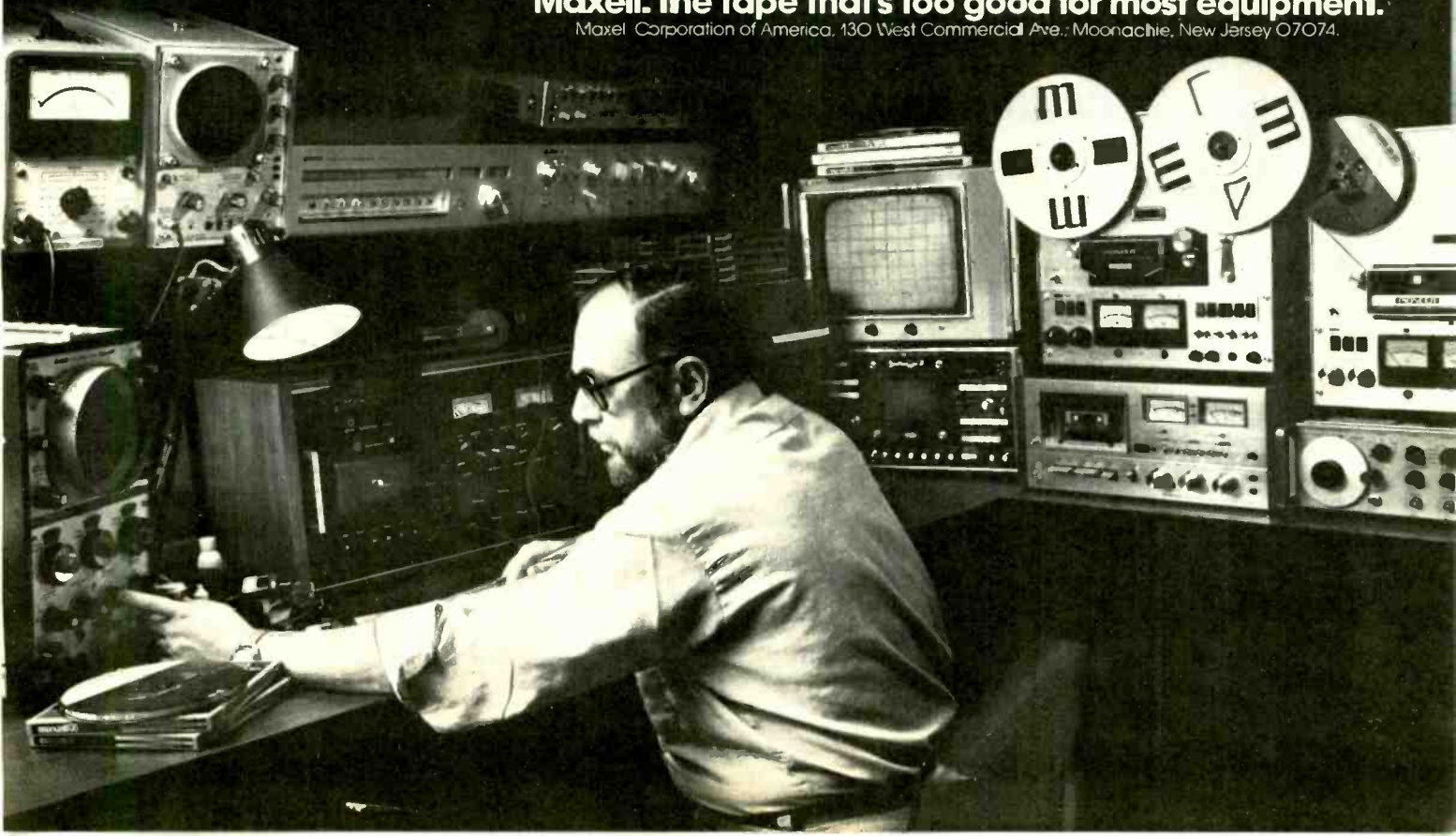
they don't have the problems that plague other tapes.

So it's not surprising that most critics end up with our tape in their tape recorders.

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## Nikko's dedication and your patience are now rewarded.

The people at Nikko have a very unique philosophy about the way they produce and market audio products.

It starts with producing only state-of-the-art components, the testing of every unit before you buy it, a three-year parts and labor warranty\* and conservatively rating every specification. Only in this way do you reap the benefits of true performance. Nikko now presents its finest discrete matched components: the Alpha-1 dual channel power amplifier has a three-stage Darlington direct-coupled OCL pure comple-

mentary circuit, large electrolytic capacitors (33,000 mF), and a rack mount design with optional side panels.

A matching Beta-1 "FET" preamplifier features high-voltage FET circuitry, three-stage direct coupled with two-stage differential amplifier, and a number of useful features, including a phono impedance selector and tape monitor (play 1, play 2, dubbing 1 to 2, dubbing 2 to 1). Beta-1 is also provided in a rack mount design (shown stacked atop Alpha-1).

### Alpha-1 specifications

**Continuous power output of 220 watts per channel, both channels driven from 20 to 20kHz into 8 ohms with no more than 0.08% total harmonic distortion.**

Intermodulation distortion: no more than 0.08% (at rated output)  
 Frequency response: 10 Hz-100kHz +0dB -1dB  
 Input sensitivity/impedance: 1V/50Kohms  
 Signal-to-noise ratio (I.H.F.): 100 dB  
 Dimensions: 7" high, 11½" deep, 19" wide  
 Price: \$599.95

*Specifications subject to change without notice*

### Beta-1 specifications

Input Sensitivity:	Phono 1 & 2	2mV
	Tuner	100mV
	Aux	100mV
Input Impedance:	Phono 1 & 2	22K/47K/100Kohm
	Aux Tuner	50Kohm
Total Harmonic Distortion:		no more than 0.015% (at rated output)
Signal-to-noise ratio (I.H.F.):	Phono 1 & 2	72dB
	Aux	100dB
Frequency Response:	Phono 1 & 2	30-15kHz -0.2dB
	(RIAA equalization)	
	Aux Tuner	20-20kHz =0.1dB
Phono Overload Level:		400mV RMS @ 1kHz
Output:		1V rated, 10V max
Power Consumption:		120V 25VA 50/60 Hz
Dimensions:		2½" high, 11½" deep, 19" wide
Price:		\$299.95



Nikko Electric Corp. of America  
 16270 Raymer St., Van Nuys, Calif. 91406  
 In Canada:  
 Superior Electronics, Inc., Montreal

*\* See the warranty card with the product for full details.*

*The above prices are shown for informational purposes only. Actual retail price will be set by the individual Nikko dealer at his option.*

**CIRCLE 29 ON READER-SERVICE CARD**

duced to the audio market in the early 1950s—responded beautifully to the high power and wideband response of the Mark II. This fact was not lost on Edgar Villchur ("Pathfinders," August), who saw the amp as a low-cost device that would help sell his AR speaker.

In 1957 Dynaco brought out a preamp that proved no less sensational than the power amp. At the time, *Audiocraft* magazine (a onetime sister publication of *HIGH FIDELITY*) said that the preamp's distortion was literally unmeasurable. According to Hafler, the distortion (either harmonic or IM) actually was well under 0.1% throughout the normal audio band at any output level. And the unit used only two tubes for its circuitry. This preamp, too, can be said to have revised home standards considerably.

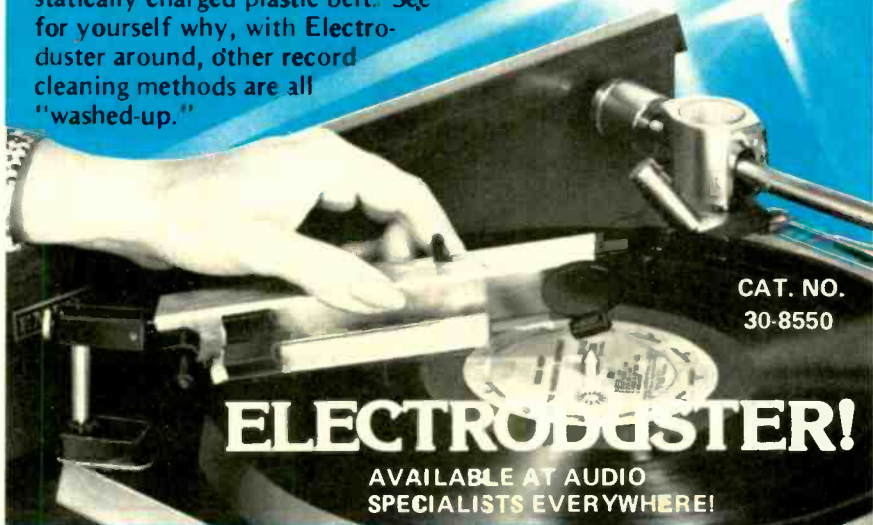
As stereo came into its own, Hafler saw a chance to expand the company's product offerings and began importing pickups from the Danish firm of Bang & Olufsen. There were two versions of the "Stereodyne" as it was called—one was an integrated arm and cartridge, the other a cartridge alone. In the early 1960s Dynaco added the B&O open-reel tape deck to its line, but the relationship ended in 1968, when B&O decided to set up its own U.S. distribution.

By 1968, with a string of successful products behind him (which included the Dynaco tuner that first appeared in 1961), Hafler decided to sell. He remained, however, as company head under contract for another three years. During this period Dynaco started importing loudspeaker systems built to its specifications by Scan-Speak, another Danish firm. Hafler patented (in his own name) the Quadaptor, by means of which out-of-phase recorded signals in stereo or specially recorded material could be fed to back-channel speakers for a quad effect without an additional amplifier. When he left Dynaco in 1971, Hafler bought a half-interest in Ortofon, which this year became a part of Harman International.

Hafler, now fifty-seven, insists he always made products he wanted for himself. He believes that his success in high fidelity may have been compensation for not succeeding as a musician. A similar motivation, he feels, accounts for his tenacity in another field of interest. A chess player since his twelfth birthday, he has harbored a frustrated ambition to be a top-ranking player or tournament-level contender. He has built up a collection of chess sets—now numbering about three hundred—that is reputed to be the finest in existence and has attracted visitors from all over the world. ●

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The incredible new ElectroDuster! The "clean while it plays" dust remover. ElectroDuster's velour fibers lift dust and dirt from record grooves and deposit the particles on a statically charged plastic belt. See for yourself why, with ElectroDuster around, other record cleaning methods are all "washed-up."



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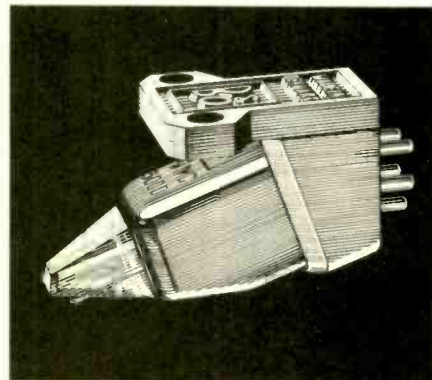
CIRCLE 3 ON READER-SERVICE CARD

## Why Bang & Olufsen will not allow you to replace the styli on the MMC cartridges.

### We're doing it for your own good.

If we let you replace the styli in our new MMC series of cartridges, our engineers could not have reached the exceptional performance levels they did. If we had replaceable styli, we would not be able to give you the lowest effective tip mass values in the industry. And finally, if you could replace our styli, you would be able to create a 'new' cartridge, but not one necessarily as good or better. We know that a cartridge must be tested and measured as a whole and that all elements must be in perfect balance—you just don't listen to a stylus, but the entire cartridge. We could not test your 'new' unit to certify its performance. (At the factory, our rejects are thrown away.)

As we said, we're doing it for your own good. At the moment, we're the only ones who are.



You can learn a good deal more about the MMC series by contacting us for our comprehensive cartridge brochure.

Bang & Olufsen of America, Inc.,  
Dept. 11F, 515 Busse Rd.,  
Elk Grove Village, Illinois 60007

## Bang & Olufsen

CIRCLE 5 ON READER-SERVICE CARD

G	1	J	2		R	3	Y	4	E	5	A	6	I	7	S	8	L	9	M	10		G	11	K	12	Q	13	A	14	
J	15	O	16	X	17	Y	18		B	19	C	20	E	21	H	22	I	23	P	24		N	25	R	26			T	27	
V	28	M	29	F	30	J	31	Z	32		A	33	O	34	W	35	D	36	S	37	Y	38		C	39	E	40			
G	41	R	42	I	43	T	44	U	45		L	46	J	47	M	48		F	49	A	50	S	51	Y	52	G	53	R	54	
Z	55	E	56	L	57	N	58		U	59	V	60	D	61		O	62	M	63		J	64	R	65	A	66	H	67		
E	68	O	69	S	70	I	71		G	72	R	73	P	74		E	75	H	76	L	77	B	78	Y	79	N	80	A	81	
O	82	J	83	R	84	G	85	M	86		E	87	X	88		D	89	G	90	I	91	L	92	V	93	E	94	A	95	
Y	96	J	97	N	98	M	99		R	100	C	101		F	102	I	103	B	104	A	105	U	106	M	107	H	108	R	109	
K	110		J	111	O	112	Y	113		Z	114	P	115	C	116	R	117		A	118	T	119			I	120	O	121		
B	122		G	123	E	124	P	125	N	126	I	127	A	128	J	129	V	130	Y	131	R	132		G	133	Z	134			
O	135	K	136	U	137	O	138	E	139	S	140		Y	141	T	142	G	143	U	144	M	145	C	146	A	147	I	148	V	149
J	150		M	151	E	152	V	153		W	154	Y	155	S	156	E	157	J	158	Q	159	R	160		V	161	X	162		
M	163	O	164	W	165	A	166	E	167	Y	168		Z	169	C	170	J	171		L	172	A	173	X	174	J	175	R	176	
F	177	K	178	W	179	Y	180		C	181	S	182	E	183		K	184	M	185	G	186		U	187	M	188	A	189		
X	190		P	191	R	192	T	193	D	194	Y	195	B	196		A	197	L	198	Z	199	S	200		R	201	A	202		
J	203	E	204	O	205	I	206	X	207	K	208	N	209	A	210	G	211	M	212	X	213	P	214							

DIRECTIONS

To solve these puzzles—and they aren't as tough as they first seem—supply as many of the Output words as you can in the numbered dashes following the Input. Unless otherwise specified in the Input, the Output consists of one English word. "Comp." means compound, or hyphenated, word.

Transfer each letter to the square in the diagram that bears the corresponding number. After only a few correct guesses you should begin to see words and phrases emerging in the diagram, which when filled in will contain a quotation related to music, recordings or audio.

The words in the quotation are separated by darkened squares and do not necessarily end at the end of a row.

Try to guess at these words and transfer each newly decoded letter back to its appropriate dash in the Output. This will supply you with further clues.

A final clue: The source of the quotation—the author and his work—will be spelled out by the first letters in the Output, reading down.

The answer to HiFi-Croctic No 20 will appear in next month's issue of High Fidelity.

INPUT	OUTPUT	INPUT	OUTPUT
A. Stephen Sondheim musical (4 wds.)	210 189 95 81 118 202 33 166 105 66 50 197 173 6 14 147 128	M. Purcell opera (3 wds.)	99 212 10 185 188 145 29 107 48 86 63 151 163
B. Composer (b. 1935): Sonata for Alto Saxophone and Piano recorded by Enchanté	78 19 196 104 122	N. Had a constant desire or longing	80 25 209 58 98 126
C. Edison's principal mechanic (full name)	116 20 101 181 170 146 39	O. Full professional name of saxophonist Curtis Porter	205 121 16 138 164 62 82 34 112
D. American composer (b. 1935), organized a jazz quartet: <i>Five Japanese Poems</i>	61 89 36 194	P. 1975 winner of the Ravel/Casadesus International Piano Competition	125 191 115 214 24 74
E. Spanish composer (1867-1916): <i>Goyescas</i> (full name)	75 94 124 157 5 139 167 21 68 56 152 87 183 40 204	Q. Type of painting	13 135 69 159
F. Sorrowful type of 16th-century English music	102 30 177 49	R. After Le. Rossini opera recorded by Angel (3 Fr. wds.)	160 84 109 54 117 42 176 201 26 3 192 132 73 100 65
G. Brazilian composer (1890-1950), husband of Guiomar Novaes: <i>Children's Festival</i> (full name)	53 11 211 41 143 1 133 123 72 90 186 85	S. Pauline _____ American avant-garde composer	37 140 182 156 70 8 51 200
H. Horn Gershwin used in <i>An American in Paris</i>	108 67 76 22	T. Pedal or counter	44 119 27 142 193
I. Sang or played an instrument on trial	43 127 91 206 120 7 148 23 103 71	U. See Word K.	137 59 187 144 106 45
J. Strauss polka (comp.)	83 64 97 129 175 31 111 2 171 203 15 150 158 47	V. Falling asleep	28 60 153 161 130 149 93
K. With Word U., the blackening of an incandescent lamp running at high voltage	178 110 208 136 12 184	W. Metallic sound	154 35 179 165
L. Tombstone inscription	9 77 92 46 172 57 198	X. Bang & _____ Danish manufacturer of high fidelity equipment	213 190 174 207 88 162 17
		Y. German operetta composer (1862-1947): <i>Frau Holle; Sonnenguckerl</i> (full name)	79 180 18 131 96 195 52 168 4 141 113 155 38
		Z. Shuffle cards: flutter pages	55 199 169 134 114 32

# the great STA-64 Deceiver see it, hear it, touch it.



## Discover why its price is deceptively low!

There's quite a story behind the new Realistic STA-64. It's packed with technological intrigue. Like phase-locked loop multiplex and an FET front end for sensational FM stereo. And there's plenty of specs appeal for excitement. 16 watts per channel, minimum RMS at 8 ohms from 20-20,000 Hz. with no more than 0.8% total harmonic distortion. "Classy" down to the last detail. Massive silvery panel, huge edge-lit dial, oversize meter. Precision controls for loudness, tape monitor, 11-step detented bass and treble, and an exclusive Quatravox® synthesizer. Handsome walnut veneer cabinetry. A thriller you can see, hear, and feel. Sound expensive? Don't be deceived! The STA-64 has a surprise ending. It's only 239.95.\*



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# Recordings Before Edison

by Leonard Marcus

ON MAY 16, 1758, one hundred twenty years before a piece of tinfoil told Thomas Edison that Mary had a little lamb, John Wesley, the founder of the Methodist Church, preached a sermon in Lurgan, Ireland. In the village he saw a "statue . . . the like of which all allowed was not to be seen in Europe." Wesley described the contraption, created by a local artisan named Miller, as a "figure of an old man, standing in a case, with a curtain drawn before him, over against a clock which stood on the other side of the room. Every time the clock struck he opened the door with one hand, drew back the curtain with the other, turned his head, as if looking round on the company and then said, with a clear, loud, articulate voice, 'Past one, two, three,' and so on."

Four years later, the Lurganers still being in need of salvation, Wesley returned, this time making a point of meeting Miller. On April 26, 1762, Wesley noted in his journal that so many people had come to see the android, "Mr. Miller was in danger of being ruined, not having time to attend to his own business." Since nobody would buy the prototype, nor commission him to design other revolutionary audio breakthroughs, Miller had disassembled it. Ten years passed and, when on June 14, 1773, Wesley again preached in Lurgan, Miller told the clergyman that he had reconstructed the device, improving the design. Now there were two androids, "which would not only speak but sing hymns alternately with an articulate voice; that he had made a trial and it answered well." The artisan was now not only enticing Wesley with an overengineered alarm clock, but tempting him with a fellow evangelist as well—and an embryonic Methodist at that. But Miller didn't know when he could perfect his masterpiece, "since he could work on it only during his leisure hours."

And that is all we know about Mr. Miller and his curious invention. While we do not know how this Frankensteinian timepiece worked, it can probably be described as a machine in which sound to be reproduced is programmed, or recorded, into the mechanism by the designer, and the resulting sound is that of the apparatus.

Opposed to this mechanical method is the acoustical, including the electrical, in which sonic vibrations themselves are captured in perform-

ance and then reproduced. In this process, the resulting sound is (at least expected to be) that of the independent performance. For most of the history of sound reproduction, the mechanical method held sway. Yet, since sound evaporates as soon as it is produced, men, ever seeking permanence in life's ephemera, long sought ways to record, preserve, and reproduce it—or at least to believe that such possibilities existed.

## Myths, Stories, and Natural Phenomena

According to Kwang Tung, a scholarly governor of mid-nineteenth-century Peking, an ancient Chinese tome depicts a sound recorder that played a part in Chinese history. The story was recounted by Sir Robert Hart, the Irish-Chinese inspector general of the Maritime Customs Bureau in China, to whom Kwang narrated it. The two-thousand-year-old book supposedly tells of a prince who, a thousand years earlier, had to communicate secretly with another who lived in a faraway district. The prince would talk into a special box, which he then would close and dispatch by trusted courier to his friend. The second prince, upon opening the box, would hear the words that had been spoken into it. Why a box that would blab as soon as any interceptor took off its cover was given a higher security rating than the trusty runner himself was apparently not made clear. Nor was such an explanation necessary in order to cement Sir Robert's belief in the story. It satisfied a deep-seated urge for some sort of immortality, which the capture and permanent preservation of one's own voice implies.

A Captain Vasterlock, returning from a trip to the South Seas in 1632, also inspired a coterie of believers with his tales of a sponge, harvested by native islanders, that retained sound within its cells. If a native spoke into the sponge, he could hear it reproduce his voice simply by squeezing it. Subsequent squeezes on the "sound-dry" sponge would presumably produce only silence.

About twenty years later, Cyrano de Bergerac, the generous-nosed swordsman/poet/author on whom Rostand would one day base his popular play, echoed the sponge image in *The States and Empires of the Moon*—a book we would today consider a science-fiction novel. Here is a lunar phi-



losopher, who apparently doesn't know that his environment is airless, explaining the nature of sound to the hero:

For the sake of brevity let us simply consider the case of the notes of a lute touched by the hands of a virtuoso. You will ask me how I can possibly perceive something so far away from me and which I cannot see at all. Does a sponge come out of my ears and soak up this music in order to bring it to me? Or does the musician beget another little musician inside my head with a little lute and instructions to sing the same tunes to me like an echo? No; the miracle is due to the fact that the plucked string strikes the air which is composed of little bodies and drives it into my brain, gently piercing it with these little bodily nothings. If the string is taut the note is high, because it drives the atoms more vigorously and once the organ is thus penetrated it furnishes my imagination with sufficient of them from which to make its picture.

The audio seminar over, Cyrano in 1650 next foretells, remarkably, not only an acoustic phonograph, but headphones as well. The philosopher has left the hero with a pair of books, each boxed in a cover carved out of a huge jewel:

On opening a box, I discovered in it a metal object, not unlike one of our clocks, which was filled with all manner of tiny springs and mysterious machines. It was a book indeed, but a miraculous book, with neither pages nor letters: it was, in short, a book where the eyes were useless for reading and for which only the ears were needed. When someone desires to "read," he winds up this machine with a great quantity of little threads of all kinds, then he turns the needle to the chapter he wishes to hear and at once there issue from it, as from the mouth of a man or from a musical instrument, all the distinct and different sounds which the great lunarians employ for the expression of their language.

When I have later reflected upon this miraculous invention for making books, I am no longer astonished to see how the young men in that country possessed more understanding at sixteen or eighteen than the graybeards do in ours, since, knowing how to read as soon as they can talk, they are never without reading matter. In their room, on a walk, in town, or on a journey they can carry some thirty of these books in their pockets or slung from their belts. They have only to wind up a spring in order to hear a single chapter, or several, indeed, if they are in a mood to listen to a whole book. Thus you can have all the great men, both dead and alive, perpetually about you, to address you *viva voce*.

This gift occupied me more than an hour.



Cyrano de Bergerac (above) described a needle-activated phonograph with headphones. Albert the Great reportedly built a talking head.



Finally, having attached them to myself in the form of ear pendants, I went out for a walk.

Song and speech from the inanimate probably entered mythology as soon as the first man heard the wind howl around a rock and imagined a god's voice choosing him to subjugate his people. One of the best-documented ancient inanimate objects to which lifelike sounds were attributed may in fact soon begin to "sing" again.

The Greeks knew of two giant black basalt statues, fifty-nine feet high, that overlooked the western plains of Thebes. They assumed that the dark colossi were of Memnon, the Homeric black demi-god who was the king of Ethiopia and son of Eos, goddess of the dawn. In 27 B.C., after the Roman conquest, the head of the northernmost colossus was toppled by an earthquake. One can only imagine everybody's surprise, when from then on, Memnon would "sing" greetings to the dawn, his mother, each morning.

We get many reliable descriptions of the phenomenon from Roman sources. Strabo testifies he heard the statue while he was in company with Aelius Gallus and other friends; Juvenal and Tacitus refer to the "vocal Memnon"; and Pausanias compared the sound to a harp arpeggio. The tones probably originated from the changes of temperature in the stone as the sun rose each morning. This classical tourist attraction lost its vocal talent, as anyone who has ever hired an inexperienced contractor can easily understand, when a second-century Roman emperor ordered it repaired.<sup>1</sup>

The Greeks and Romans notwithstanding, the colossi were not of Memnon at all, "Memnon" possibly being a corruption of "Amenophis." About 1,400 years before the Christian era, Amenophis

<sup>1</sup>For all numbered footnotes, see "Notes to Future Scholars" at end of article.

III—pharaoh of the XVIII dynasty, founder of Luxor, builder of Karnak and Thebes, and father of the famous monotheist pharaoh Akhenaton—had a funerary temple constructed across the Nile from Luxor. The temple was fronted by the two colossi, supposed to represent him, certainly not some Ethiopian.

Today, 125 miles down the Nile, stands the Aswan High Dam, whose presence has recently been causing seepage problems in the Luxor area. The underground water is so endangering the colossi that the Egyptian government has begun making plans to protect them by building concrete foundations—and at the same time to restore them. According to a *New York Times* report last August, Egyptians are speculating that the restoration may result in Memnon resuming his performance after an 1,800-year intermission.

### Mechanical Contrivances

Records of man-made mechanical sound reproducers antedate even Memnon's musical propensities. Reports from China of the third century B.C. mention a mechanical orchestra constructed for the Han emperor. We don't know how the orchestra sounded, nor how it worked, but by the seventh century A.D. such automata had become common enough among the Chinese nobility for a book to have been written about them. The book's title, *Shui shih t'u Ching (Book of Hydraulic Elegancies)*, at least suggests that water pressure was the activating agent. During the next three centuries one finds references to gadgets that represent everything from girls singing and monks begging to birds flying and otters catching fish.

In Greece during the first century, Hero of Alexandria described musical and other automatic devices activated by water, weights, and steam. But references to automata go back as far as the fourth century B.C. to a friend of Plato's, Archytas of Tarentum, who amused himself by creating a wooden pigeon, suspended from a pivoted bar, that revolved through its excitement by compressed air or steam. I do not know of any evidence that the pigeon cooed or made any sound—or indeed made anything else that pigeons generally make—but it should be noted that Archytas, a follower of Pythagoras, was one of the early investigators of acoustical phenomena.

The ninth-century Byzantine emperor Theophilus, who spent his entire reign fighting the caliphs of Baghdad, took time off in about 835 to impress foreign visitors by commissioning an elaborate golden throne. When activated, mechanical lions supporting the royal seat roared and mechanical birds in mock trees on either side sang. Six years or so later the unimpressed caliphs killed him anyway.

Two often-told stories involve the creation of androids by a pair of the thirteenth century's most noted philosophers, Albertus Magnus and Roger Bacon. Albertus, the teacher of St. Thomas Aquinas, is credited with the invention of either a bronze head or an iron man—depending on the authority—who spoke. One report claims that the great Albert worked on his invention for forty years, only to have it smashed by his more saintly protégé, who wanted to demonstrate “the futility of man's labor.” If this story is true, it should be pointed out that even by the time Albert reached his forties Thomas was no longer his pupil.

Their contemporary, the English friar Roger Bacon, one of the original proponents of the scientific method, praised Albertus Magnus as “the most noted of Christian scholars,” although he was philosophically antagonistic to him. Bacon also is credited with inventing a talking head. What became of the alleged head is unknown, but while Albert was using his scholarship to revive the reputation of Aristotle, Bacon was spending fourteen years in prison for his heresies.<sup>2</sup>

The fourteenth century saw the development of mechanical clocks and their spread throughout Europe. It was only natural for the clockwork to drive figures and sound-producers of various sorts; a pinned barrel—which was to dominate the field for centuries—became the common activating device. The clockwork would turn the barrel, and the pins would push or strike an automaton into life. Any respectable city would be ashamed not to have bell-strikers, or jaquemarts, adorning its main clock, and some even boasted automatic carillons, the earliest of which date from this era.

The coiled tempered-steel spring was to the sixteenth century what the transistor is to ours. It allowed for both miniaturization and portability and, combined with the contemporaneous re-discovery and translation of the writings of Hero of Alexandria, it brought the state of the art of mechanical sound reproducers to a new high. In the Kunsthistorisches Museum in Vienna one can see a mechanical lady, dating from about 1540, who plays the mandolin. The Musée de Cluny in Paris boasts a “Ship of Charles V,” nearly a yard long, from the same era. As the hour strikes, a miniature organ plays, as does a band of musicians on deck; the boat rocks, sailors move in the rigging, and ten courtiers “pay their respects to Charles, who bows in acknowledgement.”

It was also the century of automatic organs, virginals, and harpsichords. One of these virginals—made by Bidermann of Augsburg around 1600—was reported in Wroclaw, Poland (then Breslau) at least up until World War II. With forty-four keys and jacks, it could be played manually; automatically, it had a repertoire of six tunes, using seventeen of the jacks. You could thus improvise duets with this predecessor of Music Minus One.

This mid-sixteenth-century lady, possibly of Spanish origin, actually plays her mandolin, thanks to her mechanical innards.



Vienna Kunsthistorisches Museum

Henry VIII of England is known to have had an automatic virginal "that goethe with a whele withoute playinge uppon." In 1599 his daughter Elizabeth I sent the Turkish grand sultan a two-story-high musical clock, constructed by organ-builder Thomas Dallam (who went along, presumably to supply installation and warranty service). Every six hours it would automatically play a four-part song on sixteen bells, follow it with a tantara by two mechanical trumpeters standing on the second floor, segue into a five-part organ tune, which was repeated, and finish—from a holly bush atop the sixteen-foot-high organ—with "birds and thrushes, which at the end of the musick did singe and shake their wings." How do you like that, Robert Moog?

Elizabeth's eventual successor Queen Victoria had to make do with a musical bustle she received in 1887; if she had it on, it would play "God Save the Queen" whenever she sat down. Victoria's reputation being what it was, it is doubtful she ever wore it.

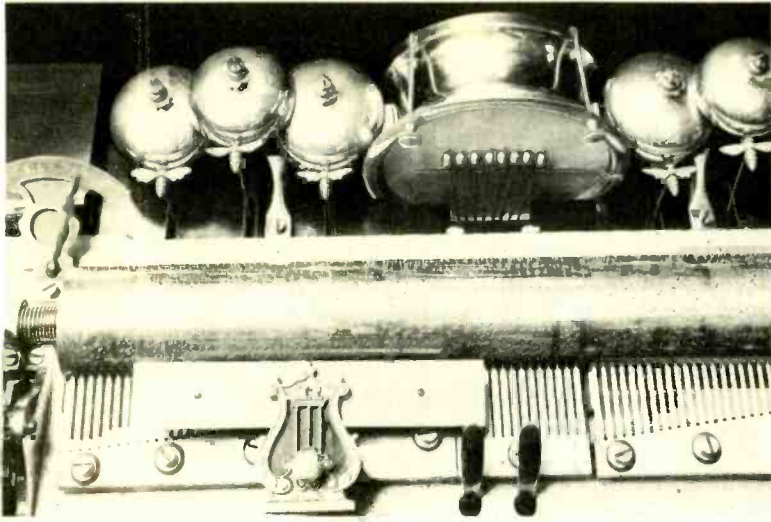
The refinement of clockwork techniques, combined with the barrel-and-pin mechanism and now a bellows, brought mechanical sound-reproducing devices to a zenith in the eighteenth and nineteenth centuries. A French gentleman named Jacques de Vaucanson spent his life, encompassing most of the eighteenth century, constructing robots of various sorts—both utilitarian and aesthetic. In 1738, at the age of twenty-nine, he constructed his first major opus: a life-size flute player, worked by a bellows, which could play half a dozen tunes. About ten years later he amazed Paris with the first working automobile, propelled by a clockwork engine. Around 1750, with the miniaturization of Vaucanson's technique, singing mechanical birds became popular.

The sound came from a small pipe activated by a bellows, with a sliding stopper to alter the pitch. A cam controlled both the admission of air and the duration of the tone, and a lever on the bellows added realistic pauses. Small music boxes proliferated throughout the world, many incorporated into clocks, watches, and snuff boxes. They would include bells and miniature drums and—after its invention in 1776 by Aristide Janvier—the ubiquitous metal comb. A single cylinder might offer eight or ten programs.

Composers became fascinated with the mechanisms and wrote pieces for them. Haydn in 1792–93 composed for the flute-clocks (*Flötenuhr* or *Laufwerk*) that Prince Esterházy's librarian, Father Primitivus Niemecz, constructed for their master (these "clocks" did not tell time); the composer even supervised the pinning on the barrels. Around 1782 Mozart wrote an Adagio and Allegro in F minor (K. 594) and in 1791 a Fantasia in F minor (K. 608) and an Andante in F (K. 616) for mechanical organ. Played by human beings, the Mozart pieces can all be heard on Columbia MS 6856 (E. Power Biggs), Lyrichord 7168 (the Soni Ventorum Wind Quartet), and Telefunken 6.41117 (organ and strings, including Herbert Tachezi and two Harnoncourts). Count Deym, who commissioned Mozart, also commissioned Beethoven to write some pieces for the flute-clock and harp-clock. An Adagio and Allegro have been recorded, along with two of the Mozart works (K. 608 and K. 616) and seven of Haydn's thirty-two clock-work tunes, by a wind quintet on a charming MPS disc, "Stücke für eine Flötenuhr" (25 20902-4), distributed by BASF in Europe but unavailable here.

Best known and most widely recorded of all the compositions for machines is, of course, the *Wellington's Victory* (or *Battle Symphony*) that Beethoven concocted in 1813 for the panharmonicon, a full mechanical orchestra invented by Johann Nepomuk Mälzel, inventor also of the metronome. The original panharmonicon, first exhibited in Vienna in 1804, was the result of Mälzel's adding violins, cellos, and clarinets to a previous automatic instrument of his, containing flutes, trumpets, drums, cymbals, triangles, and hammer-struck strings, all activated by pinned barrels driven by weights. Before he snared Beethoven to write for an even more elaborate version of the panharmonicon, he had programmed it to play music by Haydn, Mozart, and others. In fact, anticipating today's "innovative" concerts that attract customers by adding rock groups to symphonic performances, the December 8, 1813, concert in which Beethoven's Seventh Symphony had its premiere enlarged its appeal by featuring the panharmonicon, which dutifully ground out marches by Dussek and Pleyel.

An even more ingenious mechanical orchestra was the componium, constructed by an inventor

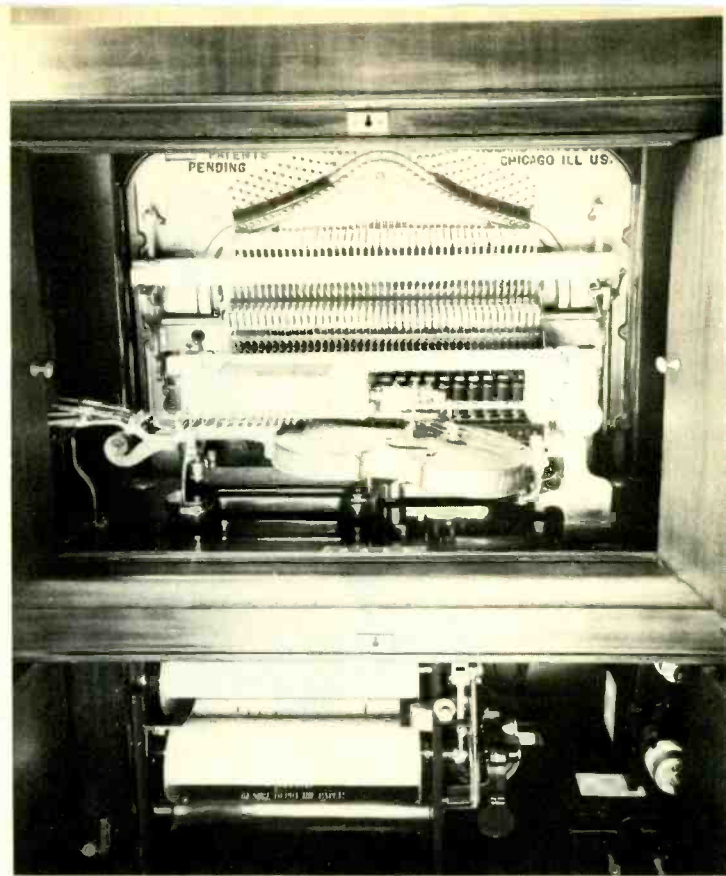


The detail of a late nineteenth-century hand-cranked cylinder music box, above, shows not only the ubiquitous metal comb, but accompanying bells and drum. The "M. F." on the lyre stands for the Swiss manufacturer, Mermod Frères. A perforated paper roll plays, and electricity powers, the Violano-Virtuoso, right. Holes on the roll's left activate the piano, those on the right the violin, whose metal "fingers" project upward from the fingerboard. This model, made in 1914, could crank out the Beethoven Violin Concerto.

named Koppen and exhibited in Paris about 1829. This gizmo not only performed, but composed! Its modus operandi might have been an automatic means of playing the composition-by-dice game that seems to have attracted even Mozart, who apparently composed the hundred-odd measures necessary to play one version of it. A toss of the dice determines each measure, and all measures are categorized by harmony so that the entire composition fits together nicely. One contemporary account states that the composing machine "improvised charming variations without ever repeating itself." In "Mozart's game" sixteen tosses of the dice, for the sixteen-measure minuet, give quadrillions of possible combinations.

The componium's Parisian success led its promoters to exhibit it in London the following year. But the exhibition there coincided with the death of King George IV, and the apparatus received little attention. On its way back to Paris it was held up in customs, wouldn't you know, where it was severely damaged by dampness.

Lest one think that by the nineteenth century the human race had given up its quest for talking machines in its preoccupation with musical ones, note the masterpiece of Josef Faber. In 1869 he fascinated all Vienna with his talking man. It had ivory reeds for vocal cords, had a rubber tongue and lips, and worked via a keyboard, which also altered the mouth cavity as it formed the words. Herr Faber must have had an uncanny ear for linguistics: He provided his android with an optional French accent by a nose tube for nasal quality and



a small fan wheel for rolled r's. Reportedly you could hardly understand a word.

Before the century was over, perforated paper and metal discs began to replace the pinned cylinder, or barrel, as the mechanism in sound-reproducing devices. Until metal discs became available, it was possible to increase the number of tunes in a music box only through machines with interchangeable cylinders, and these were expensive. Then during the 1880s the polyphon appeared on the market. In this type of device, the pins were embedded in more easily changeable steel discs, or the discs were slotted. The most elaborate model was the Regina, which used seven-inch discs, each of which controlled two minutes of music from two metal combs that spanned seven octaves. Even more intriguing, from a later point of view, the Regina included a record-changing mechanism that could hold a dozen of these discs.

The polyphon actually came after the invention of the phonograph, and, when the disc phonograph began to monopolize the field, the company hedged its bet with the Reginaphone, which played both steel and phonograph discs. In today's era of omnidirectional speakers, one feature of the Reginaphone rings a bell—or plucks a comb; it boasted a speaker that projected the sound "upward from the interior of the case instead of being sent out through the front. Thus the sound is most evenly distributed and harshness of tone avoided."

The heyday of perforated paper tape as a music-

making medium also postdated the invention of the phonograph, but I could not leave the discussion of mechanical contrivances without including the most important of all, the player piano.

Perforated paper tape as a means of control had evolved in the textile industry. As far back as 1725, Basile Bouchon created a punched-tape system to direct the needles controlling the warp-holding cords in looms, thus determining the pattern of the fabric as well. Twenty years later Vaucanson—he of the six-foot-tall flute player—improved the mechanism by replacing the tape with the more easily substitutable perforated cards. By the turn of the nineteenth century, Joseph Marie Jacquard had so improved the control mechanism that the “Jacquard loom” became a major impetus to the Industrial Revolution, inspiring as many workers’ riots against it as any other nineteenth-century mechanism.

In 1863 a Parisian named Fourneaux incorporated a roll of perforated paper in his pianista, a windup machine whose “fingers” could play a piano if you pushed it close enough. As you wound the crank a bellows would blow air through the holes in the paper, thus causing the proper “fingers” to depress keys as the roll rolled. The public was offered other pneumatic artists, but it wasn’t buying—until American engineer Edwin S. Votey filed a patent in 1897 for a mechanical piano that, like the harmonium, worked via foot pedals. He assigned the patent, upon its grant in 1900, to the promotion-minded Aeolian Company, which in turn assigned to it the name “pianola.” A similar device, the eighty-“fingered,” two-“footed” Vorzetzer (or sitter-in-front), appeared in Europe in 1904 as the brainchild of another Edwin, the scion of the Welte family that for generations had been the proprietors of a flourishing Black Forest music-box firm. In 1885, in fact, the Weltes had already used a roll of perforated paper to control a music box.

As these mechanical performers grew in popularity, piano manufacturers began to incorporate the mechanisms into the instruments themselves, thus transforming the pneumatic piano players into player pianos. Edwin Welte took the concept one step further with his delicately named Welte-Mignon. As Arthur Loesser put it in *Men, Women, and Pianos*:

A pneumatic playing machine that worked automatically and electrically—and was capable of rapid changes in the force of the air puffs it gave forth—might seem competent to reproduce the exact playing of a professional performing artist. The artists, playing on a specially built instrument, could complete an electrical circuit by means of contacts situated just beneath each key. In this way, a set of lead pencils could be activated to make

longer or shorter marks on an actual player-piano paper roll as it revolved at the standard speed. The length and spacing of the pencil marks, then, would exactly correspond to the performer’s own strokes upon the keys, thus giving the precise nuance of his rhythm and phrasing. His pedaling could be similarly recorded. His shadings would be more difficult, if not impossible, to reproduce, because the force of the key stroke—since it merely made a connection—could not affect the action of the recording pencils. The nearest solution was to have the artist’s shading carefully noted in a copy of the music by another musician and then synthesized on the finished roll by the cutting of special perforations near both its edges, designed to control the force of the air puffs. Some of this synthesis of shading could be achieved with a high degree of plausibility and, when coupled with the authentic recording of the key strokes, often gave a close approximation to the artist’s playing. Incidentally, this type of machine had a special advantage: Any false note played by the artists could be rectified with complete smoothness by the simple process of erasing the pencil mark that represented it on the master roll and substituting an equivalent, correct one.

Vladimir Horowitz, who has made dynamic nuances the core of his art, once told me that the piano rolls he recorded upon didn’t sound anything like the way he played. Considering the dynamic limitations of the rolls, and their inability to pedal subtly (the pedal would be either fully up or fully down), one can appreciate his dissatisfaction. But within a year of the introduction of the Welte-Mignon, Edwin Welte was able to begin persuading the world’s leading pianists and composers to record for him—other companies like Aeolian, Pleyel, Duo-Art, and Ampico soon followed suit—and most of the performers seemed quite enthusiastic about the process. There was, after all, money to be made with it.

Eventually, practically every important pianist committed his art to punched paper: Busoni, Nikisch, Samaroff, Backhaus, Hofmann, Rubinstein, Landowska, Godowsky, Lhevinne, De Pachmann, Paderewski, Rachmaninoff, Leschetizky, Carreño, Schnabel, Serkin, and, of course, Horowitz among them. More than two dozen LPs of Ampico and Duo-Art piano rolls made by such luminaries are available on Everest Records’ “Archive of Piano Music,” an equal number are available on Klavier Records, and three well-reviewed LPs of Ampico rolls, titled “The Golden Age of Piano Virtuosi,” can be had on Argo DA 41 (Lhevinne), DA 42 (Rosenthal and Rachmaninoff), and DA 43 (Godowsky and others).

In 1912 Artur Nikisch conducted the London Symphony Orchestra in Grieg's Piano Concerto starring a pianola as the soloist; within a decade the fad was followed by such conductors as Josef Stransky with the New York Philharmonic and Leopold Stokowski with the Philadelphia Orchestra.

Not only did such composers as Grieg, Debussy, Ravel, Richard Strauss, Mahler, Saint-Saëns, Stravinsky, Prokofiev, Gershwin, Falla, and Fauré record on piano rolls (Gershwin's roll of the *Rhapsody in Blue* with new orchestral accompaniment conducted by Michael Tilson Thomas, on Columbia, was reviewed last month), but several wrote music especially for the medium. Like Haydn and Mozart, they were fascinated by the new mechanism. Taking advantage of the machine's ability to play what human pianists could not, Hindemith, Stravinsky, Toch, and Antheil composed pieces that at times included chords with more than thirty notes, simultaneous notes spaced farther apart than hands could encompass, and rhythms that cannot be written in traditional notation but can easily be punched into paper.

