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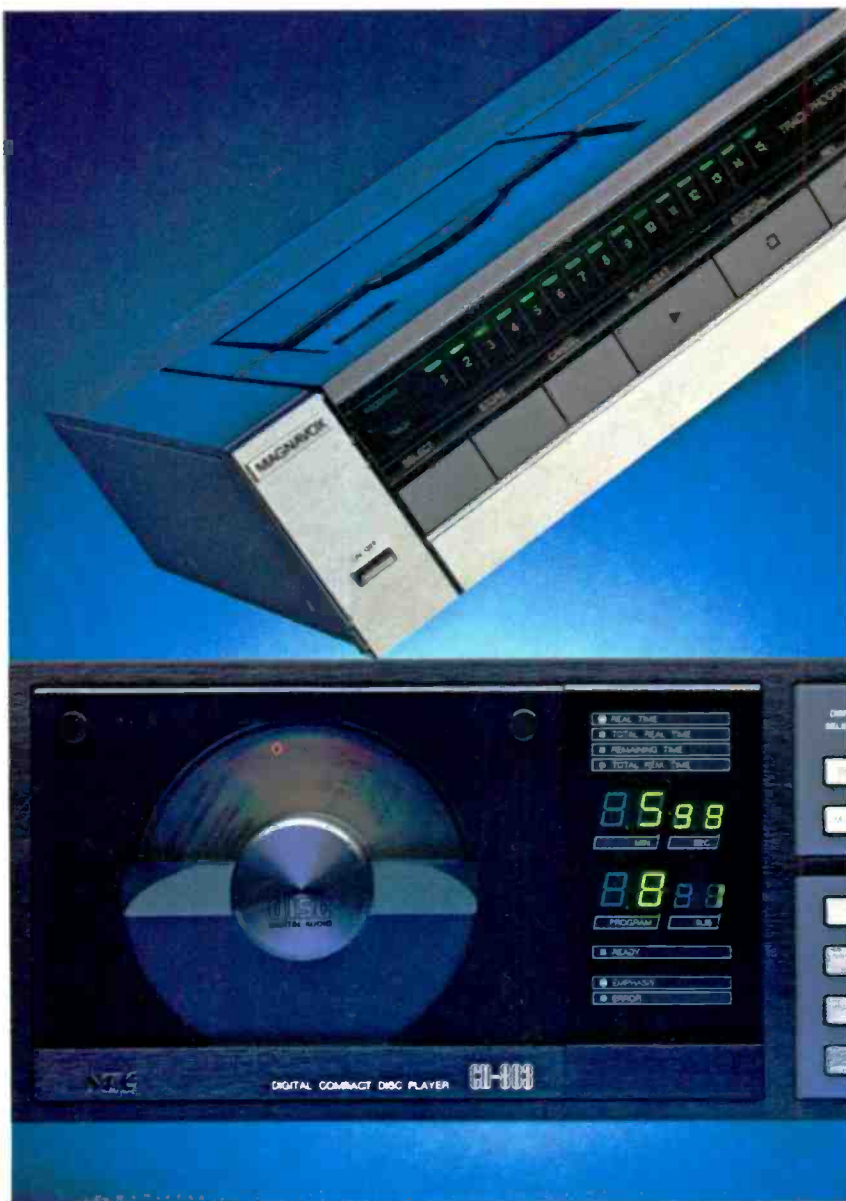
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High Fidelity

VOLUME 33 NUMBER 7 JULY 1983

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in digital audio, video, and
music-related home computer
applications

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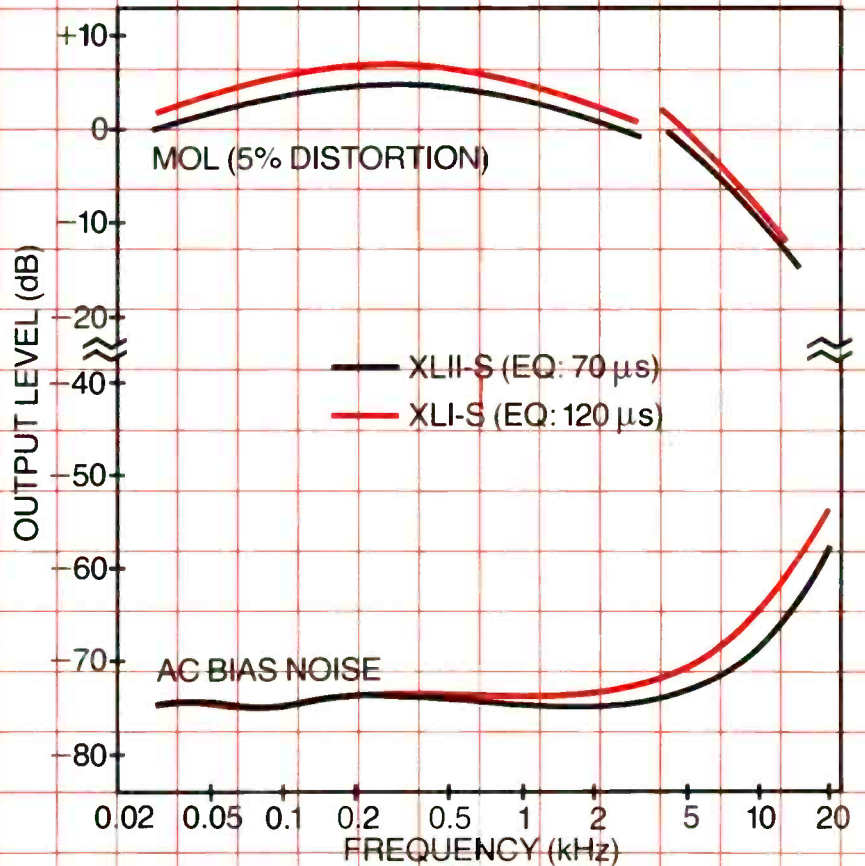
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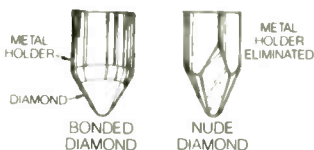
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Audio-Technica premium styli are described as "nude-mounted" and "square-shank" designs. Both characteristics have an important role in ensuring top performance.

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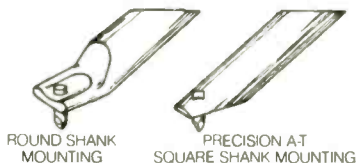


Errors in the Round

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Jon R. Kelly, President
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Inside the Pages of July's High Fidelity

FEW TECHNOLOGICAL DEVELOPMENTS have generated the excitement that surrounds the digital Compact Disc. Since we first reported on it (December 1982), much of its promise has become reality. Accordingly, this month we bring you a multifaceted progress report on Compact Disc equipment and music releases, as well as a glimpse of what lies ahead in the second generation of CDs.

For a behind-the-scenes look at how CDs are manufactured, electronics features editor Peter Dobbin toured the Philips headquarters in Eindhoven, the Netherlands, and the Hanover, West Germany, pressing facilities of Polygram. He also talked with Philips engineers about such future developments as video CDs. His fascinating tale, complete with photos, is entitled "European Report."

"Inside the Compact Disc System," by Peter Mitchell, continues our special coverage with a description of how CD players work. Technical editor Michael Riggs explains how HF tests Compact Disc players in his "Basically Speaking" column, which serves as an introduction to our lab tests on two different approaches to CD players—the full-featured front-loading NEC CD-803 and the no-frills, top-loading Magnavox FD-2000SL. E. Brad Meyer explores in "Sound Views" why CDs may not sound as good as they should, while HF's music critics review CD releases.

Since this is the time of year when many of us spend more time in our cars, we expand our car-stereo coverage this month. "Autophile" columnist Gary Stock focuses on price-is-no-object installations in "Learning from a Pro," while we conduct extensive road and lab tests of three car tuner/tape decks—including Nakamichi's new \$1,260 model. Additional lab tests include those in NEW TECHNOLOGIES on Jensen's 25-inch color video monitor and a separate television tuner from Proton. We also review new video disc and cassette music releases by the Rolling Stones and Rush, as well as performances of *La Bohème* and *Aida*. And a new column called "Tech Fronts" covers the latest in home-entertainment technology.

Regular music coverage includes the second in a series on Wagner recordings, this month tackling "The Love Stories," and an interview with members of the Widespread Jazz Orchestra in BACKBEAT.—W.T.



A Compact Disc is examined under a high-power microscope for surface flaws in a Philips laboratory in Holland.



Cover Design: Skip Johnston

Cover photo: Chris Collins

ON THE COVER: Two Compact Disc players—the Magnavox FD-2000SL (top) and the NEC CD-803 (bottom)—are evaluated in "New Equipment Reports."

Nakamichi TD-1200 car tuner/deck: Photo courtesy Nakamichi

David Bowie: Photo by Greg Gorman

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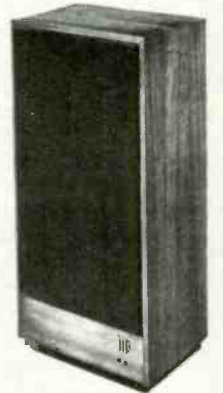
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Letters

CD Comments and Queries

I have been following your coverage of the new Compact Disc players. Though exceedingly interested in these systems—especially because I don't have a turntable now—I find their price a problem. How long will it be before these players cost less, or simpler, less expensive models are introduced—within the next year? I can afford about \$400. Should I just buy a good record-playing system now?

Garrett S. Bailey
Chester, N.J.

I have just read with more than usual interest your test report on the Mitsubishi CD player [May]. It appears to be a milestone in the history of music recording.

However, I find it difficult to reconcile my notion of the digital player as essentially simple with the plethora of features you describe—repeat, reverse, and forward scan, the counters and timers, the gold-plated jacks, etc. Unless manufacturers come forth soon with a machine that will spin the disc accurately, and that will have a stop and play switch and little else, this great innovation may quickly become a white elephant.

The price already exceeds the predicted \$800 to \$1,000 range. For my money, the best bet would be a tiny player (remember the original 45-rpm players?) with no gadgetry other than that essential to performance—and at a commensurate price.

B. T. Mangano
Albany, N.Y.

Players are now available for as little as \$800, and we expect that second-generation units will be on the market for considerably less within a year or two.—Ed.

The article by Michael Riggs entitled "Digital Sound—It's Here!" [December 1982] was very interesting. One question: Will there ever be a laser-based player that will play conventional 33 $\frac{1}{3}$ -rpm 12-inch LPs?

Phil Maddane
Scotia, N.Y.

Probably not.—Ed.

With avid interest I have read the numerous articles in HIGH FIDELITY over the last two years concerning digital sound equipment. I have shown my support for the new medium in the most effective possible fashion, i.e., through purchases—six months ago a Sony PCM-F1 processor and last week a Sony CDP-101 Compact Disc player. Both of these pieces of equipment are absolutely superb, and in my opinion digital sound is clearly audibly superior to any consumer analog equipment. So the hardware is here, and it's everything you and other audio magazines have claimed it to be. However, software—Compact Discs or prerecorded digital tapes—is a problem. At present I have been able to purchase from a grand total of 15 Compact Discs, all from CBS/Sony. This is not very impressive support for a player that costs the consumer \$900.

Some specific questions: (1) Exactly when will the titles from Polygram listed on pages 52–53 of the January HF be available in the U.S.? Who will carry these Polygram discs—record stores, audio dealers? (2) Are the nine Compact Discs listed on page 41 of your April issue available yet in the U.S.? (When queried about the availability of these discs, my local Denon dealer had no idea when he would see them, but he did tell me that Denon would not introduce its Compact Disc player in the U.S. until late this fall.) (3) Do you know of any source of prerecorded digital tapes in the VHS format, either 16- or 14-bit format?

I hope equipment manufacturers and audio magazines will show a sense of responsibility to the consumer by letting him know what digital software is available and where to buy it. This is crucial during the early years of the digital revolution.

Thomas N. Wheeler
Raleigh, N.C.

In answer to your first question, many of the Polygram titles should be available by now. Your best source for them will be department stores that carry Magnavox CD players. Philips, a parent company of Polygram and Magnavox, is supporting the Magnavox player introduction by allocating discs to those stores that carry its hardware. Eventually, of course, there should be enough to broaden distribution to more retail outlets—e.g., record stores.

As to your second question, CD players available as of this writing include those of Sony, Kyocera, Hitachi, and Magnavox; more are promised this summer. Only Denon, to our knowledge, announced a player and then stated that it was holding off for a year. And as to your third question, there is just one source of (14-bit) prerecorded digital tapes: Mobile Fidelity Sound Lab. Write 140 East 92 St., New York, N.Y. 10028, for a catalog.—Ed.

Boiling Down Bach

The argument between my colleagues Joshua Rifkin and Robert Marshall [September and October 1982] really boils down to two simple issues, whatever complications Mr. Rifkin introduces: (1) Could three singers share a part? The overwhelming evidence that they could and did speaks for itself. (2) The document in which Bach describes the forces necessary for good church music is totally unequivocal. You need one person on the solo part and at least two on each ripieno part. As was usual in performances of concertos in Bach's time, the soloists joined the ripienists in the tutti sections.

It seems ridiculous to ignore what Bach said was needed by whatever complicated devices of logic one can find. He left no doubt.

Hans Lenneberg
Music Librarian and
Associate Professor of Music
University of Chicago
Chicago, Ill.

Joshua Rifkin's conclusion that Bach's choruses were likely sung by soloists [September 1982] is invalidated by numerous flaws in evidence and reasoning, most of which Robert Marshall most effectively addresses in his October essay. There is one problem that Dr. Marshall did not deal

with, however, that is worth pointing out.

Based on the surviving performance material to the *St. John* Passion, Mr. Rifkin concludes that: (1) Bach intended the four concertist vocal parts to be used by only one singer each (the concertist) and that the ripieno singers did not read from these parts, and (2) in Bach's last performance of the Passion, neither the ripieno parts nor the ripieno singers were used.

If these allegations are accepted as fact, the inescapable conclusion, as voiced by Rifkin, is that only four performers were involved in this performance, as there were only four concertist parts.

The performing material to the aria "*Mein teurer Heiland*" provides Rifkin's evidence in support of these ideas, which are the cornerstones of his argument. He describes the movement as one that "combines a solo bass line with a four-voice chorale." What is not clear from the article is that the four voices of the chorale sing *simultaneously* with the fifth part, the bass soloist, for fully 55 of the 64 quarter notes devoted to the singing of the chorale.

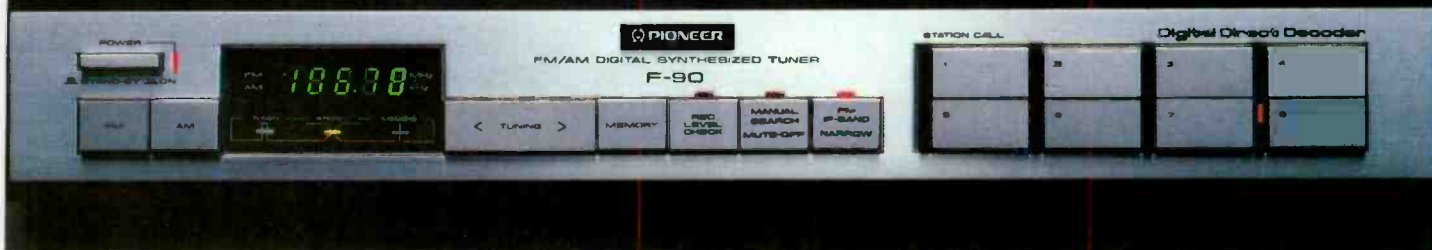
If only four singers were used, what happened to the bass part to the chorale (which, by the way, is not doubled by an instrument)? Did Bach simply omit it so that he could use only four singers? Surely even Mr. Rifkin doesn't want to climb that far out on the limb.

Gordon Paine
Associate Professor of Music
California State University, Fullerton
Fullerton, Calif.

Mr. Rifkin replies: *Professor Paine raises an interesting point about "Mein teurer Heiland," one that I had in fact considered, although space prevented me from going into it. For various reasons, I do not think it impossible to perform the aria without the lowest line of the chorale—and neither, I must point out, does Marshall, since his hypothetical performance with ripienists reading from the concerted parts would also have the bass of the chorale omitted. In other words, no ripieno parts, no complete chorale—no matter what the total number of singers.*

As it happens, a reexamination of these particular parts has led me to suspect that Bach may have used them after all, although I stress may as the evidence remains ambiguous. This admittedly robs my argument of a nice dramatic touch, but it does not really do more than that. After all, I never suggested that Bach performed absolutely none of his music with ripienists, only that his concerted parts never served for use by more than one singer each—which means that an absence of ripieno parts means an absence of ripienists as well. I think I have said enough about this last subject, both in the expanded version of my first essay published in The Musical Times and in my long reply to Marshall, available on request from HF, to let it rest here.

As for Hans Lenneberg, it saddens me to see a colleague whose wit and graciousness I have savored on more than one occasion treat the issue of Bach's chorus with no more care than he has taken with the spelling of my name ["Rifkind"—Ed.]. Surely, Lenneberg has not himself seen that "overwhelming evidence" that three singers "could and did" share a part—I doubt anyone who has looked systematically at Bach's parts would speak so freely about the "could," and I have to wonder if he has anything more on the "did" than that one passage in the Draft. (Continued on page 12)



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The rest of us, audiophiles and normal human beings alike, must be content to subtract the old specs from the new and assume there really is an audible difference.

But not with the F-90 tuner. A new tuner with design technology that *High Fidelity* says represents "...a stunning breakthrough in FM tuner performance thanks to a circuit it (Pioneer) calls a Digital Direct Decoder..."

Not only are the new F-90's specs remarkably superior to the naked eye, its sound quality and reception capabilities are unmistakably better to the naked ear.

Coupled with its companion amplifier, the A-90, you have a system that produces much cleaner, more musical sound. The kind of sound the musicians and recording engineers had in mind in the first place.

The reason is an exclusive, revolutionary

new technology invented by Pioneer engineers. The Digital Direct Decoder is an unconventional circuit that uses a 1.26 MHz pulse train and a pure 38 KHz sine wave, thereby eliminating the need for a conventional noise filter (which creates distortion, harmonics, and limits frequency response).

Consequently, Total Harmonic Distortion at 1 KHz has been reduced to 0.0095% (mono) and 0.02% (stereo), which you'll have to agree is an exceptional improvement over conventional tuners.

Signal-to-noise ratio is an astonishing 93dB (mono), 86dB (stereo).

Furthermore, alternate channel selectivity (always a nemesis and rarely exceeding 60dB before) has been raised significantly to 90dB at 80dBf, eliminating neighboring station "bleed over" once and for all.

And, whereas the better tuners available before produced stereo channel separation numbers no higher than 50dB, the F-90's numbers are up 30% to 65dB.

Suffice it to say, you can expect the same outstanding performance from our new A-90 integrated amplifier.

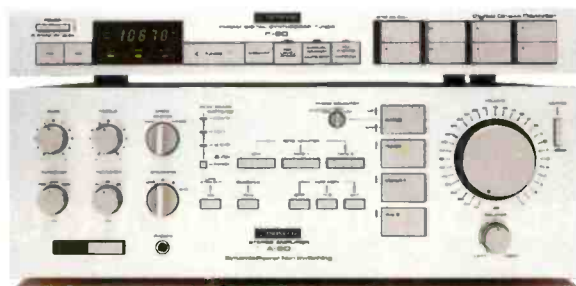
To begin with, there's 200 watts per channel of exceptionally clean power. (0.002% THD, 20-20,000 Hz at rated power, both channels driven, 8 ohms.)

And signal-to-noise ratio is a superior 115dB that combines with the above numbers to get distortion levels that read at the level of immeasurability.

The reasons: our new dynamic power supply, non-switching amp circuits, an FET Buffer circuit, D.C. Servo circuit, and a new, higher specification on even the lowliest components.

Naturally, we recommend you audition both the F-90 and A-90 at your earliest convenience.

Because mere words can't describe a difference so remarkable it can actually be heard with your own two ears.



PIONEER
Because the music matters.



The collection is housed in handsome library albums, with expertly written and illustrated commentaries. Specially created walnut bookends, each one set with a bronze medallion portraying Arturo Toscanini, will be provided at no charge to subscribers who acquire the complete collection.

THE GREATEST RECORDINGS OF ARTURO TOSCANINI

OFFICIAL FAMILY ARCHIVE COLLECTION

For the first time, the family of Arturo Toscanini has authorized the creation of a limited edition collection of the Maestro's finest recordings.

The greatest performances of this century's foremost conductor—including previously *unreleased recordings* by the great Maestro, produced from master discs and tapes maintained in the Toscanini archives and from recordings especially made by the Toscanini family.

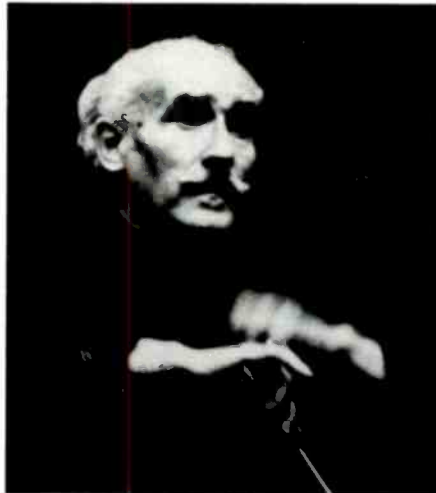
Official Family Archive Collection
Limit of Edition: 9500 world-wide
 Produced exclusively by
 The Franklin Mint Record Society



Arturo Toscanini was the greatest conductor of the 20th century. His career spanned more than seven decades and, during that time, he conducted the most important orchestras in the world. No conductor before or since has ever matched the brilliance of his interpretations or the passion and fervor of his art.

Now, on the occasion of the 25th anniversary of the Maestro's death, the family of Arturo Toscanini—for the first time—has authorized the issuance of a historic collection of his recordings. These recordings—including performances that have never been released before—are being brought together in a new collection produced exclusively by The Franklin Mint Record Society. This is a milestone event in the history of recorded music, and a collecting opportunity not to be missed.

Impossible to assemble in any other way
 This collection could not be duplicated even if you were to search out all of the available Toscanini recordings through dealers or private collectors, because it will include performances on master discs and tapes that have remained in the Toscanini archives for years—as



well as special recordings made by members of the Toscanini family.