Hindemith's 1926 Toccata was written for mechanical piano, Antheil's notorious *Ballet méca-*

*nique* included a player piano among its instruments, and, as David Hamilton has noted in these pages, a 1918-19 version of Stravinsky's *Les Noces* exists, up to the end of the second tableau, that is scored for two cimbalons, harmonium, pianola, and percussion. In the score, the pianola part requires as many as five staves to indicate all the notes since, to quote the composer, it "was not intended for human hands but for direct translation into the punch-card language of the automated poltergeist." A year earlier Stravinsky had composed a Study for Pianola that eventually became *Madrid*, the last of the Four Studies for Orchestra. In its original form it was finally heard in 1921 on a roll recorded by the composer. Stravinsky also transcribed for and recorded on piano rolls most of his major early works, including the *Rite of Spring*, *Petrushka*, *The Firebird*, and even such vocal works as *Les Noces*. (Presumably you could sing along with it.) Of these, only the *Firebird* piano roll is currently available, on Klavier Records KS 126.

There is no doubt that in its time the player piano reproduced performances with acoustically higher fidelity than the phonograph could—or perhaps can today. The piano roll itself was even



## Dr. Young— The Other Thomas

*A mine to which every one has since resorted, and contained the original hints of more things since claimed as discoveries, than can perhaps be found in a single production of any known author.*

comment on his published lectures from  
*Memoir of the Life of Dr. Thomas Young*  
ANON.

Thomas Young's misfortune was that, while he often got there first, he seldom stayed there long enough. Credit usually went to those who got there later. The ideal eighteenth-century man, he encompassed a greater variety of subjects in his investigations than Edison did. But it was Young's wide-ranging interests that pulled him into new fields too soon to plow many deeply enough. Just

consider the range of his influence: Young revived and established the wave theory of light and discovered the principle of interference; diagnosed the cause of astigmatism; explained the polarization of light waves; contributed to the theory of tides; advanced the mathematical theory of epicycloidal curves; investigated the function of the heart and arteries in circulation; made the first reasoned estimates of molecular size; described and analyzed yellow fever; furthered the theory that one sees colors by fibers in the eye that respond to red, green, and violet; improved the calculation of eclipses; deciphered the Rosetta Stone's hieroglyphics; defined a coefficient of elasticity known as Young's modulus; made original studies on diseases of the chest; while still a student, explained how the lens of the eye adjusts itself to focusing at varying distances; and investigated and wrote about music, painting, harmonic theory, sound, light, capillarity, spiders, and the atmosphere of the moon.

Young was born on June 13, 1773, in Milverton, Somerset, England, the eldest of his Quaker parents' ten children. He read fluently at two and by age four was able to recite Latin poetry, not a word of which he understood. A neighbor of the family, a surveyor, befriended the boy at eight and took him out into the country on some surveying trips. The mathematics involved fascinated the child and, he was to indicate later, influenced the course of his life.

In school he learned Greek and Latin; in order to read a classmate's books from Paris, he taught

more easily editable than magnetic tape. Yet it left so much to be desired musically and was so restricted generically—nobody figured out a way to record Caruso on piano rolls—that by the end of the 1920s the scratchy phonograph was able to consign it to oblivion.

## Acoustical Methods

The procedure for inscribing sonic vibrations onto paper was known for at least three-quarters of a century before Edison translated the resultant wiggles back into sound. Toward the end of the eighteenth century Dr. Thomas Young, an acrobatic British surgeon [see more detailed treatment below] still in his early twenties, noted, "I fancy I have made some singular observations on vibrating strings, and I mean to pursue my experiments." In 1799, Young at age twenty-six prepared for the Royal Society a paper on sound and light in which he described his investigations into some "very obscure but interesting subjects. As far as I know, most of these observations are new."

The paper contains measurements of the quantity of air discharged through an aperture; of the pressure needed to make organ pipes "speak"; of

the frequencies of vibrations corresponding to audible tones. Young devotes considerable space to describing the vibration of cords, "which may vibrate as a whole or in 2, 3, 4, etc., parts. The mixture of these 'partial tones' gives the quality to the note." After describing the work of Bernoulli, who anticipated him in some investigations of sound in 1753 and 1762, as well as of Euler and Lagrange, Young concludes with, "There are still several particulars respecting the gyrations of chords, and formation of synchronous harmonics, the combination of sounds in the air, the phenomena of beats, on which I flatter myself that I shall be able to throw some new light."

While a professor at Emmanuel College, Cambridge, Young in 1802 published a syllabus of a Course of Lectures on Natural and Experimental Philosophy that he would give in the theater of the Royal Institution of Great Britain. According to contemporary accounts, his lectures were so dull that even his fellow professors in attendance had difficulty staying awake, much less paying attention.

Fortunately, he resigned his professorship to prepare his lectures for publication in 1806, and these papers became widely circulated through-

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himself French and Italian; when a dinner-table conversation brought up the problem of whether there was as much difference in Oriental languages as in European, he further taught himself Hebrew, Persian, and Arabic. And all this before he was fourteen.

Young's interests turned to botany, but he had no microscope. He decided to build one himself and, in order to understand the optician's algebraic formulas necessary to grind his own lenses, taught himself differential calculus.

At twenty he read a paper on vision to the Royal Society of London, his country's most prestigious scientific body, and the following year he was elected a fellow. Meanwhile, Young was studying to be a doctor in England and Germany, and in 1795, at twenty-two, he received his M.D. degree from Göttingen. He became professor of physics at the Royal Institute in 1801 and lectured there with Sir Humphry Davy.

Although he established himself as a physician in London, he never had much of a practice, since he devoted most of his time to other studies. In fact, he had to publish the bulk of his writings anonymously, so that his patients wouldn't think he was wasting his time on irrelevant matters.

In 1814 the Rosetta Stone, that precious monolith containing inscriptions of the same text in Greek, demotic, and hieroglyphics, came to Young's attention. The stone had been studied for a generation in an unsuccessful attempt to translate the Egyptian hieroglyphs. For millennia, scholars and laymen alike had assumed that each

symbol represented some idea or thing. By now Young had increased his knowledge of languages to include Ethiopic, Coptic, and Turkish. He made the critical breakthrough in determining that at least some of the hieroglyphs were phonetic and, in so doing, established that the group of symbols within cartouches, or boxes, were proper names; he deciphered some of them, as well as the symbols representing numbers, and saw how plurals were constructed. After making that first break in the code, he characteristically left the field.

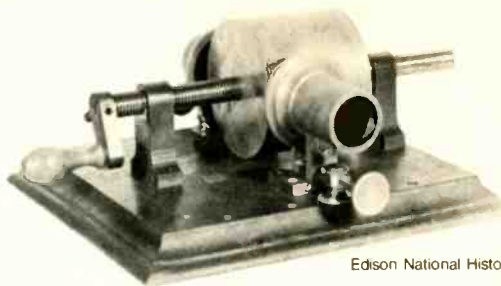
Jean François Champollion, who came in where Young left off and cracked the code wide open, was of course given the credit. As Helmholtz was for his furtherance of the idea that color is perceived by nerves in the retina sensitive to three colors. As the French physicists Fresnel and Arago were for convincing Europe of the validity of the wave theory of light. As Edison was for the phonograph. And who knows how many et ceteras belong here?

In his spare time Young became an expert acrobat, ropedancer, and equestrian, vying with the local circuses in demonstrating such feats as riding two horses at once. He gave up the practice of medicine at forty-five when he became secretary to the Board of Longitude and superintendent of the National Almanac. In 1827, two years before his death, the French honored him by electing him one of only eight foreign members of the Royal Institute of France. Young died on May 10, 1829, just short of age fifty-six, of "ossification of the aorta."

L.M.



Smithsonian



Edison National Historic Site



Robert Long

Léon Scott de Martinville's phonautograph, left, antedated Edison's phonograph by a generation. It could record but not reproduce sound. At right, Edison's own telegraph repeater. A recorder embossed a paper disc with the Morse code so that a reproducer (shown here) could later transmit the message. It was Edison's work on the telegraph repeater that led to his original phonograph, shown at center.

out Europe. In Lecture XXXI, titled "On the Propagation of Sound," Young described a prophetic experiment:

If we fix a small pencil in a vibrating rod, and draw a sheet of paper along, against the point of the pencil, an undulating line will be marked on the paper, and will correctly represent the progress of the vibration. Whatever the nature of the sound transmitted through any medium may be, it may be shown that the path thus described will also indicate the situation of the different particles at any one time.<sup>3</sup>

Even more farsightedly, perhaps, he described his investigations into the type of recording horn best suited for focusing distant sound at the stylus. After dismissing the conical shape, he states that "a parabola is the proper form of the section of a tube calculated for collecting a sound which proceeds from a great distance into a single point. . . . The parabola ought to be much elongated, and to consist of a portion of the conoid remote from the vertex." This sort of sound-collector is used today for radar antennas and radio telescopes, and for making nature recordings.

Two years after Young's death in 1829 an anonymous memoir of his life stated that these widely disseminated lectures were "a mine to which every one has since resorted, and contained the original hints of more things since claimed as discoveries, than can perhaps be found in a single production of any known author." Among the miners, apparently, was Léon Scott de Martinville, a Frenchman of Scottish descent. Scott took Young's concept of a vibrating rod, substituted a diaphragm for it, added a horn, and used a hog bristle instead of Young's pencil. The bristle was attached by sealing wax to a parchment diaphragm activated by sound that the horn had focused. Pressed against a manually rotatable lampblack cylinder, it would transcribe the sonic vibrations. The result was the "phonautograph," a device that could record the human voice, music, or indeed any sound.

The phonautograph attracted considerable attention, and in 1859, after it was exhibited in London, Prince Albert took it home and found he could amuse Queen Victoria with it. Now all that remained was for someone to figure out how to reproduce that recorded sound.

Among those working on the problem, two were unknowingly racing toward the same 1877 deadline: Edison and Charles Cros. Around 1869, Cros, a minor French poet, discovered the basic principles of three-color photography, only to be overshadowed when Ducos du Hauron, who got all the credit, made the same discovery simultaneously and wrote about it in greater detail. Poor Cros was about to have the same thing happen to him again. (Poor Thomas Young actually got there first with the three-color principle.)

On April 18, 1877, Cros wrote a paper describing a method of making metal discs from the tracing of "a needle over a surface blackened by fire" through "a well-known photographic process." In other words, still trying to make some use of his photographic expertise, he proposed photographing the phonautographs. On April 30 he deposited the paper—sealed—with the Academie des Sciences. In New Jersey, on July 18, Thomas Edison noted in his lab workbook: "Just tried experiment with diaphragm having an embossing point & held against parafinn paper moving rapidly. The spkg vibrations are indented nicely & theres no doubt that I shall be able to store up & reproduce automatically at any future time the human voice perfectly." On August 12, on a page labeled "Phonograph," Edison's lab book shows not only a roll of paper tape as the recording/reproducing medium, but, on the bottom of the page, a sketch illustrating that the tape can be recorded by a magnet! (On December 3, having continued to work this vein, Edison wrote: "Recording by magnet works OK but not so strong as with voice, requires our loudest telephone to do the biz.")

A notation of September 7 by an Edison assistant, James Adams, states that "it would seem that so wonderful [a] result as this would require



elaborate machinery. On the contrary the apparatus although crude is wonderfully simple." It appears that something must have been heard from the paper tape by that date.

In the October issue of *La Semaine du Clergé*, the Abbé Lenoir discussed Cros's invention, coincidentally calling it the "phonograph."<sup>4</sup>

On November 29,<sup>5</sup> Edison sketched what would be the phonograph itself. A sheet of tinfoil wrapped around a cylinder had replaced the paper tape. [For a more detailed description, see the following article, "The Parallel Careers of Edison and Bell"—Ed.] He handed the sketch to John Kruesi, who took it back to the machine shop and on December 6 completed the first working model.

Edison wrapped some tinfoil around the machine's cylinder, glued it into place, turned the crank, and dictated into the mouthpiece. Exactly how he rendered the nursery rhyme has been told in conflicting versions. I like the one repeated years later by one of his associates. According to this story, Edison said:

Hallo! Hallo! Hallo!  
Mary had a little lamb,  
Its fleece was white as snow,  
And everywhere that Mary went  
The lamb was sure to go.  
Ha! Ha! Ha! Ha! Ha!

One wonders whom he was laughing at. ●

## Notes to Future Scholars

1—**Repair of Memnon.** Every source, from the *Encyclopedia Britannica* (all editions at least in this century, including the "totally revised" latest) to the *New York Times*, "credits" the ordering of Memnon's repair to the Emperor Septimius Severus, the year being either 170 or 174. Nobody seems to have noticed that the Roman emperor for either of those years was Marcus Aurelius. Severus would not become emperor for nearly a quarter of a century and, by 170, had not yet even become a senator.

2—**Mechanical speech.** Some authorities refer to an inventor named Kratzenstein (and why did these old scholars follow the Communist practice of omitting first names?) who produced a device in 1779 that would imitate human vowel sounds. The apparatus is generally written off with a phrase like, "It does not seem to have been a great success." But that same year Professor Christian Gottlieb Kratzenstein of Copenhagen invented the harmonium. Still to be found in homes and small churches, it proved a greater success than any mechanical talking gadget ever invented.

3—**Young's lectures.** References to these published lectures imply that the recording device is demonstrated. The publication was actually issued in two parts, one of text, the other of beautifully multicolored illustrations. Although various sound waves are shown, possibly derived from a recorder, no device is actually illustrated.

4—**The word "phonograph."** All references to the coiner of the word give that distinction to a J. B. Fenby, at times designated as a resident of Worcester, Massachusetts, who in 1863 patented an "Electro Magnetic Phonograph." No evidence exists that anybody named J. B. Fenby lived in Massachusetts at that time. The U.S. Patent Office did not issue a patent to anybody named Fenby in 1863. Or 1862. Or 1864. No patent was given for an electro magnetic phonograph anywhere in the world in 1863. Otherwise, the story is true.

On January 13, 1863, the British Patent Office issued patent No. 101 to Joseph Beverley Fenby of Worcester, England, for "a new or improved instrument or apparatus to be attached to pianofortes, organs, and other similar keyed musical instruments for printing the score of any music performed on the said instruments." Nowhere in the text or in the large accompanying illustrations could I find the word "phonograph," although it

would certainly have been an appropriate name for the contraption. Maybe Fenby referred to it as such to his friends.

5—**The date of the invention.** Scholars already know this, but since references until the past few years have it wrong, it may be pertinent to clear it up here. For years, the official date of the phonograph's invention was given as August 12, 1877, and Edison held subsequent anniversaries on this date. In evidence, he produced what was purported to be a page of that date from his notebook, showing the sketch and the notation (misspelling John Kruesi's name) "Kreusi, make this." The document was a phony: Edison inscribed it at a much later date. Whether intentional or not, his backdating would put to rest any rumor that he had been aware of Charles Cros's concept of the phonograph, which had been made public in October. In the following article, the legitimate "original" sketch, with its November 29 date, can be seen.

**Josef Hofmann's recording.** Although this has no direct bearing on the article at hand, I would like to question another probable myth. The pianist Josef Hofmann, then a boy, is traditionally credited with having made the earliest celebrity recordings, for Edison, in New Jersey, in 1888. Not only have I never seen any evidence of this, but there exist in the files of the Edison National Historic Site two letters from Hofmann to Edison, both sent from Berlin. The first, dated November 24, 1889, begins, "Do you remember Josef Hofmann the boy-pianist, who was in America? That I am. . . . A few days ago, I was at the Urania, to assist to [probably means attend] a performance of your new Phonograf. . . . Involuntarily the idea took possession of me: that in this same way, I could also listen to my own playing! How curious that would be, and how useful for my own musical education!" He then requests a machine from Edison. Somehow that doesn't sound to me as though he had already made recordings. At any rate, in November 1890, Edison sent Hofmann a phonograph.

In the second letter, dated March 10, 1891, Hofmann thanks Edison for the phonograph and says he is enclosing a recording of "a Scherzo of my composition." According to a letter Hofmann sent in 1953 to Roland Gelatt, former editor of *HIGH FIDELITY*, Edison in his reply dubbed it "the very first regular piano record."

# The Parallel Careers of Edison and Bell

*The minds and inventions of the two geniuses tended to come into contact — and even conflict.*

by James A. Drake

THE CITY of Mount Clemens in Macomb County, Michigan, lay about a third of the way along the Grand Trunk railway line that, in the middle of the nineteenth century, linked Detroit with Port Huron. One day in August 1862 the three-year-old son of the Mount Clemens station agent, J. U. Mackenzie, was playing on the tracks, unaware that a boxcar for a waiting passenger-freight train was being shunted to the main line from a nearby siding. As the boxcar rolled toward him, he was pulled from its path by a fifteen-year-old candy vendor who had gotten off the train to stand on the platform until the switching was finished. The grateful station agent asked what he could do to repay the youth. In response, Thomas Alva Edison said he would like to learn telegraphy. Mackenzie put Edison up at his home and taught him the rudiments in a matter of weeks. Within a year, Al— he was known by the short form of his middle name— became the peer of any telegrapher along the Grand Trunk line.

In 1863, word reached Mount Clemens about another exploit of the candy-vendor-turned-telegrapher, then working in his home town, Port Huron. The telegraph cable linking Port Huron and Sarnia, Ontario, across the St. Clair River, had broken during an ice jam, and Al Edison improvised an emergency communication system by using a locomotive whistle to send Morse code messages across the river. He was a hero in his home town, and his name became known all along the Detroit-Port Huron run. In a mere fourteen years his name would be known throughout the world.

A little more than 100 miles east of Port Huron, a Scotch settlement prospered near the city of Brantford, along the Grand River in southern Ontario. One of Edinburgh's most respected families, the Bells, had emigrated there after Scotland's "white plague" of the 1850s. Alexander Melville Bell, the family patriarch, had lost two of his sons to the plague, and he feared for his third son, who had been exposed to the disease but whose health

*James A. Drake is collaborating with Edward S. Clute on a book about recording's first one hundred years.*

improved because of the more favorable Canadian climate. Alexander Graham Bell II bore the name of his grandfather, one of the most important of the founders of the science of speech pathology. His first job was as a teacher of "visible speech"— a sign language for deaf mutes invented by his father—to Mohawk Indians in the Brantford area. In the early 1870s, he taught in Boston, but soon his interest turned to the improvement of the telegraph. He tried to develop a workable "harmonic telegraph" by which several messages could be transmitted over the same line. The device he worked on throughout the year 1875 was a telegraph transmitter that could be tuned to a variety of musical pitches, on any one of which the Morse code dots and dashes could be sent electrically. A second device coupled to the first could receive the coded messages, so long as it was tuned to the same musical pitch. In the Charles Williams electric shop at 109 Court Street, where he conducted his experiments, Bell's monastic existence and secretive ways branded him a loner. He had good reason to be secretive about his work; he was one of several experimenters working on essentially the same idea.

Edison, who was exactly Bell's age, was also at work on a variant of the harmonic telegraph, though he was not as absorbed by it as Bell was. After a five-year stint as a roving telegrapher and experimenter, Edison had finally hit upon what was, in his view, a useful idea—he called it an electric vote recorder. He was granted a patent in 1869, only to see the legislators and representatives he had hoped to serve show almost no interest in the device.

More angry at their cavalier attitude toward efficiency than hurt by their rejection, he set to work on a second invention whose market would be guaranteed. In 1870, not long after his twenty-third birthday, Edison signed a contract with the Gold and Stock Telegraph Company for his universal stock printer, an improved ticker device, and was paid \$40,000. It was the first money he made from an invention and a salve to his frustrations. He

used the money to build a combination laboratory and production plant in Newark, New Jersey, where he stayed until the spring of 1876. Then he moved to much larger quarters in Menlo Park, a short distance away, where the luxury of time, money, and a handful of assistants enabled him to let his fertile mind wander in the still uncharted territory of applied electricity.

Bell, during the same years, had no such luxury. His mind was more limited in scope than Edison's, although the two shared much otherwise. Both were almost entirely self-taught in physics and electricity (Bell had a formal background in acoustics). Both were physically rugged, favored with constitutions needing little or no exercise to maintain. Early in life Edison had conditioned himself to sleep soundly for three or four hours at a time and then to work twelve to sixteen hours or more without any significant break.\* Bell's periods of sleep were longer, if equally irregular, yet he shared Edison's capacity for exhausting everyone around him. It was during one of these marathon sessions in the summer of 1875 that Bell's assistant, Thomas A. Watson, witnessed the birth of the telephone. "On the afternoon of June 2, 1875, we were hard at work on the same old job, testing some modification of the [telegraph] instruments," Watson recalled in an address before the Telephone Pioneers of America in 1913. "Things were badly out of tune that afternoon in that hot garret, not only the instruments, but, I fancy, my enthusiasm and my temper, though Bell was as energetic as ever." As was the custom in their experiments, Watson took charge of the transmitters, and Bell manned the receivers in an adjoining room. After tuning the devices, the two would attempt to transmit messages and improve their design in the process.

On that June afternoon Watson was plucking the springs of a transmitter disinterestedly. One

spring gave him trouble. "It didn't start, and I kept on plucking it, when suddenly I heard a shout coming from Bell in the next room, and then out he came with a rush, demanding, 'What did you do then? Don't change anything. Let me see!'" On examining the transmitter they found that the spring's contact points had become welded together, allowing a steady electrical current to flow between the transmitter and receiver. The current had carried the faint impulse of the vibrating spring into the receiving instrument Bell had pressed to his ear. As Watson was to say of the event nearly forty years afterward, "The right man had that mechanism at his ear during that fleeting moment and instantly recognized the importance of that faint sound thus electrically transmitted."

When Bell was granted a patent on his "speaking telegraph" (the word "telephone" came later), Edison was one of several electricians who had been close to achieving what Bell did. Edison continued his analytical interest in the telephone, and in less than a decade the Patent Office was to grant him nearly forty patents on his improvements for Bell's device.

His work on one of these improvements, if his laboratory notes accurately reflect his thought and experimentation, ultimately led him to the phonograph in midsummer 1877. On July 18 he asked his assistants, Charles Batchelor and James Adams, to sign a page of notes titled "Spkg (Speaking) Telegraph," which included a paragraph containing the inventor's usual abbreviated and often idiosyncratic spellings:

Just tried experiment with a diaphragm having an embossing point & held against paraffin paper moving rapidly. The spkg vibrations are indented nicely & theres no doubt that I shall be able to store up & reproduce automatically at any future time the human voice perfectly.

By the last week of November 1877 Edison had thought out the concept of recording sufficiently to commit final designs to paper. [For a more detailed

\* This, the traditional view of Edison's sleeping habits, is challenged—at least as it applies to his later years—by Ernest Stevens, his long-time pianist and arranger, in "Edison as Record Producer" elsewhere in this issue.



Beitmann Archive



The photo at far left shows Edison in 1861, aged fourteen, a year before his feat of bravery made him a local celebrity. Alexander Graham Bell is shown as he appeared in 1876, a year after the invention of the telephone.

account of the interim, see "Recordings Before Edison" elsewhere in this issue.] On November 29 he asked Batchelor and John Kruesi, one of his best model-makers and most trusted associates, to witness a carefully drawn sketch. Then he instructed Kruesi to make a working model immediately.

Whether Edison worked on the construction of the model is not definitely known, but Batchelor noted on December 4 that Kruesi had made the phonograph and, two days later, that he had finished it. Edison put a tinfoil sheet around the machine's hollow cylindrical drum, the surface of which had a continuous spiral groove etched into it. The drum was hand-powered by a small crank, the shaft of which had been threaded so that the supports and bearings holding it allowed it to move laterally. On either side of, and at right angles to, the drum were two similar-looking brass housings, each with a diaphragm on its inner face. Pin-shaped styli protruded from the centers of each diaphragm and could be moved toward the drum and brought into contact with its foil coating by means of a knob and set-screw arrangement. One of the housings, that for recording, had a mouthpiece attached to it. Edison moved the recording stylus into position against the foil, cranked slowly, and recited "Mary had a little lamb" into the mouthpiece. A series of indentations was embossed into the foil by the sound vibrations. Moments later, after adjusting the reproducing stylus and again turning the crank, he heard the nursery rhyme repeated to him. A year afterward he was to say of the event, "I was never so taken aback in my life—I was always afraid of things that worked for the first time."

He was granted a patent on February 19, 1878, seven weeks after he had applied. None of the examiners and staff members had ever seen anything like it. What must have struck everyone in those early years was the utter simplicity of the device. Reporting on it in March 1878, a *Harper's Weekly* editor told his readers that "it was rather startling to find in the famous phonograph a simple apparatus, which, but for the absence of more than one cylinder, might have been a modern fluting machine." Unlike the telephone, it did not depend on an assemblage of batteries and wires, and unlike most other Edison patents of the same period, it was completely nonelectrical.

The principle of the phonograph was almost as simple as the machine embodying it. Edison's own description of the essence of phonograph recording and reproducing was set forth in his two-page patent application:

The invention consists in arranging a plate, diaphragm or other flexible body capable of being vibrated by the human voice or other sounds, in conjunction with a material capable of registering the movements of such

vibrating body by embossing or indenting or altering such material. . . .

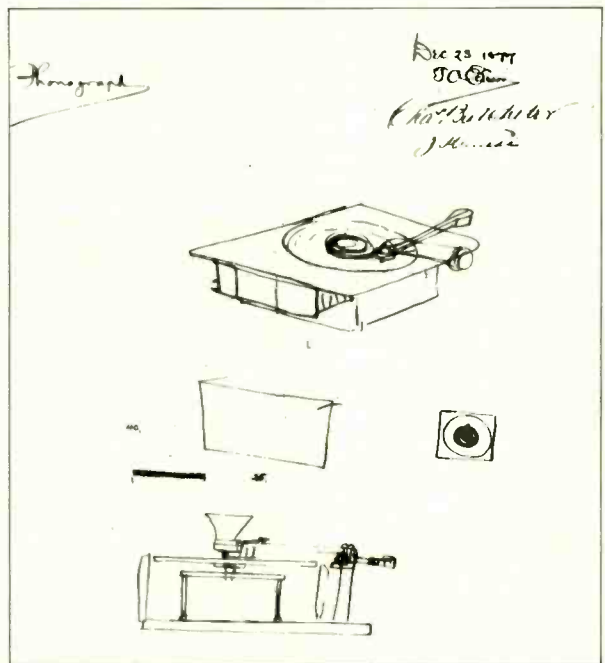
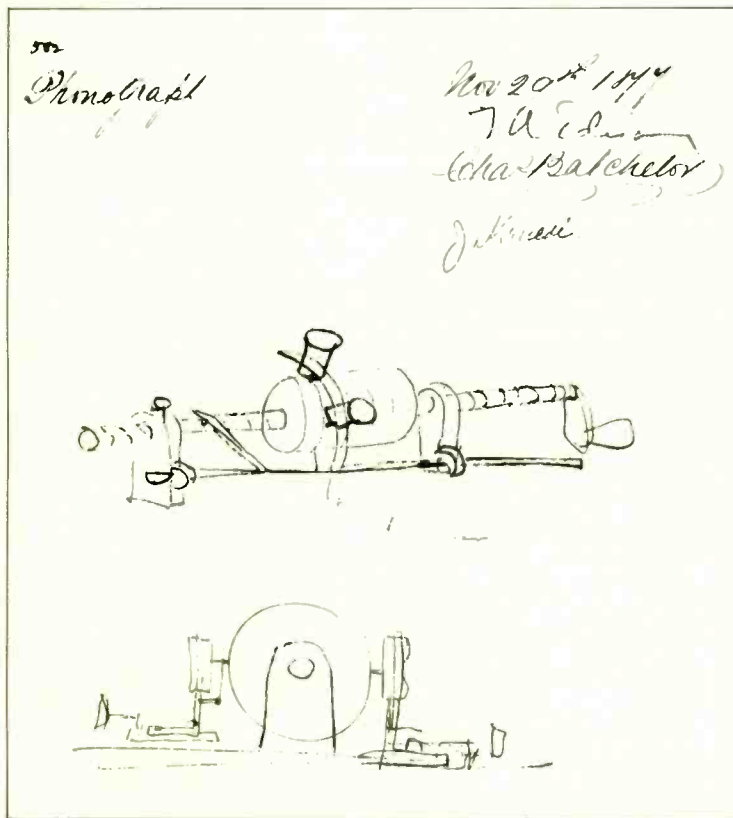
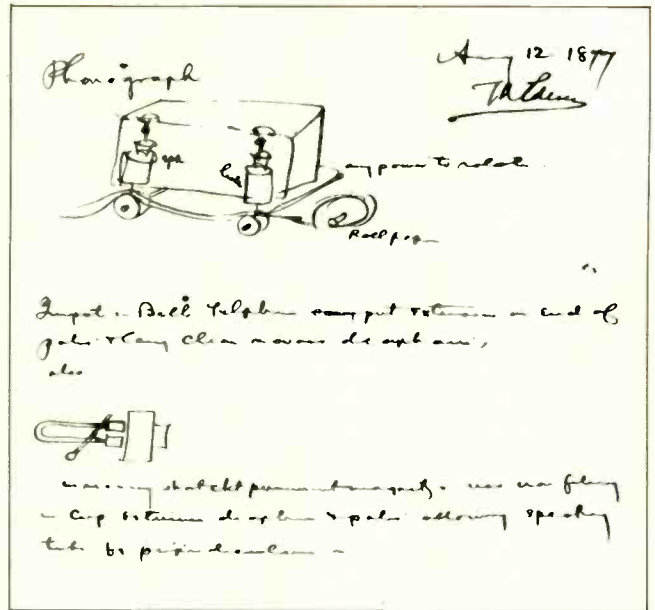
In the application Edison clarified the concept and design of the phonograph in more expansive ways than he has sometimes been credited with. In one section he described, for example, a process for mass-producing metal foil recordings using plaster-of-paris molds—a process "valuable when musical compositions are required for numerous machines." This early vision of inexpensive copies of musical performances contradicts the charge usually leveled at Edison: that he was opposed to the use of the phonograph as a medium of entertainment. He also described ways of recording and reproducing sounds on discs and on tape, both "by indentations" and "in a sinuous form, . . . laterally . . . to the right and left of a straight line."

And while he was still thinking in terms of tinfoil as the best recording surface, it is apparent that he had thought well beyond the immediate results of his laboratory experiments. During the first few months of the phonograph's existence, Edison wrote an article for the *North American Review's* June and July editions. It listed a number of potential uses of the phonograph—most of them realized within Edison's lifetime. He saw his phonograph as, first, a means of letter-writing without the aid of a stenographer. He foresaw its use in music boxes and toys, and he spoke of "phonographic books which will speak to blind people without effort on their part." He saw it as an adjunct to classroom teaching, and especially in the teaching of elocution and foreign languages. He also saw the phonograph being linked with the telephone, "so as to make that instrument an auxiliary in the transmission of permanent and invaluable records, instead of being the recipient of momentary and fleeting communication."

Rarely has an inventor been so remarkably farsighted in predicting the future of an idea. He and his phonograph company played a dominant role in the first three decades of commercial recording. Even after his company's influence had waned, his name was to be associated with the Ediphone and similar dictating equipment. His own Telescribe, one of the early telephone recording devices, was a forerunner of the automatic answering services now in use.

Of Edison's contributions to the evolution of the phonograph, perhaps none is more intriguing than his pioneer work on long-playing records. In the middle 1920s, when the introduction of electrical recording gave the two giants of the industry, Victor and Columbia, a gaping lead over Edison in the marketplace, he became fascinated with the prospect of recording music in prolonged, uninterrupted portions. Though he was nearing eighty, his incomparable drive and inventive genius once again yielded a fascinating dividend. Pressed in

Edison's note pages in 1877 demonstrate the fecundity of his mind as it expanded the "speaking telegraph" idea of July 18 to encompass cylinder, disc, tape, and even a type of magnetic recording. In the August 12 sketch, a paper tape is embossed by a pin attached to a vibrating diaphragm (marked "spk") while a similar "listen" device picks up and reproduces the sound. That he was still thinking in terms of Bell's telephone is evident from his comment below the sketch: "Input is Bells Telephone. Put extensions on end of poles & carry clear across diaphragm." Beneath that is a magnetic concept, with the notation: "in mercury short ckt permanent magnet = use iron filing in cup between diaphragm & poles allowing speaking tube be perpendicular." August 12 was also the date on a bogus "original" sketch of Edison's invention. (See "Notes to Future Scholars" immediately preceding this article.) The legitimate first sketch, dated November 29, is reproduced below. Edison's disc phonograph and arm design of December 23 are remarkably like record-players of seventy-five years later.



ten-inch double-sided form, the Edison long-playing discs of 1926 had a listening time comparable to the modern LP—but at 80 rpm, rather than 33 $\frac{1}{3}$ . The secret of this remarkable achievement lay in the ultra-fine 1/400-inch groove cut by the lathe he designed. But the records were a commercial failure.

Edison's long-term involvement with recording lapsed only once, when, in the autumn of 1878, he turned his full efforts to the development of a practical incandescent lamp. After accounts of the tinfoil phonograph's early public demonstrations were printed in the spring of 1878, Mrs. Alexander Graham Bell sent Edison a warm personal letter congratulating him on his new invention. Gard-

ner G. Hubbard, her father, had been a board member in the Edison Speaking Phonograph Company, and through his involvement she and Bell had been able to follow the phonograph's development from its inception. Relations between the two inventors were amicable from the beginning and remained so until Edison filed a patent application on what came to be called the "compressed lampblack button transmitter" in the telephone industry. Edison's transmitter (the forerunner of the carbon microphone) brought Bell's telephone within practical reach of the public because of the improved reception it made possible. But Edison's patent went to Western Union interests, who set up a telephone system. The infant Bell Company

was powerless, lacking the capital and the nationwide network of telegraph lines Western Union boasted when it entered the telephone industry.

Late in 1879 Bell defeated the Western Union interests after a year of patent infringement proceedings. In a signed agreement, to extend seventeen years, Western Union agreed to sell its telephone interests to the Bell Company in return for a royalty on each telephone Bell leased. Companion terms were that Bell Telephone would stay out of telegraphy and Western Union would stay out of the telephone field.

In 1880 Bell began to find the kind of support Edison had become accustomed to. That year the French Academy of Sciences awarded Bell and his telephone its Volta Prize for scientific advancement. A cash award of \$10,000 was part of the prize, and with the money Bell founded what he called the "Volta Laboratory" in Washington, D.C. He took two associates for this new enterprise: his cousin Chichester Bell and Charles Sumner Tainter, an electrician and superb instrument designer.

Whatever other aims Bell and his "Volta Associates," as they came to be called, had in founding the laboratory, the reams of notes the three gave the Smithsonian Institution show clearly that the improvement of Edison's phonograph was one of their first priorities. No one knows whether this was prompted by lingering resentment on Bell's part toward Edison for the button transmitter patent. Once they began their work, it did not take them long to identify the Edison machine's main weakness—its tinfoil recording surface. They found a substitute—beeswax—and tried it on a small Edison machine. The player the three deposited in the Smithsonian on October 20, 1881, had a wax-coated recording drum onto which was impressed Hamlet's line, "There are more things in heaven and earth, Horatio, than are dreamed of in your philosophy," followed by "I am a graphophone and my mother was a phonograph."

In the summer of 1885, five years after they had begun their experiments, the Bells and Tainter applied for patents on their improvements, which included a more effective loosely mounted "floating" stylus and an electric motor for power. (Their application also called for a disc record, but the Bells never took the idea further.) By the time the patents were granted the three already had a prototype of their graphophone ready to go into production. The machine their American Graphophone Company manufactured in its Alexandria, Virginia, factory was a hand-powered model having a removable coated cardboard tube for the recording surface.

Some time after production began, Bell and his partners sent a small group of backers to meet with Edison in the hope that he would want to combine efforts to launch an improved, commercially vi-

able phonograph. Out of respect for the inventor's basic patent, the Bells and Tainter were prepared to abandon the use of the term "graphophone" if Edison would agree to join forces. Various sources describe the inventor's reaction to the proposal as ranging from cool to outraged. At any rate, the three abandoned any thought of working with him.

Edison translated his reactions to the graphophone into the form he knew best—sheer hard work. Late in 1886 he renewed research on the phonograph while continuing his work on electric lighting systems. Two years later—at 5 a.m. on June 16, 1888—he emerged from his West Orange laboratory with a prototype. He had worked seventy-two hours without sleep or breaks of any kind, and, seeing his model in action for the first time, he called for a photographer to capture the moment. Taken by the light of the rising sun, the pictures show a weary, unshaven forty-one-year-old Edison seated behind an all-wax-cylinder phonograph powered by batteries. It would be the basis on which he would build the Edison Phonographic Works, Inc.

The tale of the entangled relationship between Edison and Bell has a paradoxical sequel. In 1888, for an investment of \$200,000, the Bells and Tainter ceded to a businessman named Jesse H. Lippincott the exclusive rights to sell graphophones in the United States. Hardly had he concluded this deal when he approached Edison, who wanted to begin manufacture of his improved phonograph but lacked capital. Lippincott bought Edison's patent rights for \$500,000, but left the manufacturing rights—as he had done with the graphophone—in the hands of the inventor. On July 14, 1888, Lippincott formed the North American Phonograph Company, and set up a series of territorial franchises which in effect controlled the entire talking-machine industry in the United States. Edison and Bell were "cooperating" at last.

The harmony was short-lived. Through a series of administrative miscalculations—combined with an inability to see the phonograph's potential as a medium of entertainment—Lippincott brought North American to the verge of insolvency, and in 1891 relinquished control to Edison. The inventor fared little better with the cumbersome setup, declared North American bankrupt in 1894, and was forced to wait for two years to form his own National Phonograph Company for the manufacture and distribution of his machines. One franchise survived the general wreckage of the combined Edison-Bell interests, and rose, phoenix-like, to a position of eminence in the industry within a few years. The Columbia Phonograph Company, located in the District of Columbia, had gotten its start by distributing graphophones, and was to be a thorn in Edison's side. But that is another story. ●



Edison poses with his "favorite invention" in West Orange, 1906.

by Robert Long

# The Life and Labs of Thomas A. Edison

*An informal picture history culled from the files of, and photographed at,  
the Edison National Historic Site in West Orange, New Jersey.*

Perhaps the most attractive surviving picture from Edison's childhood is this photograph of "Al" (for Alva) and his sister "Tanie" (Harriet Ann) from the mid-1850s, when he was seven or eight and she was about twenty-one. His deafness would begin some five years later. By 1862, at fifteen, he was publishing his own newspaper. Later that year, when he heroically saved a stationmaster's son from certain death under the wheels of a boxcar, the grateful father began teaching him telegraphy—his first technical training of any sort and the foundation of his earliest triumphs as an inventor.



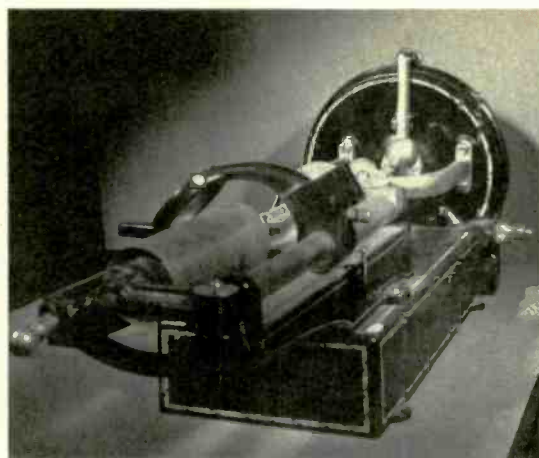
By 1911, when this photograph was made in Edison's West Orange office-library, he was the grand old man of invention. (Note the atypically natty attire.) His dictation machine is, of course, an Edison phonograph; this application of the wax cylinder was important to its formative years, though Edison did not resist musical applications, as legend has suggested. Two other inventions represented in the photograph are the light bulb (the bamboo-filament bulb still is used today in the statuary fixture at the upper right) and the concrete house, a model of which is visible behind the desk.







This photograph was taken April 18, 1878, on the occasion of Edison's demonstration of the phonograph for President Rutherford B. Hayes, members of Congress, and the National Academy of Sciences. With the inventor and the so-called "demonstration phonograph" are Uriah Painter, his liaison man in Washington, and Charles Batchelor, his associate, who as co-inventor received a percentage of all Edison's royalties. Edison's Washington sales agency later became the most successful in selling dictation equipment, mainly to government agencies; today's Columbia Records can trace its lineage to this company (via the Columbia Phonograph Company. Levin Handy of the Matthew Brady studio in Washington took the photograph; a more familiar version shows Edison alone with the same phonograph, but a different backdrop.



Talking dolls were the first consumer products to embody Edison's phonograph—and, later, Emile Berliner's flat-disc gramophone. The Edison doll, shown in its display case at the National Historic Site, used a hand crank as motive power. (Note the photo of the doll assembly line in the background.) Motive power for the phonograph at upper right was its water wheel at the far end, which was driven from a tap via a hose. This is the type of unit sent by Edison to pianist Josef Hofmann in 1890, referred to in "Notes to Future Scholars" at the end of "Recordings Before Edison" in this issue. The variety of recording and reproducing horns that Edison experimented with is almost endless—one recording horn measured 125 feet. Those at right are only part of the West Orange Historic Site collection.





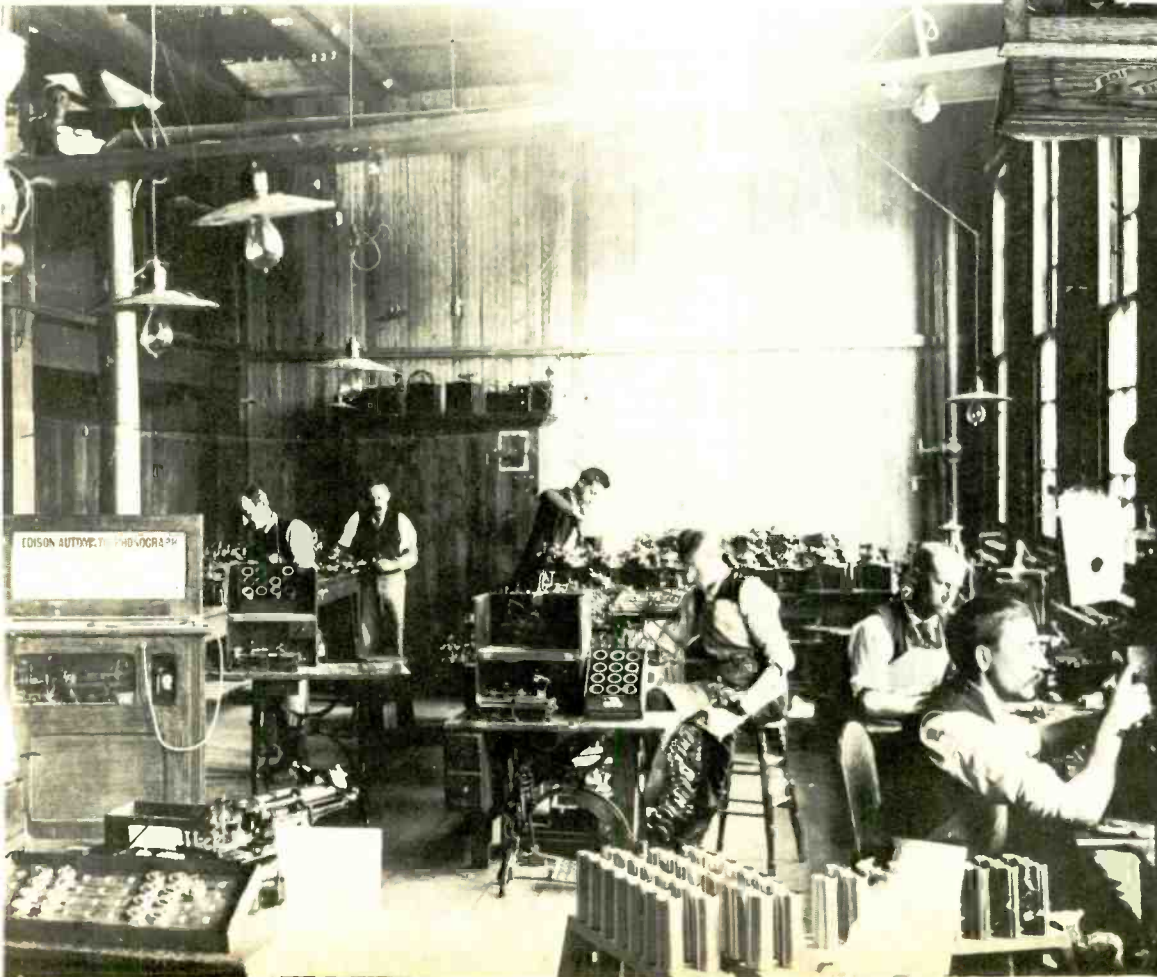
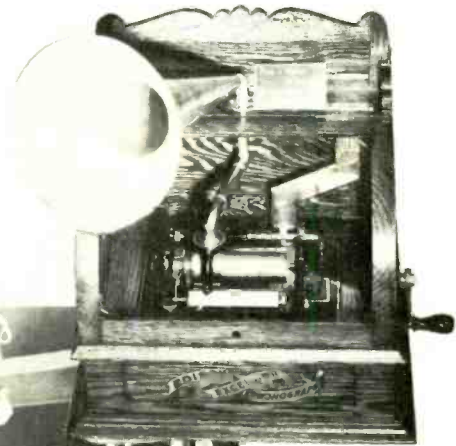
The publicity photo at the upper left, in which a cobralike recording horn seems about to swallow the musical master of the house, dates from the early years of this century, when the disc gramophone was rapidly growing in popularity. While Edison's cylinder machine could be used to make home recordings, the gramophones couldn't, and this picture is intended to dramatize the fact. Note that the front of the piano case has been removed to improve the sound pickup. By 1916, when Jacques Urlus (above) was photographed as he recorded in Edison's New York studios at 79 Fifth Avenue (pint-size conductor Cesare Sodero is standing on a stool), a harp could be placed at some distance from the recording horn and string players could use standard instruments instead of the Stroh horn-equipped designs that sacrificed tone quality to volume. This session presumably produced both cylinders and the recently introduced Edison Diamond Discs. Tone Test recitals such as that given by instrumentalist Harold Lyman (left) at Atlantic City in 1924 demonstrated with apparent success—see "Edison as Record Producer" in this issue—that the Edison disc could not be distinguished from the live performance.