Here is Toscanini conducting the Dvořák New World Symphony, Mendelssohn's Italian Symphony, Tchaikovsky's Pathétique. Here are Toscanini recordings that have been *unavailable for many years*—the first American LP releases of the Haydn Symphony 98, the 1939 live broadcast performances of Beethoven's Eroica and the Leonore Overture No. 2, Schubert's 9th Symphony with the Philadelphia Orchestra and Beethoven's 7th Symphony with the New York Philharmonic.

And here are recordings by Toscanini that have *never been released before*—Debussy's Prelude to the Afternoon of a Faun, Franck's D Minor Symphony, Stravinsky's Petrushka and Wagner's

Tannhauser Overture and Venusberg Music. In addition, there are recordings that feature famous soloists such as Vladimir Horowitz, Jascha Heifetz, Zinka Milanov and Leonard Warren.

All of this glorious music is brought together in this exclusive Family Archive collection for the first time.

On superior proof-quality records

The sound quality of the records in this collection is nothing short of remarkable. Befitting their importance, every one of the historic Toscanini recordings will undergo a painstaking restoration process. And the records, with an exclusive anti-static compound, will be pressed in a dust-free "clean room," where the most careful attention is given to their production. The result will be a collection of records of *proof quality* that offer greater clarity, resist dust, and actually sound better than the originals.

Edition limited to just 9500

There will be 30 records (or tapes) in the complete collection, housed in 6 library albums. This collection will be permanently limited to 9500. When that limit is reached, it will not be available again.

Each subscriber will receive a numbered Certificate of Authenticity bearing the signature of Wanda Toscanini Horowitz, daughter of the Maestro. The Certificate will confirm that this is a limited edition Family Archive Collection.

To acquire the collection, please mail your application to The Franklin Mint Record Society, Franklin Center, PA 19091, by August 31, 1983.

SUBSCRIPTION APPLICATION

The Franklin Mint Record Society
 Franklin Center, Pennsylvania 19091

Please enter my subscription for The Greatest Recordings of Arturo Toscanini, consisting of 30 proof-quality records in hardbound albums, at the issue price of \$10.75* plus 80¢ for packaging, shipping and handling per record.

I need send no payment at this time. Every three months, I will receive a five-record album. I will be billed for each album in three equal monthly installments, beginning when my first album is ready to be sent to me. When my collection is complete, I will receive a pair of specially created walnut bookends at no added charge.

I understand that I may discontinue my subscription at any time upon thirty days notice. *Plus my state sales tax

Check here if you prefer to receive the collection on high-quality, Dolby encoded, chromium dioxide tape cassettes. Same subscription plan, \$1. extra per cassette. †Trademark of Dolby Laboratories

Signature _____

THE GREATEST RECORDINGS OF ARTURO TOSCANINI OFFICIAL FAMILY ARCHIVE COLLECTION

Please mail by August 31, 1983.

Limit of edition: 9500 world-wide

Mr. _____ 1
 Mrs. _____
 Miss _____

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 State, Zip _____



It's magic. Sansui's one-touch high fidelity.

You probably have been depriving yourself all these years of the great pleasure of real high fidelity music because you thought hi-fi was a confusing assortment of too many dials and knobs.

Sansui, one of hi-fi's foremost innovators, has changed all that with a little technological magic. It's the "one-touch" Intelligent Super Compo music system.

Imagine. Just touch a button—and presto—the "brain" automatically turns on one component: the turntable, or the tape player, or the AM/FM radio—and switches off another at the same time. It's so simple, it completely takes the work out of play. And only Sansui offers this "one-

touch" simplicity.

The Intelligent Super Compo system illustrated includes perfectly matched components: a low-distortion amplifier; a super-sensitive, digital AM/FM tuner; a top performance double cassette deck; robust-sounding speakers; and a 24-hour program timer, all displayed in an attractive, space-saving audio cabinet.

With a variety of Intelligent Super Compo systems to meet any need or budget, Sansui has removed your last reason for denying yourself the pleasure of quality hi-fi. No other component music system offers so much enjoyment with so little effort. That's the magic of Sansui.

**INTELLIGENT
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Sansui

Putting more pleasure in sound.

SANSUI ELECTRONICS CORPORATION, Lyndhurst, NJ 07071; Gardena, CA 90248; Sansui Electric Co., Ltd., Tokyo, Japan

Letters

(Continued from page 6)

Also, whether or not Bach in fact wrote that he "needed" the forces posited by Marshall and others, does "needed" truly mean the same thing as "had"? More in sorrow than in anger, I must refer Lennberg to the articles mentioned in the preceding paragraph.

This brings up one last matter. I notice, from the dates of their letters, that neither Paine nor Lennberg waited to read my response to Marshall before firing in his own conclusions. One has to wonder what this says about their willingness to consider the whole issue without preconceptions.

P.S.: At the close of my long reply to Marshall, I noted that he had withdrawn from his original commitment to respond to my article in *The Musical Times*. Alas, events have overtaken me: The editor of that journal finally persuaded Marshall to submit a response, which appeared in the January issue. Readers who still have the stomach for it all can read my brief rejoinder an issue or two later—after which, I hope to draw a discreet veil of silence over the subject until the completion of my monograph.

Ambience Concept

I was happy to see Peter Mitchell ["Sonic Ambience—The Missing Ingredient," October 1982] and HF [Letters, April] explain criteria for the placement of ambience-channel speakers. A good delay system can distribute ambience without disturbing the forward image over a wide range of speaker positions and volume levels. But let me clarify that the primary purpose of the extra channels is the apparent distribution of ambient sound into proper perspective so that it totally surrounds the listener.

Since the ambient sound is part of the main signal, it is already reproduced by the front speakers. Therefore, it accomplishes very little to add ambience speakers in front. Putting the ambience speakers directly to the sides makes them most audible or, conversely, dictates that the minimum amount of sound may be added before the ambience speakers become obvious sources.

Assuming that the front speakers encompass about a 40-degree angle, there remain 320 degrees to fill. There is a distinct advantage to placing the ambience speakers at about a 120-degree angle behind the listener or each one 30 degrees back from the side.

Joel M. Cohen
President
Sound Concepts, Inc.
Brookline, Mass.

Clamp Source

Regarding audiophile Ed Sheer's letter about a record clamp [March], I received a brochure from Omni Audio (101 Townsend St., San Francisco, Calif. 94107) that mentioned the Planax PX, a French product only a half-inch thick that weighs 50 grams and is capable of exerting as much as 11 pounds of dynamic pressure. I hope this may be of some help.

Raul Izahi Lopez Hernandez
Guadalajara, Mexico

Letters should be addressed to The Editor, *HIGH FIDELITY*, 825 7th Ave., New York, N.Y. 10019. All letters are subject to editing for brevity and clarity.

High Fidelity News

New equipment and developments



A Turntable of Parts

In adding to the low end of its perfectionist line of turntables, Ariston has taken what might be called an ultracomponent approach, since retrofit parts can customize the basic component at or after the initial purchase. The basic Model RD-40 consists of three precision aluminum castings—platter, chassis, and base—with a synchronous AC belt drive and a tonearm board precut for SME arms. Boards for other arms or Ariston's own tonearm can be purchased separately, along with adjusting feet, an acrylic cover, and a DC motor drive with a pitch control. The remaining retrofit options all address problems of feedback isolation (if any) and include an isolation base, mass weights, a heavy platter, and springs. The RD-40 costs \$350.

Circle 117 on Reader-Service Card



Shure Builds an Economical Cardioid

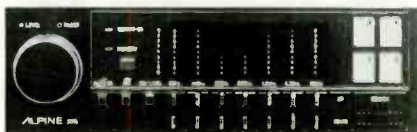
The latest addition to the Shure microphone line is the SP-19, a unidirectional (cardioid) dynamic that sells for \$48. Intended applications include home recording and sound reinforcement, where the unidirectional pickup pattern helps minimize ambient noise and spill from other voices or instruments. Internal rubber shock mounting minimizes noise when the mike is hand-

held. Two versions are available: The high-impedance model (SP19H-C) is terminated in a 1/4-inch phone plug, while the low-impedance model (SP19L-CN) sports an XLR-style three-pin connector. Both have permanently attached 15-foot cables.

Circle 122 on Reader-Service Card

BSO Goes Digital

In what WCRB Productions says is a first, it is distributing Boston Symphony Orchestra concert transcriptions to some participating FM stations in the form of digital tapes recorded with a Sony PCM-F1 on a Beta VCR. (Digital equipment has been used to record concerts for syndication before, but they have never been distributed in digital form as far as we know.) WCRB (Boston) was itself the first to broadcast from the digital tape; KUSC (Los Angeles), WQXR (New York), WFMT (Chicago), and WCLV (Cleveland) were scheduled to follow suit. The first concert in the digital series presents Colin Davis conducting Elgar's monumental *The Dream of Gerontius*.



Alpine "Computer" Adjusts EQ, Volume

If you've ever felt you needed a copilot to monitor volume levels and adjust tone controls while you attend to driving, Alpine may have a viable electronic surrogate. The Model 3015 is billed as an audio analyzer cum graphic equalizer, but it's really much more. A built-in pink-noise generator and front-panel sensing microphone can be used in conjunction with "computer" circuitry to adjust the seven-band equalizer for optimum response in the car. When conditions change (perhaps because you've gone from solo to car-pool driving, for instance) rerunning the EQ, says Alpine, only takes a few seconds. Or you can rely on the four EQ memory settings to match typical conditions. And this just might turn out to be the best feature the device has to offer: When the mike isn't busy adjusting the EQ, it can be set to "listen" for ambient noise and adjust the volume accordingly. The Model 3015 costs \$400.



Open-Reeler from Germany

The ASC-6000, made in West Germany by ASC Electronics and distributed here by Hammond Industries, is impressive in (among other things) its flexibility. It is one of the few three-speed decks still available and you can buy it in two versions: with a top speed of either 15 or 7½ ips. It also can be bought with either half-track or quarter-track stereo heads. The plug-in die-cast head block lets you change configurations without having to adjust head azimuth each time; or you can add a half-track playback head to a full complement (recording, playback, and dual-gap erase) of quarter-track heads or vice versa, to combine both formats in one head block. The three-motor transport handles reel sizes to 10½ inches and features a cueing control. The ASC-6000 costs \$1,795.

Circle 125 on Reader-Service Card

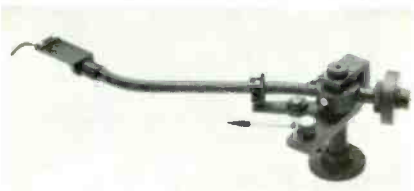


The Mounties Are Coming

Herrington, a rather spiffy mail-order purveyor of audio and video accessories, has an extension-speaker wall-mounting bracket that is new to us. Called Speaker Mount-

ies, they are rated to hold models weighing up to 20 pounds tilted out away from the wall or up to 50 pounds if the speaker is mounted vertically. The brackets, once they have been attached to the speakers, slide over wall-mounted studs, permitting side-to-side swiveling for optimum stereo imaging and distribution of high frequencies to the listening area. A pair costs just over \$25 once you add in the shipping. You can write to Herrington's for the catalog (7265 Shadowbrook, Kirtland, Ohio 44094).

Circle 126 on Reader-Service Card

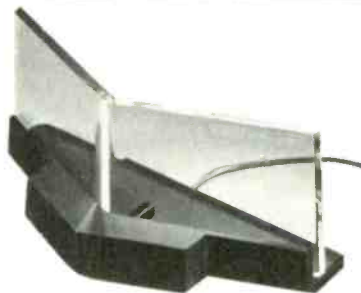


Premier Premier

The first of a projected tonearm line from Sumiko is the Premier MMT, described as an extremely rigid, medium-mass S-shaped arm. It employs the same cone and ball-bearing race design as the \$1,200 The Arm, but at much lower cost: \$225. A fluid damping system is adjustable to suit a wide range of pickup compliances. The arm's

decoupled counterweight is designed to rest as close to the pivot as possible for optimum mass distribution and minimum warp sensitivity; additional weight rings tailor it to the mass of the pickup in use, and even 12-gram or heavier cartridges can be accommodated.

Circle 115 on Reader-Service Card



Crown PZM Goes Directional

Crown's Pressure Zone Microphones, which keep the transducer next to an acoustic boundary to minimize reflective interference effects, are by now an unquestioned success. (We reviewed them enthusiastically, for example, in September 1981.) But all models to date have been essentially omnidirectional, posing potential pickup

problems in noisy environments. The newest model, PZM 2.5, has a 4-inch transparent polycarbonate "corner boundary" that attenuates sounds generated behind it (the far right in the photograph) while emphasizing those at which it is aimed. It can be placed on the stage for theatrical pickups or on a lectern or conference table. The 15-foot attached cable accepts phantom powering between 12 and 48 volts and delivers balanced low-impedance output. The PZM 2.5 costs \$359.

Circle 129 on Reader-Service Card

Wooden It Be Loverly

Custom Woodwork & Design, whose Woodmore line of solid oak and walnut audio furniture we've admired at recent Consumer Electronics Shows, has added an option to replace the handsome but, perhaps, all too familiar glass doors. Solid wood doors to match the rest of the cabinet give the piece even more of a furniture look (as opposed to the showcase feeling of glass) and are designed to work with any interior options in the Woodmore group. Both 42-inch and lowboy doors are available; prices start at \$85.

Circle 128 on Reader-Service Card

Jensen speakers put great sound where it's never been before.

With Jensen,[®] great sound really goes places. Places, in fact, you never thought it could. Because Jensen speakers offer you Jensen quality sound sized to fit in doors, kick panels, dashboards...almost anywhere.

And we're not talking about just "small" speakers, either. The Jensen 6"x9" Triax[®] is our most popular—and the most imitated in the industry. But the Triax ThinMount™ version can be installed in smaller rear-deck spaces than ever. With a mounting depth of just 1¾", it even fits in many doors!

Don't let limited space limit your car audio performance. Get excellent Jensen sound to fit your discriminating taste. Designed to fit your car. Jensen ThinMounts.

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CAR AUDIO

When it's the sound that moves you.

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Circle 15 on Reader-Service Card

CrossTalk

Practical answers to your audio questions by Robert Long

In the Fast Channel

When listening to my car stereo I have noticed that if I sit in the driver's seat, signals from the left channel reach me before those from the right channel. Is there a device that would delay only the left channel?—E. Schaffer, Moyie Springs, Idaho.

I wonder in what sense you "noticed" this effect. You're correct, of course, that with symmetrically placed drivers the sound from the left speaker will reach the driver first. But, no matter where the speakers are mounted, the difference in timing is so tiny that you should never perceive it as such—only by way of a stereo imbalance that may result from it. A delay might solve the problem more precisely than would a balance-control adjustment, but I know of no device intended for the purpose.

Scratch Builder

I have built stereo speakers, with impressive results, but I want to know more—particularly about bass-reflex enclosures, cabinet resonances, and enclosure volume—in order to build better ones. Where can I get that information?—Wayne Hamel, Waynesburg, Pa.

Three loudspeaker companies come to mind: Electro-Voice, Inc. (600 Cecil Street, Buchanan, Mich. 49107), James B. Lansing Sound, Inc. (8500 Balboa Boulevard, Northridge, Calif. 91329), and Speakerlab, Inc. (735 N. Northlake Way, Seattle, Wash. 98103). All provide information about their raw drivers for scratch builders and offer publications, plans, or other materials. Also very informative is a magazine called *Speaker Builder* (P.O. Box 494, Peterborough, N.H. 03458).

Let Mikes Do It

My background as an amateur recordist has been largely with contemporary groups, where multiple close mikes, mixed to a nice balance, give a good sense of presence. When I apply the same technique to recording Handel's Messiah, the results are rich and vibrant. But an occasional purist will argue in favor of remote miking to give a homogenous blend.

I understand that opera or symphony concerts are commonly recorded with just two mikes about 30 to 40 feet out front. Is first-class studio recording done this way, or do they multimike?

The argument that a symphonic recording should sound remote, as it might if heard from the balcony, seems silly. With proper technique and effort, the recording can let us hear the music "as through the ears of the conductor"—right from the midst of the instruments. This is a giant step forward from the thirtieth row of a concert hall. Your views would be appreciated.—Donald E. Hockman, Northlake, Ill.

The argument over "how much realer than real" is allowable in dramatizing the musical values of a classical recording essentially has no resolution. Each recordist or record producer must exercise his or her judgment—tempered by a sense of the tastes of those who will listen to the recording—in determining which aural perspective suits which composition. Excessive intrusion of recording technique into orchestral recordings can undo the very values (including homogeneity, for example) that the conductor is seeking to put forth. Then there is the question of "phasiness" or other interference effects in multimiking. Nobody seems to notice the problem much in pop music because phasiness is so often used deliberately; with acoustically generated music, it sounds unnatural and even disturbing.

My own taste, conditioned by a preference for nonelectronic music, runs to the simplest possible miking, even for jazz.

Time Warp

I've heard of straightening warped records by placing them between sheets of plate glass in a 125-degree oven and then cooling both gradually. But a glass specialist tells me that plate glass will shatter if heated and cooled in an unregulated manner at home. I acquired some tempered glass to overcome this problem, but I find that it cannot be cut without shattering. There must be a better way.—Paul Welch, Englewood, Colo.

Some parts of the country occasionally reach 125 degrees in the shade, so I find it hard to believe that such mild heating could shatter plate glass. And I've never had it happen to me in about 10 years of using the technique. It's only a sort of extreme uncton for unplayable discs, of course. Often

warps will cure themselves in scrupulously careful storage: with the records standing vertically and firmly (not tightly) supported from both sides by adjacent records. This should always be your first defense.

Highs Reduced?

Your recent tests of cassette decks [February] show that some suffer from significant losses in high-frequency response when their Dolby circuits are switched in. On others, response remains much the same as it is without noise reduction. There also are large variations between tape types, in this respect, on some decks. Can you explain why?—Michael Ratcliff, New Cumberland, Pa.

Yes. Any compander noise reducer—Dolby B, Dolby C, and DBX being the most familiar for home use—tends to emphasize any nonflatness of response, particularly in the sort of sweep-tone tests used almost universally to measure recorder response. This, coupled with the tendency toward tape saturation at very high frequencies, often produces a visible rolloff with DBX and Dolby B—and even with Dolby C, though its minimal companding action at extremely high frequencies makes it less susceptible to this effect.

If you see a steep rolloff above 15 kHz, it often is due to another consideration altogether. Many decks, particularly low-priced ones, incorporate 19-kHz FM-pilot filters that are switched in automatically along with the noise reduction. Such a filter is mandated by the Dolby Laboratories license and is necessary with any compander system if there's danger of appreciable quantities of the FM pilot getting into the tuner's output. Otherwise, the encoder would "see" the pilot as signal during recording. But since much of that frequency is likely to be lost in the taping, the decoding in playback would not necessarily be reciprocal, coloring the sound. Making the filter nondefeatable as long as the noise reduction is on solves this problem (and may reduce high-frequency intermodulation distortion as well), but it makes the response with noise reduction look markedly poorer than that without it. Not to worry: The difference is seldom audible unless you've got stupendous source material.

We regret that the volume of reader mail is too great for us to answer all questions individually.

From the Driving Force:

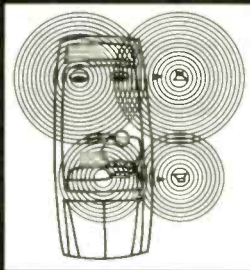
**Only Panasonic has
Ambience circuitry
to create a stereo
image beyond
the capability of
conventional car stereo.**

Only the Panasonic Supreme Series has Ambience to take your music where it's never been. With the push of a button, conventional car stereo ceases to be. Your music seems to wrap itself around you, surround you. You don't just hear it, you live it.

But the Panasonic Supreme Series with Ambience doesn't stop there. There's pushbutton tuning. There's FM Optimizer for improved fringe area reception. INQ circuitry reduces noise and interference caused by passing traffic. The adaptive front end reduces FM fade and drift. There's Radio Monitor that lets you listen to the radio without ejecting the cassette. There's locking fast forward/rewind and more.

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Experience the magic of Ambience. Only from Panasonic.



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Sound Views

Opinion and comment on the changing audio scene by E. Brad Meyer

CD Sound: Trouble in Paradise?

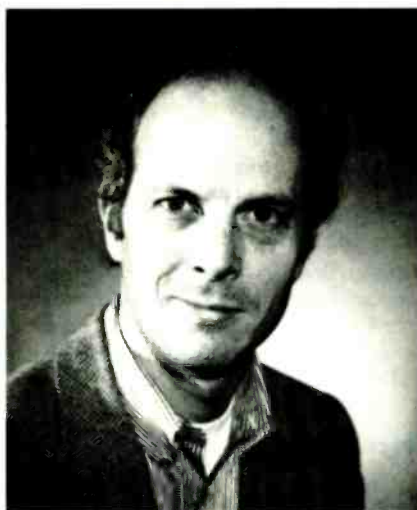
DIGITAL COMPACT DISCS promise to deliver perfect replicas of the master tapes from which they are made. Yet the number of negative responses in the audio press to the first CD releases has been startling. There are two possible explanations: Either the Compact Disc itself has major sonic flaws, or hearing an exact duplicate of the master tape isn't the ideal experience we have been led to expect.

Whatever hard-core audiophiles may be saying, the first explanation is unlikely. All of the individual elements of the CD system—excluding the disc production lines, but including the analog-to-digital (A/D) and digital-to-analog (D/A) converters, the antialiasing filters, and the disc medium itself—have been thoroughly tested. Although it would be premature at this point to claim that further audible improvement is impossible (just as it is silly to condemn this new medium on the basis of the available releases, which comprise only a fraction of a percent of the eventual CD's catalog), there is convincing evidence that the system wreaks no major sonic depredation.

So what's going on? Isn't the whole object of high fidelity to bring us a more faithful replica of the signal source? And, if so, why isn't the CD what we have all been waiting for?

True, the CD does bring us closer to the source. But the best recording for your particular system is not necessarily the one that gets you closest to the source: It's the one that puts you the *correct distance* from it. This correct distance is not an absolute quantity; it depends on the system, especially the loudspeakers and the room. So the most satisfying listening experience will come not from some single ideal recording—because there is no such thing—but from the recording that is most closely matched to the playback system. This may not explain those recordings that seem to sound especially good on almost any system, but it does reveal much of what afflicts

E. Brad Meyer is an independent audio consultant. He is also president of the Boston chapter of the Audio Engineering Society and serves as editor of the Boston Audio Society's journal.



E. Brad Meyer: Simpler sounds better.

CDs at the moment.