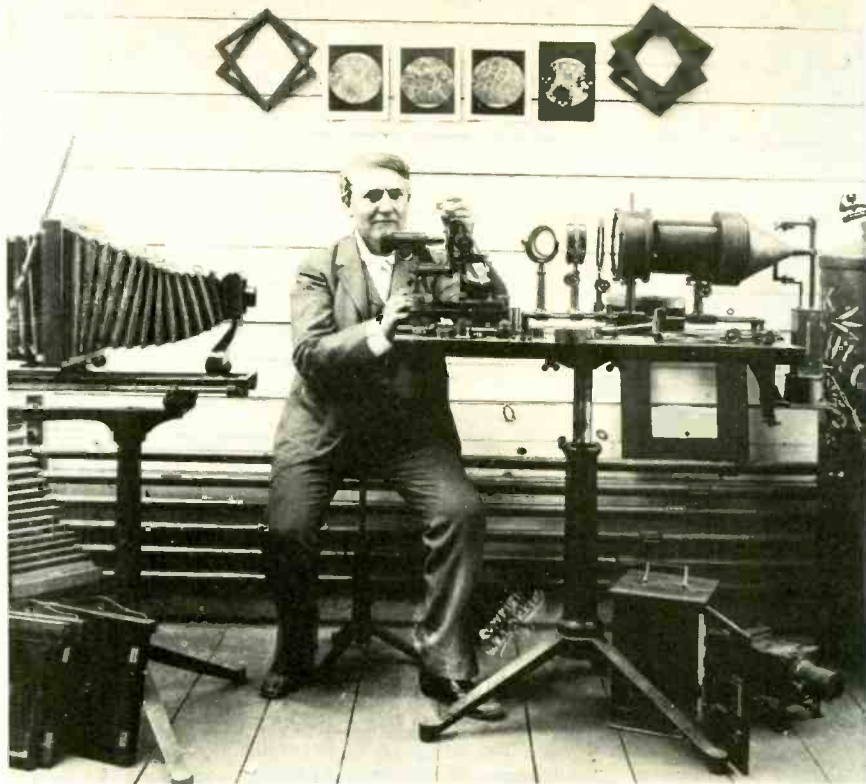


Edison's presence is everywhere in the lab at the West Orange National Historic Site, but nowhere more than in this elevator, still reserved for him.



Despite the inherent recordability of Edison's cylinders, those already recorded with musical selections early became important to the commercial success of the phonograph. The coin-slot model to the right is generally regarded as the first jukebox; it demanded both a nickel and motive power (note the hand crank) of its customers. By 1890 the jukebox-assembly operation in the West Orange plant had assumed the proportions documented below.





Edison's scientific contributions were certainly not limited to the acoustical-mechanical, as in the case of the invention of the phonograph, and on this page we see him pursuing his significant chemical, optical, and electrical investigations. The chemistry lab in West Orange was important (as Edison's earlier one at Menlo Park had been) not only for what might be called research in "pure chemistry," but also for developing compounds needed in other work. He tried numerous materials while seeking an appropriate light bulb filament. Materials from which records could be molded were the subject of almost as exhaustive a research program. The photo of Edison as chemist was taken in 1890. In another part of the West Orange lab, three years later, he is seen with one of his optical experiments. Hanging on the wall behind him are enlargements of photomicrographs. His work in optics led him to pioneering work on the motion picture. As electrician, he was photographed in 1922 with his longtime friend Charles Steinmetz, for years the resident genius at General Electric.

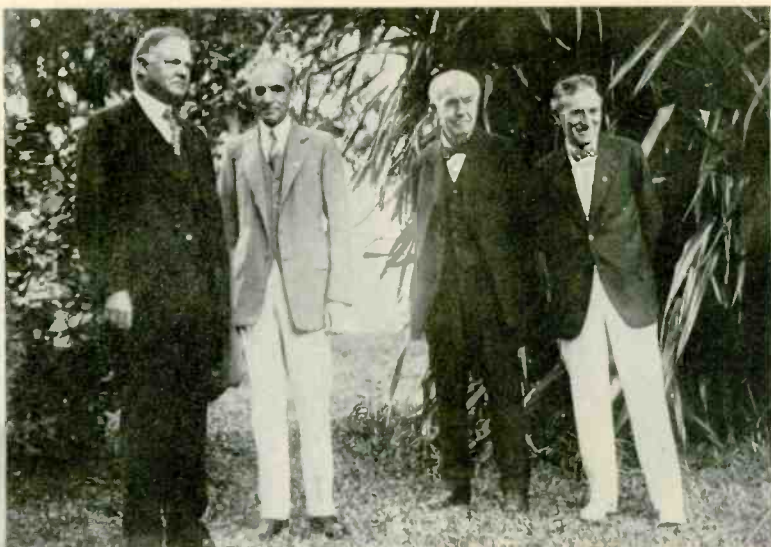


By 1912 Edison had to his credit the sound movie camera (which he called the phonokinetograph) and projector (the home phonokinetoscope is shown at right). That year he made what is probably the earliest operatic film: the Sextet from *Lucia* (above). The sound was recorded on a cylinder synchronized to the film in the projector. The *Lucia* excerpt seems to have been particularly dear to Edison; some years later he passed for issue a Diamond Disc with two different recordings of this piece one on each side.

Of these, one cast featured artists of international repute (Giovanni Zenatello, Marie Rappold, Margarete Matzenauer), while one relied on lesser luminaries (like Alice Verlet and Henri Scott), with two artists (Arthur Middleton and Enrico Baroni) repeating their parts on both sides. The film version required photogenic artists; though some also recorded prolifically for Edison, they usually appeared anonymously as members of groups.



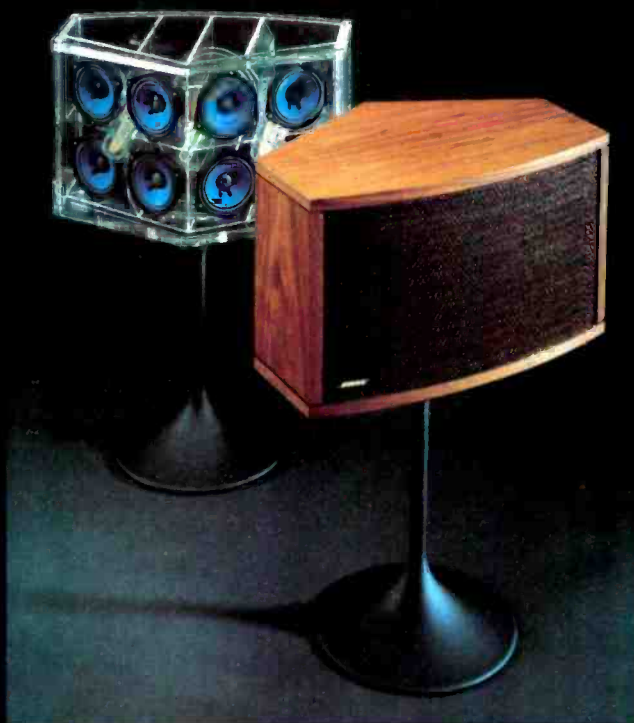
Edison was famous for hard work and long hours. He was equally famous for taking quick catnaps as opportunity allowed. In this 1911 photo he was captured asleep in the lab. He also kept a cot in his study at West Orange; on this occasion, apparently, Morpheus overtook him before he could repair to its relative comfort.



A man for whom his work was all-important, Edison chose to socialize with those who felt and worked as he did. In the 1929 photograph above, he appears with Herbert Hoover, Henry Ford, and Harvey S. Firestone. Hoover, then President, had come to national prominence as a mining engineer (Edison also had been deeply involved in mining) and philanthropist. (Edison's economical concrete house would have appealed to this instinct in Hoover.) Firestone and Edison were, in a sense, competitors for the business of providing tires for Ford's cars; Edison worked for years to produce a rubberlike compound from native goldenrod. At eighty-one (in 1928, left) he was still assiduously making entries in his lab notebooks—much like those from which, elsewhere in this issue, his early sketches of the phonograph are reproduced. He died on October 18, 1931, in his eighty-fifth year.

In 1968, we introduced an unconventional  
loudspeaker system—the legendary Bose 901.<sup>®</sup>  
Now, we are introducing another new speaker—  
a speaker unlike any ever before.

### The Bose 901 Series III.



# The life-like, spacious sound of the 901 Series III results from combining proven Bose concepts with unique new speaker technology.



The Bose 901® Series III is the most innovative new speaker since Bose startled the high-fidelity world with the original Bose 901 eight years ago. It is revolutionary in concept, design, materials, and manufacture, and most important, in performance.

## What you will hear.

You will be struck by a sense of immediacy and presence. Sound seems to originate from a stage in front of you that appears larger than the room, resulting in an open, spacious quality and an accurate stereo image almost anywhere in the room.

Equally startling is the realism and accuracy with which the 901 Series III reproduces the correct timbre of each instrument, from the subtle textures of the woodwinds through the incisiveness of the percussion instruments. In addition, each instrument is reproduced with such clarity and definition that you can easily follow a single instrument through even a very complex musical passage.

And at the low end of the frequency range, the 901 III produces the deepest bass notes with accuracy, clarity, and dynamic range clearly distinguishable from conventional speakers.

## The heritage of the Bose 901 Series III.

In 1956, a university study began which totally redefined the criteria for the design and evaluation of loudspeakers. That research led to the formation of Bose Corporation and, in 1968, to the introduction of the unconventional Bose 901. The worldwide acclaim of both music lovers and critics of high-fidelity equipment has made the 901 a legend in the high-fidelity world.

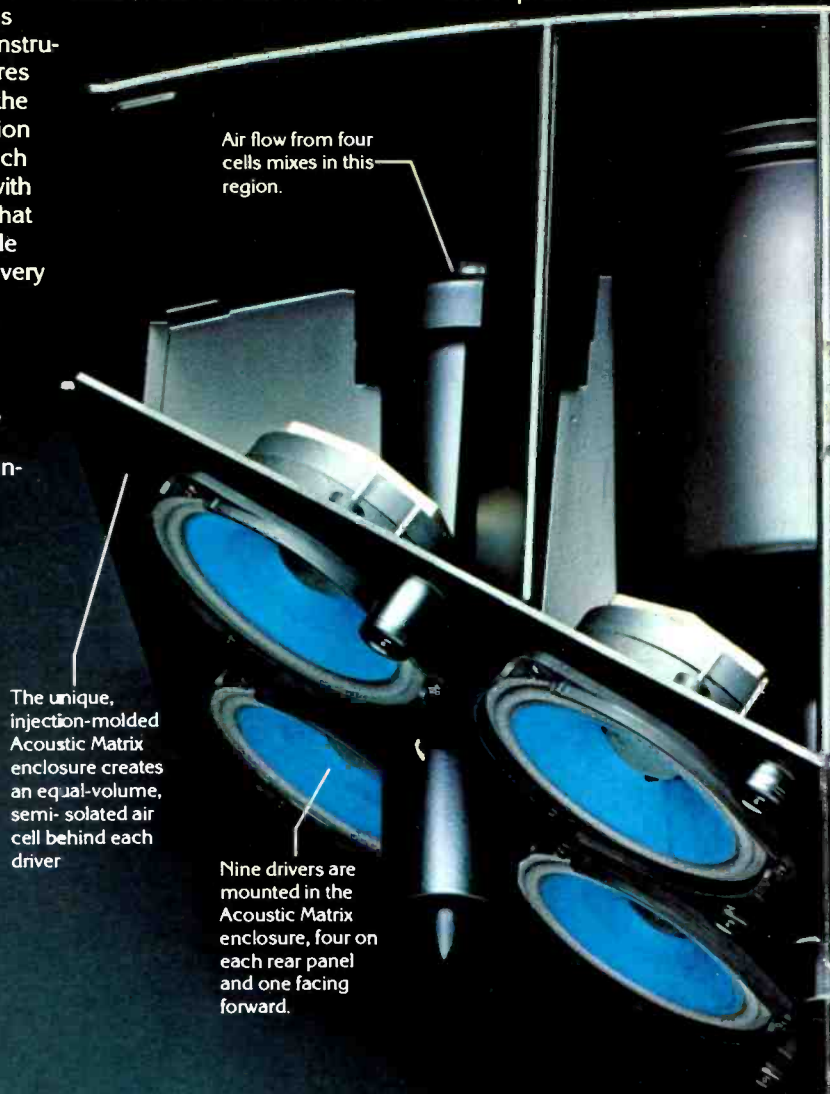
## Technical innovation.

Then, in 1972, Bose began to develop the 901 Series III, in order to realize even more fully the potential inherent in the concepts proven in the 901. Two major advances are critical to the spectacular performance of the 901 Series III: the

Acoustic Matrix™ enclosure and a new high-performance, high-efficiency driver.

## The new Acoustic Matrix™ enclosure.

The Acoustic Matrix enclosure is a unique, molded structure which yields performance unattainable with a standard wood enclosure. The Acoustic Matrix enclosure creates nine, equal volume, semi-isolated cells, one behind each driver, to provide a balance of coupling and isolation between drivers. The enclosure also incorporates three Reactive Air Columns, which drastically reduce cone motion at low frequencies, allowing the 901 III to produce the lowest bass notes with clarity and accurate timbre readily distinguished from conventional speakers.







performer in its own right. In fact, the 901 III can produce the same loudness level with a 15-watt amplifier that previously required a 50-watt amplifier.

### Proven concepts.

In addition to these important innovations, four critical design concepts first implemented in the original 901 are essential to the performance of the new 901 Series III.

### Multiple, full-range drivers.

First, the 901 III employs nine matched full-range drivers instead of the conventional woofers and tweeters. As a result of the complex acoustic coupling of the nine drivers, the many small imperfections in response inherent in any speaker are averaged across all nine drivers, yielding clear,

smooth response across the entire frequency range.

### Active equalization.

Second, the 901 Series III system includes an active equalizer, a compact electronic signal processor precisely programmed to automatically adjust, frequency by frequency, power input from the amplifier to the speakers. The result is constant sound output through-



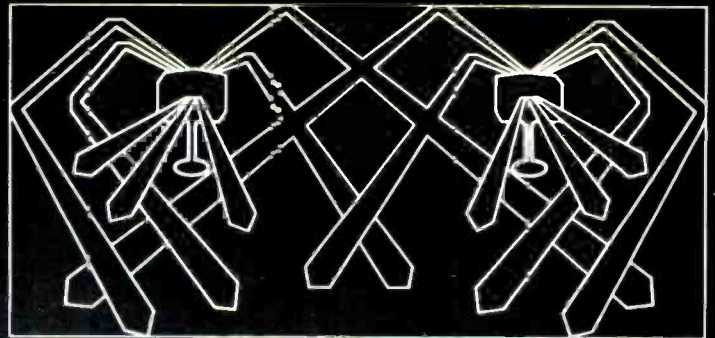
out the frequency spectrum. The equalizer also has high-frequency and midbass contour controls which let the listener adjust the output of the speakers to the acoustics of the listening room.

### Reflected and direct sound.

Third, the 901 III is a Direct/Reflecting® speaker. Instead of beaming sound directly at the listener, like a conventional direct-radiating speaker, the 901 III reflects most sound off the back and side walls of the listening room. This surrounds the listener with a combination of reflected and direct sound, just as in a live performance. The resulting spacious, realistic sound contrasts to the harsh, "hi-fi" sound of conventional direct-radiating speakers.

### Uniform acoustic power radiation.

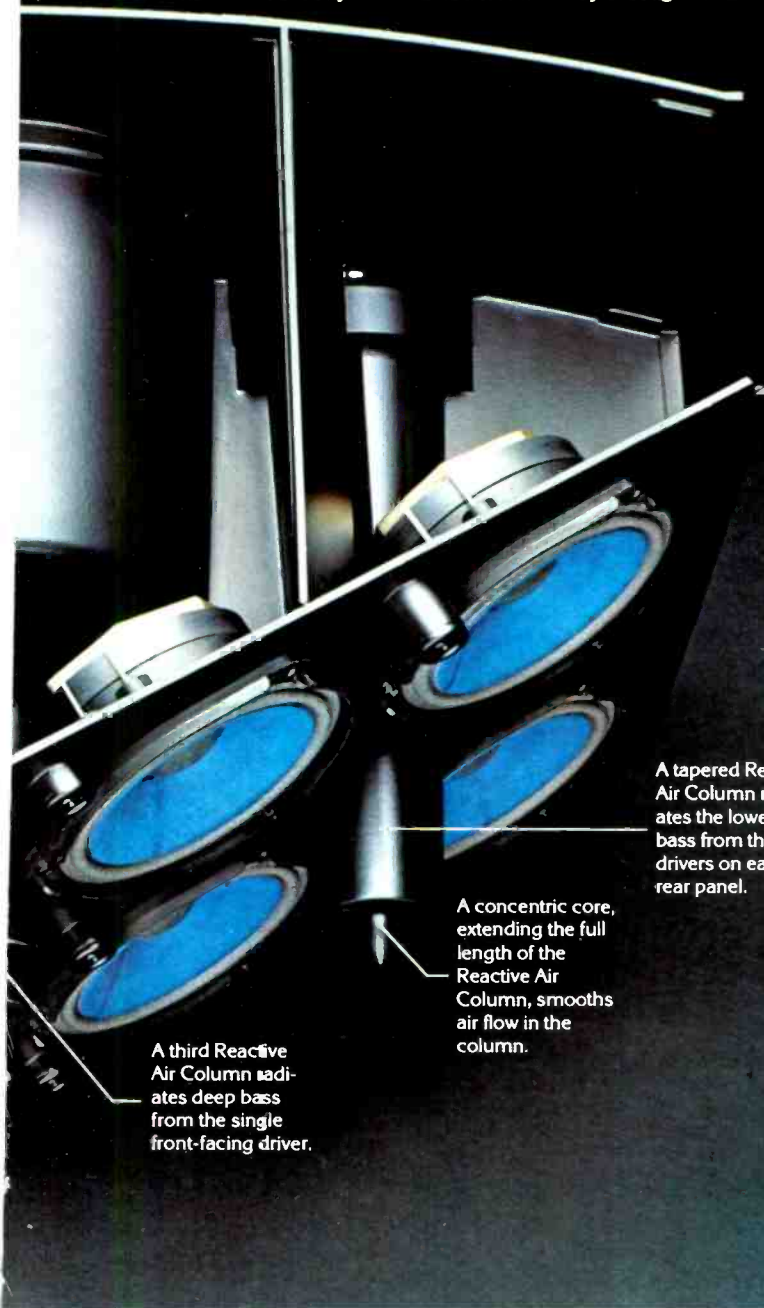
Fourth, the 901 Series III speakers and equalizer are designed so that the total acoustic power radiated into the room (not just the energy radiated from the front of the speaker) is in correct balance at every frequency. This "uniform power radiation" design criterion results in more accurate reproduction of instrumental timbre.



The 901 Series III creates in a living room the high proportion of reflected sound experienced in a live performance.

### A new full-range driver.

The new 901 Series III full-range driver combines an ultra-high-efficiency aluminum helical voice coil, a unique injection-molded basket, and a high-efficiency magnet structure to achieve greater efficiency, smoother, more precise frequency response, and lower distortion than the previous 901 driver, an extraordinary



A tapered Reactive Air Column radiates the lowest bass from the four drivers on each rear panel.

A concentric core, extending the full length of the Reactive Air Column, smooths air flow in the column.

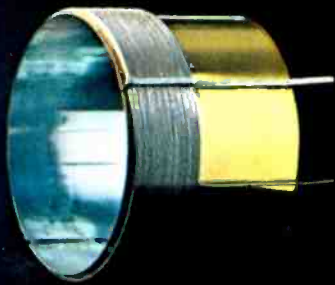
A third Reactive Air Column radiates deep bass from the single front-facing driver.

# And, we submit, the finest speaker engineering and manufacturing capability in the world.

Over the years, Bose has developed manufacturing capabilities, facilities, and processes that are unique. We believe that no other speaker manufacturer could build a speaker of the precision and performance of the 901 Series III.

## Building a second-generation driver.

The extraordinary performance demands placed on the 901 Series III loudspeaker system call for innovative approaches to both design and manufacturing of every component in the system.



The helical voice coil—a study in precision manufacturing.

For example, the voice coil is the heart of any driver. In a conventional voice coil, round copper wire is wound on a paper cylinder. Round wire leaves relatively large gaps between windings, resulting in poor utilization of energy in the magnetic field, and thus relatively poor efficiency in the speaker. In the 901 Series III helical voice coil, a flat ribbon

of aluminum wire is precisely wound, on edge, on an aluminum core, leaving no gaps between windings, and helping make the 901 Series III driver more than three times as efficient as its predecessor.

Production of this high-precision voice coil was simply not possible using existing methods and equipment—so Bose developed new methods for flattening and insulating wire and a proprietary, computer-controlled winding process.

Similarly, the 901 III injection-molded plastic basket is far more precisely manufactured than a conventional steel basket, resulting in less magnetic leakage, a stronger structure, and tighter assembly tolerances.

## A unique speaker construction technique.

Early in the 901 III program it was clear that the complex enclosure needed to meet our design goals could not be built using conventional wood con-



The Acoustic Matrix enclosure.

struction. Therefore, the decision was made to invest in the large design effort and tooling cost to develop the injection-molded Acoustic Matrix enclosure. Each part of the Acoustic Matrix enclosure is precision injection molded from a high-strength plastic and then bonded into a strong, vibration free, airtight structure, using special bonding techniques developed by Bose engineers. The result is a unique, highly functional enclosure that sets the 901 Series III far ahead of the performance limitations of woodworking technology.

## Bose advanced quality control systems.

The sophisticated design of the Bose 901 Series III would be to no avail without equally advanced techniques for quality control on the production line.

For every critical performance characteristic of the speaker system, Bose has developed its own specialized test systems to provide a degree of quality control unmatched in the high-fidelity industry. In addition, the 901 Series III speakers and equalizer are covered by a full five-year warranty.

## Your enjoyment.

In the end, technology is only of academic interest if the final product does not bring you closer to the experience of live music. With truly accurate music reproduction, you will have this experience, know it, and remember it, whether you are an audiophile, a musical connoisseur, or a novice. At such time, the thought of hi-fi and loudspeakers will be overshadowed by the music experience.

If we can produce a loudspeaker that can accomplish this, that indeed is our ultimate pride. And we rest our reputation with the best we have to offer—the Bose 901 Series III.

To appreciate the spectacular performance of the Bose 901 Series III, visit an authorized Bose dealer and ask him to play the 901 III in comparison to any other speaker, regardless of size or price. For a full color, 16-page brochure on the 901 Series III, write Bose, Box PV32 The Mountain, Framingham, Mass. 01701. If you are interested in more detailed technical background, enclose \$1.00 and you will also receive the 20-page 901 Series III owner's manual and a copy of Dr. Bose's articles "Sound Recording and Reproduction," reprinted from *Technology Review*.

For the name of the Bose dealer nearest you, call toll free (800) 447-4700. In Illinois, call (800) 322-4400.



The components of the 901 Series III loudspeaker system.

# BOSE

The Mountain, Framingham, Mass. 01701  
Better sound through research.

In the photograph at right, taken in the West Orange, New Jersey, lab's music room in the early Twenties, Edison cups his hand behind his ear the better to audition Helen Davis, who is giving her all to both music and camera. The attentive pianist is her husband, Victor Young, who is remembered today for his film scores.

Below, the inventor and his staff pass judgment on a prospective release in the playback room, which was adjacent to the music room.



by Bridget Paolucci

## Edison as Record Producer

*What was the inventor like as his own a&r man — besides deaf? Some of his recording stars, still leading active lives, remember.*



Edison National Historical Site

Rachmaninoff strode into the Edison recording studios and sat down at the piano. He was there to make a trial record. The inventor shuffled in close behind him. "Go ahead," said Edison. The massive hands moved over the keyboard in the grand Romantic style typical of Rachmaninoff. Edison interrupted: "Who told you you're a piano player? You're a pounder—that's what you are, a pounder!" Without a word, Rachmaninoff got up from the bench, put on his hat, and walked out.

WHEN Ernest Stevens now recalls the encounter in the early Twenties between Rachmaninoff and Edison, he wishes he had talked to the pianist beforehand. "I should have told him not to play anything that would hurt the old gent's ears," he says.

Stevens was Edison's personal pianist and arranger; it was his job to play the latest tunes for the inventor so he could decide what new music to record for release by the Edison Phonograph Works. Their collaboration began in 1918. Stevens was playing in an orchestra at the time, and a saxophone player suggested that he contact his uncle at the Works about cutting a trial record. Edison heard the recording and hired Stevens. "He liked my playing because I was not a pounder," Stevens

*Bridget R. Paolucci is a writer, lecturer, and broadcaster whose specialty is music.*



Another photo taken in the music room of Edison's laboratory shows the Ernest L. Stevens trio about to make an audition recording. Stevens, at center, is flanked by reedman Archie Slater and banjoist Sam Brown. Today Stevens (below) still teaches music in Montclair, New Jersey.

Edison National Historical Site



recalls. "I played my natural way, and my touch seemed to agree with his hearing."

Edison always claimed that it takes a deaf man to hear. Although he was partially deaf, he could tune a piano and could judge orchestral balance and fidelity of tone with uncanny sureness. "He must have heard sounds no one else could hear," the soprano Elizabeth Lennox, one of his stars of the Twenties, explains. In her visits to his New York studio she never met Edison, whose headquarters was the Columbia Street laboratory in West Orange, New Jersey. But she describes his influence as "omnipresent. He always checked everything, and the recording studio personnel were always apprehensive about what he would say. He would reject wonderful records because he heard certain high sounds."

Trumpet player Edna White, another of his stars of the Twenties, also felt Edison's authoritative presence. White was commissioned to record a virtuoso trumpet piece by Herbert Clark after Edison had heard her audition recording and judged her tone "the loveliest trumpet sound I ever heard." When she arrived at the studio, conductor Cesare Sodero told her that they would rehearse something simple while trying to get a balance between the various sections of the orchestra. Each instrumentalist was seated on an individual platform. For hours, soloist and orchestra played the *Battle Hymn of the Republic* while the platforms were pushed around in an effort to achieve the correct balance that was so crucial to winning Edison's approval. After lunch, Sodero announced that the seating arrangement was finally satisfactory and that they could begin cutting the first master. (All recording artists were required to produce three masters with the understanding that

Edison would select the best of the three for release.)

During the first try, White missed the high note of the cadenza. The second time, she made two mistakes. Maestro Sodero encouraged her to try again. "But I was young enough not to be diplomatic," she recalls. "I told him I wasn't going to play that piece—I was tired from playing the *Battle Hymn* all morning long. Mr. Sodero warned me that it would cost the company double to bring in the orchestra for another session. But I told him, 'If you have a session where you don't rehearse the *Battle Hymn of the Republic*, I'll play the piece!'" Her demand was met, and she recorded the piece the next day. The record sold so well that, when White picked up her paycheck, it was 50% more than she had expected to receive.

Violinist Rosalynd Davis also remembers that recordings often were made when the artists were exhausted from the hours spent achieving proper balances. As the Dann Trio, Davis, pianist Blanche Dann, and trumpet player Felice Dann traveled throughout the U.S. performing the famous Tone Test concerts, which were designed to win audiences over to the concept of the phonograph. The concerts began with the trio playing along with one of its Edison recordings. Midway through the piece, the musicians would stop and the recording would continue. Newspaper accounts of such early live-vs.-recorded concerts reported that there was no difference between the sounds

(which makes one wonder what future generations will think of our ears when they read of today's similarly successful demonstrations). After several such A/B tests, the trio would give a regular performance.

Soprano Gladys Rice also participated in demonstrations. One of the most popular Edison stars, she drew large crowds with her evenings of comparison singing. The auditorium would be completely darkened so the audience would not know whether it was listening to her or to a recording and, therefore, would be able to judge the fidelity of the recording objectively.

Both Rice and baritone Douglas Stanbury recorded for Edison in the early Twenties—"When I was one and a half years old," Rice quips. Both recall two aspects of their Edison experience vividly. The first was the emphasis on technical perfection. The recording engineers would examine each wax master meticulously for evidence of crumbling, and the recording process would often have to begin all over again.

The second aspect was learning to use the recording horn to maximum advantage. The voice had to be projected exactly into the center to avoid excessive vibration and resulting distortion. "Once the microphone came into the picture, the singer lost control and the engineer took over," Stanbury claims. "In those early days, we learned to work the horn in the way that was best for our own particular voices."

"Working the horn" was almost athletic in some instances. Elizabeth Lennox recalls ducking down during orchestral introductions to allow the sound to enter the horn without being blocked by her body. Then she would take a deep breath and come up in dead-center position in front of the horn, just in time for her first note. That kind of

timing reached its peak when Gladys Rice was called upon to sing a single high note for a famous opera singer who could not manage it. Somehow the two performed that feat without a collision.

In those post-World War I years, Edison exercised control not only over the technical standard of his recordings, but also over the repertoire. Theoretically, two committees determined the latter. First, Edison, Stevens, and recording company vice president Artur Walsh would decide which pieces were to be recorded and select the performers. After the masters were made at the New York studios, another committee of twenty Edison company officials was supposed to decide whether or not to release the record. According to Stevens, however, if the committee turned down a recording and Edison liked it, "he'd O.K. it. And if he didn't like the records, out they'd go, no matter if I said they were good or others said so." When other recording companies were having great success with "The Sheik of Araby," for example, Edison refused to have it recorded for the simple reason that he did not like the tune (his favorite song was "I'll Take You Home Again, Kathleen").

Edison was just as opinionated when evaluating

Edison National Historical Site



Edna White, whose trumpet sound Edison judged "the loveliest . . . I ever heard," is shown in a 1922 photograph and in one taken recently at her home in Greenfield, Massachusetts.



performers. He would jot down his reactions to audition recordings; his cryptic notes would determine whether or not performers were invited to record for the Edison Phonograph Works. Some of those notes were saved by Clarence Ferguson, a cylinder-mold maker, and they are now part of the memorabilia of percussionist Lewis Green.

"She has too much tremolo for us. Also she drops her overtones in many places and becomes very sharp and thin." With these words, Edison dismissed Amelita Galli-Curci, the renowned soprano. His reaction to Claudia Muzio was not much different: "General voice fair. We do not believe we need her."

Edison approved of Phil Baker, the singer and accordionist who in years to come would achieve fame as a radio quiz master: "Most perfect articulation. Think this man could do some good work." But Morton Downey received this evaluation: "These type songs the public will not buy. There is no melody connected in sequence. The tenor's voice and interpretation is not such that it gives the song a chance even if it was melodious." Edison decided that Rudolf Friml "won't sell. Friml is a pounder that dampens all his notes almost instantly. Every note is 50% fret noise and 50% music. . . . If Friml has time, he might come over and I'll give him some pointers."

Edison readily gave musical advice. He once asked Ernest Stevens to arrange a tune so that only intervals of a third or a sixth were used for harmony. (These were the intervals that did not grate on his ear.) He accepted Stevens' negative reply but added that there would be a man someday who would write a tune using only thirds and sixths.

Stevens did not often dare answer Edison in the negative. One day, when both of them were in the music room going over a new piece, someone came to the door to talk to the inventor. Stevens lost his place in the music completely but, since he had to keep playing until Edison accepted or rejected a tune, began to improvise. Five minutes later, Edison told him to take the music over to New York and record it with a symphony orchestra. "I had to do it or lose my job," Stevens declares. "When it came back, he listened to it and said it didn't sound anything like the way I played it, not at all. 'Those fellows over in New York don't know what they're doing,' he said, and then he threw out the record."

On another day, Edison came into the music room to show his friend, Charlie Schwab, that his records were unbreakable. Stevens watched him take a record and drop it onto the floor, and "it broke into a million pieces. You never heard such language in all your life. He put his hands in his pockets and jumped up and down and yelled. He knew every cuss word in the English language!"

As Edison's personal pianist, Stevens partici-

pated in numerous experiments. He particularly remembers the recording horn experiments of 1924. Edison had developed the theory that the optimum distance for sound to travel for acoustic recording purposes was 125 feet. To test this theory, he told the personnel at the Columbia Street laboratory to construct a solid brass recording horn 125 feet long, extending between two buildings and ending in the recording studio. The horn was made of brass sheets 1/16th of an inch thick, fastened with 30,000 rivets. The bell of the horn was seven feet in diameter; it tapered down to a tube 1½ inches wide. Stevens was to play the piano in front of the immense horn.

"After all the initial trial recordings," he relates, "the old gent sent me to the icehouse and told me to have his men pack this horn—this 125-foot horn!—with ice. And then we'd go through the same experiments, and he'd listen to the results."

"That wasn't all. After that, he sent me to get a load of storage batteries and had the men pack the horn with them, and we'd go through the same experiments again. It was all experiment, right from the word 'go.' They'd make a recording through the storage batteries in the horn, and he'd spend hours on it, to see he got it the way he wanted it."

For another experiment, the walls and floor of the studio were completely covered with cow's hair; a canvas covered the layer of hair on the floor. Edison had the floor marked off into seventy-five squares and then called in his pianist. "Stevens," he said, "you get the saxophone player and put him on square No. 1 and have him play 'Lead Me with a Smile.' Have him go over all seventy-five squares. I'll take a nap, and you call me when he's finished." So the saxophone player, and every other member of the orchestra, recorded on each of the squares. Edison listened to the recordings and selected the square that was best for each instrument. Between each trial recording, the inventor would take another nap.

"He said he slept four hours a day, but sometimes I think he was awake four hours a day. Yet in those four hours, he did more than you or I could do in a week," Stevens claims.

During those years at the Columbia Street laboratory, Edison also worked on a small amplifying horn to be attached to the body of the violin. It was one of many inventions that remained in the experimental stage. For himself, he also designed a special hearing horn that he used for listening to finished recordings. "But sometimes he'd get tired," remembers Stevens. "He'd get up and bite down on the rim of the piano to get the conduction through there, to feel the vibrations."

By the time conductor Donald Voorhees met Edison late in 1926, the old gentleman had relinquished some of his control of the business. He was involved in a project for Ford and Firestone, investigating domestic sources of rubber. But the



In the picture at left, taken during the late Twenties when the Green Brothers Novelty Band was broadcasting for CBS, Lew is directly behind the mikes, Joe to his right, and George to Joe's right in the front row. By the time Lew (above, in his suburban Chicago home recently) joined his brothers' band, their days of recording for Edison were nearly over, but he recalls the inventor vividly.

phonograph was his favorite invention, and he continued to sit in on recording sessions. While Voorhees recorded, Edison would slip into his little room off the studio and, at times, would doze off while listening.

"He was very nice, very intelligent, and very hard of hearing," recalls Voorhees. The conductor deeply admired Edison's insistence on fidelity of sound. There was very little experimentation during the late Twenties, but quality and, in particular, balance were still the focal points of the recording operation. Voorhees calls the results "the most faithful reproduction of the way the music actually sounded. No distortion, amplification, or attempted so-called improvement would have been tolerated by him."

Lewis Green also remembers the Edison of the late Twenties. His brothers, Joe and George Green, had begun recording for the Phonograph Works in 1916, and Lewis joined the Green Brothers Novelty Band in 1927. Shortly afterward, there was a reception for Edison artists at the Astor Hotel in New York City. The eighty-year-old Edison was surrounded by friends—among them Harvey Firestone—and, as usual, they spoke for him. Edison had always found it difficult to talk in public, and his high, raspy voice made him a poor speaker. But he still had a commanding presence, and Green remembers that "everyone was in awe of him."

Two years later, the Edison Phonograph Works ceased to exist. Edna White, who was on tour at

the time, has always wondered why. "I guess everything happened all at once," she speculates. "The Depression—vaudeville came to an end—all disasters seemed to be connected around that time. And in those last years, Mr. Edison was extremely busy with more important things than music." Radio came on the scene and for a while the record business declined everywhere.

Careers continued. Stevens started a music studio. Edna White organized her own band. Gladys Rice and Elizabeth Lennox became radio stars. The Green Brothers Novelty Band made numerous records for several different labels. Donald Voorhees achieved fame with the *Bell Telephone Hour*.

But the days of the Edison studios were not entirely forgotten. Since 1974, the excitement of those years is recaptured annually in West Orange, New Jersey, when the Edison National Historic Site holds a reunion of the Edison stars. The old wax cylinders are played again, many of them one of the two original masters that were stored when the third was chosen for release. It is a time to praise the quality of those early recordings, a time of camaraderie and nostalgia. Stevens, now eighty-two years old and still teaching piano, feels a special sense of privilege: "I don't like to push myself forward, but I'm the last of those who really worked with Edison, and I'm proud and happy to have been associated with him. I always thought he was the world's greatest man." ●



# The Original Painting of Nipper

NIPPER, the world's most famous dog, was a mischievous terrier with a considerable amount of bulldog in his ancestry, accounting for his broad chest and extraordinary strength. Mark Barraud, a scenic designer of French-Huguenot background living in England, acquired the pup shortly after his birth in 1884. The Barraud children promptly named him—"nipper" being British slang for a young child. On his master's death, Nipper went to live with Barraud's brother Francis (1856-1924), an



by Oliver Berliner

## *How his master's brush created — and revised — His Master's Voice*

artist with a penchant for detail whose works had hung in the Royal Gallery but whom fame had eluded.

The brothers Barraud were the only masters Nipper had, and neither of them ever made any recordings. But Nipper was an inquisitive dog and would sit for long periods of time, one ear raised and head cocked at an angle, studying whatever it was that caught his eye . . . or, more likely, his ear. Francis Barraud later acknowledged that seeing Nipper pose for a photo to be taken by another brother, Philip, a professional photographer with a studio in Liverpool, inspired the now-famous painting. In 1893 Francis moved to Kingston-on-Thames, where Nipper died of a stroke in September 1895 and was buried under a mulberry tree at the back of Mayall's Photographic Works.

Few people are aware that Barraud's original painting was of Nipper listening to a cylinder phonograph, not a disc record. The player in the original was a cylinder machine of the type called an Edison Commercial Phonograph, sold in Britain by the Edison-Bell Consolidated Phonograph Company in the 1890s. No one knows exactly what year the painting was created, although it seems to have been 1893 or 1894. Barraud tried in vain to sell it to Edison-Bell. After that the painting lay around his studio for several years. In 1899, after filing a copyright application on February 11, he found another opportunity to sell it.

The year before, my grandfather, Emile Berliner, inventor of the disc gramophone, had sent William Barry Owen to England to form the Gramophone Company, Ltd., as an offshoot of his own Berliner Gramophone Company of Philadelphia. One day, Barraud went to Owen's office bearing a print of the photograph taken earlier for copyright purposes, captioned by the painter with the words "His Master's Voice." A friend had suggested that the Gramophone Company might be willing to lend Barraud a brass "trumpet" to replace the ugly japanned-black horn on the cylinder machine, for he was never happy with the looks of the original. Owen, sensing the potential value of the painting, went further. He asked the artist to replace not just the horn, but the entire cylinder machine with the disc gramophone. A price of £50 was set for the painting, plus £50 more for sale of the copyright.

On September 18 Barraud received a Berliner

gramophone to use as his model. At three o'clock on October 4, Gramophone Company representatives came to his studio to view the painting for the first time. They were pleased with it and accepted it; it was duly delivered to them on October 17. It hangs today in the board room of EMI (Electrical and Musical Industries, Ltd.), the British conglomerate. If you stand to the left of the painting, you can easily detect the cylinder phonograph over which Barraud painted the disc gramophone.

The painting is surely not great art by any standard. But it has a certain charm, and its history and impact are awe-inspiring, considering that it is virtually symbolic of an entire industry rather than of any single company. Trademark rights are now owned by various firms in their respective areas—RCA in the Americas, EMI in most of Europe and Australasia, Japanese Victor (JVC) in Japan. Unconfirmed rumor has it that during World War II an artist was commissioned to paint a replica, right down to the cylinder machine beneath the gramophone, to hang in place of the original for the duration, the Barraud work having been sequestered in a vault and insured for more than a million dollars.

The painting was reproduced immediately, appearing in December 1899 as an eye-catching window display in Gramophone's company-owned stores. So great was Nipper's impact that the company's name was obscured, and the firm came to be known popularly as His Master's Voice—or HMV. A lithograph of the painting caught the eye of Emile Berliner on a visit to HMV in 1900, and he quickly understood the significance of Nipper to his business. Upon his return to the U.S. he registered the design as a trademark here.

Francis Barraud earned a comfortable living painting copies of his original, including a couple of delightful watercolors. (In addition, a British Gramophone Company director, upon learning how little Barraud had received for his original work, arranged an annual pension of £250—later increased to £350—to sustain the old gentleman in his later years.) Of all his renderings, however, only the first bears the imprint of the cylinder machine beneath the top layer of paint.

Recently the photograph of the original painting was discovered at the British Patent Office, to which Barraud had submitted it with his application for copyright. It is reproduced here for the first time in an American consumer publication.

# 100 Years of Sound Reproduction

## 1877

- Charles Cros writes paper Apr. 18 describing how phonograph might be built, deposits it, sealed, with Académie des Sciences in Paris on Apr. 30. It is opened Dec. 5.
- Thomas Edison makes notes of experiment in recording sound with diaphragm and stylus July 18, sketches a recording system using a magnet and paper tape Aug. 12.
- Cros's paper is discussed by the Abbé Lenoir in the Oct. issue of *La Semaine du Clergé*.
- The phonograph is invented! Edison sketches the apparatus Nov. 29, and on Dec. 6 its construction is completed.
- Edison gives public demonstration of phonograph Dec. 22 for *Scientific American*, two days later submits patent application describing both cylinder and disc formats, and both hill-and-dale and lateral recording processes.

## 1878

- Edison granted patent on phonograph Feb. 19, incorporates Edison Speaking Phonograph Co. in Connecticut Apr. 24, patents magnetic recording process using steel sheet, then turns attention to development of incandescent light.
- Emile Berliner goes to work for Alexander Graham Bell.

## 1879

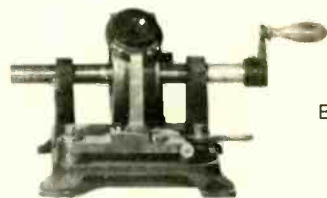
- James Ritty, an American, invents cash register.

## 1880

- Bell sets up laboratory in Washington with Charles Tainter and Chichester Bell.

## 1881

- The Bells and Tainter deposit a graphophone—using wax instead of Edison's tinfoil—with the Smithsonian Institution Oct. 20.



Bell-Tainter's graphophone

## 1882

- Prof. Amos E. Dolbear awarded U.S. patent in Mar. for wireless communications equipment.

## 1883

- Edison notes that current can be transferred between a filament and a plate sealed inside a glass bulb—the idea behind the radio tube; applies for patent.

## 1884

- Paul Nipkow granted German patent Jan. 6 for whirling disc scanning device, later used in television.

## 1885

- Edison, on June 23, files his only patent for wireless communications, later bought by Marconi.
- C. Bell and Tainter apply for patent on graphophone, also on form of magnetic recording, June 27.
- American Telephone & Telegraph Co. formed.

## 1886

- C. Bell and Tainter receive their patent for the graphophone May 4.
- Edison resumes work on phonograph.
- Heinrich Hertz starts research on radio waves.
- First commercial AC generating equipment for electric lighting introduced, in Great Barrington, Mass.