The benefits of moving closer to a sound source do not increase without limit. Few concertgoers will voluntarily sit in the first few rows at a symphony. But the microphones at most classical recording sessions are not even as far away from the instruments as those first few rows. What is more, most professional condenser microphones have treble peaks of between 4 and 8 dB. The resulting master tapes tend to have severely emphasized upper overtones and are often deficient both in lower-midrange warmth and in room sound, depriving the individual instruments of their airiness and dimensionality and robbing the entire ensemble of its acoustical perspective. On a high-resolution system, such recordings sound overly detailed, sterile, harsh, and unmusical.

Why are so many recordings made this way? Because these methods yield the sound producers want when the tapes are transferred to LP and played back through medium-quality systems. The incompatibility of overly "close" recordings and high-quality playback systems is nothing new. And the CD, by mercilessly revealing the detail that was formerly lost in the chain of tape to disc to stylus to cartridge, has made the problem considerably worse.

What is to be done? Can the way recordings are made be changed to provide a better match between the new high-resolution digital software and the high-quality systems with which it will, at first, be used?

Microphones with flat on-axis treble response already exist. The Austrian firm of

Schoeps is one popular source; London Records recently announced a major purchase of Schoeps microphones expressly for the purpose of making digital recordings with smoother highs. Neumann, whose microphones are widely used in the recording industry, is bringing out a whole new line of capsules with flatter response and better directional characteristics for the same reason. The wholesale replacement of existing microphones isn't cheap, but the process has begun.

The problem of close miking may be more difficult because of the economic and political factors involved. Recording a modern symphony orchestra, at least in the U.S., costs upwards of \$38,000 per hour of playing time. If the violas play too softly for four bars in the middle of the third movement, the producer—not the conductor—gets blamed. Why? Because the producer has a sixteen- or twenty-four-track recorder and plenty of microphones at his disposal. Given the cost of playing the offending passage over again, instead of "fixing it in the mix," failure to use a goodly number of "accent" mikes constitutes willful neglect. (If you were responsible for such an expensive project, would you put up just two or three microphones? Or would you fill those extra tracks so you could make repairs later if needed?)

The first CD releases have come mainly from big companies for whom multitrack recording is a way of life. Many of the classical tapes do have two or three tracks assigned to microphones placed at a respectful distance from the ensemble, although in most cases the final mix is derived so much from the accent tracks that removal of the main stereo pair produces no audible effect. Those tracks are there waiting to be used, whenever the political climate at the record companies permits. Properly equalized, they might sound very good indeed.

Whether it is digital or analog, a good two-microphone recording of a first-rate orchestra in a good hall is a wonderful thing. On a good system it can deliver a wealth of detail without sacrificing warmth, aliveness, or perspective. A medium that can perfectly replicate such a signal has the power to transform both our recording techniques and our playback systems, if only we will let it. For now, we must await the commercial release of CDs from companies (such as Telarc) and engineers (such as Marc Aubort or John Newton) whose miking and production techniques are better suited to the new medium. **HF**

Basically Speaking

Audio concepts and terms explained by Michael Riggs

How HF Tests Compact Disc Players

IN AT LEAST ONE RESPECT, testing a Compact Disc player is much like testing a phono cartridge: Hitch up the instruments, pop in a disc, and away you go. The similarities end just about there, however. Consider, for example, the test records themselves. Every LP, no matter how painstakingly prepared and manufactured, has limited channel separation, minor frequency-response errors, and an appreciable amount of distortion built right into it. These unavoidable flaws will at least slightly skew any measurement made with signals pressed into a phonograph record. If the particular test disc is well made (as most modern ones are), its contributions to the measured results will be relatively small compared to those of the pickup under test—perhaps negligible—but never zero.

A CD, on the other hand, can be a perfect test record: The necessary signals can be digitally synthesized with absolute precision and transferred directly to disc, bypassing analog-to-digital (A/D) conversion as well as other sources of corruption. This, in fact, is how the Sony and Philips test discs we use for our primary measurements are made.

The Philips 410 055-2 disc includes left- and right-channel response sweeps from 20 Hz to 20 kHz. Diversified Science Laboratories uses these to obtain the plots you see in our reports; a series of ten spot frequencies on the Sony YEDS-2 disc, from 100 Hz to 20 kHz, provides very accurate verification. A related test is the one for de-emphasis error. Virtually all CDs are made with a 50-microsecond treble pre-emphasis, to improve the high-frequency signal-to-noise ratio. On playback, a complementary de-emphasis curve must be applied to restore flat response. The Sony disc provides three spot checks on each channel—at 1 kHz, 5 kHz, and 16 kHz—for determining the accuracy of the player's de-emphasis network. This enables us to discover how much of any measured response anomaly is attributable to de-emphasis error and how much to the effect of the output-smoothing filter.

Channel separation is measured with the Sony disc, which has spot frequencies from 100 Hz to 20 kHz for this purpose. Since the disc itself is effectively capable of infinite stereo separation, the only limiting

factor is the player. Separation of 20 to 30 dB at midband is all that's needed for excellent stereo effect, and every player we have tested so far has exceeded this by a large margin. In fact, most amps and preamps have poorer separation (especially at high frequencies) than any CD player we have yet come across. Channel balance (also measured with the Sony disc) has been similarly exemplary on the players we have tested. Anything less than $\pm 1/4$ dB is certain to be inaudible, and most of the differences we see are down in the hundredths of a decibel—certainly nothing to worry about!

DSL uses a 0-dB reference tone on the

The CD medium lets us make use of perfect test discs.

Sony disc to measure signal-to-noise (S/N) ratio. Since 0 dB is the system's true upper limit (and the maximum peak recorded level on all CDs), the resulting figure accurately represents the dynamic range of the player under test. The measurement is A-weighted to account for variations in the ear's sensitivity to noise at different frequencies.

DSL makes several distortion measurements for us. One, performed with the Philips disc, is total harmonic distortion (THD) at nine frequencies from 40 Hz to 20 kHz at 0 dB and at -24 dB. As presently reported, the resulting figures include ultrasonic birdie tones from intermodulation between the high-frequency tones and the 44.1-kHz sampling frequency. At test frequencies above 10 kHz, these inaudible birdies usually are much stronger than the true harmonic distortion components, which are typically well below 0.1 percent.

The lab also measures THD versus recorded level at 1 kHz from 0 to -90 dB. The principal value of this test, which is performed with the Sony disc, is what it tells us about the performance of a player's digital-to-analog (D/A) converter at low signal levels. All will do much worse at very low levels, but to different degrees. Typically, we see much less than 0.1 percent distortion down to -20 dB, less than 1 percent at -60 dB, and less than 20 percent at -80 dB. That last figure might make you quail, unless you put it in the right perspective. Remember that 20 percent at -80 dB is equivalent to -94 dB below full output, or 0.002 percent. And at -90 dB, even 100

percent distortion would amount to only 0.003 percent relative to 0 dB.

Intermodulation (IM) distortion is measured with the Philips disc, which has twin tones that are spaced 70 Hz apart and swept continuously up from 300 Hz to 20 kHz at 0 dB, -10 dB, -20 dB, and -30 dB. This test perhaps best indicates how much distortion will actually fall in the audible band at typical recorded levels.

Linearity is a measurement you may not have seen before, even though it can be performed on any component. Perfect linearity would imply that any change in the amplitude of the input signal results in an identical level change in the output. DSL uses the Sony test disc to check linearity from 0 to -90 dB. Some D/A converters exhibit a small amount of nonlinearity, but only at very low signal levels, where we would expect errors of a few decibels or so to pass unnoticed on music.

Output level and impedance are important only from the standpoint of component matching. Provided a CD player's maximum output level is a volt or so and its output impedance is less than 1,000 ohms, it should work well with virtually any amp or preamp now on the market.

You will see two scope photos in each of our player reports. The first is the square-wave response (taken with the Sony Disc) at 1 kHz. It is mainly useful for evaluating the behavior of the player's low-pass output-smoothing filter. Most have very steep slopes, as evidenced by considerable overshoot and ringing on the square wave. Although this is probably inaudible, some manufacturers are using oversampling and digital filtering techniques to minimize it.

The other photo, taken with the Philips disc, shows the player's impulse response. Ideally, you would see a single, perfectly symmetrical, and very narrow spike. In practice, however, there is always some ripple to either side and perhaps some minor asymmetry, both caused by the output filters. So far we've seen nothing but very clean impulses—certainly nothing that would indicate audible distortion. The direction of the spike tells whether or not the player inverts polarity, or absolute phase: If it points down, the player inverts the absolute phase; if it points up, the player is noninverting. We don't think this is of much audible consequence.

There are certain to be some adjustments in our test procedure over the months to come, but the core will remain much as I have described it here. As our experience grows, we will share our insights with you.

HF

New Equipment Reports

Preparation supervised by Michael Riggs, Peter Dobbin, Robert Long, and Edward J. Foster. Laboratory data (unless otherwise noted) supplied by Diversified Science Laboratories.

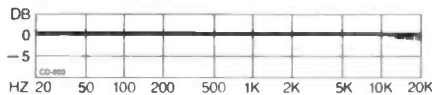


NEC's Audiophile CD Player

NEC CD-803 Compact Disc player, with wireless remote control. Dimensions: 17 by 6 1/4 inches (front panel), 14 1/4 inches deep plus clearance for controls and connections. Price: \$1,200. Warranty: "limited," one year parts and labor. Manufacturer: NEC Corp., Japan; U.S. distributor: NEC Home Electronics (U.S.A.), Inc., 1401 W. Estes Ave., Elk Grove Village, Ill. 60007.

All data obtained using the Sony YEDS-2 and Philips 410 055-2 test discs.

FREQUENCY RESPONSE



— L ch +0, -1/2 dB, 20 Hz to 20 kHz
 - - - R ch +0, -3/4 dB, 20 Hz to 20 kHz

DE-EMPHASIS ERROR

± 1/4 dB, 1 kHz to 16 kHz

CHANNEL SEPARATION

≥ 61 1/2 dB, 100 Hz to 20 kHz

CHANNEL BALANCE

± 1/4 dB

S/N RATIO (re 0 dB; A-weighted)

97 dB

HARMONIC DISTORTION (THD; 40 Hz to 20 kHz)

at 0 dB THD ≤ 0.25%
 at -24 dB THD ≤ 0.24%

INTERMODULATION DISTORTION (70-Hz difference frequency; 300 Hz to 20 kHz)

at 0 dB IM ≤ 0.019%
 at -10 dB IM ≤ 0.016%
 at -20 dB IM ≤ 0.020%
 at -30 dB IM ≤ 0.040%

IN THIS COUNTRY, NEC is known mainly for its video and computer gear. The CD-803 Compact Disc player is, in fact, the company's first toe in the waters of the American audio market. But given its ambitious, audiophile-oriented design, we expect it will make some big ripples.

NEC says that the development program for the CD-803 was aimed at obtaining the highest possible sound quality, which meant minimizing any potential sources of signal degradation. As a result, the player has a couple of unusual features. One is what the company calls its Non-Delay, or ND, Filter, which is said to produce only one twenty-fifth of the phase shift introduced by the filters used in most other CD players. The secret of the ND Filter is that it removes digitally the 44.1-kHz sampling frequency, thereby eliminating the need for a steep (typically 54-dB-per-octave) rolloff starting just above 20 kHz. To do this, the ND Filter must operate at twice the audio sampling frequency, or 88.2 kHz. An analog filter is still necessary to remove the ND Filter's own switching components, but with a commensurately higher cutoff frequency and therefore less phase shift in the audio band.