## 1887

- Wilhelm Hedic develops idea of putting magnetic particles on tape.
- American Graphophone Co. formed in Washington in June.
- Berliner applies Sept. 26 for patent on laterally recorded disc gramophone, patent issued Nov. 12.
- Edison Phonograph Co. formed in Oct.
- Berliner develops engraving and plating process for making records.

## 1888

- Columbia Phonograph Co. organized in Feb. (incorporated Jan. 1889).
- Edison introduces improved phonograph June 16. Berliner gives first public demonstration of the gramophone same day.
- North American Phonograph Co. formed July 14, by end of year becomes sole licensee for both phonograph and graphophone.
- Oberlin Smith publishes article Sept. 8 describing magnetic recording.

## 1889

- Brahms records cylinder in Vienna.
- Edison releases first commercial recordings.
- First nickelodeon, from Automatic Phonograph Co., placed in New York saloon Nov. 23.

## 1890

- Gianni Bettini refines phonograph for quality reproduction.

## 1891

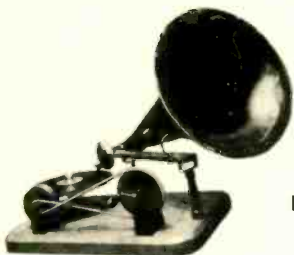
- Josef Hofmann makes first "regular" (Edison's word) piano recording at home in Berlin in Feb. or Mar.
- Edison assumes control of North American Phonograph, sells first machines for \$150 each.
- Bettini begins selling cylinder recordings of famous opera singers.

## 1892

- Nathan Stubblefield transmits human voice by wireless.

## 1893

- Berliner forms U.S. Gramophone Co. in Washington.
- Valdemar Poulsen graduates from University of Copenhagen, begins work on magnetic wire recorder.
- At Columbian Exposition in Chicago, Edison demonstrates motion picture for the first time in public—coupled to a phonograph cylinder, it is a sound movie.



Emile Berliner's gramophone

## 1894

- Francis Barraud paints *His Master's Voice*, featuring terrier and Edison phonograph.
- Pathé Frères start making phonographs and cylinders in France.
- In Aug., Edison throws North American Phonograph Co. into bankruptcy, and Columbia Graphophone builds first phonograph with spring motor, for \$75.

## 1895

- Guglielmo Marconi develops wireless in home tests in Italy.
- Alexander Popov presents a paper on radio May 7, establishing Russian claim to its invention.
- Berliner Gramophone Co. formed Oct. 8 with license from U.S. Gramophone Co.

## 1896

- Marconi files original wireless-telegraphy patent June 2 in England.

## 1897

- Berliner switches from rubber to shellac and limestone for record manufacture.
- Marconi gets British patent on wireless July 2, forms Marconi Co. Ltd. American patent granted July 13.

## 1898

- Berliner subsidiary, Gramophone Co., formed in London in May, opens branch in Germany (Deutsche Grammophon), which spawns sub-branches in Russia and Austria.
- First paid radio message sent June 3 by Lord Kelvin from Isle of Wight for one shilling.
- Poulsen receives Danish patent on his telegraphone, a magnetic recorder, in Dec.

## 1899

- Francis Barraud sells *His Master's Voice* to Gramophone Co. after painting disc gramophone over Edison cylinder phonograph.
- Adolphus Slaby forms Telefunken.

- Marconi Wireless Telegraph Co. of America is incorporated Nov. 22.

## 1900

- Emperor Franz Josef makes oldest extant magnetic recording for Poulsen at Paris Exposition.
- Poulsen arrives in Washington in June to form American Telegraphone Co.
- Emile Berliner registers *His Master's Voice* in July as trademark in U.S., manufactures gramophones.
- Reginald Fessenden demonstrates radio voice transmission Dec. 23.

## 1901

- Fessenden begins work on continuous-wave transmissions.
- First Red Label celebrity records appear, featuring Imperial Opera of Russia.
- Victor Talking Machine Co. is formed Oct. 3 by Eldridge Johnson.
- Marconi receives first transatlantic radio signal—the letter S—in Newfoundland Dec. 12.

## 1902

- Cornelius D. Ehret files first patent (U.S.) on FM broadcasting Feb. 10.
- William Barry Owen and Fred Gaisberg make first Caruso records for the Gramophone Co. Mar. 18.
- Victor, Columbia pool patents.

## 1903

- President Theodore Roosevelt sends wireless message to King Edward VII from station in South Wellfleet, Mass., Jan. 9.
- Victor opens Red Seal studio in Carnegie Hall, records first Red Seal disc Apr. 30.
- Poulsen patents arc transmitter, involving modulation of frequency.

## 1904

- Odeon in Berlin introduces two-sided records.
- Lee de Forest demonstrates wireless at St. Louis World's Fair.
- Columbia introduces two-sided discs in U.S. for \$1.50 each in Aug.



Marconi in Newfoundland, 1901, with the equipment that he used to pick up the first transatlantic signal.

## 1905

- Neophone in London introduces 20-inch long-playing record.
- De Forest invents audion three-element tube.

## 1906

- Caruso and Scotti appear on first Red Seal duet disc in Mar.
- Zonophone produces full-length *Aida* on 23 discs.
- H. H. Dunwoody and G. W. Pickard invent cat's-whisker radio receiver.
- Fessenden first broadcasts a phonograph record, Handel's Largo, Christmas Eve, also plays the violin.

## 1907

- De Forest files for patent on audion tube, begins regular broadcasts in New York using Columbia records Jan. 29.

## 1908

- American Telegraphone undergoes reorganization in May; Charles Dexter Rood named president.
- Edison introduces Amberol cylinder in Oct.

## 1909

- Odeon spends £800 to record *Nutcracker Suite* in Apr.; first large-scale orchestral work to be recorded in its entirety.
- Charles Herrold starts Wednesday-evening series of record concerts on wireless station in San Jose, Calif.
- Congress passes Copyright Act. Recordings not copyrightable.

## 1910

- First broadcast from Metropolitan Opera Jan. 13 features Caruso and Destinn in *Cavalleria rusticana* and *I Pagliacci*.



Early radio microphone

## 1912

- De Forest borrows telegraphone for experiments in synchronizing sound with motion pictures.
- Columbia makes last cylinders in July.
- Congress passes radio licensing law Aug. 13.

## 1913

- Edison sponsors first live-vs.-recorded demonstrations, called "Edison Tone Test Recitals"; unveils hill-and-dale disc phonograph.
- Odeon releases first complete symphonies ever recorded—Beethoven's Nos. 5 and 6.
- Edwin H. Armstrong files patent for "feedback" circuit Oct. 29.

## 1914

- General Electric begins manufacturing vacuum tubes.

- Phonograph patents expire and new competitors appear: Sonora, Vocalion, Brunswick-Balke-Collender, others.

## 1915

- Alma Gluck becomes first Red Seal artist to sell one million copies—of "Carry Me Back to Old Virginny."
- First original-cast show recording, by English Columbia: *Business as Usual*.
- Samuel Barnett's tiny Decca portable phonograph becomes popular with British troops in the trenches.

## 1917

- Victor releases first Original Dixieland Jass [sic] Band recordings in May.
- Leopold Stokowski and the Philadelphia Orchestra begin recording for Victor Oct. 22.

## 1918

- Garrard Engineering Ltd. decides to make gramophone motors as peacetime product.
- Armstrong invents superheterodyne radio circuit Dec. 30.

## 1919

- Lionel Guest and H. O. Merriman experiment with electrical recording in Britain.
- Bell Telephone Laboratories begins work on electrical recording.
- Radio Corporation of America formed from Marconi Co. of America Oct. 17.
- Vladimir Zworykin conducts television experiments at Westinghouse.

## 1920

- On Oct. 27, Department of Commerce authorizes KDKA, Pittsburgh, to operate on 360 meters—the first station to be so licensed in the U.S.; station begins regular schedule of broadcasts—one hour a day—in Nov.
- Guest and Merriman electrically record the burial service of the Unknown Soldier in Westminster Abbey, Nov. 11. English Columbia releases the record.
- Toscanini makes first Victor record Dec. 18.

## 1921

- Max Kohl offers magnetic recorder with built-in tube amplifier for dictation, using steel discs.
- First feature film to contain a song, D. W. Griffith's *Dream Street*, opens in New York May 1.
- Mary Garden opens Chicago station KYW Nov. 11; it broadcasts nothing but the Chicago Civic Opera during its first season.

## 1922

- Armstrong receives patent on super-regenerative circuit in July.
- AT&T station WEAJ (now WNBC) takes to the air in New York Aug. 16, broadcasts first paid commercial Aug. 28.
- WGY, Schenectady, presents first U.S. radio drama, *The Wolf*, by Eugene Walter in Aug. At almost the same time, Marconi broadcasts Rostand's *Cyrano de Bergerac* in London.
- WJZ in Newark and WGY form first network radio hookup, for World Series beginning Oct. 27.

- First broadcast by New York Philharmonic Symphony Orchestra Nov. 22.
- Privately run British Broadcasting Co. (later Corp., when it becomes public in Jan. 1927) begins operations.
- Columbia sells British branch to Louis Sterling and associates in Dec.
- By end of year, 569 radio stations licensed in the U.S., phonograph begins to decline.

### 1923

- Victor leaves room in its consoles for customers to insert radios.
- De Forest unveils film recording process. General Electric photographically records sound on tape.
- Western Electric tries to sync sound and film Apr. 2.
- Columbia goes into receivership in Oct.
- Vladimir Zworykin demonstrates electronic television in Dec.

### 1924

- Bell Telephone Laboratories builds prototype folded-horn speaker system.
- H. C. Harrison of Western Electric is granted patent for electrical recording in May.
- B. J. Grigsby begins making loudspeakers in U.S.; Celestion makes first component speaker in England.

### 1925

- First commercial electrical recording session Feb. 25—by Art Gillham (*The Whispering Pianist*), for Columbia.
- In Mar., Victor licenses electrical recording process from Bell Laboratories. English Columbia buys American Columbia to obtain rights.
- First commercial electrical recording to be released, in Apr., is excerpt of University of Pennsylvania's *Mask & Wig Club*, by Victor.
- Brunswick-Balke-Collender shows experimental 12-inch long-playing record—contains 40 minutes of music, recorded at 78 rpm.

### 1926

- Rice and Kellogg of Bell Telephone Laboratories receive patent for dynamic loudspeaker.
- Giovanni Martinelli, Mischa Elman, and others open in a sound movie using Western Electric's Vitaphone disc process at New York's Warners Theater Aug. 6.
- National Broadcasting Co., organized by RCA, inaugurates 24-station network radio service Nov. 15.

### 1927

- Congress enacts Federal Radio Act, setting up Federal Radio Authority on Feb. 3.
- Victor introduces first record-changing phonograph.
- Edison introduces long-playing discs, with 40 minutes of music.
- Columbia Records buys United Independent Broadcasters radio network Apr. 2, premieres as Columbia Phonograph Broadcasting Co. Sept. 18, drops "Phonograph" from name Nov. 19, eventually becomes independent Columbia Broadcasting System.
- Radio transmission of TV between Whippany, N.J.,



Edison's 40-minute LP

and New York by Bell Telephone Labs Apr. 7.

- Fritz Pfelemer glues iron oxide onto strips of paper.
- *The Jazz Singer*, first smash-hit talking picture, premieres Oct. 6.

### 1928

- English Columbia buys Pathé Frères.
- RCA and John L. Baird do experimental telecasts in New York and London, respectively.
- First television drama, *The Queen's Messenger*, aired Sept. 11 in Schenectady.

### 1929

- RCA purchase of Victor Talking Machine Co. ratified Jan. 4.
- Decca Record Co. formed in U.K., records Ernest Ansermet in Handel.
- Last cylinder phonographs made. Edison goes out of phonograph business Nov. 1.

### 1931

- His Master's Voice and Columbia merge in Britain to form Electric & Musical Industries Mar. 31.
- CBS television station begins operation July 21 atop Chrysler Building in New York.
- On Sept. 17 RCA demonstrates long-playing recording of Beethoven Fifth Symphony recorded at 33½ rpm.
- HMV launches Society series—Wolf songs, Beethoven sonatas, Delius orchestral works among projects.
- RCA television station atop Empire State Building opens for field tests Oct. 30.
- Metropolitan Opera begins presenting radio broadcasts with *Hänsel und Gretel* on Christmas Day.

### 1932

- U.S. record industry hits bottom. Only six million discs sold.
- Birmingham Sound Reproducers founded to make amplifiers and loudspeakers.
- Garrard introduces first separate automatic record changer.

### 1933

- In Jan., Maj. Armstrong invents FM and experiments with multiplex.
- BASF works with Pfelemer to produce magnetic tape.

### 1934

- Armstrong demonstrates multiplex and facsimile broadcasting from Empire State Building.
- Mutual Broadcasting System begins operation Sept. 30—formed to carry *The Lone Ranger*.

- U.S. Decca organized by Jack Kapp and associates, introduces records by name pop artists to sell for 35¢.

### 1935

- BASF perfects process for coating tape.
- AEG shows Magnetophon recorder and tape at Berlin Radio Exhibition.

### 1936

- Popularity of jukebox revives record business.
- BBC inaugurates regular television service.
- Sir Thomas Beecham and the London Philharmonic Orchestra become the first serious musical group to record on magnetic tape during concert at Ludwigs-hafen, Germany, Nov. 19.

### 1937

- In Feb., NBC Symphony formed and Arturo Tosca-nini signed to conduct it.
- In Oct., Avery Fisher founds Philharmonic Radio in New York to manufacture high fidelity consoles.

### 1938

- Garrard builds turntable that plays both sides of record.
- Murray Crosby designs FM receiver.
- John Shepard III builds first commercial FM transmitter atop Mt. Asnebumskit, Mass. Armstrong builds his own transmitter in Alpine, N.J.
- German Radio switches from disc to tape, begins recording complete operas for broadcast.
- Brush Soundmirror introduced in U.S., uses steel tape.
- CBS buys Columbia Records in Dec.

### 1939

- BBC broadcasts stereo experimentally.
- Bell Telephone Laboratories conducts hearing measurements on 500,000 visitors to World's Fairs in New York and San Francisco, demonstrates stereo recorder at New York World's Fair using steel tape.
- U.S. television service begins on limited commercial basis.

### 1940

- By beginning of year, nine experimental FM stations are in U.S., 743 AM stations.
- English Decca develops full frequency range recording (ffrr) to enable naval officers to detect difference in sound between British and German submarines.
- Walt Disney films *Fantasia* with stereo soundtrack.

### 1941

- Marvin Camras applies for patent on AC bias in magnetic recording Dec. 22.
- First FM network relays begin between Schenec-tady, Boston, Hartford, and New York.

### 1942

- American Federation of Musicians' ban on record-ing goes into effect July 31.

### 1943

- Edward Noble forms American Broadcasting Com-pany by buying NBC's Blue Network July 30.

### 1944

- Ralph Oace of Minnesota Mining & Manufacturing Co. begins experimenting with tape coatings.
- Victor and Columbia sign with American Feder-ation of Musicians to end recording ban Nov. 11.
- First Decca frr records of music appear in Britain Dec. 4.

### 1945

- On July 1, FCC orders FM broadcasters to abandon 44-50 Mc band for 88-108 Mc band.
- Fisher Radio begins production of component re-ceiver in Oct.
- RCA publicly demonstrates color TV Oct. 30 in Princeton, N.J.

### 1946

- GE patents magnetic phonograph cartridge.
- British manufacturers of war goods, Garrard, Tan-roy, and others, look for peacetime products, settle on high fidelity equipment.
- U.S. component radio makers tool up to produce FM tuners and receivers.
- Victor Brociner builds preamp with controls.
- CBS and Dumont demonstrate color TV to the FCC Dec. 16.



1946 jukebox

### 1947

- FM boom gets underway, with more than 400 sta-tions under construction.
- Ampex starts work on tape recorder as its first peacetime product.
- H. H. Scott introduces Dynaural Noise Suppressor, followed by first high fidelity amplifier.

### 1948

- Columbia introduces 33 $\frac{1}{3}$ -rpm LP June 21.
- First full-length Met telecast Nov. 29 over ABC—Verdi's *Otello*.

### 1949

- RCA introduces 45-rpm record in Feb.
- Magnecord introduces first stereo tape recorder.
- Harry Reizes holds first Audio Fair, at Hotel New Yorker in New York.

## 1950

- RCA Victor reports Jan. 4 it will manufacture LPs. Decca is the first to market LP in England.
- Cable television developed in Pennsylvania to carry FM and television signals to small towns.
- First commercially recorded tapes become available from Vox, Livingston.

## 1951

- In Apr., Milton Sleeper publishes *HIGH FIDELITY*, first magazine devoted exclusively to the new field.

## 1952

- Ched Smiley and Emory Cook develop binaural record and tone arm to play it back.
- WQXR in New York begins AM-FM stereocasts.

## 1953

- Noncommercial television begins in Houston.
- Ampex demonstrates color videotape Dec. 1, RCA promises home videotape in color.
- Emory Cook releases sound spectaculars on records.

## 1954

- First stereo tapes released commercially, by Audio-sphere.
- George Eash invents endless-loop tape cartridge and player.
- Edgar Villchur introduces acoustic suspension loudspeakers.

## 1956

- Ampex videocorder makes broadcast debut on CBS *Evening News* with Douglas Edwards Nov. 30.

## 1957

- London Records demonstrates stereo disc in New York (released in Aug. 1958).
- Joseph Tushinsky brings first six Sony tape recorders into U.S., the first Japanese high fidelity equipment to be sold here.

## 1958

- Audio Fidelity releases first commercial stereo disc in Jan.
- Fairchild and Electro-Voice produce cartridges to play back stereo records.
- John Koss develops stereo headphones.
- Benjamin Bauer of Shure Brothers invents moving-magnet stereo pickup.

## 1959

- Ampex forms Stereo Tape division to market recordings on tape, establishes quarter-track format.
- Major record companies release stereo discs.
- Decca/London releases *Das Rheingold*, conducted by Georg Solti and produced by John Culshaw, demonstrating viability of stereo discs for serious music.

## 1961

- FCC approves GE-Zenith stereo FM system Apr. 20.

## 1962

- Telstar I inaugurates satellite relays of television.

## 1964

- Philips produces tape cassette.



## 1965

- Bill Lear introduces 8-track car cartridge.
- Ray Dolby demonstrates noise-reduction unit for Decca Records in London.

## 1966

- Norelco introduces stereo cassette decks for home use. Ampex produces commercially recorded stereo cassettes.

## 1968

- DuPont demonstrates chromium dioxide tape for video use in May.
- Kenwood becomes first Japanese manufacturer to make impact on U.S. high fidelity component market.

## 1969

- American viewers watch landing of man on the moon live and in color in July.

## 1970

- Advent offers blank chromium dioxide cassettes in July.

## 1971

- Electro-Voice introduces matrixed 4-channel disc process in Feb.
- Congress passes "antipiracy" bill, giving recordings 75-year copyright, in Feb.
- Columbia unveils SQ in Apr.

## 1972

- Sansui introduces QS matrixed disc Feb. 1.
- On May 1, RCA releases first two Quadradiscs, Hugo Montenegro's "Love Theme from *The Godfather*" and "The Fantastic Philadelphians, Vol. 1."

## 1974

- FTC sets standard for measuring power output of home entertainment products, requires specification of distortion and bandwidth.

## 1975

- Teldec markets color Videodisc system in Germany.
- Sony introduces Betamax home color video cassette system in Nov.

## 1976

- Philips and RCA demonstrate rival color video disc systems.
- On Oct. 19 President Ford signs first new copyright act since 1909.



Ken Howard

In Santa Fe's Armory for the Arts, General Leppard commands a motley recording army.

## Behind the Scenes

**The Mother of Us All.** In recent years, operatic recording in the U.S. has become fairly well confined to specifically American works: Gershwin's *Porgy and Bess* (London), Joplin's *Treemonisha* (Deutsche Grammophon), Beeson's *Captain Jinks of the Horse Marines* (RCA). Thanks to its Rockefeller Foundation financing, New World Records has added to that list the Virgil Thomson-Gertrude Stein *Mother of Us All* (the first complete recording of a Thomson opera), taped late in August 1976 in conjunction with the Santa Fe Opera's production.

Conductor Raymond Leppard and his forces were gathered in Santa Fe's Armory for the Arts, an old National Guard building made available by the state of New Mexico for a variety of local arts activities. For the sessions, the dingy plaster walls of the Armory were festooned in checkerboard fashion with colorful quilts and blankets to secure optimal acoustical ambience. Producer Andrew Raeburn, whose control center (manned by a technical crew from New York and Denver) was a semitrailer van parked alongside the building, planned the miking and "staging" for maximum intelligibility—or at least audibility—of the Stein text, and what our corre-

spondent Philip Hart heard suggested considerable success.

The title role—i.e., Susan B. Anthony—was taken by mezzo Mignon Dunn, with mezzos Batyah Godfrey and Helen Vanni and tenor William Lewis accounting for three of the opera's character vignettes. Many of the twenty-five roles were filled by young singers in Santa Fe's apprentice program, whose alumni include Judith Blegen and Sherrill Milnes. The recording reportedly cost close to \$100,000, about twice what it would have cost in Europe. But such a recording would not have benefited from the extensive preparation and ensemble spirit of the Santa Fe performances.

The good news for record buyers is that by the time *The Mother of Us All* is released, early this year, New World will be able to offer it for general sale to the public, along with at least some of the initial releases reviewed in the September 1976 issue. (Under the original contractual arrangements, they could be offered only to educational institutions.)

**Haydn symphonies.** Neville Marriner and the Academy of St. Martin-in-the-Fields are engaged in a series of symphony recordings for Philips. Instead of grouping by number, the Marriner couplings will play on nicknames: *The Philosopher* with *The Schoolmaster*, *Mercury* with *Fire*, *Oxford* with *London*, *Miracle* with *Surprise*, *Maria Theresia* with *La Reine*, *Military* with *Drum Roll*, and so on. (Marriner and the Academy are also accompanying Pepe Romero in the four Giuliani guitar concertos for Philips.)

With *La Reine*, of course, Marriner

ventures into the six "Paris" symphonies (from which *The Hen* and *The Bear* might logically go together). That may raise eyebrows at EMI, which seems to have staked a proprietary claim to Symphonies Nos. 82-87: Within a period of months, EMI has released two complete cycles, by Yehudi Menuhin and the Menuhin Festival Orchestra and by Daniel Barenboim and the English Chamber Orchestra. Angel so far has no definite plans for releasing either.

**Project Boris II.** It is nearly fourteen years since these pages carried then-editor Roland Gelatt's extended report on EMI's monumental "Project Boris," the first stereo recording of Mussorgsky's *Boris Godunov*. Though we now have four stereo versions, all are based on Rimsky-Korsakov's revision. After years of unfulfilled rumors, EMI has once again jumped into the breach, sending producer David Mottley, balance engineer Michael Gray, and its own recording equipment to Katowice, Poland, to collaborate with Polish Radio on the long-awaited recorded premiere of Mussorgsky's own text.

Why Katowice? It is the home of what Mottley rates the best orchestra in Poland, the Polish Radio Symphony, which he first recorded in 1972 in a pair of "Penderecki Conducts Penderecki" discs. More recently he recorded Penderecki's *Magnificat*, using the excellent radio choruses of Katowice and nearby Cracow. They were again on hand for *Boris*, which was conducted by the Polish-born conductor of the St. Louis Symphony, Jerzy Semkow.

Also familiar to American audiences is the recording's protagonist, for Martti Talvela first sang Boris in the Mussorgsky text in the Metropolitan Opera's 1975 production. He still had a fair amount of music to learn, as the recording apparently combines Mussorgsky's two versions differently from the Met's hybrid edition. (The score used was David Lloyd-Jones's critical edition, just published by Oxford University Press, which includes all the material of both Mussorgsky versions.) The other bass principals were the Pole André Mroz as Pimen and the Norwegian Aage Haugland (Covent Garden's Hunding this past fall) as Varlaam. As Dmitri, Nicolai Gedda repeated the role of his first international recording back in 1952, when Walter Legge plucked the debutant tenor off the stage of Stockholm's Royal Opera for EMI's first *Boris*. Appropriately enough, the cast included a Polish Marina, the mezzo-soprano Bozena Kinasz.

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and using a brand-new score made this an especially complex project, but producer Mottley told HF European editor Edward Greenfield that the eagerness with which his Polish collaborators helped to sort out confusions made all the difference. (Other Eastern European regimes please note.)

**Together again.** Veteran cohorts Joan Sutherland and Marilyn Horne have been reunited in the recording studio, in a vehicle far removed from their bel canto specialties: *Il Trovatore*. Azucena is Horne's first Verdi operatic role on records; Leonora is Sutherland's third, but the first in spinto territory. The Manrico was Luciano Pavarotti (who would shortly open the Metropolitan Opera season in the same role); Ingvar Wixell sang Di Luna. Richard Bonynge conducted London's National Philharmonic Orchestra for both *Trovatore* (whose Paris-added ballet music was recorded) and a Sutherland/Pavarotti duet disc (*Traviata, Aida, Otello*, and *Linda di Chamounix*) made at the same time.

**Second time around.** Colin Davis' current recording schedule includes remakes of several major works he first recorded early in his career. Recently, for example, he chose Berlioz' *Symphonie fantastique*—one of his early-Sixties triumphs with the London Symphony—for his first recording with the Concertgebouw Orchestra. Now Davis has returned to Amsterdam to replace another LSO performance: Stravinsky's *Rite of Spring*. He is also recording Haydn's Symphonies Nos. 102 and 103 with the Concertgebouw.

One of Davis' earliest Berlioz projects—dating back more than fifteen years and predating his association with Philips—was *L'Enfance du Christ* for Oiseau-Lyre. Now *L'Enfance* will be added to the conductor's Philips Berlioz cycle. The soloists are Janet Baker, Eric Tappy, and Jules Bastin, with the John Alldis Choir and the London Symphony.

**Boulez in London.** Pierre Boulez too has been recording Berlioz. For CBS he has taped *Les Nuits d'été* with the BBC Symphony and soloists Yvonne Minton and Stuart Burrows. Boulez and the BBC Symphony have also recorded Schoenberg's *Survivor from Warsaw*, as yet uncoupled. As soloist Boulez chose Günter Reich (the Speaker of his *Gurre-Lieder* and the Moses of his *Moses und Aron*), presumably on the grounds that his lightly German-accented English would sound more authentic.

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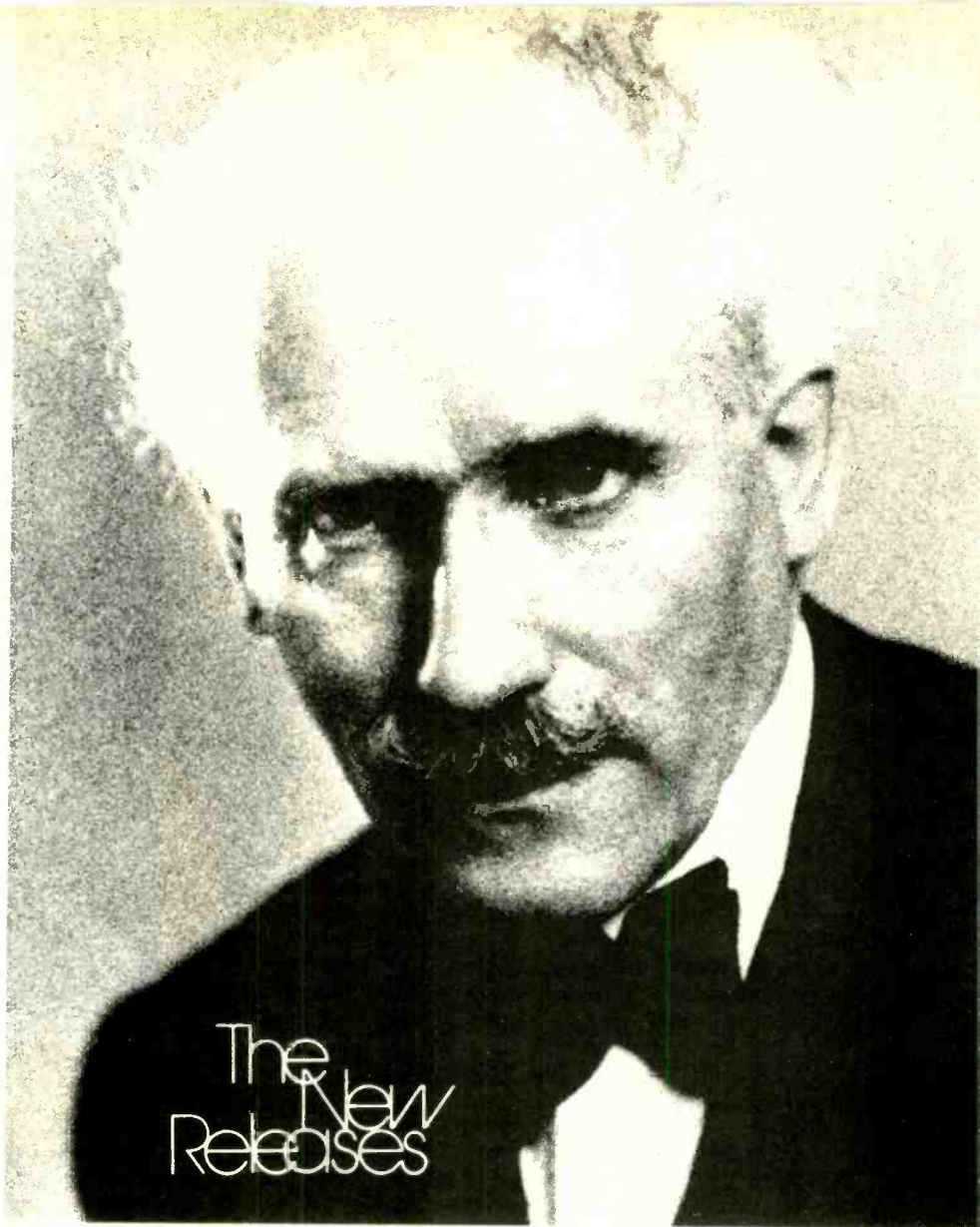
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## Toscanini Meets the Philadelphians

by Harris Goldsmith

THE RECORDINGS that Arturo Toscanini made with the Philadelphia Orchestra in the Academy of Music between November 1941 and February 1942 constitute one of the most interesting, and one of the most controversial, segments of his unique legacy.

Released only now, thirty-five years after the fact (except for the Schubert Symphony No. 9, first issued in 1963), the recordings in RCA's new five-disc set document Toscanini's work with a renowned orchestra meticulously trained (by Leopold Stokowski and Eugene Ormandy) in a tradition antithetical to his own. Moreover, they represent a curious period in his artistic evolution, when his style was evidently midway between the much more elaborately rhetorical, lyrically inflected approach heard in many of his prewar recordings with the New York Philharmonic and the BBC Symphony and the taut, symmetrical manner we know so well from his late NBC Symphony recordings. In addition, the engineering

philosophy of the Philadelphia recordings affords us a markedly different orchestral perspective.

In his later years, Toscanini's work was largely confined to one orchestra, the NBC Symphony, and to two performing sites, Radio City's unjustly notorious Studio 8H and New York's justly famous, though still somewhat overrated, Carnegie Hall. Because of the NBC/RCA engineers' preference for a sharply detailed, closely microphoned pickup, most of the conductor's recordings in circulation give a lopsided—and perhaps unreliable—idea of "the Toscanini sound."

Toscanini's performances, for all their sinew and clarity, were more impressively massive, more sensual tonally, and often more flexible rhythmically—in sum, more interesting—than the recorded counterparts on the NBC Symphony commercial discs. It is, therefore, of crucial importance to get recordings like the Philadelphia series before the listening public.

(Another case in point is the Brahms orchestral cycle that Toscanini led with London's Philharmonia Orchestra a season before his retirement: Those performances have a tonal roundness and a communicative suppleness, as well as a variety of arresting rhetorical devices, not to be heard in the contemporaneous NBC commercial recordings. A hideous-sounding off-the-air transcription was issued recently on Turnabout; would that RCA or EMI were to honor the twentieth anniversary of Toscanini's death by releasing the excellent-sounding "official" tapes.)

Perhaps the greatest lesson of the Philadelphia performances is that the most celebrated orchestral martinet of all time wasn't really such a martinet. True, he was demanding, and he had an extremely high-strung temperament. But unlike Stokowski, who succeeded in making every orchestra he conducted sound like his vintage Philadelphia, Toscanini allowed musicians to retain their own personality once those features essential to the realization of his conception of a work—good intonation, rhythmic accuracy, passionate drive, respect for the composer's markings—were achieved. "Cantare!" he would say, but he was remarkably open-minded about how his players were to "sing," unless they lapsed into willful license or slovenliness of detail. (Then there would be fireworks.)

For all of Toscanini's well-documented technical skill, his ability to produce near-miraculous results with less than first-rate orchestras after one or two rehearsals, it probably took years of work together to produce the fully sensitized performances one hears in his best work with the New York Philharmonic and the NBC Symphony—witness the 1929 Philharmonic recording of the *Midsummer Night's Dream* Scherzo, more finished than the basically excellent but rather heavy one made in 1926 for Brunswick. That adjustment period could sometimes be shortened, with an unusually capable, responsive orchestra, as happened with the Philharmonia. The Philadelphia Orchestra, however, was, in Pierre Monteux's immortal words, "superbly trained to play very badly." Toscanini, though lacking Monteux's twinkling sense of humor, must have felt a similar lack of compatibility with the Philadelphians' style: it would be hard to imagine the orchestra of Stokowski and Ormandy adjusting easily to Toscanini.

In some of these performances, the diverging styles of conductor and orchestra fuse to produce inspired results. At other times, the results are neither ideal Philadelphia nor ideal Toscanini. The collaboration perhaps works best in the Schubert symphony. This performance—richly lyrical, flexible in tempo, hair-raisingly dramatic (quite different from the two later recordings with the NBC Symphony)—is simply the greatest I have ever heard.

The Mendelssohn *Midsummer Night's Dream* music is almost as distinguished: a miracle of fleet virtuosity and incandescent poetry, far superior to the 1947 NBC recording. There is a tiny burble from the solo horn at the end of the Nocturne, and the extremely winged Scherzo doesn't have quite the unanimous ensemble of the 1929 Philharmonic version (although I prefer its greater lightness and whimsy).



Toscanini at work—not really such a martinet

The Overture and Wedding March, while wonderfully energetic, seem a bit rushed alongside the memorable Toscanini broadcast performance of November 1, 1947, but this is magical music-making, fully worthy of documenting his incomparable way with this gossamer music.

It should be noted that Toscanini plays the suite in an order different from that which he devised for the 1947 broadcast and recording. In addition to the song with chorus (recorded in 1947 but rejected), the 1942 account includes the melodrama leading into the finale; the 1947 version of the finale merely reiterates the opening notes of the overture.

The Berlioz "Queen Mab Scherzo," always a Toscanini specialty, gets a completely characteristic account here—much like the NBC broadcast performance of November 10, 1951 (issued first as a self-contained excerpt, later interpolated into the commercial release of the 1947 broadcast of the entire *Roméo et Juliette*). In the Philadelphia version, however, the delicate antique cymbals are reproduced sensitively, not like old pots and pans. In the Berlioz work, as in the Schubert and the Mendelssohn, we hear the typical Toscanini sound intensified by greater coloristic sensitivity, but not the customary beefy lushness of the Philadelphians. The maestro obviously appreciated tonal beauty but wasn't content with that alone—shape, direction, clarity were even more important to him.

The Tchaikovsky *Pathétique* is the one perform-

ance in the set about which I still haven't made up my mind. The 5/4 waltz movement and the searing finale are more flexibly phrased and richly nuanced here than in the comparatively matter-of-fact 1947 NBC recording. In the Philadelphia version, Toscanini makes more fuss over the tenuto markings in the central portion of the waltz, a detail I am coming to like more and more. On the other hand, the divergent methods of conductor and ensemble collided head on in this composition.

In B. H. Haggin's *The Toscanini Musicians Knew*, bassoonist Sol Schoenbach recalls how Toscanini came to the rehearsal and systematically derided the Philadelphian's "traditional" way of playing Tchaikovsky. Right at the outset, Schoenbach proudly paraded his technical accomplishment of playing the opening bassoon solo on a single breath. Toscanini would have none of it: He wanted a more segmented effect and sang "I-ee love you; I-ee love you" to convey his idea of how that opening should sound. The record shows that Schoenbach adjusted superbly, but later on he became unnerved by another Toscanini demand.

Just before the outburst beginning the development section, there is a soft clarinet solo whose final notes are taken over by the bassoon. Many conductors cheat there and reassign those few bassoon notes to the bass clarinet. Not Toscanini, who wanted the pronounced tonal contrast and insisted that Schoenbach "play as written." "To play that!" Schoenbach writes. "I think it's marked six p's; and with Toscanini it became twenty-six p's; and it became the biggest feat in the world: I filled my bassoon with absorbent cotton and handkerchiefs and socks!" The passage, played without mishap on the NBC record, does not come off here: The intonation is questionable, and the final low D doesn't speak on time.

There are also many passages where the playing is unrhythmic by Toscaninian standards. The March begins at a furious clip but loses much of its effectiveness because the cross-rhythms at the beginning aren't accurate; again at bars 302-12 the dotted-note figurations sound casual, almost like triplets. Many passages are played glossily but without much internal shaping, and there are a few awkward transitions (a strange ritard at bar 170 in the first movement, a lurching hesitation at bar 175 of the March—ill-gauged side breaks, perhaps?). The Philadelphia version may be more poetic and tonally refined, but the NBC conveys much more of the characteristic Toscanini rhythmic impulse and architectural sense—and the bass drum has much more exciting impact.

I have always found Toscanini's 1950 NBC *La Mer* and *Iberia* brilliantly played, stunningly reproduced, and a bit lacking in flow and spontaneity. The Philadelphia Debussy—more flowing in line and animated in tempo, less glaringly harsh sonically—puts the justly renowned later interpretations into better perspective. Though the Philadelphia performances obviously have the surface noise and sonic limitations of shellac recording, for their more spacious acoustics and more comfortable interpretations they must, I think, be preferred from an artistic standpoint.

Anyone who has heard the vibrant, richly colored Toscanini/New York Philharmonic *Pines of Rome*

from the January 1945 pension-fund concert and the eloquently atmospheric *Fountains* from the memorable NBC broadcast of February 17, 1951, knows that the commercial recordings of those Respighi scores didn't do justice to his re-creations. Now, from Philadelphia, here is a luscious, colorful version of *Feste romane*, which similarly puts right the faulty impression left by the stiff, inflexible, hard-boiled, and uneventful NBC recording of 1949.

For me the one major disappointment in the set is Strauss's *Death and Transfiguration*, perhaps because I have heard several transcriptions of Toscanini rehearsing the piece with the NBC Symphony, in which he can be heard demanding exact realization of countless details in the score. What he was after is reflected in the 1952 NBC recording, one of his most dramatic and searchingly introspective. In this case, the Philadelphians obviously couldn't adjust to a way of playing so radically different from the Stokowski tradition. The performance has its attractions but cannot match the 1952 NBC—or, for that matter, two roughly contemporary Vienna Philharmonic accounts: Furtwängler's 1950 recording (Seraphim 60094) and Strauss's own 1944 broadcast performance (in Vanguard SRV 325/9).

In frequency response and dynamic range, the Philadelphia recordings are well ahead of their time; in surface noise, they are behind for their period, due to damage inflicted on the masters by wartime processing. According to Haggin, Toscanini rejected some of the sides because of slips in performance and imperfect instrumental balance in the sound. It was assumed that he would remake the offending sides, but the Petrillo ban on recording activities intervened. When the ban lifted in 1944, the Philadelphia Orchestra had transferred its contract to Columbia, and Toscanini eventually re-recorded all these works with the NBC Symphony. With the orchestra safely under the RCA banner once more, and with better historical perspective, it was decided to make the Toscanini/Philadelphia legacy available to the public at long last. In addition to the surface noise, there is some pitch waver in the MSND finale and the Wedding March begins flat, as if the cueing device hadn't hit full speed when the transfer was made. There is also (due to mishaps in the electroplating plant) a peculiar powdery, blasting quality in some of the heavily scored passages. But even at their worst, these recordings are never less than eminently listenable.

This set (whose five records are offered for the price of four) offers uniquely enjoyable performances of some great music plus priceless and thought-provoking documentation of one of the less-known facets of the Toscanini personality. The cliché "better late than never" emphatically applies.

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**BERLIOZ:** Romeo et Juliette. Queen Mab Scherzo. **DEBUSSY:** La Mer, Iberia. **MENDELSSOHN:** A Midsummer Night's Dream (incidental music), Opp. 21/61 (with Edwina Eustis and Florence Kirk, sopranos; University of Pennsylvania Women's Glee Club). **RESPIGHI:** Feste romane. **SCHUBERT:** Symphony No. 9, in C, D. 944 (from LD 2663, 1963). **R. STRAUSS:** Tod und Verklärung, Op. 24. **TCHAIKOVSKY:** Symphony No. 6, in B minor, Op. 74 (*Pathétique*).

# Haydn at the Keyboard

by Paul Henry Lang

THE HAYDN RENAISSANCE is happily continuing. If someone should question the aptness of this term as applied to the composer of the *Oxford Symphony*, or the *Emperor Quartet*, or *The Creation*, we might ask how many of Haydn's piano sonatas are generally known and performed at concerts. Perhaps half a dozen out of some sixty works.

Now we are enriched by three noteworthy anthologies containing many masterpieces: from *Hungaroton*, Vol. 1 of a four-volume, chronologically arranged *intégrale* of the sonatas, planned and directed by László Somfai, one of the ablest Haydn scholars (Vol. 1 is performed by harpsichordists Zsuzsa Pertis and János Sebestyén; Vols. 2-4 will feature a number of Hungary's talented young pianists); from *London Stereo Treasury*, Vol. 1 of a sonata cycle by the English composer/critic/pianist John McCabe, in which each three-disc set will contain works from all periods of Haydn's career; from *Nonesuch*, a pair of discs by pianist Gilbert Kalish.

For Haydn, as for Beethoven, the piano sonata was throughout his career the proving ground where he could experiment, then apply what he had learned to quartet and symphony. It is remarkable how steadfastly and purposefully this modest man, at the same time an artist of the highest integrity, developed his talents.

The nineteen early sonatas in the *Hungaroton* set—splendidly produced, engineered, performed, and annotated—testify to a heroic effort to proceed beyond the world of the divertimento that dominated Austrian instrumental music. The largely self-taught young composer wanted discursive musical logic—that is, development—not mere entertainment.

The task of Haydn's researchers calls for scarcely less heroic efforts, because his experiments were greatly complicated by having been composed dur-



The youthful Haydn in an oil by Alessandro Longhi

*John McCabe, Gilbert Kalish, and a team of Hungarians help illuminate one of the least-understood areas of Haydn's output.*



ing the twilight era of the transition from harpsichord to pianoforte. In Hungaroton's elegant and highly informative booklet, Somfai establishes that all of Haydn's keyboard music up to 1766, and hence these sonatas too, was intended for the harpsichord, and the music is so performed here. We should also realize that the harpsichord was ever-present in all musical genres and that two or three of these sonatas are really "piano conductors," the keyboard parts of divertimentos for several instruments, the rest having been lost.

Some of these early sonatas are flimsy and old-fashioned, without a trace of personality (some must be spurious); others are "potpourri sonatas," copyists' compilations of movements from several different sonatas. But there are half a dozen works among the nineteen—Nos. 9, 11, 13, 15, 16, and 19—that are without doubt Haydn "on his way." Even at this early stage of his creative career, the asymmetric themes, the "irregular" sentence structure, the variety of formal design, and the palpable effort at thematic consistency were beyond the powers of most of his colleagues.

Chronology and authenticity have been pursued and established to the best of the ability of a number of competent scholars, but we can never reach unanimity on these matters: the ascriptions and dates of many of the youthful Haydn's works will always remain conjectural. Of the several available scholarly editions of the sonatas, Somfai happily selected Christa Landon's Wiener Urtext edition (1964-66, subsequently revised), "because of its musical merits."

Harpsichordists Pertis and Sebestyén are equally superior musicians. Their registration is tasteful and avoids extremes (Haydn had a small one-manual harpsichord), but they are not afraid to add a little of the color made available by their fine two-manual instrument with several stops, though always with regard to the requirements of the music. The fast movements are crisp and clear, the slow ones tender and expressive, and there is no pussyfooting with the minuets, which are earthy and robust.

The harpsichord used is magnificent, with remarkably sonorous bass and surprising holding power in the middle region. Still, those who want to play these sonatas on modern pianos need not blush; they sound fine, as John McCabe shows in his performances of Nos. 6, 10, and 18.