NEC's other innovation is an exceptionally fast electronic switching system for separating the output from the digital-to-analog (D/A) converter into left and right channels. (Since the digital data comes into the converter with the left- and right-channel samples alternating, the resulting analog signal comes out the same way after conversion and must be pulled apart, so to speak, to create a proper stereo signal for delivery to your amplifier.) The company

says this improved switching system helps maintain low distortion even at high frequencies.

Convenience has not been sacrificed for performance, however. The CD-803 is fully programmable and comes with a handy wireless remote control that duplicates most of the front-panel functions. Disc loading is via the ubiquitous vertical tilt-out door system. Directly to the right of the loading door, in the middle of the panel, is a display section. At the top is a digital readout that shows in minutes and seconds elapsed time for the current selection, elapsed time on the disc, time remaining on the current selection, or time remaining on the disc. The display also indicates which of these four options you have selected.

Below the time readout is a second, similar looking display that indicates what track and index number (if any) is being played, or, during programming, what tracks and index numbers are being entered into memory. And at the very bottom are three indicator lamps. One lights when you are playing a disc that has been recorded with preemphasis, while another lights whenever you make any kind of blunder when operating the machine. The third flashes for a few seconds at the beginning of a disc while the player retrieves and stores the information in the disc's index.

At the far right end of the front panel are the control keys. Included among these are two special function pads: one for stepping through the four time-display options, the other for reading out in sequence the contents of the program memory. To the right of these are the usual transport controls. There is also a button labeled search,

AUDIO New Equipment Reports

LINEARITY (at 1 kHz)

0 to -20 dB	no measurable error
at -60 dB	-1/4 dB
at -80 dB	-13/4 dB
at -90 dB	-3 1/4 dB

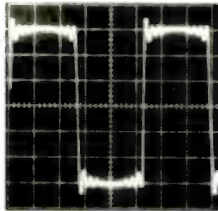
MAXIMUM OUTPUT LEVEL (from 0 dB)

line (fixed or variable)	2.56 volts
headphone	2.50 volts

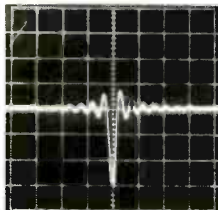
OUTPUT IMPEDANCE

line (fixed or variable)	440 ohms
headphone	5.2 ohms

SQUARE-WAVE RESPONSE (1 kHz)



IMPULSE RESPONSE



*See text

which is used in conjunction with the PLAY, FAST FOWARD, and REVERSE to skip from one track to the next or back to the start of the track being played. The bottom half of this section is taken up by a numeric keypad and the programming function keys, which enable you to store as many as 99 track numbers for playback in any sequence. And there is a REPEAT that causes the player to replay the disc continuously from beginning to end or in the programmed sequence. The programming and transport keys are duplicated on the remote control.

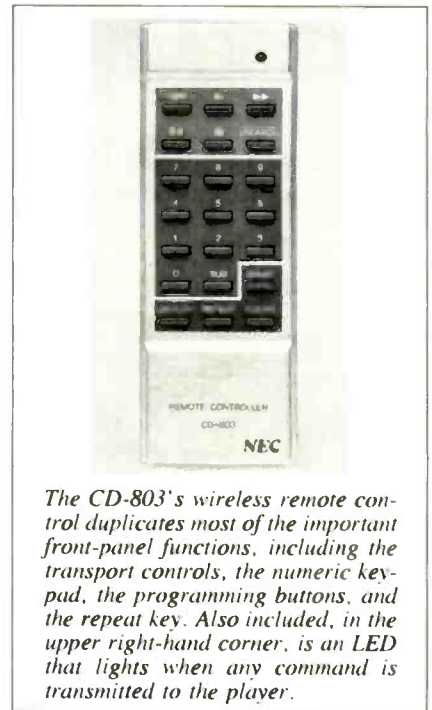
On the back panel are fixed and variable line-output jacks, a level control for the variable-output jacks, and a volume control for the front-panel headphone jack. A slide switch enables you to set the machine for automatic startup when powered up from a timer.

Diversified Science Laboratories' measurements reveal good to excellent performance in all categories. The unit's frequency response and de-emphasis characteristics are virtually perfect, and channel separation, though not the very best we've seen, is so much better than is necessary that it may be considered perfect as well. Signal-to-noise ratio is superb, indicating more than adequate dynamic range for any musical program.

Total harmonic distortion (THD) at 0 and -24 dB is even better than the very acceptable figures in the data suggest, since most of what is shown consists of ultrasonic birdie tones caused by intermodulation between the test signals and the sampling frequency. If these birdies, which are inaudible, are neglected, harmonic distortion is less than 0.05 percent at all frequencies. This very fine result is confirmed by the intermodulation distortion figures, which are very low all the way down to -30 dB.

Harmonic distortion at 1 kHz is less than 0.03 percent from 0 dB to -20 dB, rising to 0.71 percent at -60 dB and 11.1 percent at -80 dB. Some rise in distortion at low levels is to be expected, and, in any case, the spurious components are still down around -100 dB, or 0.001 percent, relative to maximum output, which is most assuredly inaudible. Linearity is very good, with just a small amount of error at the very bottom of the range. Again, we would not expect this to be audible.

DSL also performed some listening tests with Philips' 410 056-2 tracking test record, which has simulated surface flaws at various levels of severity to test players' optical and error-correction systems. The first set consists of gaps of various sizes, from 400 to 900 microns across. The CD-803 sailed through the 400-micron band, ticked occasionally on the 500-micron band, and clicked more loudly and frequently on the 600-micron band. Performance continues to deteriorate (as one would expect) until "groove skipping" occurs on the 900-micron band.



The CD-803's wireless remote control duplicates most of the important front-panel functions, including the transport controls, the numeric keypad, the programming buttons, and the repeat key. Also included, in the upper right-hand corner, is an LED that lights when any command is transmitted to the player.

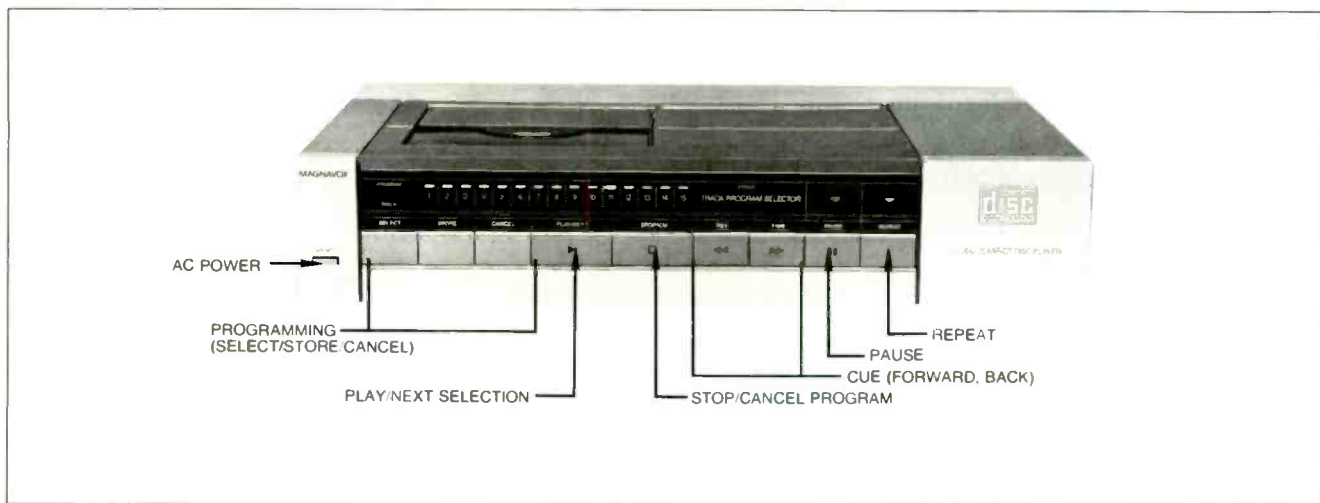
The next set of "flaws" consists of black dots of various diameters, from 300 to 800 microns, on the disc surface. The NEC repeated or skipped on all of these. But it had no trouble at all seeing through simulated fingerprints. Overall, we would rate this as moderately good performance.

Square-wave response appears unusually well controlled, tending to confirm the effectiveness of NEC's ND Filter design. The impulse response also appears quite good, with just a hint of asymmetry and a small amount of ripple. The direction of the reproduced impulse indicates that the CD-803 inverts polarity (absolute phase). We don't consider polarity a very important matter, but if it concerns you, you can reverse it simply by swapping the hot and ground leads from your amplifier at the speaker terminals.

Although a little bulky, the CD-803 is generally very easy to set up and use. We especially appreciate the remote control and the programmability. We do think, however, that the headphone VOLUME would be better placed on the front panel. And DSL noted during its tests that the player generated enough radio frequency interference (RFI) to make FM reception in the same room difficult when it was running.

We have listened to a variety of discs on the CD-803 and can only say that its sound is outstanding when the quality of the program material allows it to be. From the depths of its firm, extended low end to the top of its clean, clear, silky-smooth highs, the system is a pure delight. This high level of performance, together with a full complement of convenience features, makes the CD-803 an auspicious audio beginning for NEC.

Circle 104 on Reader Service Card

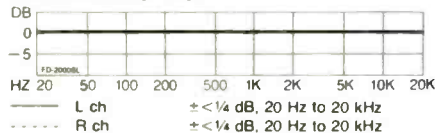


A CD Player from the Source

Magnavox FD-2000SL Compact Disc player. Dimensions: 16½ by 3½ inches (front panel), 12 inches deep; additional 4 inches clearance above unit required to open disc cover fully. Price: \$800. Warranty: "limited," one year parts and labor. Manufacturer: Philips, The Netherlands; U.S. distributor: N.A.P. Consumer Electronics Corp., Interstate 40 and Straw Plains Pike, P.O. Box 6950, Knoxville, Tenn. 37914.

All data obtained using the Sony YEDS-2 and Philips 410 055-2 test discs.

FREQUENCY RESPONSE



DE-EMPHASIS ERROR

± 0 , $< \frac{1}{4}$ dB, 1 kHz to 16 kHz

CHANNEL SEPARATION

≥ 92 dB, 100 Hz to 20 kHz

CHANNEL BALANCE

± 0 dB

S/N RATIO (re 0 dB, A-weighted)

98 dB

HARMONIC DISTORTION (THD; 40 Hz to 20 kHz)

at 0 dB $\leq 0.17\%$
at -24 dB $\leq 0.14\%$

INTERMODULATION DISTORTION (70-Hz difference frequency, 300 Hz to 20 kHz)

0 to -20 dB $\leq 0.015\%$
at -30 dB $\leq 0.021\%$

LINEARITY (at 1 kHz)

0 to -80 dB no measurable error

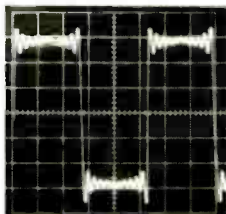
OUTPUT LEVEL (from 0 dB)

2.05 volts

OUTPUT IMPEDANCE

50 ohms

SQUARE-WAVE RESPONSE (1 kHz)



A COMPACT DISC PLAYER from Magnavox? Yes, and a very nice one. Any perplexity you may feel about Magnavox entering this heady market will dissipate when you learn that Magnavox is owned by Philips—the inventor of the CD system—and that the FD-2000SL reviewed here is sold in Europe as the Philips CD-200. Unlike most of the Japanese units, the Magnavox/Philips players do not use 16-bit digital-to-analog (D/A) converters, which the company believes are not yet good enough for this application. Instead, they use 14-bit chips, with 4:1 (176.4-kHz) oversampling and digital filtering to achieve a 16-bit-equivalent signal-to-noise (S/N) ratio. This also permits the use of an output-smoothing filter with a relatively shallow slope of 18 dB per octave, for better phase response in the audio band (see "Inside the Compact-Disc System," page 39).