With the McCabe and Kalish records, we enter the period of Haydn's wide-ranging experimentation, and the variety, especially in formal design, is considerable, even fantastic. No. 32 in G minor, for instance, has only two movements and is, like the quartets and symphonies of the *Sturm und Drang* period, full of excitement, showing a decided turning away from the *galant*; it has highly expressive melodic-harmonic turns, dramatic pauses, rhetorical proclamations, but also contrapuntal strettos.

The romantic effusiveness of the sonatas of this period shows the influence of Emanuel Bach, but the agitated tone and the dark hues of the music are nevertheless disciplined by a compelling logic of thematic work; Beethoven learned much from these works. No. 31 in A flat begins with the customary sonata al-

legro, but the Adagio that follows is also in sonata form, and even the finale flirts with it.

No two of these interesting movements are alike. The desire for variation, the refusal to repeat verbatim are the strongest among Haydn's instincts, and the inventiveness in his period construction is perhaps the most original of the great Viennese classical trinity of Haydn, Mozart, and Beethoven.

In the middle-period sonatas there is a marked increase in pianistic virtuosity. Unlike Mozart and Beethoven, Haydn was not himself a keyboard virtuoso, but his writing of this period shows the influence of his able artistic friends Franziska and Marianne von Auenbrugger, whose playing and genuine insight, he said, "equal that of the greatest masters." Surviving the *Sturm und Drang* crisis in symphony, string quartet, and sonata alike, Haydn now settled down to the serene classic vein and tone that was largely of his own creation.

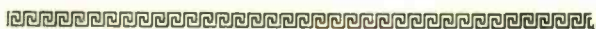
As in those other major instrumental genres, he soon mastered the characteristic types that made up the cyclic sonata—the opening allegro, the minuet, and the largo/adagio—but like many other composers, especially the nineteenth-century symphonists, he had a "finale problem," that is, how to compose a last movement that would be both a foil to the opening allegro and the capstone of the entire work. In the Op. 20 quartets, he experimented with fugal finales, but they seemed a foreign body in the cycle, so beginning with the Sonata No. 30 and the Op. 33 quartets, he hit upon the ideal solution, the sonata-rondo, which became one of the hallmarks of Haydnesque exuberance and wit.

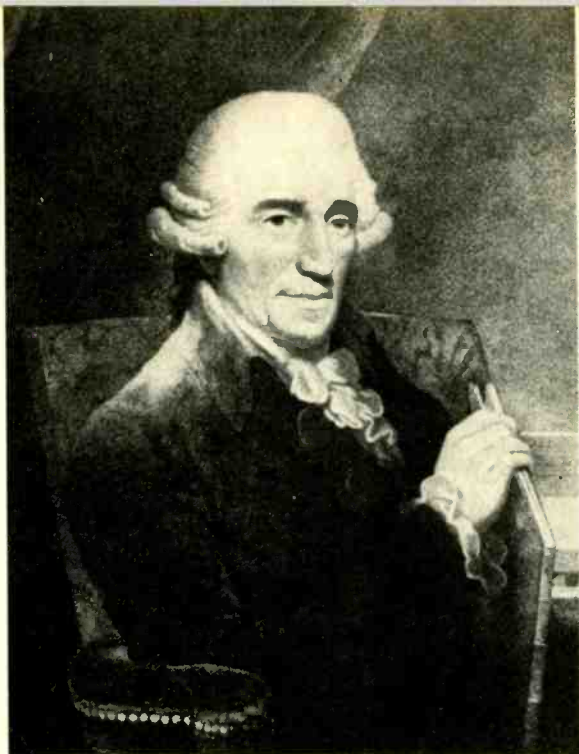


### The Haydn Sixty-Two

With this review, HF adopts the numbering proposed by Christa Landon in her Wiener Urtext edition of the Haydn sonatas. By excluding several sonatas that are either not sonatas or not by Haydn and adding others not included by Pásler (whose numbering was adopted in the Hoboken catalogue), Ms. Landon numbers sixty-two sonatas. Eight of these (Nos. 21-28), however, are "lost sonatas," known from Haydn's own catalogue, though a fragment of No. 28 has surfaced and is included in the Landon edition.

That edition has now been employed in three integral recordings: the two whose first installments are reviewed here and one for Telefunken by Rudolf Buchbinder, which was among the nominees for last year's HIGH FIDELITY/Montreux awards. Fine as the Hungaroton and Stereo Treasury series are, my own choice would be Buchbinder (who, like John McCabe, uses a modern piano throughout). There are no plans for domestic release of his three six-disc sets: serious Haydn collectors may find them worth searching out. K.F.





"Papa" Haydn in 1792, an engraving by T. Hardy

From the Auenbrugger sonatas onward we are dealing with an expressive personal tone, advanced harmony, fluent and integrated counterpoint, and original formal devices. Soon we begin to feel the subtle influence of Mozart displacing that of Emanuel Bach. So strong is the urge for thematic elaboration that even the cadences are seized upon for new departures. Haydn's highly original procedures are not "justified" by any of the rules and standards decreed in our theory books, and literal analysts have a hard time forcing his imaginative "irregularities" ("loose style," the north German contemporaries called it) into any set pattern.

The last three sonatas (Nos. 60-62), composed in London during his second visit there in 1794-95, are, like the late quartets and symphonies, the epitome of the classic style. There is a strong inclination toward monothematic sonata construction; Haydn now uses the entire range of the keyboard, and we observe an absence of the popular, public-pleasing tone—we are in the world of the young Beethoven.

The F minor Variations of 1793, one of the gems of the piano literature, starts like many of Haydn's fine sets of variations except that the beautiful theme is a complex one offering many natural opportunities for thematic play. But slowly there grows a suppressed excitement, and just when we get the impression that the final variation is being presented there is a totally unexpected change as Haydn suddenly explodes into a highly dramatic scene, which is then with some difficulty subdued, and the original mood returns.

Both Kalish and McCabe are excellent, well-educated, and stylistically knowledgeable musicians. Neither tries to make the sonatas larger than life, staying neatly within the boundaries of the eighteenth-century style yet playing the piano as God, Steinway, and Baldwin have made it, without apologies for using the modern instrument.

Both pianists know that no archaic pussyfooting is called for in these compositions, which are alive, ageless, and speak to us moderns on equal terms. McCabe expresses this admirably in a booklet note: "That the instruments of Haydn's day have certain coloristic and technical features not to be found on modern instruments is not in doubt. But I firmly believe that the full color and subtlety of the music can be better realized on a modern piano of suitable character, and I also believe that Haydn's writing, even in his early days, is essentially pianistic in conception."

Indeed, this music is beautifully congenial to the modern piano; the sustained singing quality often demanded cannot even be approximated on the early pianoforte. So both of these artists use modern instruments but avoid banging as well as tinkling, scaling down the power of the concert grand without hurting the quality of the sound.

Kalish articulates nicely but is occasionally a bit careless with the pedaling, which washes over when it should not; this is where the modern instrument can betray our trust. The Largo of the great Sonata No. 50 suffers from this, though otherwise it is well played. McCabe shrewdly uses the pedals as little as possible, making his fast nonlegatos clear and pearly.

While Kalish's technique is very good, McCabe's is a little crisper, though he tends to sharpen his rhythm by overdotted a bit. Kalish is careful with the ornaments, but McCabe does some slurring; Kalish's tempo changes are discreet, while McCabe is addicted to allargandos at the ends of movements, though within the movements there are few agogic tricks. His left hand is better than Kalish's, and he has a better grip on the small musical entities. But Kalish is never ambiguous, whereas on a few occasions, as in the development section of the Allegro in Sonata No. 60, McCabe gets himself into some messy spots.

Curiously enough, both performers somewhat misjudge the F minor Variations, the first part of which they play too daintily—this is not rococo music—missing the subtly growing excitement that leads to the dramatic outburst. On the whole, however, these are all minor flaws in what are fine performances, accomplished and tasteful pianism aided by first-class sound engineering. Both releases have intelligent notes.

**HAYDN:** Piano Works, Vol. 1. Zsuzsa Pertis (in Sonatas Nos. 1-11) and János Sebestyén (in Sonatas Nos. 12-19 and Variations), harpsichord. [János Mátyás, prod.] HUNGAROTON SLPX 11614/7, \$27.92 (four discs, manual sequence).

Sonatas: No. 1, in G; No. 2, in C; No. 3, in F; No. 4, in G; No. 5, in G; No. 6, in C; No. 7, in D; No. 8, in A; No. 9, in D; No. 10, in C; No. 11, in B flat; No. 12, in A; No. 13, in G; No. 14, in C; No. 15, in E; No. 16, in D; No. 17, in E flat; No. 18, in E flat; No. 19, in E minor. Variations: in A, H. XVII:2; in D, H. XVII:7.

**B** **HAYDN:** Piano Works, Vol. 1. John McCabe, piano. [James Walker, prod.] LONDON STEREO TREASURY STS 15343/5, \$11.94 (three discs).

Sonatas: No. 6, in C; No. 10, in C; No. 18, in E flat; No. 33, in C minor; No. 38, in F; No. 39, in D; No. 47, in B minor; No. 50, in D; No. 52, in G; No. 60, in C. Fantasy in C. Variations in F minor, H. XVII:6.

**B** **HAYDN:** Piano Works. Gilbert Kalish, piano. [Marc J. Aubert and Joanna Nickrenz, prod.] NONESUCH H 71318\* and H 71328\*, \$3.96 each.

Sonatas: No. 30, in D; No. 31, in A flat; No. 32, in G minor; No. 47, in B minor; No. 50, in D; No. 53, in E minor; No. 61, in D. Variations in F minor, H. XVII:6.

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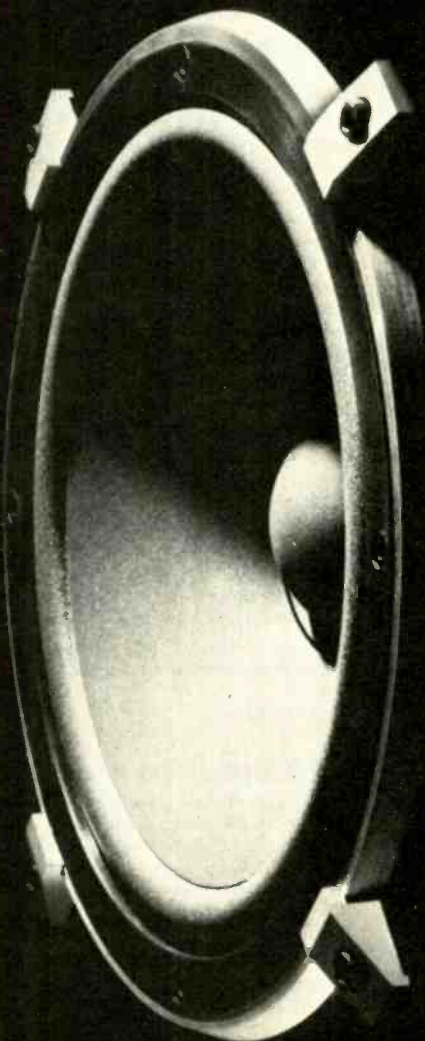


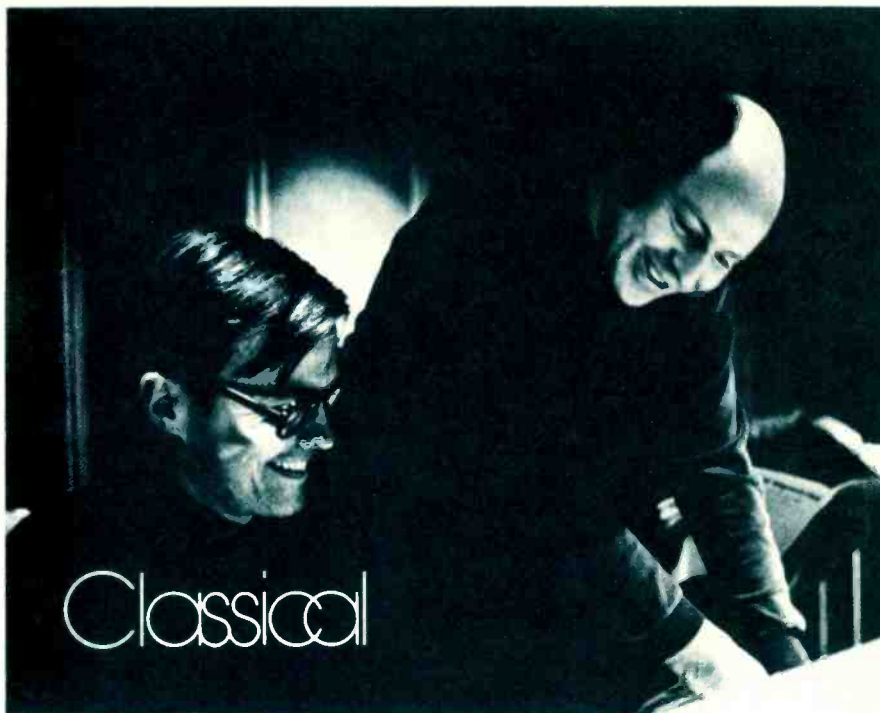
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Producer George Sponhaltz and Igor Kipnis—a triumphant contribution

**BACH:** Italian Concerto, S. 971; French Overture (Partita in B minor), S. 831. Igor Kipnis, harpsichord. [George Sponhaltz, prod.] ANGEL S 36096, \$6.98.

Though it was Bach himself who first linked these seemingly unrelated works, as Book II of his monumental *Clavierübung* series, the only other current disc coupling seems to be Ralph Kirkpatrick's magnificent 1961 Archiv disc (198 032). Thus the way is wide open for Igor Kipnis, his grand Rutkowski & Robinette double-manual harpsichord, and engineer Carson C. Taylor to make a major contribution to the Bach discography—and that's exactly what they do, triumphantly.

There have been many fine recordings of the *Italian Concerto* showpiece, among them Kipnis' own earlier one (originally for Epic in 1967, now on Columbia M 30231), but his new version demonstrates dramatically how richly he has grown in interpretative maturity as well as in technical authority and pliancy. Yet it is Kipnis' performance of the larger-scaled, more imaginative, and far more profound B minor Partita (both in its expansive opening Overture and in the delectable variety of little dances that follow) that is one of the outstanding achievements, if not the outstanding achievement, of an already outstanding career.

R.D.D.

**BARTÓK:** Concertos for Piano and Orchestra, Nos. 1 and 3. Stephen Bishop-Kovacevich, piano; London Symphony Orchestra, Colin Davis, cond. PHILIPS 9500 043, \$7.98.

*Comparison:*  
P. Serkin, Ozawa/Chicago Sym. RCA LSC 2929

These two piano concertos, Bartók's first and last, are separated by almost twenty years, and the differences are considerable. The First Concerto, completed in 1926, is a

percussive, rhythmically driving, and at times sharply dissonant composition. Texturally and formally it shows the composer's preoccupation with baroque keyboard music: lean, linear writing with a pronounced hint of the eighteenth-century concertante style. (Interest in eighteenth-century music was, of course, widespread in the 1920s. But in Bartók's case it is particularly significant, as he brought out editions of keyboard music by Couperin and Scarlatti, as well as transcriptions of works by a number of other baroque composers.)

The Third Concerto is a very different matter. One of Bartók's last works, composed in 1945, it displays a remarkable delicacy. In place of the brusqueness of the earlier concerto is a lyrical serenity that pervades the entire composition. Formal balances are almost classical in nature, and the keyboard writing features gentle figurations that cover much of the piece with lacy filigree.

Bishop-Kovacevich and Davis seem more in tune with the later work, which they perform with unusual sensitivity and musicality. Especially striking is the opening dialogue between strings and piano in the second movement, which, though taken quite slowly, is beautifully sustained. (Bishop-Kovacevich plays his responses pianissimo, thus matching the dynamic level of the strings, although Bartók calls for piano; but I personally find the result quite satisfying.) The First Concerto is less good, mainly because it lacks the aggressive rhythmic quality the score demands. Yet there are some marvelous moments (again, the slow movement is especially fine), and the general level of playing, both orchestral and pianistic, is good.

An interesting comparison for this coupling is the Peter Serkin/Ozawa/Chicago Symphony version on RCA. The performances there are much more individual than the present ones: The playing is more dif-

reviewed by

ROYAL S. BROWN  
ABRAM CHIPMAN  
R. D. DARRELL  
PETER G. DAVIS  
SHIRLEY FLEMING  
ALFRED FRANKENSTEIN  
KENNETH FURIE  
HARRIS GOLDSMITH  
DAVID HAMILTON  
DALE S. HARRIS  
PHILIP HART  
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ferentiated, and the textural components, especially in the orchestra, are more clearly separated. Tempos are a bit slower, which results in some heavy-handedness in the Third Concerto. But in the First, despite the more relaxed pacing, Serkin and Ozawa achieve more rhythmic bite than do Bishop-Kovacevich and Davis.

R.P.M.

**BEETHOVEN:** Sonatas for Piano: No. 30, in E, Op. 109; No. 31, in A flat, Op. 110. Maurizio Pollini, piano. [Rainer Brock, prod.] DEUTSCHE GRAMMOPHON 2530 645, \$7.98.

As might be expected from Pollini, these performances are remarkable in their sheer musical and technical control. Some might think that control at times too great, but I am fascinated by the occasional signs, particularly in Op. 109, that Pollini may be loosening his ironclad self-containment.

In the Prestissimo second movement of Op. 109, taken at a commendably spanking clip, one immediately discovers some bending of the rhythmic pulse for the purpose of intensifying harmonic and structural felicities. This device has been used to splendid effect by such great artists as Schnabel, Fleisher, and Toscanini, and I am partic-

#### Explanation of symbols

Classical:

**B** Budget  
**H** Historical  
**R** Reissue

Recorded tape:

●● Open Reel  
● 8-Track Cartridge  
●● Cassette

ularly happy to hear Pollini relenting from his accustomed microscopically exact translation of every ratio and note relationship.

Surrounding this superbly energetic scherzo are a first movement made arresting by a less contrasted difference than usual between the opening tempo and the adagio that follows in the secondary thematic group, and a set of variations whose tempo remains a good, swiftly flowing *con moto*. Pollini's clarity in the fugal variation and in the treacherous final variation with the trills, leaps, and runs is every bit as impressive as Charles Rosen's account (Columbia M3X 30938) and far more colorful and natural sounding than in that formidably intellectual but mostly prosaic rendering. Not a conventional Op. 109, then, but one of all-round distinction that should give lasting satisfaction.

Op. 110 is not quite as stimulating, but it too shows a bit more passion and color than Pollini's Carnegie Hall account two years ago. The opening movement, as in Graffman's recent recording (Columbia M 33890, September 1976), is supremely disciplined and intelligent, yet slightly too businesslike. The scherzo is more strongly characterized than Graffman's, with big contrasts and full, galvanic fortissimo chords. The difficult rising legato octaves in the bass line are consummately smooth, the silent bars as precisely gauged as Graffman's but with an added touch of vehemence. The recitativo, however, is disappointingly glib. The first *arioso* is better than the second, in which Pollini sounds too healthy at the points where Beethoven indicates a lessening of energy. The fuga is even faster than Graffman's, which I already thought uncomfortably brisk, but the return is fairly impressive. Pollini gives more stress and activity to some of the subordinate accompanimental voices at the end than he did at Carnegie Hall, and there is more nuance and color than in that performance or in Graffman's recording. If not the ultimate Op. 110 (among recent recordings I prefer Ashkenazy's, London CS 6843, and Brendel's, Philips 6500 762), it nevertheless is a strong contender.

DG's sound is solid but disquietingly plangent in the treble. Also, to judge from the central trio in the second movement of Op. 110, Pollini is joining that company of moaners, singers, grunters, and heavy breathers. H.G.

**BERLIOZ:** *Symphonie fantastique*, Op. 14. Orchestre National de l'ORTF, Jean Martinon, cond. [René Challan, prod.] ANGEL S 37138, \$6.98 (SQ-encoded disc). Tape: ●● 4XS 37138, \$7.98.

Though this *Fantastique* yields in virtuosity, clarity, and sonics to the remakes of Karajan (DG 2530 597, February 1976) and Davis (Philips 6500 774, May 1975), its probity and musicianship carve a niche very near the top of the list.

Martinon makes the same textual choices as Klemperer (Angel S 36196): He uses the supplementary cornets in the second movement and observes the first-movement repeat (but not that in the "*Marche au supplice*"). His way with the score, however, is

more akin to Monteux's than to Klemperer's. He favors a sedate, magisterial lyricism that is quite capable of erupting into impressive force. The occasional impetuous speedups in the basically steady "*Marche au supplice*" and "*Witches' Sabbath*" particularly recall Monteux's non-sense flexibility of tempo. The unsentimental ardor of the symphony's opening, the unpretentious phrasing of the fermatas in "*Un bal*," and the rugged shaping of the "*Scène aux champs*" also recall Monteux's splendid and lovable musicianship. (The "*Scène*" is unfortunately split between sides, just after the appearance of the *idée fixe*—the rather deliberate tempos probably left little choice.) Regrettably, Martinon also follows Monteux in eschewing the ghoulish woodwind glissandos at the beginning of the last movement.

There is nothing wrong with the playing of the Orchestre National; it is simply out-classed by Karajan's Berlin Philharmonic and Davis' Concertgebouw (whose E flat clarinets are unsurpassed for raunchiness in the "*Witches' Sabbath*" transformation of the *idée fixe*). The rather high-pitched chimes are powerful, the drums excellent. The sound is generally round and attractive, but a shade too much ambience inhibits its articulation, rendering the bass line a bit

amorphous and making the low brasses overly reticent in the "*Marche*." The high brasses, however, are just fine in the "*Witches' Sabbath*." H.G.

**BLITZSTEIN:** *The Airborne Symphony*. Orson Welles, narrator; Andrea Velis, tenor; David Watson, baritone; Choral Art Society; New York Philharmonic, Leonard Bernstein, cond. [Thomas Z. Shepard, prod.] COLUMBIA M 34136, \$6.98.

Whatever happened to Marc Blitzstein? Time was when he stood in the forefront of American composers, when his name was mentioned in the same sentence as Aaron Copland and Virgil Thomson. Since his death in 1964, he has been (like Leo Ornstein) forgotten. If he is remembered at all, it is for his stage works: *The Cradle Will Rock* (1937), *Regina* (1949), and especially his adaptation of the Weill-Brecht *Three-Penny Opera*. Now, out of the blue, Columbia releases in its "Modern American Music Series" one of Blitzstein's least-known works, *The Airborne Symphony*, newly recorded with Orson Welles and Leonard Bernstein, who gave the piece its world premiere on April 1, 1946, participating.

In 1943, when Blitzstein was a sergeant in

## Critics' Choice

The best classical records

reviewed in recent months

- BACH:** *Concertos for Harpsichord(s) and Strings*. Leppard. PHILIPS 6747 194 (3), Dec.
- BACH:** *Concerto Reconstructions* (ed. Hogwood). Marriner. ARGO ZRG 820/1, Dec.
- BACH:** *Violin Partita No. 2; Sonata No. 3*. Chung. LONDON CS 6940, Oct.
- BEETHOVEN:** *Symphony No. 7*. Ferencsik. HUNGAROTON SLPX 11791, Dec.
- BEETHOVEN:** *Triple Concerto*. Suk, Chuchro, Panenka; Masur. SUPRAPHON 1 10 1558, Oct.
- BEETHOVEN:** *Violin Concerto*. Suk; Boult. VANGUARD EVERYMAN SRV 353 SD, Oct.
- BEETHOVEN:** *Violin Sonatas (10)*. Suk, Panenka. SUPRAPHON 1 11 0561/5, (5), Oct.
- BIZET:** *Carmen*. Troyanos, Domingo, Van Dam; Solti. LONDON OSA 13115 (3), Dec.
- BRAHMS:** *Piano Sonata No. 2; Paganini Variations*. Arrau. PHILIPS 9500 066, Dec.
- BRUCKNER:** *Requiem in D minor*. Beuerle. NONESUCH H 71327, Nov.
- CHOPIN:** *Preludes, Opp. 28, 45, posth.* Perahia. COLUMBIA M 33507, Nov.
- CHOPIN:** *Preludes, Opp. 28*, Pollini. DEUTSCHE GRAMMOPHON 2530 550, Nov.
- DEBUSSY:** *Etudes*. Jacobs. NONESUCH H 71322, Oct.
- DVOŘÁK:** *Quartets, Opp. 96, 105*. Prague Qt. DEUTSCHE GRAMMOPHON 2530 632, Dec.
- FELDMAN:** *Various Works*. Various performers. ODYSSEY Y 34138, Dec.
- GERSHWIN:** "*Gershwin Plays Gershwin*." RCA VICTROLA AVMI-1740, Dec.
- GRIEG:** *Orchestral Works, Vol. 1*. Abravanel. VOX QSVBX 5140 (3), Nov.
- LEHÁR-LANCHBERY:** *Merry Widow Ballet*. Lanchbery. ANGEL S 37092, Nov.
- MOZART:** *Haffner Serenade*. De Waart. PHILIPS 6500 966, Nov.
- MUSSORGSKY:** *Pictures at an Exhibition; B flat Scherzo; Turkish March*. Béroff. ANGEL S 37223, Dec.
- NIELSEN:** *Saul and David*. Christoff; Horenstein. UNICORN RHS 343/5 (3), Nov.
- ORFF:** *Carmina Burana*. Casapietra, Hiestermann, Stryczek; Kegel. PHILIPS 9500 040, Dec.
- SCHUBERT:** *Sonata for Piano, D. 850; Ländler (4)*. Ashkenazy. LONDON CS 6961, Dec.
- SCHUMANN:** *Frauenliebe und Leben*. **SCHUBERT; BRAHMS:** *SONGS*. Baker, Isepp. SAGA 5277, Nov.
- STRAUSS, R.:** *Horn Concertos*. Damm; Kempe. ANGEL S 37004, Nov.
- CARUSO:** *Legendary Performer*. (Soundstream reprocessings.) RCA RED SEAL CRM 1-1749, Nov.

# GIFT-ABLES for Christmas '76 Angel GIFT-ABLES for Christmas '76 Angel GIFT-ABLES for Christmas '76 Angel



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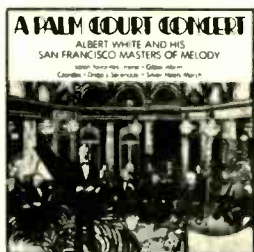
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# for Christmas '76 Angel GIFT-ABLES for Christmas '76 Angel

the Eighth Air Force stationed in England, he got the idea of writing a large symphonic work evoking the history of human flight. The Air Force liked the idea and commissioned him to write it. He began the work in London, and by the time he was almost through he was suddenly recalled to the States—so suddenly that he forgot to take the score with him. It was supposed to follow him by mail but didn't. Meanwhile, he played part of it from sketches for Bernstein and got a commitment for a performance. So he began rewriting *The Airborne*.

"When I had completed three-fourths of the score for the second time," Blitzstein later wrote, "the original score arrived one fine day in February 1946. To my amazement, I found that the new score was precisely at the same point at which the original had been when I left Europe. And I did feel that the second version was better than the first."

*The Airborne* met with a cordial reception from the press. Writing of the premiere in the *New York Times*, Olin Downes reported: "Not often has a new symphony had such an approving reception in this city. The work gripped the audience by its subject and its musico-dramatic treatment."

In 1977, only thirty years later, the work sounds like an antique. The text is embarrassingly pompous and melodramatic, echoing the bombastic style of Norman Corwin's radio shows. Was there really a time when this sort of adolescent enthusiasm genuinely gripped us? These days, I doubt that many people will be stirred by *The Airborne*. But if you listen to it as a period piece, as an echo of an earlier time, it may evoke those days when a phrase like "Open up that second front!" had both meaning and emotional impact. I.L.

**BRAMMS:** Ballades (4), Op. 10; Fantasies (7), Op. 116. Emil Gilels, piano. [Günther Breest, prod.] DEUTSCHE GRAMMOPHON 2530 655, \$7.98.

**BRAMMS:** Piano Works. Bruce Hungerford, piano. [Joanna Nickrenz, prod.] VANGUARD VSD 71213, \$6.98.

Ballade in D minor, Op. 10, No. 1 (*Edward*); Capriccio in B minor, Op. 76, No. 2; Intermezzo in A, Op. 76, No. 6; Rhapsodies (2), Op. 79; Intermezzo in B flat minor, Op. 117, No. 2; Pieces (6), Op. 118.

The Gilels disc may be the first installment in a cycle of Brahms's smaller piano works (I am sorry to see Kempff's DG series disappearing from the catalogue); the Hungerford program is a generous sampler that serves to remind us that this Beethoven specialist can play other composers as well (a Chopin recital, VSD 71214, was reviewed in December 1976).

The two pianists share a certain temperament—or perhaps tonal—kinship. Neither is particularly interested in the comfortable, broad, expansively sonorous approach to Brahms exemplified by the late Wilhelm Backhaus. With these artists, nervous tension is more highly prized, along with a tonal palette that might be likened—in culinary terms—to rare, lean steak. There is a bright edge, a distinctness of inner voices. Moreover, the slender framework, while not slighting harmonic structure, tends to be tilted less toward the bass regis-

ter. Hungerford inclines more to sanguinary wildness in his readings, with a use of fiery rubato and thrusting accent to drive his many points home. Gilels, though certainly not tame, is a shade more detached emotionally, more content to let the music speak without altering or intensifying the rhythmic patterns. I found Gilels particularly impressive in the ballades, which have a smoothness of texture and warmth of feeling not always found in his work.

Deutsche Grammophon's piano reproduction—sleek as well as cutting—has it all over Vanguard's, which again sounds like a close pickup overlaid with artificial reverberation. H.G.

**BRITTEN:** Sinfonia da Requiem, Op. 20. Peter Grimes: Four Sea Interludes, Op. 33a; Passacaglia, Op. 33b. London Symphony Orchestra, André Previn, cond. [Christopher Bishop, prod.] ANGEL S 37142, \$6.98 (SQ-encoded disc).

A greatly matured Previn demonstrates what better justice he can now do to Britten's early *Sinfonia da Requiem* than he was able to do in his 1964 Columbia recording with the St. Louis Symphony (a version incongruously coupled with Copland's *Red Pony Suite*, as it still is in the *Odyssey Y 31016* reissue). But probably just because he is trying too hard to prove his new powers (as indeed Britten himself was trying too hard in 1940 when he wrote so ambitious a score), this far more authoritative orchestral performance only intensifies the lugubrious and melodramatic aspects of Previn's reading.

The present couplings are far more appropriate than before: the *Peter Grimes* "Sea Interludes" and "Passacaglia," which were so influential in establishing Britten's fame worldwide, but which seem to have been somewhat neglected in recent years. They too are somewhat overinsistent and portentous at times, though Previn is successful in dramatically evoking the mood and pictorial potentials of these salty wind-blown scenes.

As interpretations, the composer's own still remain unchallenged: the *Sinfonia* on London OS 25937 of 1965, the *Peter Grimes* excerpts either in the complete opera set of 1960 or separately on London CS 6179. But Previn's versions benefit incalculably, in both scoring authenticity and atmospheric effectiveness, from present-day technological advances, which ensure arrestingly vivid and wide-range sonics in stereo-only playback, even more expansive and evocative magic in quadraphonic playback. R.D.D.

**BRUCKNER:** Symphony No. 7, in E. Berlin Philharmonic Orchestra, Jascha Horenstein, cond. UNICORN UNI 111, \$6.98 (mono) [from POLYDOR originals, recorded 1928] (distributed by HNH Distributors, Box 222, Evanston, Ill. 60204).

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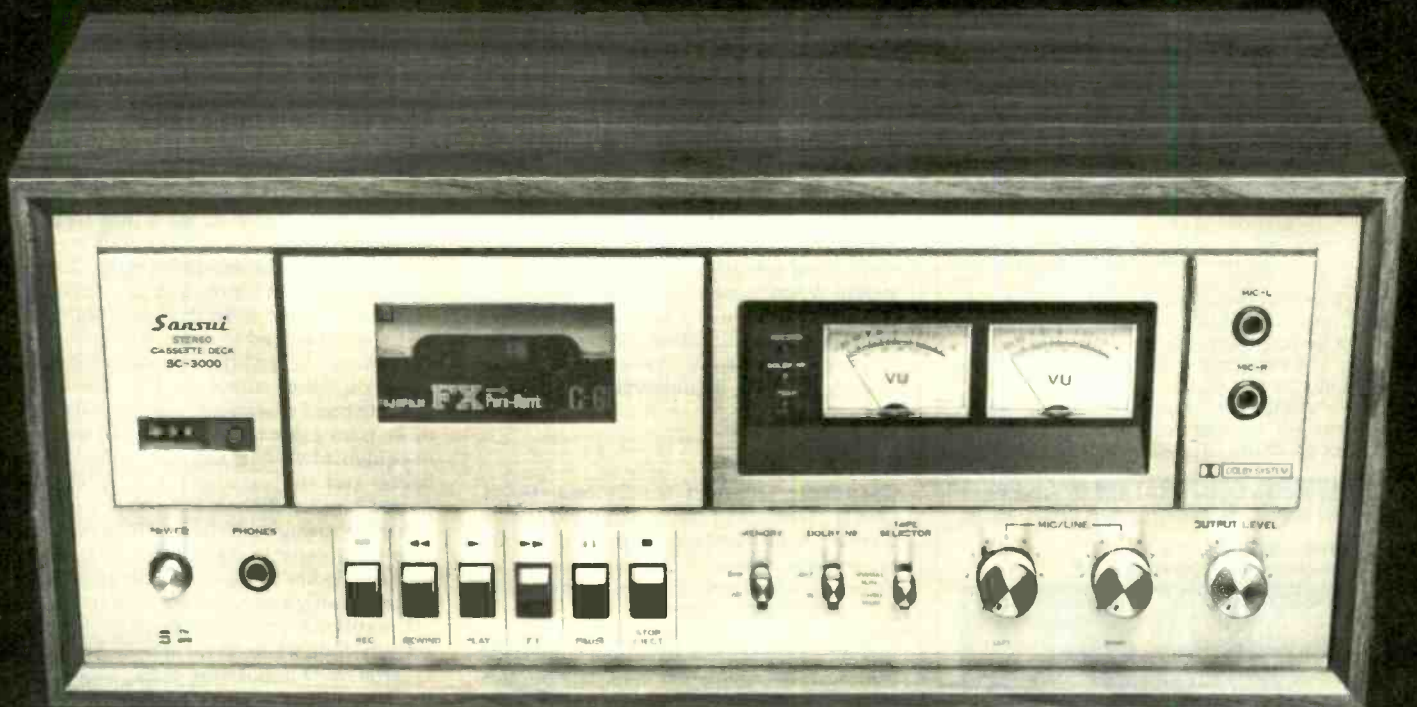
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Philharmonic recording (EMI Odeon 1C 053 28981) comes Unicorn's reissue of Jascha Horenstein's 1928 Berlin version, the first electrical recording of a complete Bruckner symphony. (Fortunately the Seventh has no serious textual problems to disqualify the older performances.) Despite severe sonic limitations—considerably better orchestral definition was being achieved in 1928 in Amsterdam and Philadelphia—the work of the young Horenstein warrants careful attention, and the imagination will fill in the gaps in the (pleasant enough) sound.

Horenstein drew from the Berlin Philharmonic playing that is always gracious and warmly musical, and in each phrase he knew exactly where he had come from and where he was going. Some modern tastes will have to adjust to the abundant portamento, yet there is nothing heavy, cloying, or pompous here. The first movement, too often made episodic by clumsy gear changes, is seamlessly unified in conception, yet without undue sense of hard-driving forward pressure. The Adagio is deep and long-breathed in its serenity and humanity. The last two movements are light and mercurial. Already in 1928 the conductor displayed the qualities that would much later win him broad recognition as a profoundly serious artist who abhorred sensational effects and allowed music to unfold simply and with unobtrusive refinement.

Unicorn has taken great pains over this LP transfer, corraling 78 copies from all over the world to pick the quietest surfaces for each side and hunting down former Berlin Philharmonic players to determine the orchestra's 1928 tuning pitch. The sound that emerges is ungimmicked and authentic, and the 78 side breaks are smoothly handled. Unfortunately the LP break comes at an exceedingly awkward midphrase point (bar 137 of the Adagio), which was not even interrupted on the 78s. One need only move a few measures in either direction to find a better break.

It should go without saying that this is not meant to serve as one's only Bruckner Seventh. Rosbaud's (Turnabout TV-S 34083), rather like Horenstein's in its shy fervor, is easily the best buy in stereo, though it too falls short of the highest technical standards of its era. For an uninterrupted Adagio, one must turn to the three-sided versions, among which the most exciting and authoritative performance is Haitink's (Philips 802 759/60, with the Te Deum), which is impressively recorded as well. A.C.

**CHERUBINI:** Quartets for Strings. Melos Quartet. [Andreas Holschneider and Rudolf Werner, prod.] ARCHIV 2710 018, \$23.94 (three discs, manual sequence).

Quartets: No. 1, in E flat; No. 2, in C; No. 3, in D minor; No. 4, in E; No. 5, in F; No. 6, in A minor.

In a quiz contest, this recording would test the most discriminating ears, but puzzles almost as great would remain if the composer's name were revealed.

It is impossible to range Cherubini's quartets in any definite category, because this earnest and reserved composer never permitted any style or trend to dominate him. Born one year after Handel's death,

and dying when Schumann was composing his First Symphony and Wagner his *Flying Dutchman*, during his long life he experienced the great stylistic changes from rococo to Romanticism and was personally acquainted with Gluck, Haydn, and Beethoven, as well as with many of the early Romantics. He watched and studied everything, then went his own way. We might say that his magnificently fluent and never bookish counterpoint found its point of departure in baroque polyphony, but his strong architectural sense and his basic musicodramatic gifts are perhaps closest to what we call the Viennese School.

Cherubini's main field was church music and opera, which in those days formed one great family of dramatic music. His chamber music he wrote late in life. The first of the quartets, recorded here, dates from 1814, his fifty-fifth year and, significantly, after his stay in Vienna; the second followed fifteen years later; and the sixth and last one he wrote at the age of seventy-seven. All of them are masterfully composed; from Haydn to Schumann every composer, even cantankerous Beethoven, had only boundless admiration for Cherubini's craftsmanship, notably for his luminous part-writing, for indeed he was a composer's composer.

That, of course, has its drawbacks. Except for his church music and some of his operas, Cherubini is not immediately accessible to the layman, as the music often impresses more by its impeccable design than by its communicative force. He likes a rhapsodic style, inserting many small episodes in his sonata structures—some of them a bit too long, but almost always coerced into an organic form. This procedure is in fact a personal style, and the opposition and/or juxtaposition of contrasts in pace, melody, harmony, and rhythm never fails to fascinate musicians.

The quartets have strong cyclic unity, and Cherubini often bases an entire work on the slow introduction to the first movement. The manipulation of the motivic material, the bold modulations, and the ever-changing dynamic shadings are continually interesting, and though his dramatic nature is always in evidence, so is his stylistic sense: everything is always in chamber music terms. (The one exception is the Second Quartet, which is a transcription of his only symphony, a fine work that does not come off as well reduced to chamber music.)

At times one is a little impatient with this enigmatic loner: either he does not know when to end a movement, which is unlikely, or he is so eager to nail down the tonality unequivocally that cadence follows cadence and the closing formulas are repeated beyond their desert. Also, while he has many engaging Italianate melodies and he is no stranger to French piquancy, many of the melodies are cool, though all of them are admirably suitable for development.

Cherubini's vitality is amazing. He was seventy-four when he composed his Third Quartet, in D minor, one of the best in the lot, but the next three are uneven; the invention begins to lag, and he falls back on his prodigious technique. In the last quartet (1837), the aged composer, by now oblivious of the world and writing just for himself, obviously tries what so many composers after him have tried: to make sense of



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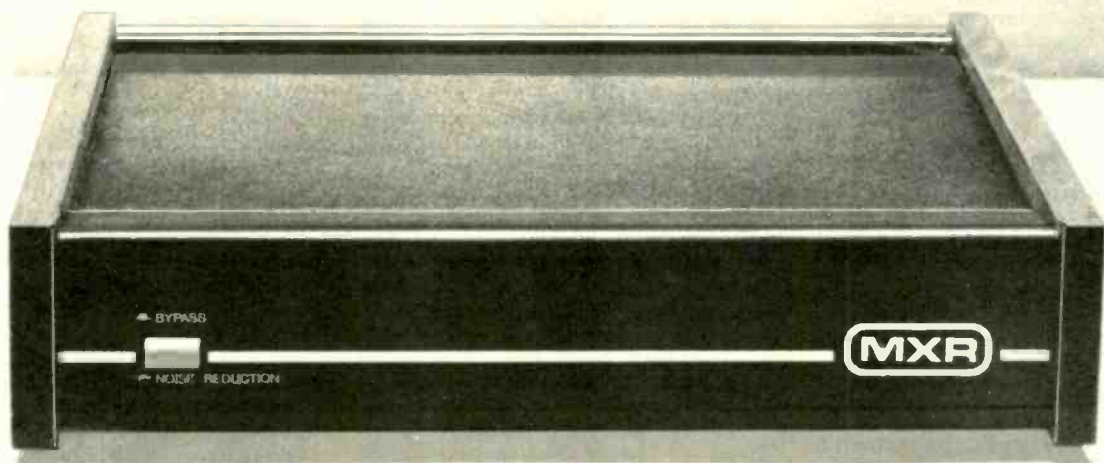
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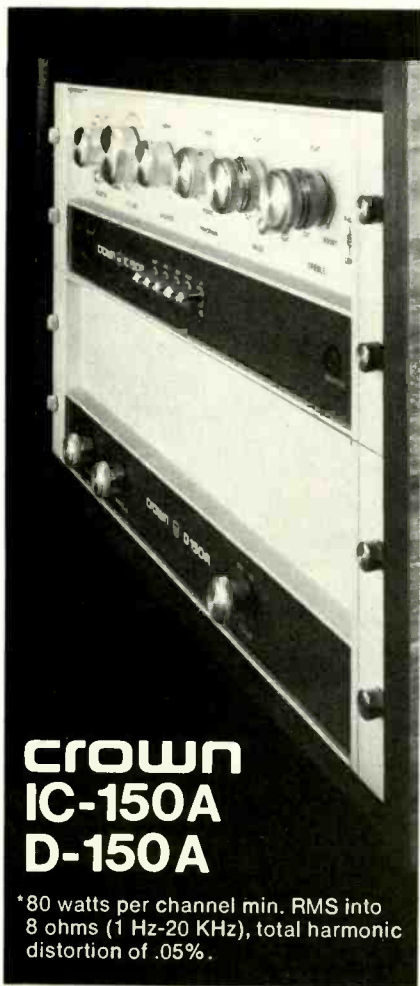
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and come to terms with Beethoven's last quartets. Like almost all the others, he could not rise to those hallucinatory heights.

The Melos Quartet consists of able and well-trained musicians who can take the considerable virtuosity demanded by these compositions in their stride, but their approach is a bit too aggressively muscular-propulsive. Wilhelm Melcher, the first violinist, often slides, a practice that, aside from being an annoying mannerism, hurts the articulation of a nice melody. However, the quartet plays with genuine enthusiasm, the ensemble work is good, and so is the sound. Archiv has filled a lacuna with this release, and since the scores are readily available (Eulenburg), inquisitive music lovers will benefit from the study of these interesting works. P.H.L.

**GIBBONS:** Madrigals and Motets—See Recitals and Miscellany: Consort of Musicke.

**GLUCK:** Operatic Arias. Janet Baker, mezzo-soprano; English Chamber Orchestra, Raymond Leppard, cond. PHILIPS 9500 023, \$7.98. Tape: ●● 7300 440, \$7.95.

*Orfeo ed Euridice:* Che puro ciel; Che farò senza Euridice. *La Rencontre imprévue:* Bel Inconnu; Je cherche à vous faire. *Alceste:* Divinités du Styx. *Paride ed Elena:* Spiagge amate; Oh, del mio dolce ardor. *Le belle immagini:* Di te scordarmi. *Iphigénie en Aulide:* Vous essayez en vain. . . Par la cralante; Adieu, conservez dans votre âme. *Armide:* Le perfide Renaud. *Iphigénie en Tauride:* Non, cet affreux devoir.

Anything that Janet Baker chooses to record is an occasion for joy, and, if my own rapture is just a little modified this time, this is at least partly because Gluck's operas (as Burney sagely remarked) do not lend themselves to being excerpted. The whole neoclassical ideal embodied in his "reform" operas is so concerned with balance, shape, continuity, and contrast that a single aria, even so famous a one as "Che farò?", inevitably loses much of its effect by being taken out of context.

To some extent the planners of this record have tried to compensate by providing contrasts of their own: The big arias from *Armide* (the forsaken enchantress' farewell to life and love), from *Iphigénie en Tauride* (in which the heroine proudly rejects her sacrificial duties), and from *Alceste* (in which she resolves to sacrifice her life for her husband) are separated by the more lyrical pieces from the other *Iphigénie*. On the second side the two charming little airs (originally sung by different characters) from the last of Gluck's French operas-comiques are followed by a group of four of Paris' arias from one of the least-known of his mature Italian operas, and his last collaboration with Calzabigi, *Paride ed Elena*.

The tragic purity of *Orfeo* and *Alceste* recovers in *Paride ed Elena* something of the baroque sensuousness of Gluck's earlier Italian operas, perhaps in response to the Ovid-based text, and these arias were for me the real revelation of the disc; indeed, they make me wonder whether the opera doesn't deserve a complete recording, preferably with Dame Janet as Paris, in spite of the dramatic weaknesses that have kept it off the stage. In the absence of a complete

version, though, it is good to have these four arias so exquisitely sung, even if it means that "Spiagge amate" has to be given an ending Gluck never wrote in order to round it off satisfactorily. (In the opera Paris is interrupted by a Spartan messenger before he can finish.)

There is no such excuse, though, for presenting Orpheus' rapt vision of the Elysian Fields in a version that is true neither to Gluck's music (in either the Vienna or the Paris versions) nor to Calzabigi's text. If Dame Janet prefers to sing the Paris version as rewritten by Berlioz for Pauline Viardot, she has every right to, of course; great singers' whims deserve respect. But why do it in the late-nineteenth-century retranslation into Italian, particularly since she has already shown how good her French is? And although I entirely concur with her use of the extended Paris ending of "Che farò?" even in an Italian performance (it is an improvement), I do wish she had pronounced the heroine's name correctly, and not with a nasty German "Oy" sound for its first syllable.

Raymond Leppard and the English Chamber Orchestra accompany as sympathetically as one would expect, though once or twice (notably in Armida's and Alceste's great scenes) I felt that the music was being taken too slowly in the determination to wring every drop of expression out of it. The voice's natural tessitura is perhaps a shade too low for these roles, and occasionally this results in a slight edge to the timbre, but how many mezzos are there around who can cope equally well with the tragic grandeur of Armida's farewell and the pert flirtatiousness of Balkis or Amine? Truly a remarkable singer, and I only hope that this record will, instead of pre-empting the market, encourage some company to cast her in a complete recording of one of Gluck's operas. J.N.

**HANDEL:** Organ Concertos (16). Lionel Rogg, organ of the Abbey St. Michel de Gailiac; Toulouse Chamber Orchestra, Georges Armand, cond. [Eric Macleod, prod.] CONNOISSEUR SOCIETY CSQ2 2115 (Nos. 1-6, 13, 14) and 2116 (Nos. 7-12, 15, 16), \$13.96 each two-disc set (SQ-encoded, manual sequence).

After a long dry spell for the Handel organ concertos, what a sudden wealth of choice! Just as the long-standard Biggs/Boult recordings of 1958-59 were being given new life by Columbia as D3M 33716, Telefunken released its purist version—authentic period instruments throughout—of Opp. 4 and 7 by Herbert Tachezi and the Vienna Concentus Musicus under Nikolaus Harnoncourt (36.35282, March 1976). And now, as I listen to the new Rogg/Armand set (released domestically by Connoisseur Society even before Pathé Marconi's French issue), two highly promising sets of all sixteen concertos await U.S. issue: Daniel Chorzempa with Jaap Schröder conducting for Philips, and George Malcolm (on organ and harpsichord) with Neville Marriner conducting for Argo.

While a detailed comparative survey is not yet possible, it's already evident that there are two basic approaches. One uses an actual period or replica organ and period

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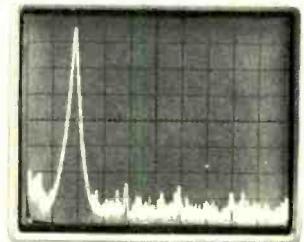
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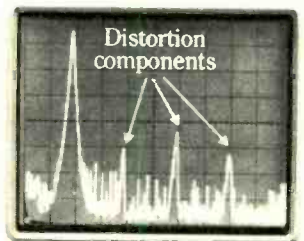
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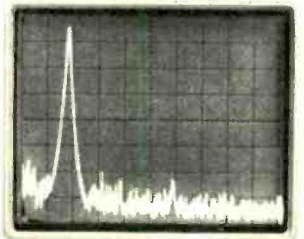
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or replica orchestral instruments—mostly oboes and strings, occasionally also horns—all tuned about a half tone lower than today's 440 A to approximate practice of the baroque period (although there was a considerable range of variation in those non-standardized days). In this group are the Telefunken recordings, the recently withdrawn 1967 Müller/Wenzinger Archiv set, and the forthcoming Philips.

The other approach admits the use of modern instruments (except, of course, for the solo organ and the continuo harpsichord) and the present-day pitch standard, while still insisting on a greater or lesser degree of baroque-era stylistic authenticity in the use of improvised passages, ornamentations, etc. The new Rogg set falls into this group, where it strikes me as likely to become the most admirably satisfactory—and stimulating—of all. (The Argo set will not compete directly, since it presents two of the concertos in harpsichord versions and uses three different British organs in the others.) The present release has the economic convenience of allowing purchase of one album at a time and also includes Peter Eliot Stone's valuably informative notes on the works' complicated origins, metamorphoses, and plagiarisms (of others' as well as Handel's own works). All that's lacking are building/restoration dates and stop specifications of the Abbey organ itself.

Handel specialists may argue about the appropriateness of Rogg's choice of organ, editorial details, etc. What delights me is his ability to make the best of both worlds. Despite—or because of—the absence of period orchestral instruments (and of the sometimes niggling eccentricities of their intonation and timbre coloring), the overall sonorities and the authoritatively idiomatic readings not only are immediately entrancing, but seem to be superbly evocative of the spirit of baroque-era ideals. Above all, the Swiss master excels here by the aptness and seeming spontaneity of the many passages left open for the soloist's own improvisation. Without score-checking, it is well-nigh impossible to decide just where Rogg takes over from Handel and just where Handel returns.

Yet even the infectious relish and arresting authority of these performances hardly could achieve the spellbinding effect they do if they had not been so magically recorded in the reverberant ambience of the Abbey of St. Michel de Gaillac—one thrillingly impressive in stereo only, even more gloriously expansive in quadriphonic playback. R.D.D.

**HAYDN:** Piano Works. For an essay review, see page 106.

**HAYDN:** Trios for Violin, Cello, and Piano: in A flat, H. XV:14; in G, H. XV:15. Beaux Arts Trio. PHILIPS 9500 034, \$7.98.

I wish musicologists did not find it necessary to apologize on behalf of Haydn's piano trios for their not being string quartets. Apart from the fact that the medium itself is essentially a less contrapuntal one, there is nothing in these two pieces, both written about 1790 when Haydn was at the very

height of his maturity, to suggest that he was writing down for young lady amateurs, as the writer of the liner note seems to imply.

In No. 14 the unusual key of A flat certainly seems to have brought out a particular vein of gentle lyricism in him, but there is nothing in the least insipid about the quality of his invention, with its adventurous exploration of mediant key relationships, both within the first movement itself and in the relation of the E major (F flat) Adagio to the outer movements. This piece was apparently published as a sonata "for harpsichord or pianoforte with violin and violoncello accompaniment," but, although the piano certainly takes the lead at the start, the violin comes fully and indispensably into its own in the songlike slow movement, taken here at a perfectly poised tempo.

The other trio in this record is brisker, sharper in character, at least in its outer movements, with a witty rhythmic surprise reserved for its very last measure. Since it was first published as a trio for piano, flute, and cello, I have been trying to imagine how it would sound with a flute in place of the violin but really can't think it would work as well: There is a rhythmic incisiveness about Isidore Cohen's playing that I can't imagine the best of flutists matching. Bernard Greenhouse has to show his artistry largely through discretion, since even in these late works the cellist has very little to do beyond pointing up the bass line; it says much for him that he manages to perform so unglamorous a task with unflinching vitality. But the central role in both these pieces is the piano's, and Menahem Pressler assumes it with completely persuasive leadership, always ready to let his partners make their contribution and to relish his dialogue with them.

The recorded sound is beautifully balanced, and the surfaces, on my copy, impeccable. J.N.

**MAHLER:** Das Lied von der Erde. Janet Baker, mezzo-soprano; James King, tenor; Concertgebouw Orchestra, Bernard Haitink, cond. PHILIPS 6500 831, \$7.98. Tape: ●● 7300 362, \$7.95.

Among today's great virtuoso ensembles, there are several with a special Mahler identification, but only in Amsterdam. I feel, do they make precisely the sound, in quite the cultivated way, with quite the lightness and crispness and translucency, to realize all the pictorial poignance of the instrumental canvas of this great song symphony. If the Concertgebouw's third recorded *Das Lied* does not entirely duplicate the splendors of its first, Van Beinum's magisterial mono account (last available domestically on World Series PHC 2-011, rechanneled), it is a magnificent achievement in its own right.

Van Beinum's first oboe and trumpet remain unequalled, and his horns managed the off-beat triplets of "Von der Jugend" (bars 66-68 et seq.) with a rustic yet aristocratic quality lost under Haitink—though this may have something to do with the closer, perhaps overclose, miking of the new Philips. Yet there are ample compensa-

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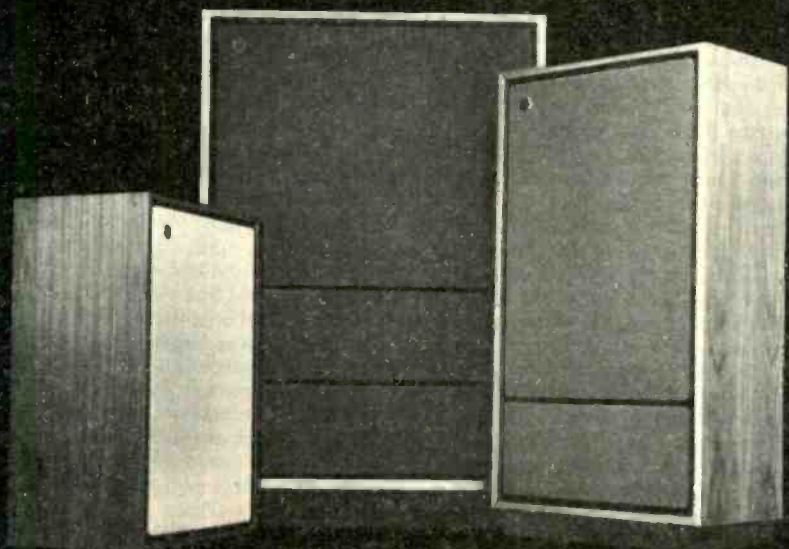
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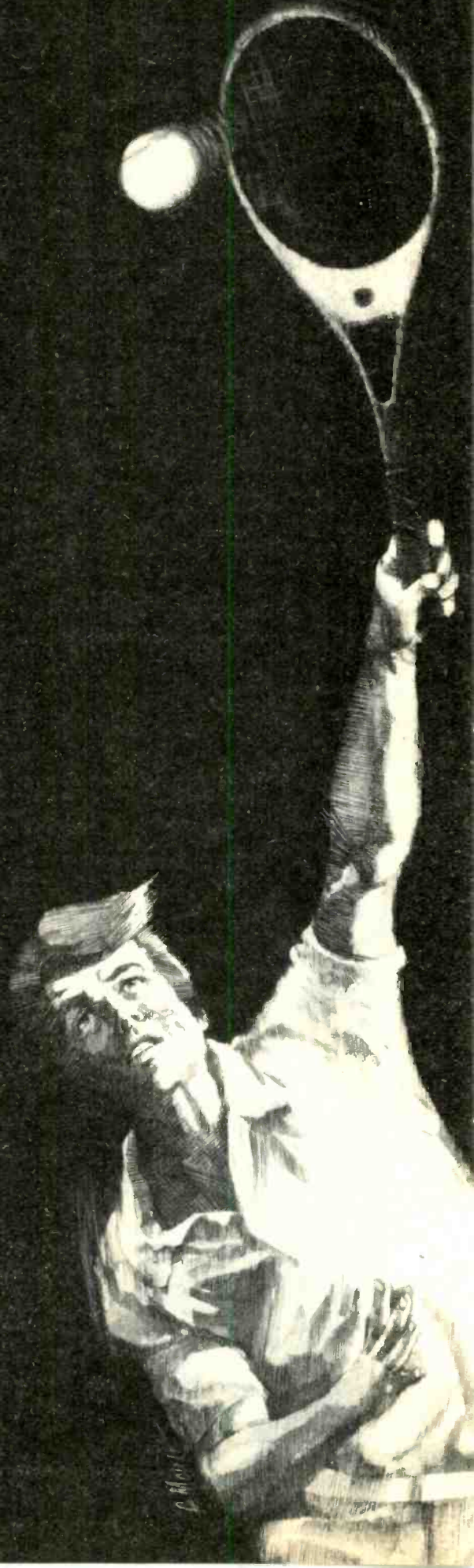
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tions. Listen, in the first song ("Das Trinklied vom Jammer der Erde"), to the stretch from Nos. 25 to 34: The élan and smoothness of the flutes' flutter-tonguing and staccato eighth notes, the violins' pure yet decisive attacks are among the many highlights. The clarinets do marvelous things in "Der Abschied" (e.g., No. 4 and, later, beginning five before No. 55). "Der Einsame im Herbst" is filled with a high level of limpid first-desk artistry, as is the closing page of "Von der Schönheit."

In the best chamber-music tradition (and many people have commented on the intimate scoring of *Das Lied*), it is obvious that the Amsterdam players listen to each other and are welded into a coherent and compatible ensemble personality. And Haitink's interpretive contribution is noteworthy. The first song has a forward impetus and gnarled tension I haven't heard since the 1936 Vienna concert performance under Walter (Seraphim 60191). Haitink brings a broadly reflective quality to the second song ("Der Einsame im Herbst"), without disrupting its ebb and flow of tension. If there are no startling insights brought to the remaining tenor songs, neither are there interpretive improprieties. Haitink's "Abschied" has a grand over-all stride to it, as well as plenty of breathing space for the ineffable stillness and desolation of the music to achieve its crushing yet uplifting effect.

Many of us have long awaited Janet Baker's participation in a *Das Lied* recording. Judging from earlier performances that have circulated in the underground (including a late-Sixties broadcast with Szell), some may feel that the wait was too long, given the current state of her vocal equipment. It is hard to deny that floating a softer tone even in the upper middle register can nowadays be a rather perilous undertaking for her. (Note the wobbly e sustained on "O sieh" between Nos. 4 and 5 of "Abschied.") But all executant problems aside, she brings to these songs a level of comprehension and skill that is almost unfailingly eloquent. In "Der Einsame im Herbst" she sounds utterly remote at "ein kalter Wind"; she is all warmth and passion at "Ich weine viel in meinen Einsamkeiten." In "Von der Schönheit" her reading of the word "Sehnsucht" (No. 18) calls to mind the shadings of Ferrier (Richmond R 23182). In "Abschied" there is all the white tonelessness called for at "Er stieg vom Pferd" after the interlude, yet "Ich suche Ruhe" is a profoundly felt cry of anguish. In the final "ewigs," marked *pp* and *ppp*, Dame Janet's tone virtually melts away into the infinite.

A performance of this caliber undoubtedly deserves a tenor more distinguished than James King, though he does little to really offend. The voice and manner are neither as ringingly heroic as some would like nor as malevolent as I would (cf. Patzak on the Ferrier/Walter). But King sings cleanly and even pays a little attention to a few more word meanings since his last try, with Fischer-Dieskau and Bernstein (London OS 26005), a performance otherwise worthy of serious competitive consideration.

Philips' new *Das Lied* clearly belongs in the select company of classic recordings of this intoxicating masterpiece. Among avail-

able modern recordings with female soloist, it goes straight to the head of the class. A.C.

## MASSENET: Esclarmonde.

Esclarmonde	Joan Sutherland (s)
Parseis	Huguette Tourangeau (ms)
Roland	Giacomo Aragall (t)
Eneas	Ryland Davies (t)
A Byzantine Herald	Graham Clark (t)
Bishop of Blois	Louis Quilico (b)
A Saracen Envoy	Ian Caley (b)
Phorcas	Clifford Grant (bs)
Cleomer	Robert Lloyd (bs)

Finchley Children's Music Group, John Aldis Choir, National Philharmonic Orchestra, Richard Bonyngue, cond. [Michael Woolcock, prod.] LONDON OSA 13118, \$20.94 (three discs, automatic sequence). Tape: ●● OSA5 13118, \$23.85.

*Esclarmonde* is one of Massenet's large-scaled operas, written for the youthful Sybil Sanderson and premiered at the 1889 Paris Exposition, where it was a huge success and ran all summer; the public adoring the combination of eroticism and lavish Byzantine settings. After a few years, though, it sank from sight, and the 1974 San Francisco Opera revival, transferred in 1976 to the Metropolitan—which involved most of this cast—was the first in modern memory.

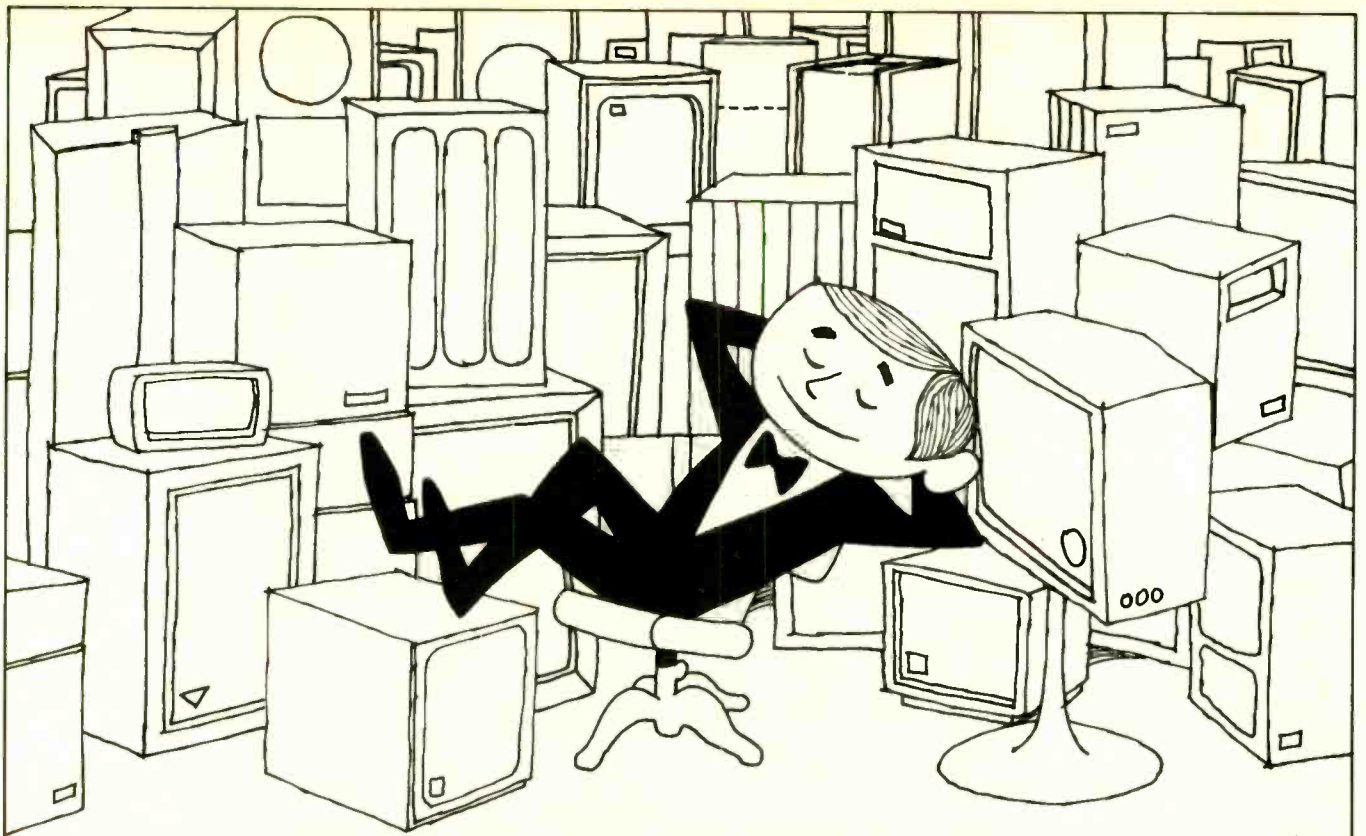
There has been an amount of received opinion that opines that Massenet could write small-scaled works but not grandiose ones. This opinion will doubtless still be heard, but *Esclarmonde* is no dead dodo of an opera, even though the plot is better off comprehended through *Esclarmonde's* veil. It is a gloss of a chivalric romance (and as such fits into the vogue for grand opera that characterizes French opera through the centuries) and involves a mythic kingdom, a princess with magic powers, a Hero Lover, a magic island, burning cities, a wicked bishop, exorcism, a tournament—and lots of musicalized sex. It has a happy ending.

At the time of its composition Massenet was accused of writing in *Esclarmonde* like Wagner and a dozen other composers. Massenet, however, was too accomplished a composer to indulge in imitation, although if you listen closely enough you may hear some echoes (less of Wagner, except in the chromaticism and the use of an outsized orchestra, than of Berlioz). The one opera, strangely, that *Esclarmonde* most strongly suggests to me was not written until after Massenet was dead: Richard Strauss's *Die Frau ohne Schatten*. This is because of the fairy-tale aspect and wide range of scenes in both works, and because the musical motif of magic powers that Massenet uses in *Esclarmonde* is very similar, in rhythmic shape, pitches, and, primarily, orchestration, to the Keikobad motif.

George Bernard Shaw scoffed at Massenet's use of motifs as thoroughly un-Wagnerian, and he was largely right. Massenet uses them in a rather simplistic way, as ostinato accompaniment patterns, similar to their use in Meyerbeer or in later (and today unknown) French opera composers such as Ernest Reyer. It can be argued that Strauss harked back to this method in his manipulation of motifs in *Frau*.

But what is central to *Esclarmonde* is not the repetition of motifs or the grandiosity or the ever-plush harmonies, but the contribu-

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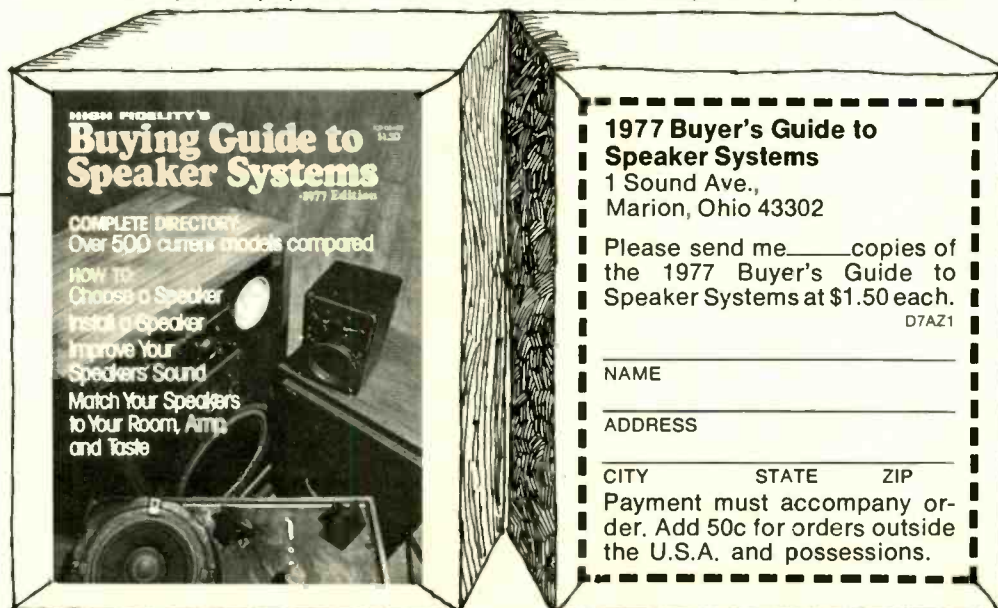
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tion that Massenet made and that no one else can duplicate: the "phrase Massenetique." This is the creation of an undulating musical line which seems to unwind forever—a line which demands that the singers observe (with an innate freedom) minute instructions as to phrasing, breathing, and dynamics. When correctly performed, by both orchestra and singer, the music allows the text to become musical declamation of extreme expressivity. This opera, in part because of the vocal abilities of Sybil Sanderson, abounds in such music—listen to Sutherland's ariosos at the beginning and end of Side 5.

What is distinctive about this recording—apart from the presentation of an opera worthy of being reconsidered—is the evi-

dence that Sutherland and Bonyngé have done a lot of hard work. Bonyngé, probably because of his conducting of ballet scores, has learned how to phrase with a flexibility that enlivens Massenet's writing, and Sutherland follows his lead. Her voice is, frankly, not the ideal one could imagine in the role, for it lacks the sensuous languor it should have, but she is properly ardent—and who else could get up with such ease to the D's, F's, and even a G in *alt*? Her enunciation is dramatically improved, and her French is leagues better than Giacomo Aragall's.

Aragall is a better Roland on records than he was on-stage, but the voice is rather stiffly produced and he really cannot—or does not want to—sing softly. The rest of

the cast is quite good, especially Louis Quilico's Bishop and Huguette Tourangeau's Parséis. Her duets with Ryland Davies are properly classically cool, to be set against the ardor of the principals.

The score is, if never deep, nonetheless full of varieties of beguiling music (in keeping with the magical elements) in Massenet's best vein. This music may be diffused on spectacle rather than concentrated, as in *Manon* and *Werther*, on character, but Massenet here was not interested in character portrayal. As such, *Esclarmonde* is entirely typical of a type of spectacle opera we only rarely encounter today.

Bonyngé makes several cuts in the score, none extensive. The recording has presence and definition as to voice and solo instruments, but the big climaxes and the choral moments are muddy and diffused. P.J.S.

**MASSENET: Thais.**

Thais	Beverly Sills (s)
Athanael	Sherrill Milnes (b)
Nicias	Nicolai Gedda (t)
Palemon	Richard Van Allan (bs)
Crobyle	Ann-Marie Connors (s)
Myrtaile	Ann Murray (ms)
Albine	Patricia Kern (ms)
La Charmeuse	Norma Burrows (s)
A Servant	Brian Ethridge (b)

John Aldis Choir, New Philharmonia Orchestra, Lorin Maazel, cond. [Christopher Bishop, prod.] ANGEL SCLX 3832, \$21.98 (three SQ-encoded discs, automatic sequence). Tape: ●● 4X3S 3832, \$23.98.

Comparison:  
Moffo, Bacquier, Carreras, Rudel RCA ARL 3-0842

After Anna Moffo's *Thais*, Beverly Sills's comes as a distinct relief. Whereas Moffo in the RCA set is scarcely able to sustain her place in the score, Sills, as always thoroughly professional, sings with the basic competence that is surely a minimum requirement for any recording.

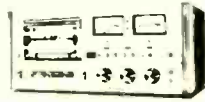
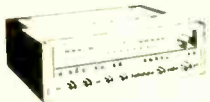
Always at her very best—or so it seems to me—in French opera, where beauty of tone and emotional spontaneity are less important than nuance and dramatic liveliness, Sills phrases a lot of this music with real psychological insight, especially in those places where pathos or light-hearted voluptuousness is called for. In the exchange with Nicias that follows upon her entrance in Act I, she sounds positively bemused by sensuality. She makes something vivid, too, out of the middle section of the Mirror Aria, where the courtesan, grown suddenly pensive, expresses her fears about aging. Her characterization of the heroine at the oasis—bleeding, exhausted, and contrite—is sensitive.

That all of this doesn't add up to a great deal more is due, I think, to the quality of Sills's vocal production, which, as usual these days, is unpleasingly fluttery. Unlike Moffo, she has all the notes. The trouble is she doesn't have them very satisfyingly. Quite apart from the moments of aural pain (what, I wonder, can have possessed her to try for the high alternative—a D in *alt*—to the B flat at the conclusion of the Mirror Aria?), the voice in general sounds tired, unsteady, and shallow in tone. "L'amour est une vertu rare," neither high in tessitura nor excessively demanding in technique, gets lost in the all-pervasive tremolo that now seems basic to her vocal production. What a pity that this recording could not

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have been made ten or even fifteen years ago, when Sills's voice, unfatigued by Roberto Devereux, Maria Stuarda, and the like, was still charming to listen to.

The same, as far as I'm concerned, is true of the other two principals. Certainly the Sherrill Milnes I first heard in the mid-Sixties possessed an instrument of extraordinary beauty and magnificence, which overemphasis and a too eager desire to knock the audience cold reduced fairly quickly to the merely loud and strong. As Athanaël, Milnes is tireless, aggressive, and unfascinating. Though his French, like everyone's in this well-prepared cast, is good, he doesn't really know how to make language help him shape the music expressively and he soon becomes monotonous. Moreover, like Sills, he now has an uncontrollable tremolo, though it is as yet mostly confined to anything below forte.

In full voice Milnes is often, of course, awesome, but there is no trace of elegance or smoothness in his work, largely because the tone remains unfocused and woolly. In his anxiety to impress, he has sacrificed too much in the way of vocal control. Now, I notice, he is scanting short, unstressed notes in his seeming eagerness to get to the big, long, important ones. Gabriel Bacquier in the RCA set, while clearly beyond his vocal prime, is an Athanaël of much greater persuasiveness, a vocal actor with a highly developed sense of verbal inflection and tonal coloration, a fanatic whom we can emphatically with and in the end feel pity for. And for all his discomfort in climactic passages, he is on the whole a far smoother singer than Milnes.

By comparison with José Carreras, RCA's Nicias, Nicolai Gedda is a model of dramatic responsiveness: Carreras does virtually nothing but sing beautifully, whereas Gedda, intelligent artist that he is, shows unflagging awareness of every nuance in the character's relations with Thais. Unfortunately Gedda's performance doesn't really work. The voice is now too inelastic and dry to suggest—as Carreras, for all his dramatic blankness, does—the careless self-indulgence of youth. Gedda sounds too neurotic and calculating, a furtive nail-biter rather than a heedless young voluptuary, Strauss's Herod rather than Massenet's Nicias.

The remainder of the cast, with one exception, is more than satisfactory, and Norma Burrows, who sings the tiny role of La Charmeuse in the lengthy ballet sequence that Massenet added to the score after the premiere, is excellent. Technically fluent—her staccatos, runs, and trills are beautifully clean—she is also graceful and expressive. The exception to the general high standard is Richard Van Allan, whose Palémon, the leader of the group of Cenobite monks to which Athanaël belongs, is something of a trial, his tone being mushy and unpleasant.

Lorin Maazel conducts with assurance, if not complete conviction. I find his tempos too slow in many of the big lyrical scenes, particularly the opera's finale, where the mood of near-hysterical ecstasy eludes him. In addition to conducting, Maazel plays the solo violin in the famous "Meditation" that Massenet puts to such full use in this opera. Maazel's fiddling is certainly proficient, though not quite accurate

enough in intonation. Having recently heard the concertmaster of the San Francisco Symphony, Jacob Krachmalnick, play this music for the San Francisco Opera's Thais (starring Sills and Milnes) with sweet, round tone, beautiful phrasing, and perfect intonation, I find myself less enthusiastic about Maazel's versatility than I might otherwise be. Where Maazel excels is the ballet music, whose brilliance and exoticism he projects very persuasively.

The recording is clear. I could have done without the wind machine in the second scene of Act III, even though the libretto tells us that "in the distance the simoon wind is howling." Fortunately we are spared the other atmospheric effects called for: "jackals yelp and lions roar from the depths of the forest." Notes, libretto, translation. D.S.H.

**MESSIAEN:** *Quatuor pour la fin du temps*. Tashi (Richard Stoltzman, clarinet; Ida Kavafian, violin; Fred Sherry, cello; Peter Serkin, piano). [Max Wilcox and Peter Serkin, prod.] RCA RED SEAL ARL 1-1567, \$6.98.

Messiaen's *Quartet for the End of Time*, composed within and inspired by the bleak surroundings of a German stalag where the composer was imprisoned in 1940, has become one of the staples of the modern chamber repertoire. I have even heard the final movement, which is for violin and piano alone, performed as an encore! Beyond the undeniable beauty of the *Quatuor*, Messiaen's music in general has a marked non-Western orientation definitely in tune with modern sensibilities, and pianist Peter Serkin and the Tashi group supremely represent these sensibilities.

Scored for the violin, cello, clarinet, and piano available to the composer in the stalag, Messiaen's *Quatuor* demands both expert ensemble work and exceptional solo ability. Three of the eight movements highlight a single instrument—in the third the clarinet plays alone, while the fifth and eighth offer, respectively, a cello and a violin duo with the piano. Tashi comes through beautifully in both areas.

While there has never been a bad recording of the *Quatuor*, Tashi perhaps comes the closest of any group to communicating the often impassioned emotional depths of the work as well as its technical brilliance. In the all-unison sixth movement, for instance, not only do the players provide a razor sharp, intensely vigorous performance of the rapidly paced rhythmic and intervallic convolutions, but they also, at certain moments, produce a rather uncanny resonance apparently at least partially created by some ingenious pedaling from pianist Serkin. Clarinetist Richard Stoltzman, weaving in and out in perfect sync with Messiaen's cyclical waves of musical feeling, from the long thematic meditations to the birdcall intricacies, provides, in the third movement, the disc's solo highlight.

The recorded sound could be brighter and cleaner, especially the piano; but basically it complements Tashi's efforts quite well. R.S.B.

**RACHMANINOFF:** *The Isle of the Dead*, Op. 29; *Symphonic Dances*, Op. 45. London



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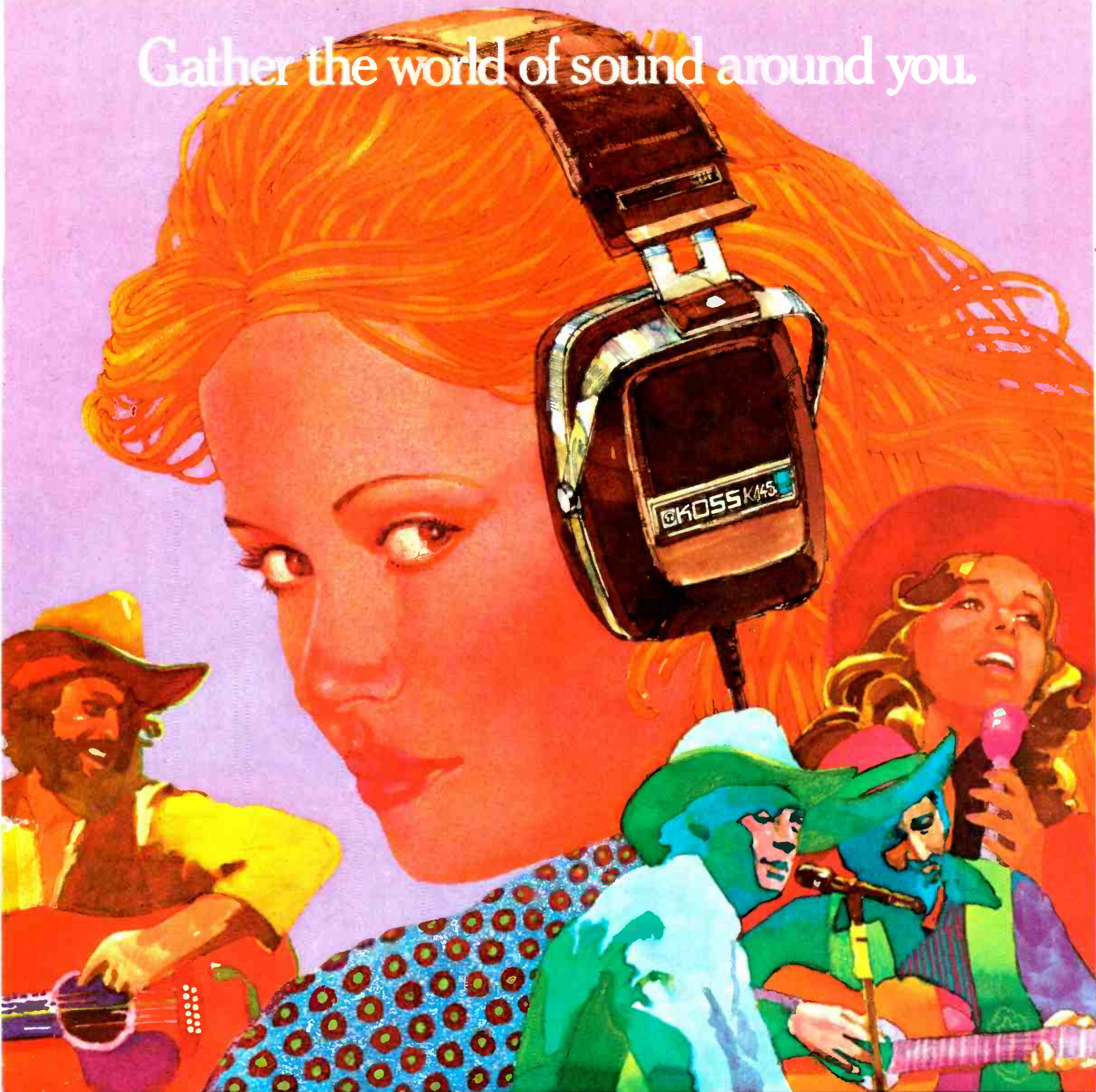
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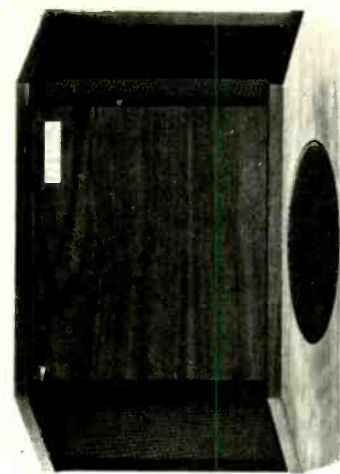


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# ALLISON: FOUR



Symphony Orchestra, André Previn, cond. [Christopher Bishop, prod.] ANGEL S 37158, \$6.98 (SQ-encoded disc).

**RACHMANINOFF:** The Bells, Op. 35\*; Vocalise, Op. 34, No. 14. Sheila Armstrong, soprano\*; Robert Tear, tenor\*; John Shirley-Quirk, bass-baritone\*; London Symphony Chorus\* and Orchestra, André Previn, cond. [Christopher Bishop, prod.] ANGEL S 37169, \$6.98 (SQ-encoded disc).

Previn's EMI Rachmaninoff series continues in its superlative vein.

Though mysteriously neglected by concert programmers, *The Isle of the Dead* must surely be one of the half-dozen or so finest tone poems ever written. Shrouded in a kind of subterranean despair, like Böcklin's painting that inspired it, the piece also maintains a long-spanned, singing line that, if properly shaped by the conductor, conveys deep and noble resignation. The composer's own reading with the Philadelphia Orchestra (available in RCA ARM 3-0295) suffers the dual misfortune of ill-advised cuts and antiquated sonics, but it still stands as an object lesson of tautness and gorgeous playing. Note how the passage beginning in the middle of p. 38 of the IMC miniature score is sustained as an unbroken lyric line for some sixty measures. Among complete stereo recordings, both Reiner (RCA Gold Seal AGL 1-1523) and Svetlanov (Melodiya/Angel SR 40019 or SRBL 4121) distend and sectionalize that episode. The former is further impeded by opaque sonics, the latter by raucous playing.

Previn's *Isle*, if not quite as grimly linear as the composer's, is certainly free of gratuitous misshaping and exhibits control over the music's time span and cantabile expression, all with lucidity and sensitivity. EMI's team has unscrambled the somewhat thick orchestral texture in a pleasing way that doesn't sacrifice warmth and atmosphere. This is certainly the practical recommendation for the work, though it would be challenged by a general commercial issue of the Horenstein/Royal Philharmonic version for Reader's Digest.

There has been no shortage of good recordings of the *Symphonic Dances*, but Previn imbues the score with a startlingly fresh poetic glow and emotional commitment. Adopting a free, rubato-laden framework, he glides from the first movement's livelier theme group into the lyrical countertheme (first introduced on saxophone) in a melting way that tingles with sensuousness. Previn's lilting hesitation in the second movement (Rachmaninoff originally called it "Twilight"), with the delicacy of the playing and the color and detail of the recording, reveals freshly the pining nostalgia and bittersweetness of that music. The finale is its usual diabolical self, but Previn's accenting and timing of *Luftpausen* add an immeasurable quality of passionate yearning.

Taken by itself, Previn's *Bells* is equally fine, though it doesn't run away with the field. There is still much to admire in the Ormandy (RCA ARL 1-0193) and Kondrashin (Melodiya/Angel SR 40114) recordings, which I discussed in June 1974. The weak spot of the new issue is John Shirley-Quirk, whose solo in the last movement (the tolling funeral bells) suffers from general rawness and breathing problems. Tenor Robert Tear

is in his best form in the opening movement, while soprano Sheila Armstrong is adequate, perhaps a bit matronly, in the second (wedding bells) movement. RCA's soloists are the most even and assured technically. Melodiya/Angel's the most radiant in their emotional fervor. The London Symphony Chorus is in splendid form (singing in Russian; Ormandy used the Copeland English translation). Previn bends with the score's lyricism somewhat more freely than Ormandy, though neither possesses the jagged wildness of the Soviet performance. Unquestionably, the two Western recordings reveal more of what is going on in the score. Angel surpassing RCA principally on occasional bass-line details (tubas and bass clarinets).

Previn's *Vocalise* is gentler than Ormandy's, more broadly arched than Stokowski's (Columbia MS 7081 and Desmar DSM 1007, both paired with the Third Symphony). It's a shade lighter than Johanos' (the filler to his *Symphonic Dances*, Turnabout TV-S 34145). I can't say which is "best"; any maestro not made of stone, and whose string section isn't playing on sandpaper, can't help but make the piece heartwarming. A.C.

**SCHUMANN:** Sonata for Piano, in F minor, Op. 14 (*Concerto Without Orchestra*).  
**SCRIABIN:** Sonata for Piano, No. 5, in F sharp, Op. 53. Vladimir Horowitz, piano. [John Pfeiffer, prod.] RCA RED SEAL ARL 1-1766, \$6.98. Tape: ●● ARK 1-1766, \$7.95; ●● ARS 1-1766, \$7.95.

RCA calls this "The Horowitz Concerts, 1975/1976" but is purposely vague about specifics. From the spacious auditorium ambience, wonderfully suggestive of the pianist's breathtaking dynamic range, it seems most likely that these performances are composites from a number of live concerts. What really matters, however, is not how these recordings were made, but that they were made, that they sound marvelously true, and that the playing is—even for Horowitz—quite exceptional.

Though Horowitz has three times recorded the slow movement of Schumann's *Concerto Without Orchestra*—the introspective set of variations on a theme by Clara Wieck—he has been long in coming to the whole F minor Sonata. Now he feels, quite rightly, that the variations make a much stronger impression as part of the larger work and vows to play only the complete sonata. With his pianistic wizardry and marvelous sense of color, he makes the thickly scored, disjunct writing spring to life in a way that few have managed.

This is not to say that his is the only way to play this music. The excellent Engel performance (in Telefunken 46.35039), for example, is strong and full of structural integrity—German music-making in the best sense and perfectly idiomatic Schumann. Horowitz offers a more agile, varicolored sonority, infinitely more exaggeration and electricity, and, in the end, greater tenderness and complex poetry. Engel, incidentally, plays the three-movement version but adds both of the omitted scherzos as an appendix; like most of his colleagues on record, Horowitz uses the text that restores one of the scherzos.

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Horowitz has always been the Scriabin pianist *par excellence*, and his reading of the Fifth Sonata deserves to take its place alongside his versions of the Third, Ninth (two very different accounts, both incredible), and Tenth and *Vers la flamme*. He gives the sonata a brilliant, febrile, and mystical account, with full value to all the cross-rhythms and neojazz zaniness. I have not heard the new Ashkenazy recording [Royal S. Brown turns thumbs down on the Fifth Sonata in his review this month—Ed.], but Horowitz safely outdistances all the others. H.G.

**SCRIABIN:** Sonatas for Piano: No. 3, in F sharp minor, Op. 23; No. 4, in F sharp, Op. 30; No. 5, in F sharp, Op. 53; No. 9, in F, Op. 68 (*Black Mass*). Vladimir Ashkenazy, piano. [Ray Minshull, prod.] LONDON CS 6920, \$6.98.

*Comparisons:*  
Laredo (No. 5)  
Kuerti (No. 4)  
Horowitz (No. 9)

Conn. Soc. CS 2032  
Mon. MCS 2134  
Col. M2S 728

This disc captures Scriabin at the end of his Romantic period, moves through both the sonatas of the brief but marvelously rich transitional period, and concludes in the icy yet multicolored mysticism of the final visions. I have yet to hear a pianist equally at home in all of these phases (Ruth Laredo comes closest), and that includes Vladimir Ashkenazy. He plays both of the transitional sonatas (Nos. 4 and 5) in such a choppy, superficial, and unsonorous man-

ner that the music seems gasping for air most of the time. And while No. 9 fares better, Ashkenazy performs it too much as a virtuoso piece, ignoring contrasts (and many dynamic indications) and showing little interest in the otherworldly, visionary quality of certain passages. The work does not necessarily call for Horowitz's steely coldness, although his approach works beautifully, but it needs a lighter, more ethereal touch than Ashkenazy brings to it.