The FD-2000SL has some other unusual characteristics, as well. It is smaller and lighter than most CD players, and it top-loads rather than front-loads. Though programmable, it has no fancy digital read-outs or remote control. The only controls are those arrayed in a single long row running across the middle of the front panel.

The first three of these, to the left, are for track-sequence programming. Pressing SELECT moves you forward one track at a time until you reach the first track you want to hear (as indicated by the position of a small green bar below a row of 15 track numbers just above the control keys). You then press STORE to enter it into memory and move on to the next track you want to hear, and so on until you're done. A green bar will illuminate above every track number that you select. Then when you press PLAY, the FD-2000SL will play back only those tracks you have selected and in the sequence that you programmed them. (If you don't use the programming feature, all the green bars in the row above the track numbers will come on.) When a track is being played, the green bar will come on underneath its number; when it is finished,

the lower bar will move on to the next track number and the upper bar will go out.

To delete a track from a programmed sequence, you simply press SELECT until the lower green bar reaches the undesired track number, then you press CANCEL. You can also use CANCEL for a sort of negative programming, by which you specify that certain tracks should not be played, while leaving the others to be played in their normal order.

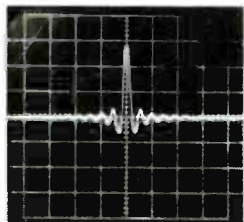
The six keys to the right are the transport controls. Pressing REPEAT causes the machine to replay the disc (in the programmed sequence, if you have entered one) until you press it again. A red lamp comes on above the keypad when this feature is activated, and a similar indicator shows when the PAUSE is in operation. PLAY and STOP serve double duty: the former to skip to the next track, the latter to cancel an entire program. REVERSE and FAST FORWARD cause the machine to scan backward or forward at high speed. The player's output jacks are recessed into the rear panel to minimize the amount of clearance required.

Diversified Science Laboratories' measurements reveal superb performance. Frequency response is ruler flat, separation is exceptionally wide (as much as 99 dB at some frequencies), and channel balance is within hundredths of a dB of perfection. And the signal-to-noise ratio is as good as that of the 16-bit players we have tested.

The reported total harmonic distortion (THD) at 0 and -24 dB consists almost entirely of ultrasonic (and therefore inaudible) birdies caused by intermodulation between the test signals and the sampling frequency. If these are neglected, the distortion is less than 0.01 percent across the audible band. This is confirmed by the intermodulation (IM) distortion measurements, which are likewise very low.

At 1 kHz THD is less than 0.01 percent from 0 to -10 dB, 0.014 percent at -20 dB, and 0.97 percent at -60 dB. At -80 dB it is up to 15 percent, but amazingly, it is

IMPULSE
RESPONSE



*See text

actually back down to 12.5 percent at -90 dB. As we have pointed out before, the last few figures are not nearly as bad as they look: Relative to 0 dB, 12.5 percent of -90 dB works out to about 0.0004 percent, or nearly -110 dB, while 15 percent of -80 dB comes to 0.0015 percent, or about -96 dB. In short, the distortion products are not very loud!

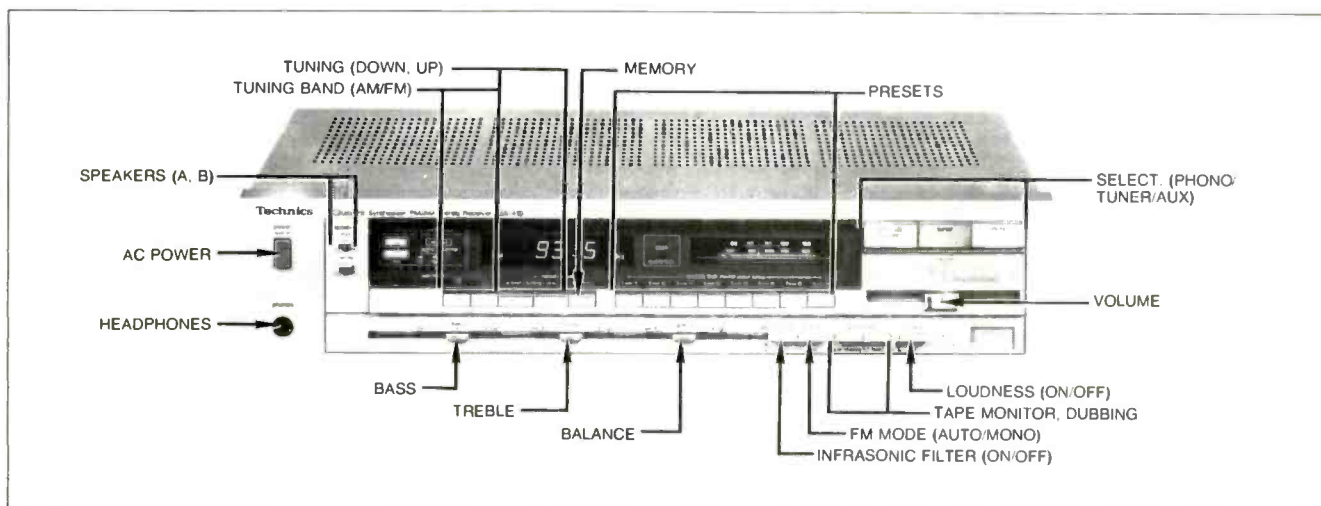
Linearity is perfect down to -80 dB. Both the square-wave and impulse responses are very good, undoubtedly because of Magnavox's novel filtering scheme. Note the perfect symmetry. This probably does not affect the sound, but it does indicate good engineering.

Listening tests with the Philips 410 056-2 test disc demonstrate that the little Maggie is a super tracker. It takes gaps as much as 400 microns in diameter in stride and produces only two or three mild ticks

per minute on 500-micron interruptions. With wider blanks, the ticks increase. The FD-2000SL seems able to correct for even the 800-micron black dot and has no trouble at all with simulated fingerprints. This is excellent performance.

Except for the topside disc well, which may be small for some hands, we find the FD-2000SL's human engineering to be among the best we have encountered in a CD player. Although we don't recommend trying, you should be able to figure out, for the most part, how to run it without consulting the owner's manual. We are especially fond of the straightforward programming scheme Magnavox has developed. And we can't find anything to fault in the FD-2000SL's measured performance or sound. All that for \$800—the lowest price to date for a CD player.

Circle 100 on Reader-Service Card

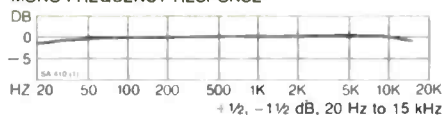


High-tech Technics Receiver

Technics SA-410 AM/FM receiver. Dimensions: 17 by 3½ inches (front panel), 10½ inches deep plus clearance for connections. AC convenience outlet: one unswitched (150 watts max.). Price: \$300. Warranty: "limited," two years parts and labor. Manufacturer: Matsushita Electric Industrial Co., Ltd., Japan; U.S. distributor: Panasonic Company Division of Matsushita Electric Corp. of America, One Panasonic Way, Secaucus, N.J. 07094.

FM tuner section

MONO FREQUENCY RESPONSE



NEVER A SLOUCH when it comes to inventing ways of smoothing out the technical wrinkles that close examination can reveal in the apparently serene countenance of modern music reproduction, Technics is now the first company, so far as they (or we) are aware, to use a microprocessor to monitor and adjust transistor bias on an instantaneous basis. This is a relatively sophisticated approach to controlling effects that would slip through the loopholes in conventional circuitry. That it appears already in a modestly priced receiver, instead of being confined for a time to the upper classes of audiophile separates, strikes us as a welcome touch of egalitarianism.

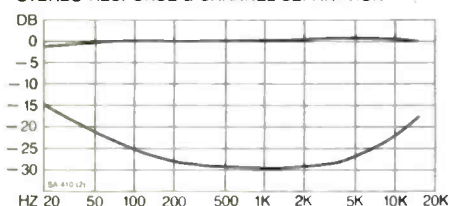
The essential problem addressed by the Computer Drive New Class A circuit, as Technics calls it, is that of short-term temperature variations within power transistors. In theory, transistor amplification is simplicity itself: Use the input signal to control the flow of current from a voltage source to the output. But since transistors are easily overheated by excessive current, the positive and negative halves of the sig-

nal waveform usually are assigned to separate transistors, in what is known as Class B operation, to minimize the current that will pass through either one. But because transistors are very nonlinear at the zero-crossing point, where they switch on or off, this creates rather high distortion at low signal levels.

The standard solution (known as Class AB design) is to apply a small DC bias voltage to each transistor, to linearize their operation at low levels. This means that there is always a small amount of current passing through the transistors, even when there is no signal. A Class AB amplifier will therefore run hotter and be less efficient than a pure Class B amp. Class AB operation is, however, a good deal better in both of these respects than pure Class A, which is the principal remaining design alternative.

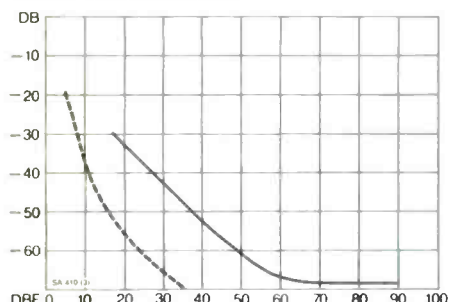
Pure Class A circuitry keeps the bias voltage (and therefore the bias current) high enough so that the transistors never switch off. Below clipping, such an amplifier is always working in its output stage's linear

STEREO RESPONSE & CHANNEL SEPARATION



Frequency response
 - - - - L ch + 1/2, -1 1/2 dB, 20 Hz to 15 kHz
 - - - - R ch + 1/2, -1 1/2 dB, 20 Hz to 15 kHz
 Channel separation
 ≡ 25 dB, 100 Hz to 6.8 kHz;
 ≡ 15 dB, 21 Hz to 15 kHz

FM SENSITIVITY & QUIETING



Stereo sensitivity (for 50-dB noise suppression)
 37 1/2 dBf at 98 MHz, with 1.05% THD + N
 (38 3/4 dBf at 90 MHz; 37 1/4 dBf at 106 MHz)
 Mono sensitivity (for 50-dB noise suppression)
 16 dBf at 98 MHz

Stereo threshold 16 1/4 dBf
 Stereo S/N ratio (at 65 dBf) 68 1/4 dB
 Mono S/N ratio (at 65 dBf) 75 dB

CAPTURE RATIO 2 1/4 dB

SELECTIVITY
 alternate-channel 64 1/2 dB
 adjacent-channel 8 3/4 dB

HARMONIC DISTORTION (THD + N)

	stereo	mono
at 100 Hz	0.29%	0.36%
at 1 kHz	0.30%	0.30%
at 6 kHz	1.0%	0.21%

STEREO PILOT INTERMODULATION 0.098%

IM DISTORTION (mono) 0.16%

PILOT (19 kHz) SUPPRESSION 37 1/2 dB

SUBCARRIER (38 kHz) SUPPR. 53 1/2 dB

Amplifier section

RATED POWER 16 1/2 dBW (45 watts)/channel

OUTPUT AT CLIPPING (both channels driven)
 8-ohm load 17 3/4 dBW (60 watts)/channel
 4-ohm load 19 dBW (79 watts)/channel
 16-ohm load 15 1/2 dBW (35 watts)/channel

DYNAMIC HEADROOM (re rated power, 8-ohm load)
 + 1 1/2 dB

HARMONIC DISTORTION (THD; 20 Hz to 20 kHz)
 at 16 1/2 dBW (45 watts) <0.01%
 at 0 dBW (1 watt) <0.01%

FREQUENCY RESPONSE
 ± 1/2 dB, 37.5 Hz to 25.9 kHz;
 ± 1/2, -3 dB, <10 Hz to 82.2 kHz

RIAA EQUALIZATION +0, -1 dB, 33 Hz to 20 kHz;
 -14 1/2 dB at 5 Hz

INPUT CHARACTERISTICS (re 0 dBW; A-weighting)
 sensitivity S/N ratio
 aux input 20.5 mV 79 dB
 phono input 0.38 mV 75 dB

PHONO OVERLOAD (1-kHz clipping) 175 mV

PHONO INPUT IMPEDANCE
 46.2k ohms; 125 pF

range, but at the expense of high operating temperatures and low efficiency.