The Third Sonata, however, receives one of its best recorded performances. The dramatic, often *patético* energy, the quiet fadeouts into passages of a sweet and yet sad tenderness, the rich, chordal dynamism—all of these elements of Scriabin's elusive first style are expressed in Ashkenazy's sensitive interpretation. To be sure, there is still some breathlessness in the chordal passages, some ponderousness in the quieter sections. But the pianist obviously moves in the same orbit with the Scriabin of the Third Sonata, and the result is exciting and often deeply moving (though the surfaces of my copy were terribly messy). As for the other sonatas, rely on Kuerti for the Fourth, Laredo for the Fifth (her Ninth on the same disc is also admirable), and Horowitz for an unearthly, chilling Ninth.

R.S.B.

**TCHAIKOVSKY:** The Nutcracker, Op. 71. St. Bavo Cathedral Boys' Choir (Haarlem), Concertgebouw Orchestra, Antal Dorati, cond. PHILIPS 6747 257, \$15.96 (two discs, manual sequence).

Antal Dorati first came to prominence outside Central Europe as a ballet conductor. From 1934 to 1937 he was with Ballet Russe de Monte Carlo, from 1938 to 1941 with Original Ballet Russe, and from 1941 to 1945 with Ballet Theater (now American Ballet Theater), for which company he was also music director. During these years he devised several distinguished ballet scores to pre-existent music, among them Michel Fokine's *Bluebeard* to Offenbach and David Lichine's still popular *Graduation Ball* to Johann Strauss.

This information is worth imparting. I feel, for two reasons. First, the notes on Dorati included in this album are sketchy and inaccurate—they credit him with having been for five years the Director (sic) of the National Ballet, New York, a company that never existed outside the imagination of Philips' copy writer. Second, Dorati's practical experience with music for dancing needs emphasizing, because that doubtless is the explanation for his faultless grasp of Tchaikovsky's theatrical intentions.

Though I have a long-standing affection for the wonderfully graceful, though slightly cut, *Nutcracker* by Ansermet and the *Suisse Romande* (London CSA 2203) and for the more recent Bonyngé performance (London CSA 2239), Dorati seems to me to realize the work more fully, all in all, than anyone else on records. I suppose it's a bit late in the day to commend Tchaikovsky, but I find it hard to refrain from doing so in the case of *The Nutcracker*, since what is most frequently heard, the

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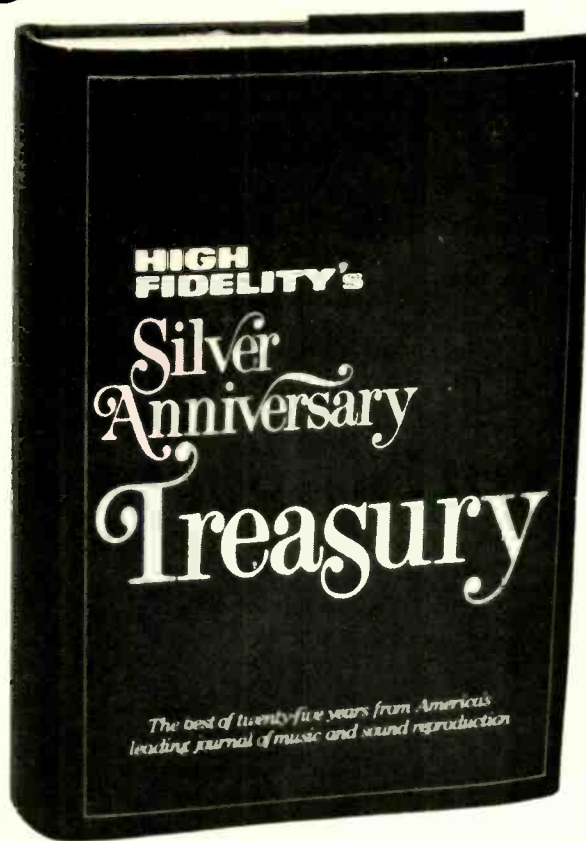
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Op. 71a Suite, contains the weakest part of the score—skillfully made music, and with brilliant strokes of orchestration, but lacking the individuality and the radiance that warm the many great pages of the work as a whole: the Act I scene in which the Christmas tree grows enormous; the finale of this same act, with its transformation of the Nutcracker into a handsome prince and the journey he and Clara take through a snowy forest; the prelude to Act II and the arrival of the travelers in Konfitürenburg; the adagio movement of the climactic pas de deux. Those who know only the suite can have little conception of Tchaikovsky's genius as a ballet composer, of the grandeur he could achieve, and of the depth of feeling he could reveal. All of this Dorati understands and transmits.

His previous recordings of the complete ballet, with the Minneapolis Symphony and the London Symphony, were excellent. The new one is even better. The advance in recording technique and Philips' silent surfaces are distinct improvements, and so decidedly is the warmth and mellowness of the Concertgebouw.

The notes, as I've implied, could be improved. Apart from their inadequacy on Dorati, they offer only three unilluminating paragraphs on the ballet and a listing of numbers far too undetailed to be of any real use. D.S.H.

**TCHAIKOVSKY:** Symphony No. 5, in E minor, Op. 64. Berlin Philharmonic Orchestra, Herbert von Karajan, cond. [Michel Glotz, prod.]

DEUTSCHE GRAMMOPHON 2530 699, \$7.98.  
Tape: ●● 3300 699, \$7.98.

Readers of my July 1975 survey of Tchaikovsky symphony recordings will recall that neither Herbert von Karajan nor the Fifth Symphony drew much praise. With this extraordinary new record, the most exciting performance of the Fifth I have heard since the (quite different) Koussevitzky/Boston Symphony performances of four decades ago, I must eat at least some of those critical words.

Karajan's way with Tchaikovsky has not in the past been an especially happy one. His earlier DG Fifth (139 018, 1968) was matter-of-fact in approach, distant in ambience. The subsequent Angel recording (S 36885, 1972) went to the other extreme: miked rather closely, interpretively literal and tense, even aggressive. The new recording is totally different, beginning with the engineering, which is more forward than the earlier DG but not as close as the Angel. This rather matches the new interpretation, in which the drama of the symphony is heightened, but without the crudity of the Angel version.

The intensified rhetoric is never allowed to break continuity: despite the frequently slow tempos and liberal use of superbly calculated pauses, Karajan consistently maintains the long musical line. In the Andante especially he builds impressively from the opening horn solo, following it with increasing variety of development and building climaxes of exceptional power. He does not gloss over what I would consider

the score's basic defects. Where Tchaikovsky's climaxes are feverish and overblown, Karajan follows explicitly, neither underplaying nor exaggerating. He responds throughout with honesty, expressive commitment, and superb musicality, including amazingly precise observance of detailed dynamic and tempo markings that yet never leaves the impression of pedantically dotting i's and crossing l's.

Obviously a major glory of this record is the sheer sound of the Berlin Philharmonic, whose tonal balance and blend at all tempos and dynamic levels are above criticism. Moreover, that sound is captured here with a realism and sensuous beauty that put little between the original and the listener. Indeed, were I not put off by the Fifth Symphony's basic banality of conception, I would place this recording alongside Furtwängler's great *Pathétique* in the discographic pantheon. For that legion of listeners with no such misgivings, this should be an indispensable recording for years to come.

P.H.

**TIPPETT:** Symphony No. 1; Suite for the Birthday of Prince Charles. London Symphony Orchestra, Colin Davis, cond. PHILIPS 9500 107, \$7.98.

A welcome side effect of Tippett's belated recognition as one of the major figures on the English musical scene has been the fresh attention it has brought to some of his earlier, half-forgotten works. Not that any of them are all that early, since Tippett, a

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slow and self-questioning developer, rejected everything he had written before his mid-thirties; as Bayan Northcott reminds us in a notably well-informed liner note, he had turned forty when this symphony was completed in 1945.

It is an eager, strenuous, attractive work, which nevertheless poses certain problems to immediate comprehension that are found neither in predecessors like the Concerto for Double String Orchestra nor in the more "liberated" works that followed the opera *The Midsummer Marriage*, works in which Tippett began to discard the formal apparatus of musical dialectic in favor of a more instinctive, gestural style. When the First Symphony was first given in England, critics were quick to point out the difficulty of reconciling a highly contrapuntal idiom with the structural demands of a relatively conventional four-movement symphonic form, and to some extent this is still a stumbling block. In the first movement the contrapuntal texture, combined with Tippett's characteristic loose-limbed phrase lengths, distracts the ear from the large-scale thematic and tonal argument, and even in the slow movement, an extended passacaglia, the proliferation of detail tends to impede the momentum of what should, after all, be the most inexorable of forms.

So much, though, only by way of explaining why this symphony has taken so long to come into its own—something that Colin Davis' splendid reading of it will surely achieve. Under his committed guidance the sprung rhythms spring as they should, yet there is no loss of thrust or overall direction, even in the most densely polyphonic passages. The fleet rhythms of the scherzo (the most Stravinskian movement of the four) are beautifully precise, and the powerful double fugue in the finale leads with irresistible energy to the strange but completely convincing ending: The dance spins away and dissolves, leaving only the irregular pounding of a low E, the dominant, as if the source of so much energy were still unexhausted.

It was an imaginative gesture on the part of the BBC to commission a work from Tippett to celebrate the birth of an heir to the British throne three years later; even then he was not an obvious composer of occasional music. Lighter in mood than the symphony, the suite is still far from insubstantial. Its five movements all make use of traditional tunes—the Scottish hymn-tune "Crimond," a plangent French lullaby, an Irish reel, an English carol, and many more in the final quodlibet—but they are used with an energy and imagination that take them far beyond the scope of mere arrangements. The recorded sound is well and naturally balanced, if a little too reverberant for all the polyphonic detail to tell. J.N.

#### VERDI: Macbeth.

Lady Macbeth  
Gentlewoman  
Second Apparition  
Third Apparition  
Macduff  
Malcolm  
Macbeth  
First Apparition  
Banquo  
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Servant to Macbeth  
Murderer  
Herald

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Stefania Malagu (ms)  
Maria Fausta Gallamini (s)  
Massimo Bortolotti (boy s)  
Placido Domingo (t)  
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La Scala Chorus and Orchestra, Claudio Abbado, cond. [Rainer Brock, prod.] DEUTSCHE GRAMMOPHON 2709 062, \$23.94 (three discs, manual sequence). Tape: ●● 3371 022, \$23.94.

Comparisons:  
Rysanek, Warren, Leinsdorf  
Nilsson, Taddei, Schippers  
Souliotis, Fischer-Dieskau, Gardelli

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Lon. OSA 1380  
Lon. OSA 13102

Of all the early Verdi operas, *Macbeth* has been the most frequently recorded—and with justice, for despite its obvious crudities and banalities, it contains passages (even whole scenes, arias, finales) of unforgettable musico-dramatic power and is one of those pieces that, in a reasonably successful performance, draws the audience into an almost tangible psychological atmosphere entirely its own.

DG's is the fourth complete recording, all in stereo. (There was also an abridged German-language performance featuring Elisabeth Höngen and Matthieu Ahlersmeyer, released domestically on Urania.) Like the other three, it is basically the revised (1865) edition of the score. It offers the complete ballet music in the apparition scene (as does the Gardelli/London version, but not the others) and includes from the early (1847) edition the death scene for *Macbeth* (as does the Leinsdorf/Victrola version). Like the Leinsdorf/Victrola, it is based on a stage production (La Scala 1975 in this case, Metropolitan 1959 in Leinsdorf's).

I find the new performance a solid, generally recommendable one. Yet it seems lacking in profile, and for this reason I find little impulse to return to it, as I sometimes do to the Leinsdorf and Schippers performances. (Gardelli's has profile, all right, but one that is marked by the ragged scars left by two of the more inappropriate casting choices in the combined histories of wax, shellac, and vinyl: the *Macbeth* of Dietrich Fischer-Dieskau and the Lady of Elena Souliotis.)

Claudio Abbado's conducting is firm, vigorous, balanced, and well grounded in the score even on the several occasions when it strikes my ear, at least, as a bit on the quick side. The playing of the Scala orchestra is never less than good, at some points extraordinary. This might be characterized as a very well-executed, straightforward reading that trusts the music and never sacrifices the proportion of a section to an immediate effect. In the "*Biechi arcani*" ensemble at the end of the Banquet Scene, for example, I at first felt that Abbado was underplaying the off-beat accents in the chorus too much but, at the arrival of the heavily beat climactic phrases, realized he had shaped the section as a whole more effectively than most conductors do.

Sometimes, too, a color will be caught that seems dramatically just right, as in the chorus of Banquo's murderers. But while I was initially impressed by the reading—by its logic and by its execution—I discover, when I close the score and sit back for a more subjective contact with the performance, that this sort of flavor emerges all too seldom. Passages flow by, quite well performed, without much engaging one's emotional attention. It's a little hard to put the finger on, and perhaps I can best express the problem by saying that the performance sounds to me like one that has come about from the top down and the outside in, as the

result of decisions made off the page rather than in the give-and-take of exploration among performers. This is possibly an odd outcome for a recording based on a stage performance; but at that, I have latterly seen many a live production that gave me just this feeling—though seldom realized with this high competence. I respect this reading, but I would rather listen to Schippers' (even with its extensive cuts) and, at moments, to Gardelli's, which is inconsistent but at times quite gripping. (If you wish to hear a case made for the ballet music, for example, you are better off with Gardelli, who secures far more color and creates a much clearer picture of the scenario—we realize the sequence can be made theatrically apropos.)

Abbado's principals convey much of this same sense of slightly generalized expertise. (In fact, they do much to create it—perhaps I have fallen into current critical cliché by placing conductor ahead of singers in an early Verdi opera.) The two leading roles are infamously difficult, largely because of the range of expression called for. Lady M. is perhaps the more troublesome of the two because it is the less convincingly written. Much of the part is set persuasively, but in some rather important spots it tends to fall back into musical gestures of rather simplistic psychological value—"Vieni, t'affretta" and its cabaletta are especially hard to integrate, I think.

I hope it doesn't sound snide to say of Shirley Verrett's performance that it is most successful in just those moments when the writing becomes relatively "vocal" and mono-toned, and most especially when the vocal demands are chiefly for high-intensity output. The "*Vieni, t'affretta*" is in fact quite excitingly done, and her contributions to the big ensembles and to the "*Ora di morte*" duet after the apparition scene make an impact. "*La luce langue*," on the other hand, sounds "figured out" rather than wholly performed, and the Sleepwalking Scene more or less slips away, despite some nice moments and restrained choices.

I should make it clear that there is nothing in the music Verrett cannot sing respectably. And in some important respects, her taut high-mezzo voice is a good fit for the role; her technical strengths and weaknesses tend to complement those of the sopranos Nilsson and Rysanek. She manages some fair high decrescendos and even thins out the mix for the high D flat, though a constricted one. As we might expect, though, there is not much sense of real ease or float behind the upper fourth in the voice. She very noticeably darkens vowels in the middle, where the voice sounds somewhat "covered," then switches to a brighter, edgier conformation around the upper F, which she drives at from the underside up to B and C. She gets there with it, but we are not put at ease; it's all a bit upside-down. This technical question, I think, underlies her partial success with sections like the Sleepwalking Scene or the Brindisi (where, however, she's in plenty of company), those sections where real elasticity and buoyancy of the lighter sort are called for. Bearing in mind that no one since the young Callas (who can be heard only on noncommercial discs) has completely en-

compassed the part, it's a matter of taste as to which of the three Lady Macbeths one may prefer (Souliotis being out of the running).

Macbeth is also a real problem part. Even a great high baritone voice well used will not secure the situation, as it will in a general way with such parts as Posa or Carlo, or even Rigoletto, desirable as it is to have more in such roles. Macbeth's tessitura is lower and less showy. His arias are more problematic in their effect, the Dagger Soliloquy being a declamatory arioso in the manner of "Pari siamo" (but less effectively written), and the "Pietà, rispetto" a typical early Verdi cantilena of unusually subdued tone, more akin to Nabucco's "Dio di Giuda" than to, for instance, the brilliantly set baritone solos in *Ernani*. A primary technical requirement is mastery of mezza-voce in the middle range, with the bite and power of the big Verdi baritone ready to emerge when called for, as it is in several key passages. The role is long, and of course the dramatic demands are enormous: Almost every sort of human emotional crisis and response must be dealt with in the voice.

Piero Cappuccilli, somewhat like Verrett, is at his best in bigger, more declamatory moments, which seem most suited to both his voice and his temperamental inclinations. Parts of the Banquet Scene, the apparition scene, and the aforementioned "Ora di morte" are imposing—the voice has some core and bite along with its basically attrac-

tive timbre, and he has some dramatic vitality. He sings the "Pietà, rispetto" with more respect for its mournful, resigned tone, and less inclination to simply stop the show with a big effect, than most baritones.

Elsewhere, I find him less convincing. He has a way of singing softly and of indicating with the voice the general atmosphere of the long sequence concerned with the murder of Duncan and of the more inward parts of the Banquet Scene delirium or the scenes with the witches, but the voice tends to lose its center and to fall into a gray coloration. There is not the true mastery of soft dynamics commanded by Warren or the compensating richness of color offered by Taddei. The interpretive choices are defensible enough, but rather unimaginative and predictable. At points where a well-knit legato and forthright cantabile might make sufficient effect (as in the more open phrases of the "Due vaticini" duet with Banquo), he is able only to approximate the singing requirements. I would describe his contribution as one of honest adequacy, conscientiously carried through, in a part where this is finally not quite enough to keep us involved, especially after the first hearing.

Nicolai Ghiaurov repeats his Banquo from the Gardelli set, perhaps to marginally better effect. The voice remains a beautiful one, though the timbre seems to be lightening a bit and he increasingly sings the closed vowels in a shallow, open formation that is neither decent Italian nor interesting sound. He skates through the "Due vati-

cini," slighting the thirty-seconds in the dotted figure and leaving us with only a sketch of the singing line, and is less imposing than one would expect with the announcement of Duncan's death. In the aria, however, he leans into the music more full-throatedly and sings through the line more completely, sounding more like the great basso cantante he can be and giving the set its one moment of old-fashioned vocal stature.

Placido Domingo, whose vocal equipment seems almost ideal for Macduff, appears content with this general "rightness" for the music. His discovery of the murder is nasal tonally and of no great urgency dramatically; the marvelous "Ah, la paterna mano" is solid, loud, satisfying in a sort of basic way, but not very finished; both Pavarotti (Gardelli/London) and Bergonzi (Vicolo) make more of it.

It is a pleasure to find the small roles very strongly cast in this production—Savastano, Malagù, Mariotti, Foiani, and Giacomotti are all well above the norm for their roles, and in contrast to what is rapidly becoming common practice on recordings, they sound like Italian opera singers instead of madrigalists from some Anglo-German musical limbo. The *cupo* coloration of the Scala chorus is at moments a bit pompous-sounding, but the ensemble sings well and the approach pays off with the witches, for the female choristers have both the lightness and precision for the jolly little harvest choruses and some real

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# ADVERTISING INDEX

Key No.	Page No.
1	ADC Professional Products, A Division of BSR (USA) Ltd. .... 50, 51
51	A. D. R. Audio ..... 146 Advent Corporation ..... 140, 141 Akai America Ltd. .... 27
2	Allison Acoustics ..... 127
34	American Monitor Co. .... 120
12	Angel Records ..... 112
50	Audionics, Inc. .... 132 Audio Technica U.S. Inc. .... 100
3	Audiotex Laboratories ..... 55
4	Audiotex Laboratories ..... 102
5	Bang & Olufsen of America, Inc. .... 55 Bose Corporation ..... 81, 84
6	British Industries ..... 101 Buyer's Guide to the World of Tape ..... 123 Buying Guide to Speaker Systems ..... 121
7	Carston Studios ..... 138 Classified Ads ..... 148-150 Component Discounters ..... 146
8	Crown International ..... 116
9	Discount Music Club ..... 145
47	Discount Sound ..... 122 Discwasher, Inc. .... 4
11	District Sound ..... 145 Dixie Hi-Fidelity ..... 134
17	Dual ..... 25
13	Electro-Voice, Inc. .... 133
10	Empire Scientific Corp. .... 36
15	Fuji Photo Film U.S.A. Inc. Magnetics Tape Division ..... 23
14	Garrard ..... 30-33
48	Hitachi Sales Corp. of America ..... 13
16	Icelandic Airlines ..... 138
18	Illinois Audio ..... 147
19	International Hi-Fi Distributors ..... 137
20	JVC America, Inc. .... 15
30	Kenwood ..... Cover IV
21	King Karol Records ..... 134
22	Klipsch & Assoc. .... 12
23	Koss Corporation ..... 126
	Marantz Co. .... 34, 35, 152, Cover III
24	Maxell Corp. of America ..... 53
25	McIntosh Laboratory ..... 21
26	Memorex Corp. .... 14
27	Miida Electronics, Inc. .... 5 Music Listener's Book Service ..... 131, 137 Music Listener's Record Service ..... 147
28	MXR Innovations ..... 115
29	Nikko Electric Co. .... 54
31	Olympus Corp. of America ..... 114
32	Phase Linear Corp. .... 8
33	Pioneer High Fidelity ..... Cover II, I
	Radio Shack ..... 57 Record Mart ..... 134
35	SAE, Inc. .... 118
38	Sansui Electronics Corp. .... 42-47
36	Sansui Electronics Corp. .... 113
37	Scott, H. H., Inc. .... 16 Sennheiser Electronics ..... 130
39	Shure Brothers, Inc. .... 7 Sonic Research, Inc. .... 124
40	Sony Corp. of America ..... 128
41	Sony Corp. of America ..... 99 Sound Guard ..... 117
42	Stanton Magnetics ..... 2
43	Stereo Corp. of America ..... 147
52	Tannoy ..... 119 Teac Corp. of America ..... 125
44	Technics by Panasonic ..... 28 Time-Life Records ..... 9-11
45	Top Discount Audio ..... 137
17	United Audio Products ..... 25
46	Vor Industries ..... 131
	Wyeth Press ..... 129
59	Yamaha International ..... 109

adult power for the prophecies.

The sound of this recording is generally excellent, very well balanced in the ensembles. Soloists are recorded close, with a somewhat bigger-than-life result—I don't mind, but others may.

A comparative recommendation is hard, for in performance terms I do not find this set quite the equal of the Victrola (for individual performances) or the first London (for the conducting and the performances of the two principals). Yet it is uncut, which I believe a true advantage, and the only other uncut performance (Gardelli's) is disqualified by its lead casting. Hard to choose just one—and the collector should remember that a Muti version is on the way from Angel, with a strong-looking cast and an addendum offering sections of the first edition. C.L.O.

## Recitals and Miscellany

### JUDITH BLEGEN: Songs of Strauss and Wolf.

Judith Blegen, soprano; Martin Katz, piano. [Thomas Z. Shepard and Peter Dellheim, prod.] RCA RED SEAL ARL 1-1571, \$6.98.

WOLF: Nun wandre, Maria; Schlafendes Jesuskind; Die ihr schwebet; Ach, des Knaben Augen; Zum neuen Jahr; Epiphanias; Die Spröde; Die Bekehrte; Verschwiegene Liebe; Waldmädchen. STRAUSS: Ich schwebte; Heimkehr; Schlagende Herzen; Einkehr; Der Stern; Säusle, liebe Myrte; Ich wollt' ein Sträußlein binden; Amor.



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I admire Miss Blegen's evident intention to avoid type-casting in the cutesy soubrette division of the song repertory. She avoids such obvious specimens of the genre as "Mausfallen-Sprüchlein" and "Schlechtes Wetter," heading for the markedly more lyrical territory of "Heimkehr," "Verschwiegene Liebe," and the religious songs from Wolf's *Spanisches Liederbuch*. And I much admire the instrumental precision of her intonation throughout, even in the fiendishly difficult songs from Strauss's Op. 68 ("Ich wollt' ein Sträußlein binden," "Säusle, liebe Myrte," "Amor"), written for Elisabeth Schumann.

The singing of Lieder needs to be a fine, precise craft, however, and not much in this recital strikes me as specific enough. One rarely feels that the words mean very much from one song to the next. To be sure, in the Strauss Op. 68, they are arguably subordinate to the melismatic melodic line—but in Wolf they matter a great deal. I'm not overly fond of performances that sacrifice melodic shape to verbal coloring and accentuation, but Blegen is far from being in danger of that. In brief, she's bland, and that won't do.

She also tends to rhythmic slackness, and that won't do either, for it further weakens the individuation of the songs—especially the more florid Strauss numbers, which generally start off well and then lose momentum, dragging on upbeats and delaying to get set for high notes. Compare the Brentano songs as sung by Edda Moser with real energy and vivid shaping (Electrola 1C 063 29052), and you will hear what is missing; Erik Werba's playing helps Moser a lot, too, while Martin Katz's, rather shallowly recorded, subordinates itself not only in volume, but also in impetus. In slow songs, Blegen occasionally discloses a vibrato around the break that disturbs the repose, and some of her high notes are placed in a tight-throated way.

To make a world in four minutes, as songs seek to do, requires concentration and imagination from the composer, and equally from the singer who would realize that world. On the larger canvas of the op-

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era stage, brush strokes can be (indeed, often must be) broader, freer, more generalized—but a song wants clarity and flexibility down to the smallest detail. Miss Blegen resists any temptation to overpower songs with sheer singing; unlike many opera singers, she is on the right track in this respect. Now she must learn to get inside each one, to use that sweet and flexible voice to bring them to sharply focused life.

One of the Wolf songs is a first recording: "Waldmädchen," an Eichendorff setting from 1887, fast and fanciful; it is perhaps the most successful bit of singing and playing on the disc. Texts and translations are provided. D.H.

**CONSORT OF MUSICKE:** Musicke of Sundrie Kindes. Consort of Musicke, Anthony Rooley, cond. [Peter Wadland, prod.] OISEAU-LYRE DSLO 203/6, \$27.92 (four discs).

**GIBBONS:** Madrigals and Motets, 1612. Consort of Musicke, Anthony Rooley, cond. [Peter Wadland and Raymond Ware, prod.] OISEAU-LYRE DSLO 512, \$6.98.

Anthony Rooley is a musician of great ebullience and range whose recent activities have extended his career from the virtuoso lute playing familiar from earlier recordings to a much wider spectrum of early ensemble music as conductor of the Consort of Musicke.

"Musicke of Sundrie Kindes" is a tour de force journey on four discs through the multifaceted world of the secular sixteenth century. Considering the range of styles and subjects that Rooley encompasses, the results are remarkably satisfactory. The tour begins at the summit, the so-called *ars perfecta* of the high Renaissance, with a sampling of Obrecht, Pierre de la Rue, and Combert and proceeds through the Italian frottolists and French *chanson* composers. A generous helping of midcentury popular music, settings and variations of common tunes, deliberately rustic *villotte*, and examples of the quodlibet from Germany and Spain make up the fourth and fifth sides of the package. The more sophisticated side of the Italian repertoire is represented by the madrigals of Rore, Marenzio, and Gesualdo and by the solistic pieces that followed them at the turn of the century. One final side surveys musical developments in England from the early songs of Robert Fayrfax to the Jacobean consorts for voices and viols.

Rooley is an imaginative programmer. Each disc is a self-contained concert, musically convincing and historically coherent. Short pieces are banded effectively into larger groups mixing instrumental and vocal selections in judicious combination. For example, four versions of the traditional tune "La bella Franchescina" make an effective combination, beginning with a contemporary arrangement played by a consort of four rebecs. A hearty rendition by three lutes is followed by a third strain for solo baritone. A version for four voices concludes this delightful mini-suite of popular Italian music. A more ambitious but equally successful group on the English program flanks Cavendish's wonderfully expressive "Wandering in this place," here performed as a lute song, by two extensive



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instrumental consorts: the anonymous "Shooting of the guns pavan" played on the viols and Alison's elegant "Dolorosa pavan" for broken consort.

The music itself is also well chosen: at least a third of the ninety-five compositions have probably not been recorded before. Contemporary instrumental versions of popular tunes and sophisticated part songs form a large part of this collection, and with such talented musicians as Jane Ryan, Eleanor Sloan, and Trevor Jones among the string players, Bernard Thomas on the winds, Nicholas Kraemer, harpsichord, and two lutenists besides Rooley himself, Julian Creme and Michael Hunt, the results are stunning. I particularly enjoyed the resonant sonority of the three lutes who play competitively in a *Pazzamezzo* by Pacolini and then provide a rich chordal background for a set of gamba divisions by Diego Ortiz.

Most interesting from the historical point of view are the many examples of quasi-improvisational performance of contemporary poetic forms. For instance, Tromboncino sets Petrarch's sonnet "Hor che'l ciel" as a recitation of short vocal formulas, tags that could be applied interchangeably to other texts. A performance of Marenzio's five-voice madrigal "O voi che sospirate" by countertenor and viols on a later side reminds us that the solo song continued to exist in fact if not in theory throughout the century.

Following his predilection for instrumental color, Rooley often chooses to score vocal pieces for solo voice and accompaniment, most often using tenor Paul Elliot or countertenors John York Skinner and Kevin Smith. Yet the completely vocal ensemble used in works like Rose's splendid madrigal "Da le belle contrade" is very effective.

Rooley's success with a predominantly vocal group can be heard on another disc, the recent release of Orlando Gibbons' *First Set of Madrigals and Motets of 5 parts*. "Apt for voices and viols," reads the title page of 1612, and occasionally the conductor opts for the solo combination. "The silver swan," for example, is allotted to soprano Emma Kirkby. More often, however, the madrigals (the motets of the title are nothing more than serious madrigals) are performed by the full complement of voices. Rooley prefers a thin, bright, vibratoless tone, which makes for a marvelously transparent texture, although I found the sound a bit unpleasant in the upper registers.

Oiseau-Lyre has done a fine packaging job on both sets. "Musicke of Sundrie Kindes" is especially well produced by Peter Wadland, the sound being clear and resonant throughout, and the notes intelligent and informative. Texts and translations are included. Rooley is a conductor to watch in the field of early music: imaginative, musical, and apparently very prolific. I look forward to his next recordings with anticipation. S.T.S.

ARTURO TOSCANINI AND THE PHILADELPHIA ORCHESTRA. For an essay review, see page 103.



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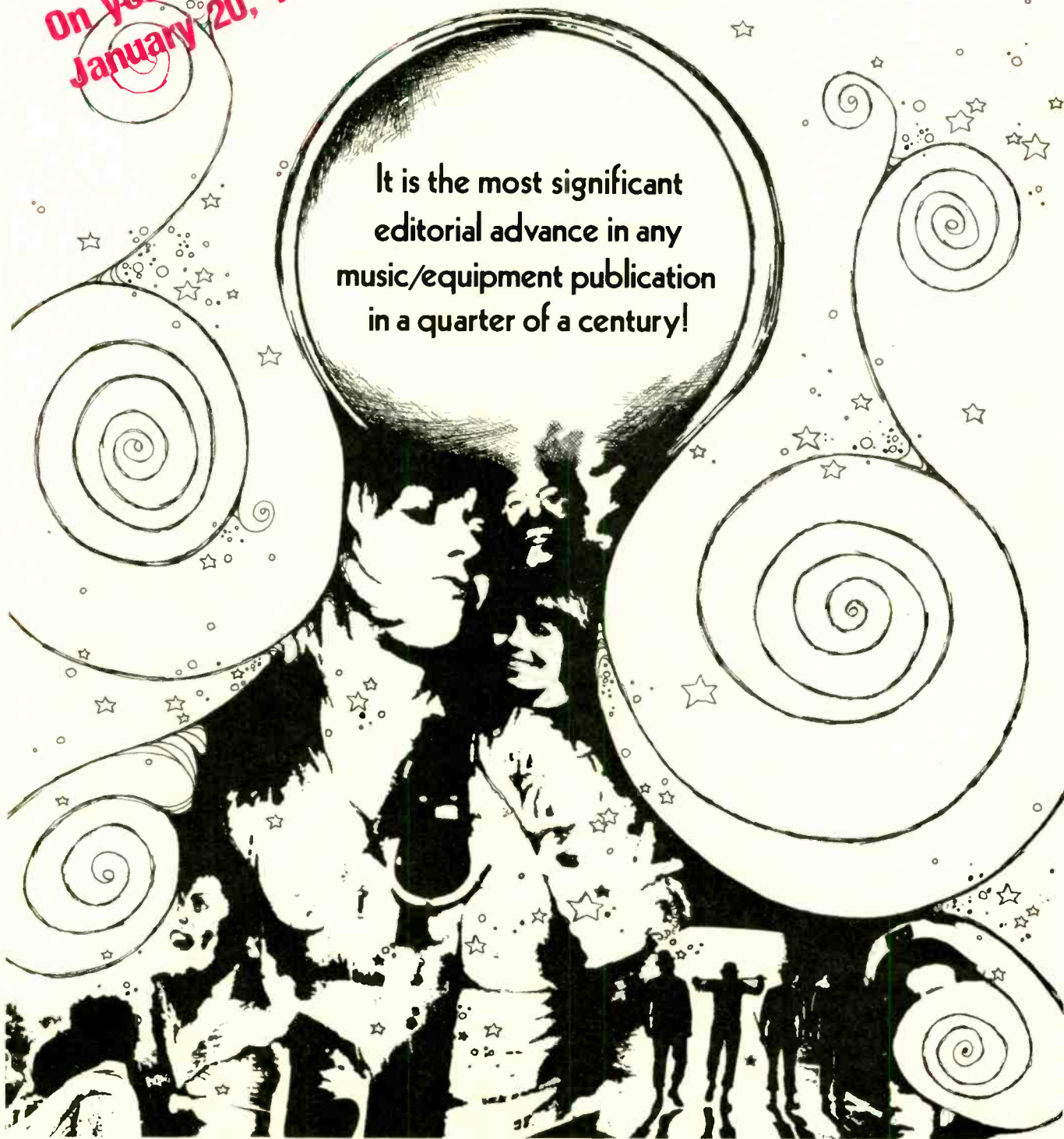
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Here are those advantages:

### High Coercivity and Excellent High-Frequency Response.

Chromium-dioxide is a man-made oxide, "grown" very much as crystals are. Unlike iron (ferric) oxide, which has to be ground and milled to achieve an appropriate particle size for tape,  $\text{CrO}_2$  particles can be grown to near-perfect size and shape for cassette recording.

One of their advantages is high coercivity. That is, it takes a very strong force to magnetize and demagnetize chromium-dioxide tape. One thing this means is that

the bias current necessary for tape recording, which has a tendency to erase high frequencies during the recording process (especially at low speed), has far less of this effect on  $\text{CrO}_2$  than on standard ferric oxides.

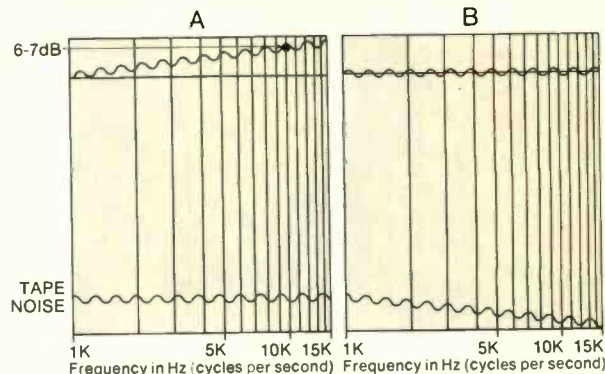
Chromium-dioxide holds onto high-frequency signals that would be "self-erased" on standard ferric oxide tapes. More important, it can put onto the tape an unprecedented total amount of high-frequency energy—a function of both its coercivity and the near-ideal size and orientation of its particles. No tape we know of surpasses it in this crucial consideration, and few approach it. (Probably the best indication of  $\text{CrO}_2$ 's high-frequency abilities is that it is considered a prime tape for video cassette recording, in which it must deal at relatively low speed with a video bandwidth in the millions of Hz.)

### Low Noise and High Output.

The unique advantage of  $\text{CrO}_2$ 's total high-frequency capability for cassettes is the way it lends itself to the objective of a low-noise, wide-frequency-and-dynamic-range medium.

As we indicate in the diagram, chromium-dioxide's high-frequency response begins to rise at 1,000 Hz, and is up by 6-7 dB at 10,000 Hz. This rising characteristic allows an unusually steep equalization of the signal during playback (the " $\text{CrO}_2$ " equalization now found on all good cassette decks for home use) to level out the overall frequency response. And in this equalization process, the tape noise under the high frequencies automatically comes down along with the signal by 4-6 dB. (That means 4-6 dB greater noise reduction than would be possible with standard equalization of standard tape.)

That is a tremendous advantage, and in conjunction with the Dolby System was, and is, the key to cassettes with sound that is at least as good as that of the best records. And  $\text{CrO}_2$ 's noise-reduction benefits for cassettes are automatic—built into the playback process.



A. Chromium dioxide's rising high-frequency response (up by 6-7 dB at 10,000 Hz).

B. When this response is equalized downward in playback for flat response, tape noise is automatically reduced by the same amount.



It's also possible to increase potential signal-to-noise ratio in another way, as conventional cassette tapes have done, by raising the total amount of signal that can be put onto tape. But to realize that potential in everyday use, the recordist at home has to be able to set levels critically for maximum signal on each recording. In practice, most people can't manage this and don't get anything like the maximum benefit from this approach.

Which is why we introduced not only CrO<sub>2</sub> itself but the special equalization characteristic that makes its low-noise potential automatic in everyday use.

While other tapes have since claimed to have added still more dynamic range, their maximum increase is actually small (2dB) and realizable only with the highest possible setting of recording levels.

In practice, we know of no tape with significantly, audibly greater signal-to-noise capabilities than CrO<sub>2</sub>.

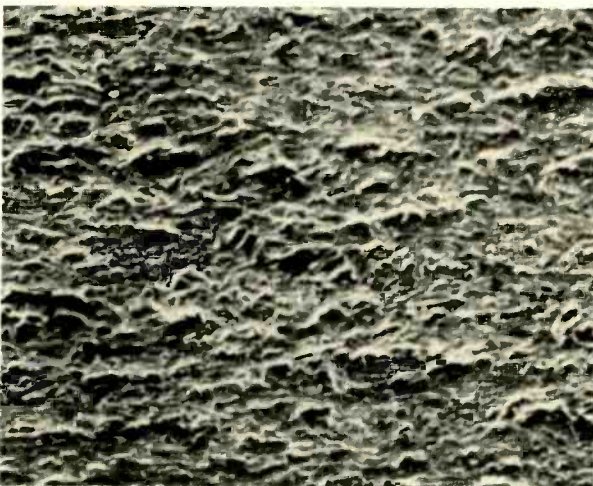
### Low Print-Through.

Another advantage of CrO<sub>2</sub>'s high coercivity is that it not only magnetizes exceptionally to begin with but *stays* magnetized to an unprecedented degree, storing the signal with an absolute minimum of signal leakage ("print-through") from one layer of tape to the next. Print-through can be a none-too-subtle form of noise, and can contribute to a murky overall recording quality. CrO<sub>2</sub> has the lowest print-through we know of in cassette recording, and this, along with its very low modulation noise, makes it an even more impressively low-noise recording medium overall.

### Low Drop-Out.

CrO<sub>2</sub>'s long, thin particles disperse very evenly over the surface of the tape (see photo), without the tendency to clump or leave bare spots. Their small and consistent size also allows them to be easily oriented the right (longitudinal) way on tape.

These two factors add up to a highly *uniform, consistent* tape coating that avoids drop-out problems—either at first or after repeated playings.



A 5,000-time magnification of a very small section (less than half a cassette tape width) of Advent CrO<sub>2</sub> tape. The 1½-micron marker under the photo indicates the width of a standard head gap in cassette recorders.

The extremely even and almost perfectly longitudinal dispersion of the oxide particles makes for uniform response and freedom from drop-outs.

## Advent Corporation, 195 Albany Street, Cambridge, Massachusetts 02139.

\*Back in the days when CrO<sub>2</sub> was first coming into use, a whispering campaign—begun, we suspect, by someone with a lot to lose if CrO<sub>2</sub> became important (as it did)—began to spread the story that chromium dioxide wore heads excessively. This has never been true, and at least one manufacturer who recently asserted that claim in print has since retracted it. In six years of selling CrO<sub>2</sub> and cassette equipment, we haven't received a single complaint of excessive headwear from CrO<sub>2</sub>.

### Low Head Wear.

Chromium-dioxide's head-wear characteristics are satisfyingly low not only for audio cassette recorders but for operation (with heads of critically narrow gaps) in video cassette recorders. A home recordist can expect excellent head life with CrO<sub>2</sub>.\*

### Compatibility.

The CrO<sub>2</sub> playback standard pioneered by Advent is now provided in all high-quality stereo cassette decks for home use. You can enjoy chromium-dioxide's full capabilities on all of them.

Among premium tapes other than CrO<sub>2</sub>, however, are some that require equalization and/or biasing that isn't provided by today's cassette machines. Whatever the *theoretical* advantages of these tapes (and we know of none that exceeds CrO<sub>2</sub>'s sonic capabilities), you can't realize them in the right proportions in actual use. Using them on today's cassette recorders is like using a film with a camera that doesn't supply the right ASA number.

Most auto stereo recorders don't supply the right provisions for either CrO<sub>2</sub> or other premium tapes, and we know of no way you can enjoy their full advantages on the road. What you *do* get from CrO<sub>2</sub> on car cassette machines, however, is a high-frequency boost that in the usual circumstances (with equipment that isn't the ultimate in high-frequency response) is pretty welcome.

### Uniformity.

The unique nature of CrO<sub>2</sub> particles makes for excellent coating uniformity from batch to batch in the manufacturing process. Overall results with any tape also depend on keeping other factors consistent, including the manufacture of the cassette housing. We at Advent take considerable pains to make sure of product consistency in tape as well as on other products, and we know that several other marketers of CrO<sub>2</sub> take similar pains. Not all brands of CrO<sub>2</sub> are the same in final quality, but the consistency that's *made possible* by CrO<sub>2</sub>'s basic properties is at least as good as that of any other tape.

### Price-Performance Ratio.

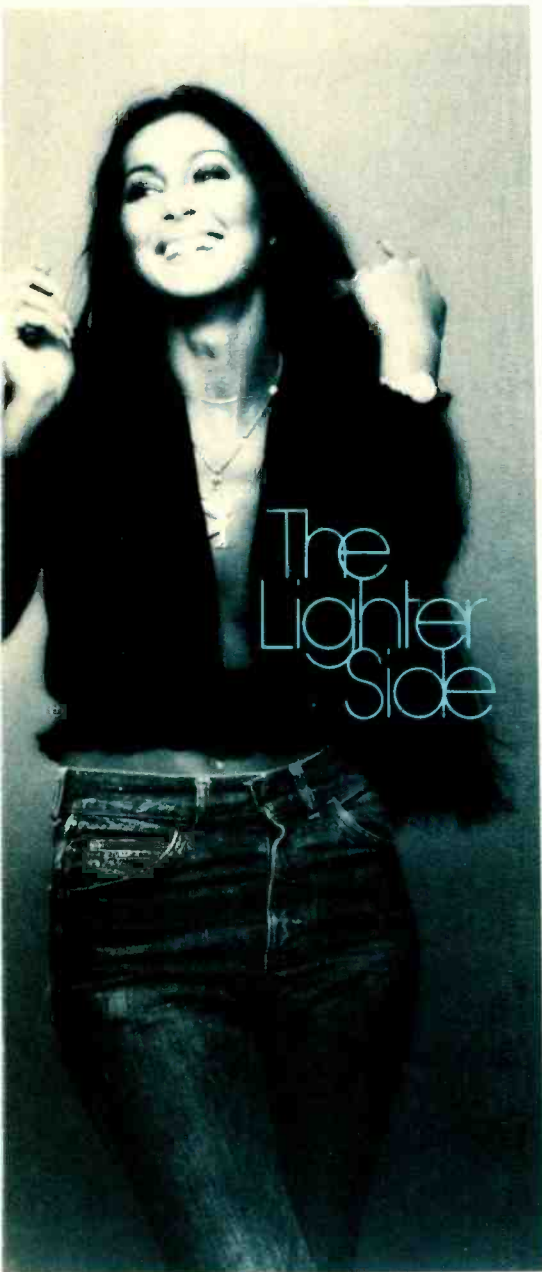
You can enjoy all of chromium-dioxide's advantages for a cost that is generally less—sometimes by a very wide margin—than that of other "premium" tapes. (Prices vary, so we can't do a brand-by-brand breakdown here. But you can generally expect to pay between \$3.00 and \$4.00 for a C-90 cassette of Advent chromium-dioxide. And we think any check you care to make will quickly support Advent chromium-dioxide's price advantage relative to other "premium" formulations.)

CrO<sub>2</sub> also doesn't cost more than standard lower-performance ferric oxides. It does cost a good bit more than so-called "bargain" tapes, but those tapes are generally no bargain in performance, durability, and kindness to tape machines.

We at Advent aren't primarily in the tape business. We introduced, and continue to market, DuPont's chromium-dioxide formulation because we feel it is an unparalleled overall combination of the things that are important to people who are seriously interested in cassette recording. Chromium-dioxide isn't the only excellent tape on the market, but it is the best combination we know of all the factors—including price—that determine the real enjoyment of real people in real situations. We know of no tape that's better for cassette recording.

©Advent Corporation, 1976

reviewed by  
MORGAN AMES  
ROYAL S. BROWN  
HENRY EDWARDS  
JIM GOSA  
MIKE JAHN  
JOHN S. WILSON



Cher  
Singing better than ever

#### Explanation of symbols

\* exceptional recording

Recorded tape:

- Open Reel
- 8-Track Cartridge
- Cassette

\* **CHER:** *I'd Rather Believe in You.* Cher, vocals; vocal and instrumental accompaniment. *Long Distance Love Affair; I'd Rather Believe in You; I Know (You Don't Love Me No More); Silver Wings and Golden Rings; Flashback; It's a Cryin' Shame; Early Morning Strangers; Knock on Wood; Spring; Borrowed Time.* [Steve Barry and Michael Omartian, prod.] WARNER BROS. BS 2898, \$6.98. Tape: ●● M 52898, \$7.97; ● M 82898, \$7.97.

The depth of Cher's vocal abilities seems inversely proportional to the inanity of her television show. The sillier her broadcast product, the better she sings. I don't know why that is so, but no matter. Lots of good singers make asses of themselves on television.

In this LP, Cher sings ten songs, most of them fairly obscure contemporary ballads. The two exceptions are rock and soul oldies: "I Know (You Don't Love Me No More)," recorded by Barbara George in 1961, and "Knock on Wood," a hit for Eddie Floyd in 1966. Cher does both of them well—somewhat better, in fact, than she does the contemporary material, leading one to desire that she increase her recording of familiar songs. Of the new tunes, the best are "Long Distance Love Affair," "I'd Rather Believe in You," "Silver Wings and Golden Rings," and "Early Morning Strangers."

At times, Michael Omartian's arrangements are busy and obtrusive. Cher is singing so well these days, as demonstrated especially well on "I'd Rather Believe in You," she doesn't need all the frosting Omartian has given her. M.J.

**HUBERT LAWS:** *Romeo and Juliet.* Hubert Laws, flute; orchestral accompaniment, Bob James, arr. and cond. *Romeo and Juliet Theme; Guatemalan Connection; Undecided; Forlane;* two more. [Bob James, prod.] COLUMBIA PC 34330, \$6.98. Tape: ●● PCT 34330, \$7.98; ● PCA 34330, \$7.98.

Inasmuch as that Beethoven fellow had such a big disco hit earlier last year, it was only a matter of time until somebody rediscovered good old Peter I. Tchaikovsky and brought him up to date. Tchaikovsky's melodies were once "adapted" to pop tunes so frequently there was a music-business gag about it: What's a song-writer's nightmare? Tchaikovsky alive and with a good lawyer.

This version of the familiar *Romeo and Juliet* theme fares at least as well as those limpid Forties popularizations. It has a rousing Bob James arrangement and the added benefit of Hubert Laws's flute. Laws is probably the most recorded flute player of all time. He has played on hundreds of sessions over the past decade in every conceivable context, including several recordings of his own, and the cutting edge of his creativity has not dulled.

Of late his albums have tended to take on a more commercially oriented quality in terms of content and intent. Side 1 of his first LP for Columbia continues that approach: slickly produced and executed music that can't really be faulted, except for its reliance more on effect than on substance.

The second side, though, contains an absolutely exquisite reading of Ravel's "Forlane" that redeems and substantiates Laws's formidable reputation. "Trying to Get the Feeling Again" demonstrates his command of the soul/jazz vernacular and has some of his best playing.

"Undecided," an old Charlie Shavers tune left over from the Swing Era, has survived every treatment ever administered to it, from big-band swing to bebop to the Ames Brothers. It will probably be with us when "disco" joins all the other fads in the dead-letter file of music. And I'm sure that Laws's towering talent will survive the whims of transient fashion. J.G.

\* **APRIL WINE:** *The Whole World's Goin' Crazy.* Myles Goodwin, lead vocals, guitar, piano, and Moog synthesizer; Gary Moffet, guitars and vocals; Steve Lang, bass and vocals; Jerry Mercer, drums, percussion, and vocals. *Gimme Love; Child's Garden; Rock 'n' Roll Woman;* seven more. [Myles Goodwin, prod.] LONDON PS 675, \$6.98. Tape: ●● PS5 675, \$7.95; ● PS8 675, \$7.95.

This Canadian rock outfit is one of its native land's most popular musical ensembles: Two of its albums are certified "platinum," and two are certified "gold." Obviously, April Wine's mixture of solid rock musicianship with an authentic pop sensibility works. More metallic than saccharine, its sound deserves a shot at American recognition.

Though April Wine possesses the standard two guitars, bass, and drums lineup, the accent is on singing. Guitarist Myles Goodwin handles his lead vocal lines with an enthusiastic adenoidal screech, and the background vocals by the other members could pass for Sixties pop vocalizing. The interaction of these tastefully arranged voices gives tunes like "Child's Garden" and "Marjorr" a pleasing, innocent quality. In the same vein, "Wings of Love" is an instant classic, the kind of captivating rendition that should be a hit single.

However, when April Wine decides to rock out, as in the opener, "Gimme Love," watch out! The dual-guitar work by Goodwin and Gary Moffet could give fans of Foghat a rush, though the guitar blitz is never noisy enough to warrant the "heavy metal" label.

Therefore, the only gripes that one might have with this disc deal with Goodwin's production, elemental at best. Sloppy fades and shoddy punch-ins rob much of the inherent smoothness from these songs. But the group's formidable vocalizing goes a long way to cover up the shaky hands on the control board.

"The Whole World's Goin' Crazy" is consistently fine. April Wine could—and should—succeed in the U.S.A. H.E.

\* **ROBIN TROWER:** *Long Misty Days.* Robin Trower, guitar; James Dewar, bass and vocals; Bill Lordan, drums. *Same Rain Falls; Long Misty Days; Hold Me;* six more. [Geoff Emerick and Robin Trower, prod.] CHRYSALIS CHR 1107, \$6.98. Tape: ●● M5C 1107, \$7.97; ● M8C 1107, \$7.97.

This is Robin Trower's fourth studio LP, and it is his strongest attempt to establish a definitive Trower guitar sound. The spacy blues playing and repetitive riffing that characterize most of the guitarist's first three efforts have been sacrificed; now Trower uses his instrument to create subtle textures, ignoring his usual head-shattering approach in the process. That's why "Long Misty Days" can be classified as his most melodic, song-oriented LP to date.

This "new" Trower is well served by vocalist/bassist James Dewar, who possesses one of the most distinctive and expressive rock-music voices anywhere. He has devoted himself to the delivery of a solid set of lyrics that go far toward removing Trower and his musicians from the Jimi Hendrix-ripoff cloud that has hovered over their heads for far too long.

While this disc is consistently excellent, a few songs are real show-stoppers. "Long Misty Days" melds a soaring melody to a potent vocal (although Geoff Emerick's production job robs the tune of some of its intriguing spaciness). The same kudos and complaint might be applied to "I Can't Live Without You," a ravishing love song that is Trower's most impressive shot at a hit single ever.

It takes a while to absorb this new Robin Trower. Nonetheless, it is plain to see that "Long Misty Days" is the most adventurous album of the talented guitarist's recording career. H.E.

**JESSIE COLTER:** *Diamond in the Rough*. Jessie Colter, vocals and keyboards; vocal and instrumental accompaniment. *Diamond in the Rough; Get Back; Would You Leave Now; Hey Jude; Oh Will; I Thought I Heard You Calling My Name; Ain't No Way; You Hung the Moon; A Woman's Heart*. [Ken Mansfield and Waylon Jennings, prod.] CAPITOL ST 11543. \$6.98. Tape: ●● 4XT 11543, \$7.98; ●● 8XT 11543, \$7.98.

Jessie Colter is a country singer who apparently would like to be more than a country singer. As indicated by this new release, she desires a wider audience and feels she can win it by singing varying types of material. A seven-minute blues, "Diamond in the Rough," and two Beatles songs, "Get Back" and "Hey Jude," are included here.

The blues is handled admirably. With minimal accompaniment, Colter sings "Diamond in the Rough" with tender sensitivity. True, it's a slow blues akin to "I've Got It Bad (and That Ain't Good)" and hence has strong appeal to begin with. But I'm at a loss to think of another Nashville belle who could approach it.

One would need the services of Don Rickles—or perhaps Earl Butz—to properly describe what Colter does to the Beatles tunes. Suffice it to say that they have been done better by marching bands during half time at college football games. Also, she pronounces "Jude" as "Dude" now and then, which is either an attempt to be clever or some personal eccentricity of a Biblical nature. You never can tell with country singers.

Colter does get some country music onto the LP. Best is Lee Emerson's "I Thought I Heard You Calling My Name." M.J.



Reprise

Arlo Guthrie  
Continuing a pleasing tradition

**ARLO GUTHRIE:** *Amigo*. Arlo Guthrie, vocals and guitar; vocal and instrumental accompaniment. *Guabi Guabi; Darkest Hour; Massachusetts; Victor Jara; Patriots' Dream; Grocery Blues; Walking Song; My Love; Manzanillo Bay; Ocean Crossing; Connection*. [John Pilla, prod.] REPRIS MS 2239, \$6.98. Tape: ●● M 52239, \$7.97; ●● M 82239, \$7.97.

There will always be a warm spot in my heart for Arlo Guthrie, for a remark he made during a Carnegie Hall concert. Telling how Ramblin' Jack Elliott dropped by his house one night, guitar in hand, he set up the audience for a grand story of how the two folk-music figures sat up all night pickin' and singin', then admitted that all they did was drink beer and watch TV. It's fun to have clichés exploded, especially when you're not expecting it.

In "Amigo," Guthrie's latest LP, the singer actually leans upon clichés. Mind you, they are not unpleasant ones. There is

"Guabi Guabi," an obeisance to native song (though just what natives I am at a loss to tell). There is "Massachusetts"—analogous to James Taylor's "Carolina in My Mind" or John Denver's "Rocky Mountain High"—an unobtrusive sort of commercial for the state. "Victor Jara" is the tale of the assassination of a Chilean leftist. "Patriots' Dreams," though a bit on the vague side lyrically, seems to be a lament for the departure of 1960s activism. "Grocery Blues" is also a familiar theme—the difficulties encountered by a long-hair when confronting the straight world, in this case in a market; Guthrie is particularly good at and noted for that sort of song. "Manzanillo Bay" is another commercial, one so slick it might have been commissioned by the Mexican Chamber of Commerce. Vacationing song-writers should be encouraged to leave their instruments at home and carry Kodaks like everyone else.

The songs that do not fall into a pattern expected of folksingers include "Connection," a hard-rock tune, love ballads "Walking Song" and "My Love," and "Darkest Hour," which is the LP's finest hour.

Arlo Guthrie doesn't record often, but when he does the result is nearly always pleasing. "Amigo" continues that tradition. M.J.

**STILLS-YOUNG BAND:** *Long May You Run*. Stephen Stills, guitar, piano, and vocals; Neil Young, guitar, piano, harmonica, string synthesizer, and vocals; Joe Lala, percussion and vocals; Jerry Aiello, keyboards; George "Chocolate" Perry, bass and vocals; Joe Vitale, flute, drums, and vocals. *Long May You Run; Make Love to You; Midnight on the Bay; Black Coral; Ocean Girl; Let It Shine; 12/8 Blues; Fontainebleau; Guardian Angel*. [Stephen Stills, Neil Young, and Don Gehman, prod.] REPRIS MS 2253, \$6.98. Tape: ●● M 52253, \$7.97; ●● M 82253, \$7.97.

Neil Young and Stephen Stills seem inca-

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## Critics' Choice

The best pop records reviewed in recent months

- CLAIRE AUSTIN:** *Goin' Crazy with the Blues*. JAZZOLGY 52. Nov.  
**THE BEATLES:** *Rock 'n' Roll Music*. CAPITOL SKBO 11537. Oct.  
**BARBI BENTON:** *Something New*. PLAYBOY PB 411. Dec.  
**THE BINGO LONG TRAVELING ALL-STARS AND MOTOR KINGS.** MCA 2094. Dec.  
**BONNIE BRAMLETT:** *Lady's Choice*. CAPRICORN CP 0169. Dec.  
**DAVE BRUBECK:** *All the Things We Are*. ATLANTIC SD 1684. Oct.  
**STANLEY CLARKE:** *School Days*. NEMPEROR NE 439. Dec.  
**JUDY COLLINS:** *Bread and Roses*. ELEKTRA 7E 1076. Nov.  
**DOLENZ, JONES, BOYCE, & HART.** CAPITOL ST 11513. Oct.  
**EDDIE HENDERSON:** *Heritage*. BLUE NOTE LA 636G. Dec.  
**THE MONKEES:** *The Monkees' Greatest Hits*. ARISTA AL 4089. Oct.  
**THE OUTLAW JOSIE WALES.** WARNER BROS. BX 2956. Nov.  
**STUART SCHARF RECORDING CLUB:** *The Disguises Album*. LAISSEZ FAIRE 01. Nov.  
**CARLY SIMON:** *Another Passenger*. ELEKTRA 7E 1064. Oct.  
**STOMU YAMASHITA, STEVE WINWOOD, AND MICHAEL SHRIEVE:** *Go*. ISLAND ILPS 9387. Nov.
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pable of making a bad record, no matter in what permutation of musicians. Their taste in music and lyrics coincides nicely, and, though Stills plays the guitar somewhat more aggressively than his partner, both have a sense of free-flowing airiness to their playing. Occasionally, as in Stills's "12/8 Blues," an upbeat, almost rough feeling takes over, but that is the exception.

Stills and Young, like Jefferson Starship, are masters of dreaminess. Long, languid organ lines augment lazily plucked guitars, and even the lyrics speak of pleasantness. But unlike many other Stills-Young collaborations, "Long May You Run" slides by the ears without creating any lasting impression. There is no one outstanding song.

There is one danger with pleasantness: It does not always add up to remarkable. But considering the amount of unpleasantness in the world of pop music, pleasant is good enough. M.J.

**\* POINT BLANK.** Rusty Burns and Kim Davis, guitars and vocals; Peter Gruen, drums; John O'Daniel, vocals; Philip Petty, bass. *Free Man; Moving; Wandering; Bad Bees; That's the Law; Lone Star Fool; Distance; In This World.* [Bill Ham, prod.] ARISTA AL 4087, \$6.98.

The jacket of Point Blank's debut album features a view down the twin barrels of a shotgun. This, one assumes, is intended to symbolize power, or at least aggressiveness. If so, the picture was wisely chosen.

Point Blank is a superb heavy-rock band reminiscent of Cream and Mountain at their best. Guitarists Burns and Davis whip up a storm, often in the call-and-response style of the blues-derived songs the band favors. Chief vocalist O'Daniel is a decent enough singer, not just a guitarist with the nerve to open his mouth in public, as is so often the case with rock groups of this sort. Most important, Point Blank never loses the sense of motion, of strength, of vitality, which is the key to rock.

Best of the eight tunes on this fine album is the opener, "Free Man," which reminds me of the marvelous treatment given by Cream to Howlin' Wolf's "Spoonful." M.J.

**\* CALDERA.** Caldera, instrumentals. [Wayne Henderson, prod.] CAPITOL ST 11571, \$6.98. Tape: ●● 4XT 11571, \$7.98; ●● 8XT 11571, \$7.98.

This is the debut album of a band that defies description or classification. It isn't another salsa band, though it's strongly Latin. It isn't rock, nor is it strictly jazz.

If I had to describe Caldera, I'd say it is modern music on a Latin rhythm foundation with a strong jazz influence. The players, most of whom are from Latin American countries, are all authoritatively accomplished. Guitarist Jorge Strunz is a Costa Rican John McLaughlin. Eduardo del Barrio, on keyboards, is Argentina's answer to Joe Zawinul. Saxophonist Steve Tavaglione (born in California) is clearly a devotee of Wayne Shorter. Carolyn Dennis sings horn lines like a Flora Purim.

Caldera could be compared to Santana, Return to Forever, and other contemporary



Arizona—a salt-and-pepper band with a refreshing approach

groups, but only for the sake of an approximate identification. The group has been working out and working on its own identity and its own music for a couple of years. Astutely produced by Wayne Henderson of the Crusaders, Caldera is a turbulent blend of modern music. J.G.

**\* TED NUGENT:** Free-for-All. Ted Nugent, guitars, bass, and vocals; Cliff Davies, drums, percussion, and vocals; Rob Grange, bass; Derek St. Holmes, rhythm guitars and vocals; Meatloaf, vocals; Steve McRay, keyboards and vocals. *Dog Eat Dog; Free-for-All; Together;* six more. [Tom Werman, Cliff Davies, and Lew Futterman, prod.] EPIC PE 34121, \$6.98. Tape: ●● PET 34121, \$7.98; ●● PEA 34121, \$7.98.

Call a civilized person an "animal," and undoubtedly you're in for a fight; say it to Ted Nugent, and the rocker will probably thank you. "Animal" is the best description of Nugent, who slaughters his own food and treats his audience as "would-be assassins." And his music is as savage as the image the man has calculatedly projected of himself.

For example, he doesn't play the guitar as much as he caresses, fools with, and beats the instrument. Not exactly what one would hail as a guitarist's guitarist, the musician would be in fine fettle if commissioned to compose a *Wild Kingdom* soundtrack.

This disc is Nugent's second for Epic, and it's as brutal-sounding as his solo debut. The maniacal, vibrato-laden solo playing—in a milder form, the hallmark of such bands as the Amboy Dukes—is once again much in evidence as wildman Nugent works his way through a collection of straightforward hard rockers. "Free-for-

All" effectively sets the mood for the rest of the set with its sneering to-hell-with-ya vocal and a rhythm-guitar line that sounds as if the instrument were being picked with a hacksaw. Deep, dark, and mysterious à la vintage Blue Oyster Cult is "Dog Eat Dog"—not the disc's most subtle track. An extended "Writing on the Wall" gives Nugent a chance to stretch out musically, and he shows off his fancy footwork (one might take that literally) to fine advantage.

Turn it up, enjoy Nugent's free-for-all, and then find a way to cope with the next day's splitting headache. And if that doesn't sound appetizing, be content with guitarists like Peter Frampton and bypass this madman completely. H.E.

**\* ARIZONA.** Mary Dobbins, vocals; Ken Ashby and Willie Knowles, guitars and vocals; Doug Holzwarth, keyboards; Bob Huff, guitar; Pat Murphy, bass; Pete Kuch, drums. *Dance If You Wanna Dance; Sweet Fantasy; So Hard Livin' Without You; Take It Slow; Suite: Judy Blue Eyes; Have a Good Time; Tonight, I Really Need a Friend; Johnny O; One More Night; Don't It Feel Good; Mary's Waltz.* [David MacKay, prod.] RCA LPL 1-5123, \$6.98. Tape: ●● LPK 1-5123, \$7.95; ●● LPS 1-5123, \$7.95.

Though it sounds like a country-rock group, Arizona is a salt-and-pepper band that happened to meet in Tucson. Curiously, it keeps its salt and pepper separate but equal. There are distinctly black moments ("Dance If You Wanna Dance," "Take It Slow") and distinctly white moments ("So Hard Livin' Without You," "Suite: Judy Blue Eyes"). The two types of music are so different that one wonders whether the white and black members of the band actually associate with one another.

Whatever the explanation, Arizona's approach is refreshing. So many bands get so boring so quickly when confronted with the chore of recording an album: the idea of mixing punches is a welcome one. M.J.

## Theater and Film

**SWASHBUCKLER.** Original film soundtrack recording. Composed and conducted by John Addison. [Sonny Burke, prod.] MCA 2906, \$6.98. Tape: ● T 2906, \$7.98.

In light of some of the classic scores to swash and buckle by (*Captain Blood*, *The Adventures of Robin Hood*, etc.), the rather nonsymphonic fluffiness of John Addison's score for James Goldstone's *Swashbuckler* is a bit disconcerting. Instead of the sweep and wash of music such as the title theme for *The Sea Hawk*, Addison offers a light-hearted, thinly scored, undramatic, but unmitigatedly cheerful tune whose syncopated rhythms and prominent percussion vaguely suggest the film's Jamaica setting. Even more out of standard character are the Leroy Anderson-ish fiddle-faddings that accompany what should be exciting swordplay. It would appear that this tone, too frothy even to be called tongue in cheek, was dictated by the movie's producer, Jennings Lang, who tells us in his rather offensive liner notes that we "will smile and cheer as Geoffrey Holder kills ten of the heavies with his dagger-throwing act."

Nonetheless, the title theme does stick in the mind, and there is also quite an attractive love melody. Once in a while, the music actually takes on an ominous character that suggests that all this killing might not be such a lark. But most effective is the "Assault on the Fortress" sequence. In the film, the mysteriousness (with a rather Saint-Saëns flavor) of Addison's music combines with the nighttime, flame-lit photography of people scaling the fortress walls to produce a total sight-and-sound effect that is worth the entire price of admission.

The recorded sound on this disc is much better than that of many Sonny Burke-produced albums I have listened to. R.S.B.

## Jazz

**RYO KAWASAKI:** Juice. Ryo Kawasaki, guitar, string synthesizer, and arr.; instrumental accompaniment. *Raisins*; *Sometime*; *El Toro*; *The Breeze and I*; three more. [Mike Lipskin, prod.] RCA APL 1-1855, \$6.98. Tape: ● APK 1-1855, \$7.95; ● APS 1-1855, \$7.95.

Having heard him on recordings by such artists as Gil Evans and Cedar Walton, and having seen him recently in the Elvin Jones

band, I was eager to get the first Ryo Kawasaki album on my turntable. He is a guitarist of spectacular dimensions, with a titanic technique. Like a musical prism, his playing, from one flashing moment to the next, reflects Wes Montgomery, Tal Farlow, Jimi Hendrix, Jeff Beck, et al., assimilated into his own high-energy style.

A well-known jazz musician for some years in his native Japan, Kawasaki came to the U.S. in 1973 so he could get next to the music at its source. In that brief time he has gained considerable respect from the musicians he admires and has picked up something of an "underground" reputation. That is to say he has yet to win widespread recognition.

"Juice" is generally well recorded and produced and is mixed "hot." To me, its major drawback is a sameness in the arrangements. And there's an annoying abrupt fade—really a cutoff in midphrase—at the end of "The Breeze and I." With most of the material highly charged by electronics and by the sheer energy of the musicians, the moody "Bamboo Child" comes off as the album's most appealing piece by virtue of its contrast to the others' velocity.

The focal point of the recording, naturally, is the supramodern guitar of Kawasaki, but Tom Coster (of Santana) provides some excellent keyboard playing and Sam Morrison on saxophone and flute is a serendipitous delight. J.G.

### \* BUCKY PIZZARELLI AND BUD FREEMAN:

Buck and Bud. Bud Freeman, tenor saxophone; Bucky Pizzarelli, guitar; Hank Jones, piano; Bob Haggart, bass; Ronnie Traxler, drums. *Sweet Sue*; *Exactly like You*; *Just One of Those Things*; eight more. FLYING DUTCHMAN BDL 1-1378, \$6.98.

In the latter stages of his career, Bud Freeman has too often allowed himself to be taken for granted. It is astonishing that this polished stylist, who created the most viable alternative to Coleman Hawkins' tenor saxophone in the late Twenties, has maintained and extended the basics of that style for fifty years, working like a miniaturist on the fine and subtle points of a very limited facet of jazz. So in recent years, and particularly when he was with the World's Greatest Jazz Band, all he had to do was to play Bud Freeman to give a satisfactory and distinctive performance. Under the stimulus of the challenging presence of Bob Wilber with the World's Greatest, these performances were sometimes stronger than when he was coasting along on his reputation.

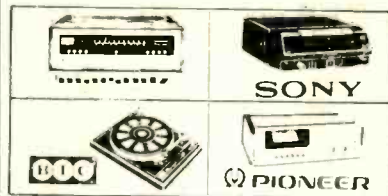
But now comes this disc, which is split between duets with Bucky Pizzarelli and work with a quintet. At sixty-nine, when these sessions were made, Freeman suddenly shows a burst of urgent, adventurous exploration, brushing aside his own accumulated clichés and reaching out with variations in tonality that one does not expect from him. On the quintet pieces he is smooth and swinging but very strongly present. The duets with Pizzarelli are exuberant challenges that reach a peak on "Tea for Two," making this battered warhorse seem as fresh and rejuvenated as Freeman himself. J.S.W.

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\* **SOPRANO SUMMIT: Chalumeau Blue.** Bob Wilber and Kenny Davern, clarinets and saxophones; Marty Grosz, guitar and banjo; George Duvivier, bass; Fred Stoll, drums. *Some of These Days; Black and Tan Fantasy; Ol' Miss*; nine more. CHIAROSCURO 148, \$6.98.

The promise that shone through the first "Soprano Summit" album (World Jazz 5) is extended and reinforced in this second set, in which Bob Wilber and Kenny Davern venture into broader musical fields than they covered initially. In addition to the clarinet and soprano-saxophone duets and solos that have been the basis of their work, Wilber adds the alto saxophone to his instruments on an appropriately titled piece, "Debut," playing with a clean, pure tone that suggests Frank Trumbauer (or is it Rudy Wiedoft?). And now that Wilber has gone to alto, we can look forward to Davern joining in with his baritone saxophone, although that has not happened yet.

The programming strikes a happy balance between things that might be expected from the team, such as their razzle-dazzle, up-tempo duets on "Nagasaki" and "Linger Awhile," and new material by Wilber, including a rich, break-studded duet for low-register clarinets, "Chalumeau Blue," and a warmly mellow but descriptive piece, "Slightly Under the Weather," which gives Wilber and Davern an opportunity for challenge-exchanges on soprano and clarinet. Some of the new material does not quite hold together. For example, Wilber's "Grenadilla Stomp" is a ricky-tick piece with a Spanish tinge that is rather lifeless until Marty Grosz revives it with a single-string guitar solo. And the inclusion of Davern's straight, unadorned soprano-sax solo on "Danny Boy" seems oddly out of place. J.S.W.

**HARRY EDISON, HOT LIPS PAGE, ROY ELDRIDGE:** Sweets, Lips, and Lots of Jazz. Harry Edison, Hot Lips Page, Roy Eldridge, and Joe Guy, trumpets; Dick Wilson, George Johnson, and Herbie Fields, saxophones; Count Basie and Thelonious Monk, pianos; Willie Lewis, guitar; Ebenezer Paul, bass; Spencer Drayton and Kenny Clarke, drums. *Honeysuckle Rose; Body and Soul; Indiana*; three more. XANADU 123, \$6.98 (mono) [recorded 1941].

From Jerry Newman's collection of early-Forties location recordings comes another valuable album of genuine jamming that took place at Monroe's Uptown House and Minton's Playhouse in Harlem in 1941. Most of the set focuses on Roy Eldridge playing with various associates, many of them unknown but including Thelonious Monk on two selections. But the real meat of the collection is packed into two pieces, one with Count Basie at the piano, the other featuring Hot Lips Page.

The group with Basie includes his then trumpeter, Sweets Edison, and Dick Wilson, a tenor saxophonist in Andy Kirk's band. Although both Edison and Wilson solo, as does alto saxophonist George Johnson, the main interest is Basie, not only for his familiar solo style, but even more for the way in which, as accompanist, he guides and shapes the performances of these dis-

parate musicians. It provides a fascinating insight into the force that has kept the Basie band in top shape all these years.

The Page piece (with Monk on piano and Kenny Clarke on drums) is an equally fascinating glimpse of the fire, force, and sheer bravado that were constantly present in his trumpet playing on the stand but that appeared only marginally in his recordings. Page was remarkably poorly served by the regular records he made, but informal sessions such as this do a great deal to give contemporary listeners some idea of why he was held in such high esteem. His attack has an electric quality, full of excitement, and, although it has a lot in common with Eldridge's approach, Page accomplishes it with a stronger, fuller tone than Eldridge's tight, buzzing sound. J.S.W.

\* **HERBIE MANN: Gagaku and Beyond.** Herbie Mann, flute; Pat Rebillot, keyboards; Sam Brown, guitar; Tony Levin, bass; Steve Gadd, drums; plus traditional Japanese instruments. *Shomyu (Monk's Chant); Mauve Over Blues; Gagaku and Beyond*; two more. [Herbie Mann, prod.] FINNADAR SR 9014, \$6.98. Tape: ●● CS 9014, \$7.97; ● TP 9014, \$7.97.

Herbie Mann is among the most restlessly curious and musically daring of modern musicians. From his position of eminence as a popular straight-ahead jazz musician, he has constantly challenged himself and his listeners down through the years by engaging his flute in confrontations with Brazilian bossa nova, North African Berber music, reggae, rock, and just about everything else. "Gagaku and Beyond" may be his most ambitious challenge to date.

Gagaku and shomyu are two principal forms of Japanese art music with traditions thousands of years old. (I won't go into any detail here, because the album's liner notes are very informative about the music.) On this recording Mann and his Family of Mann perform with three traditional Japanese groups, superimposing jazz improvisations on the classical forms. The result is compelling, fascinating, delightful music.

If you have not given any attention to genuine Japanese music, this album will open up serene vistas you have never before experienced. For those who are at all familiar with this exotic music, the Family of Mann has enhanced it with a unique dimension.

Some years ago Bud Shank made an LP with Kimio Eto of flute and koto music (it is long since out of print) that was an enchanting bridge from West to East. This album crosses that bridge again and explores even further. To fully appreciate it, I recommend listening to it on headphones. J.G.

**JAKE HANNA: Kansas City Express.** Bill Berry, trumpet; Richie Kamuca, tenor saxophone; Nat Pierce, piano; Monty Budwig, bass; Jake Hanna, drums; Mary Ann McCall, vocals. *That Old Feeling; It's Sand, Man; Castle Rock*; seven more. CONCORD 22, \$6.98.

There is an odd mixture of anticipation, realization, and disappointment on this disc. The implication of the title, "Kansas City

Express," is more than fulfilled on the opening cut, "Doggin' Around," a tune from the early Basie book. It comes roaring out of the starting gate, swinging full tilt with a clean, driving ensemble that establishes tremendous momentum. Richie Kamuca's strong tenor-saxophone solo, with its overtones of Lester Young, and Nat Pierce's riff-and-tickle piano in the Basie manner add to the color and style so effectively that even Bill Berry's thin trumpet solo cannot really weaken the performance.

But after this exhilarating opening, the band settles at what might be accepted as an adequate level had it not given so vivid a demonstration of its real potential. Berry improves on "Robbins Nest," with a Sweets Edison touch, but this is balanced by rather empty solos from Kamuca and Pierce. All three make a respectable showing through the rest of the record, but they never reach the inspired performance of "Doggin' Around."

So far as the band is concerned, the disc might as well have ended there. But there are also three songs by Mary Ann McCall, one of the best band singers of the Forties (with Charlie Barnet and Woody Herman), who has not been heard from to any extent since then. Thirty years is a long time, and, not unexpectedly, McCall's once springy voice has lost some of its bounce. Her husky hoarseness requires a little exercise to loosen up so that she tends to begin stiffly, just getting going as a song ends. "Wrap Your Troubles in Dreams," one of her successful early songs, has a medium swinging tempo that gives her the leeway to demonstrate what she may still be able to do. But she finds her two slower songs, "Just a-Sittin' and a-Rockin'" and "I Got It Bad," harder to sustain. [J.S.W.]

**\* FRASER MACPHERSON:** Fraser, Fraser MacPherson, tenor saxophone; Oliver Gannon, guitar; Wyatt Ruther, bass. *Tangerine; I Cried for You; My Funny Valentine;* four more. WEST END 101, \$7.95 (available from Record Search, 1294 Gladwin Dr., North Vancouver, B.C., Canada).

From out of left field (if that's the proper location reference for Vancouver, British Columbia) comes this surprising record by the Canadian tenor saxophonist Fraser MacPherson. MacPherson's roots lie in Lester Young, but he seems also to have been affected by one of Young's most devoted followers, Brew Moore. The basic Lester sound is often tempered by the bouncy attack that Moore brought to his playing. But beyond these sources one finds MacPherson himself—a mixture of light and air with a soft warmth that comes out in flowing, often breathily singing lines.

The ultimate MacPherson style is most evident on an unusual treatment of John Lewis' "Django." This tribute to guitarist Django Reinhardt is, appropriately, primarily a vehicle for Oliver Gannon, the group's guitarist, who develops a graceful and appealing solo. But just as it seems that this is entirely a Gannon solo, MacPherson eases in with a gently burry tone to evolve a delicate and beautiful solo that shows scarcely any of the hallmarks of his Young-Moore playing. Similarly, the warmth and delicacy of his performance on Neal Hefti's

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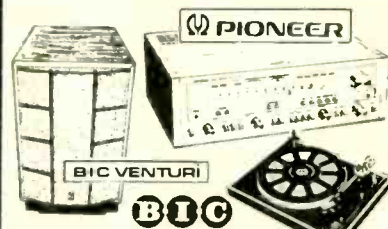
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"Li'l Darlin'," nestled against Gannon's Freddie Green chords, create a moving and sensitive balance between the two instruments.

Gannon, who gets a solo shot at Billy Strayhorn's "Lush Life" that is warm and reflective, stands up well on his own. But it is the interplay of the saxophone and guitar, with Wyatt Ruther's full bass lines, that gives these performances their essential interest. J.S.W.

## In Brief

**TOMMY BOLIN:** Private Eyes. COLUMBIA PC 34329, \$6.98. Tape: PCT 34329, \$7.98; PCA 34329, \$7.98.

Bolin's last solo LP demonstrated that his angular guitar style is best displayed in a solo context; this LP fully realizes that potential. While the technique is as high-powered as anybody's, Bolin here also turns on a sensitivity that impressively showcases his interpretive abilities. H.E.

**LYNYRD SKYNYRD:** One More from the Road. MCA 2-6001, \$7.98 (two discs). Tape: C 2-6001, \$7.98; T 2-6001, \$7.98.

This is a live two-disc set by a Southern band with a not-so-Southern sound that is as clean as any live recording you're likely to come across. Still, Skynyrd's lead singer has absolutely no vocal coloration, and this band is a bore. H.E.

**DAN HARTMAN:** Images. BLUE SKY PZ 34322, \$6.98. Tape: PZA 34322, \$7.98.

Hartman was the boy-genius composer/producer behind the Edgar Winter Group and was responsible for writing such classics as "Free Ride" as well as significant portions of "Hanging Around" and "We All Had a Real Good Time." His first solo outing finds him in the same comfortable rock niche. Still, he doesn't take many chances, and the results, if adequate, are more lackluster than one would expect from a very talented musician. H.E.

**LENA HORNE:** Lena—A New Album. RCA BGL 1-1799, \$6.98. Tape: BGK 1-1799, \$7.95; BGS 1-1799, \$7.95.

Lena Horne glitters her way through ten selections in a manner that is the very model of taste, artistry, and class. Recorded in London with lush, loving orchestration by Robert Farnon and Phil Woods's subtle sax obbligatos. J.G.

**RALPH MACDONALD:** Sound of a Drum. MARLIN 2202, \$6.98.

In addition to being the paragon of percussionists, MacDonald is half of a successful song-writing team ("Mr. Magic," "Where Is the Love," with bassist William Salter). Expectedly, his album relies a lot on percussion and drum effects, but it also features performances by Eric Gale, Grover Washington Jr., Toots Thielemans, Chuck Rainey, and other topflight musicians. J.G.

**Sleepers, wake!** One of the most delectable rewards of collecting recordings is the discovery of unexpected or overlooked treasures. These may be new "sleeper" releases of unfamiliar music, by unknown artists, or from one of the smaller recording companies, but in any case seemingly neither newsworthy nor promising. Or—especially for a reviewer—they may be releases that have been on hand for some time awaiting the attention that has been pre-empted by more demanding or timely works.

An exemplar of the latter type is a Musical Heritage cassette coupling of two rarely heard Bach cantatas performed by the Gaechinger Kantorei and Bach Collegium of Stuttgart with soloists (Helen Donath, et al.) and a conductor (Helmuth Rilling) of scarcely household-name fame in this country. Yet these hitherto untaped and apparently only once previously recorded (on a Rivergate disc) Cantatas Nos. 69, *Lobe den Herrn, meine Seele*, and 120, *Gott, man lobet dich in der Stille*, proved to be gloriously exhilarating. Within a twenty-two-minute span each proffers characteristically varied Bachian solos, a rousing big chorus with trumpets and timpani, and a fervent closing chorale. They are sung, played, and recorded with irresistibly infectious relish and vividly piquant sonorities in a Dolby-B musicassette that warrants an honored place in every Bachian (indeed any) tape collection: MHC 2119, \$6.95, from Musical Heritage Society, 1991 Broadway, New York, N.Y. 10023.

A current Deutsche Grammophon Archive Dolby-B cassette (3300 284, \$7.98) transcends its obvious historical value as a rare representation of the Ambrosian type of unaccompanied plainchant. For it not only demonstrates its differentiations from the much more familiar Gregorian chant, but proves to be—especially in its rhapsodically florid melismas—even more fascinating. Recorded in an appropriately reverberant cathedral ambience, the release has both Mass and Office chants, including some of the hymns attributed to Bishop Ambrose himself—all entrancingly sung by the men and angelic boys of the Cappella Musicale of the Cathedral of Milan, where the Ambrosian tradition has been preserved in all its original fourth-century freshness and ardency.

From a much more recent past (1960) the Classical Cassette Club has rescued a Vox recording of Haydn's *The Creation* (in German, as *Die Schöpfung*) that is of more restricted interest than the previously noted discoveries. Neither the performances

by R. D. Darrell

## The Tape Deck

(by soloists Patzak and Ernster with the Vienna Singverein and Volkoper Orchestra) nor the robust but unmistakably aged recording are competitive with today's best versions. But this tape boasts the special individual appeals of soprano Mimi Coertse and conductor Jascha Horenstein, plus the technical distinction of successfully encompassing the entire work (here 111 minutes in duration) on a single Dolby-B cassette at a bargain price: CCC 20, \$5.95, from the Classical Cassette Club, Upper Saddle River, N.J. 07458.

**Ormandy's Philadelphians in the old and new worlds.** Never a sleeper here! But occasionally one of these innumerable, well-publicized releases transcends the expected qualities of executant finesse and sumptuous sonics by an exceptionally persuasive interpretation. Columbia's 1971-72 coupling of Respighi's *Fountains and Pines of Rome* was one of these; the new Red Seal re-recording (which includes the *Roman Festivals* to complete the trilogy) is an even more brilliant triumph: RCA ARK/ARS 1-1407, cassette/cartridge, \$7.95 each. Again the two familiar tone poems are endowed with a poetic eloquence they rarely receive, and even the more blatant *Festivals* is made as palatable as possible. Magnificent as the 1968 Columbia recording was, and still is, RCA's warmer, slightly softer-focused sonics are even more atmospherically magical.

Moving from Rome to his own birthplace, Hungary, Ormandy recounts anew Kodály's engaging exploits of *Háry János* in the colorful suite, scored with concertante cimbalom, which he was the very first to record, back in 1934 in Minneapolis. The coupled exploits are those of another picaresque character, this one Russian: Prokofiev's *Lt. Kije* (RCA ARK/ARS 1-1325, cassette/cartridge, \$7.95 each). But there, and even more so in New England to celebrate with Ives in his *Holidays Symphony* (ARK/ARS 1-1249), even the richest tonal color palette can't conceal the absence of vitalizing personal involvement. And in all three cassettes the resplendent audio engineering is handicapped in every pianissimo passage by the lack of Dolby-B surface-noise quieting.

**O for the good old tunes of Strauss and Debussy!** The ironic *Punch* caption of the early Twenties well might be expanded nowadays to include Stravinsky's "tunes." Yet, while the revolutionary dissonances of the World War I era may now seem relatively innocuous, *Le Sacre du printemps* and *L'Histoire du soldat* remain stimulatingly audacious. At least that's so when the former work is as exuberantly played and as thrillingly recorded as by Solti and his Chicagoans in London CS5 6885, Dolby-B cassette, \$7.95. It's true too of *The Soldier's Tale* with Old England speakers (Gielgud, Courtenay, and Moody) and New England instrumentalists (the Boston Chamber Players featuring fiddler Silverstein and polyergic percussionist Everett Firth) on DG 3300 609, Dolby-B cassette, \$7.98. Together they are more effectively dramatic and recorded with crisper presence than the only currently available competition (by Stokowski for Vanguard, 1967 disc editions only). But I wish Philips would bring back on cassette its fine 1965 Cocteau/Markevitch French-text version.

**Fiddlers Five.** Since both the tape repertory and this column have been neglecting violinists, it's good to be able to make some hasty amends this month, leading off with two outstanding Paganinians. Szeryng, with the London Symphony under Gibson, is superb in the *Old Wizard's First and Fourth Concertos*: Philips 7300 477, Dolby-B cassette, \$7.98. Accardo, with the London Philharmonic under Dutoit, is deftly expert in the recently discovered *Paganini Sixth* (DG 3300 412) and less recently unearthed *Third Concerto* (DG 3300 629). The latter of these Dolby-B cassettes (\$7.98 each) also includes the fascinating *Viola Sonata, Op. 35*, with Dino Asciolla as luscious-toned violist.

I can't commend three other Dolby-B violin cassettes without strong personal reservations—except, of course, to devoted fans of the fiddlers themselves. For my taste, the Zukerman/Barenboim/London Philharmonic Sibelius concerto and Beethoven romances are gorgeously colored but overromanticized (DG 3300 496, \$7.98); the Milstein/Jochum/Vienna Philharmonic Brahms concerto, acclaimed by almost everyone else, is lackadaisical (DG 3300 592, \$7.98); Perlman's and pianist Sanders' fourteen Kreisler favorites, for all their bravura, lack the Old Master's elegance (Angel 4XS 37171, \$7.98). This last program is oppressively closely miked, and its ultra-high XDR processing level may cause playback problems.

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It's auto-everything. Auto start. Auto return and shut off. Auto repeat. Operates manually, as well. A servo motor, coupled

with belt drive, assures optimum speed accuracy. Stroboscopic pitch control "fine-tunes" speed to compensate for off-pitch records or for playing along with a musical instrument. The 6200 cares for your records, too, with a precision S-shaped tone arm, gentle-action viscous-damped cueing and anti-skate.



Model 6200/\$199.95\*

Model 6100/\$129.95\*

\*Suggested list prices. Actual selling prices at dealer's discretion. All models come complete with anti-static turntable mat, plastic hinged dust cover, base enclosure, and low capacitance phono cables that assure 4-channel capability whenever you need it. The base enclosure for the 6300 is constructed of plywood, finished in genuine walnut veneer. The enclosures for the 6200 and 6100 are finished in walnut grain vinyl veneer.

# TURNTABLES

## FOR THE TOP-OF-THE-LINER. THE DIRECT DRIVE, OPTO-COUPLED AUTO LIFT 6300.

Features and technological excellence galore. Starting with absolute speed accuracy assured by a combination of direct drive design and DC servo motor that automatically compensates for voltage/speed fluctuations. Of course, there's auto lift and shut off, but on the 6300 it's opto-coupled—a significant Marantz exclusive. It means no tracking distortion caused by mechanical linkage between auto mechanism and tone arm. The secret: a tiny beam from a light-emitting diode maintains constant contact with a photo transistor during play.

At record's end, a sliding blade cuts contact, activating a circuit that lifts the tone arm and shuts off the motor. There's more. Stroboscopic pitch control "fine-tunes" speed to your personal preference. And viscous damped cueing gently, smoothly lowers the precision S-shaped tone arm onto the sensitive disk surface. Vertical/lateral counterbalancing and anti-skate result in lowest distortion and tracking error.

**marantz**  
We sound better.



Model 6300/\$269.95

# Now you don't have to starve your treble to feed your bass.

Our KR-9600 Receiver puts independent power supplies behind each channel, so demanding musical passages in one channel won't cause distortion in the other.

At 160 watts per channel minimum RMS power at 8 ohms, from 20 to 20,000 Hz, with no more than 0.08% total harmonic distortion, the KR-9600 is the most powerful receiver we have ever made.

What's more, the KR-9600 is loaded

with special features. A mid-range presence control, MIC mixing and source fading, a deviation meter for perfect off-air recording and 2 big power meters, to mention a few.

Impressed? All this and more, on the KR-9600. At just \$750\* it's the best watts-per-dollar value around.

\*Suggested resale price. Actual prices are established by Kenwood dealers



# KENWOOD

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