Many companies have tried to combine Class A's purity of waveform reproduction with the efficiency of Class B (and AB) circuitry. Technics' version of this approach, involving alteration of bias voltage according to instantaneous signal level, is known as New Class A. The problem in this method, as Technics now explains it, is that attempting to adjust bias current by a proportional change in bias voltage simply won't do the whole job. A transistor's internal temperature can vary radically and rapidly in response to changing signal levels, and this in turn influences conductivity. In other words, the bias voltage required to deliver a particular bias current will vary in the face of the changing signal levels. Most amplifiers use thermal sensors mounted in the heat sinks to compensate the bias for this effect. But according to Technics, this approach is too slow to respond accurately to the rapid temperature fluctuations in output transistors reproducing music signals.

The company's Computer Drive solution is to use a microprocessor programmed to deduce the optimum instantaneous bias voltage by correcting thermal-sensor readings according to the instantaneous signal voltage. The ability to respond both accurately and instantaneously is credited with a marked reduction in measurable distortion under transient signal conditions.

Some component categories have an easier time of it than others. Among amplifiers, for instance, there are no problems comparable to the obvious ticks, pops, distortion, and frequency aberrations (whether occasioned by warps or by eccentricity) that plague the playing of conventional analog records. Therefore no audible improvements comparable to those claimed for the Compact Disc are even remotely possible in amplifier circuitry, however ingenious the technology behind the improvement. So while we consider the sound to be very clean, and continuing enjoyment over long listening sessions seems to confirm the freedom from distortion, we don't expect that many listeners could discern any significant difference between this amplifier section and competing models in honestly conducted A/B comparisons.

You'll notice in the data that all of the steady-state distortion (reported as THD) is below our reporting threshold of 0.01 percent. We're convinced that this threshold is well below that of audibility for such distortion effects, so, though distortion seldom measures this low, an audible advantage for the Technics isn't necessarily implied—though, of course, it's always comforting to know that these distortion products are ultralow. Frequency response, using the aux input and the speaker taps as the test terminals, is not quite as flat as that of most modern equipment; there is a slight rise of about 1/2 dB centered on 200 Hz, with a gentle rolloff toward each end of the spec-

trum, particularly in the bass (-3/4 dB at 20 Hz). These figures obtain whether output is measured into an 8-ohm resistor or into a speaker that is reasonably typical of those you might expect to find hooked to such a receiver.

Phono response is similar, though a gentle infrasonic filter is built into the preamp. Response is down by 2 1/2 dB at 20 Hz and appears to slope by approximately 6 dB per octave below that. The switchable infrasonic filter (which affects all inputs) adds to this, for a total effective slope of 12 dB per octave when you use it with the phono section—for much more effective control of infrasonics than you might assume from the filter specs themselves. The tone controls are well mannered, shelving at about ±10 dB above 10 kHz at the maximum treble settings (and at progressively lower frequencies for partial boost or cut settings) and about ±12 dB below 80 Hz or so in the bass. The loudness contour, which is essentially unaffected by the volume setting in Diversified Science Laboratories' tests, keeps response above 2 kHz some 9 dB below response in the range from 100 Hz down, with a gradual rolloff between this range and the upper treble.

The tuner section is fairly typical of today's products. Among the areas in which it is better than average, the adjacent-channel selectivity—measured at 8 3/4 dB by DSL—is particularly impressive. One specific in which it is a little below par is the suppression of pilot and subcarrier frequencies. At -37 1/2 dB, it's doubtful that even your dog will hear the 19-kHz pilot, but it may well upset Dolby tracking if it goes unfiltered in recording from FM. (If your deck has no filter switch, don't worry about it: It just means that the filter required by the Dolby licensing agreement is nondefeatable.)

The controls are quite straightforward, except for those that govern the station presets. In the first place, there are eight preset buttons instead of the usual six or four. But each button actually controls two sets of memories for each tuning band (for a total of four per button), depending on whether you give it a quick tap or press it firmly. Thus a grand total of 32 station frequencies can be memorized by the 410! When you retrieve them, the receiver identifies which way it has interpreted your touch by printing out a channel number before showing the frequency itself. If you press the third button, for example, it will register "CH. 3" for a tap or "CH. 11" for a firm push. Because so much electrical memory is provided, the user's memory is hard put to recall which of the 16 options holds any given station; the owner's manual provides a table in which to log your choices, but that's a rather cumbersome solution.

There also is an automatic station scan/preset mode that we have not previously encountered in a receiver under test. If you hold the memory button in and then begin

OUTPUT IMPEDANCE (at tape out)	
from aux	source
from phono	1,000 ohms
from FM	3,200 ohms
DAMPING FACTOR (at 50 Hz)	
	49
INFRASONIC FILTER -3 dB at 33 Hz; 6 dB/octave*	

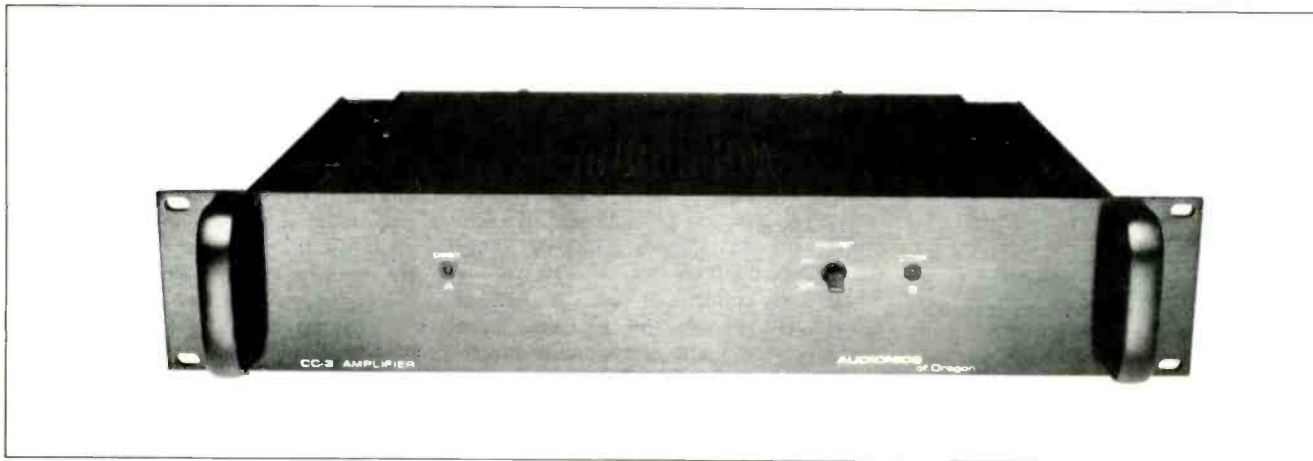
*See text

upward station scan (in either band), the memory will automatically program each station on which the tuner stops, in sequence—up to the 16-station capacity, if you can receive that many strong enough to stop the scan. As the scan continues, whether you are memorizing the stations or just looking for some good listening, a "dial" to the right of the frequency readout displays your progress across the band. The calibration of this "analog frequency meter," as Technics calls it, is quite small, making it rather difficult to read.

These are extras on top of the basic features we would expect in a receiver as

reasonably priced as the SA-410. There is tape dubbing, for example, but only in one direction between the two decks for which there are connections. Technics provides an aux input for CD players or video (remember that both video tapes and discs come with stereo sound these days), but only one of these can be hooked up at a time. But as we said, this is exactly what we would expect. So even apart from its Computer Drive New Class A amp, which is surely the star turn in this act, the receiver offers more quality and innovation than is commonly found at the price.

Circle 101 on Reader-Service Card



A High-current Amplifier from Oregon

Audionics CC-3 power amplifier, in rack-mount case. Dimensions: 19 by 3½ inches (front panel), 11 inches deep plus clearance for connections. Price: \$740. Warranty: "limited," three years parts and labor. Manufacturer: Audionics of Oregon, P.O. Box 969, University Station, Portland, Ore. 97207.

RATED POWER 18½ dBW (70 watts)/channel

OUTPUT AT CLIPPING (both channels driven)
 8-ohm load 20 dBW (100 watts)/channel
 4-ohm load 22 dBW (160 watts)/channel
 16-ohm load 17¼ dBW (60 watts)/channel

DYNAMIC HEADROOM (re rated power, 8-ohm load)
 +2¼ dB

HARMONIC DISTORTION (THD, 20 Hz to 20 kHz)
 at 18½ dBW (70 watts) \leq 0.095%
 at 0 dBW (1 watt) \leq 0.020%

FREQUENCY RESPONSE
 +0, -½ dB, <10 Hz to 18.5 kHz;
 +0, -3 dB, <10 Hz to 55.4 kHz

S/N RATIO (re 0 dBW; A-weighted) 90¼ dB

SENSITIVITY (re 0 dBW) 110 mV

DAMPING FACTOR (at 50 Hz) 41

A SMALL COMPANY IN PORTLAND, Audionics of Oregon has earned a reputation for turning out specialty audiophile products. Though we have often had occasion to mention it, we've seldom reviewed models from its line. So it was with some curiosity that we approached the CC-3, the latest power amplifier from the company and the successor to its CC-2. It is rated at 70 watts (18½ dBW) per channel into 8-ohm loads, 120 watts (20¼ dBW) into 4 ohms. Among other things, this suggests a design that won't balk at low impedances, and Audionics confirms that this was a design objective. So were low transient distortion, high stability even when driving difficult loads, good overload behavior, and reliability, particularly for long duty cycles in professional applications.

The spare look of the rack-mount case certainly suggests a pro unit, and the CC-3 is likely to appeal to many home listeners for just that reason. Its controls are minimal: an on/off switch, LED clipping indicators for each channel, and three fuses: a 5-amp slow-blow type in the power line and a fast-acting 3-amp fuse in each output. (Audionics says the latter can be increased to 8 amps if your speakers have adequate protection of their own.) The inputs are gold-plated pin jacks; the outputs are heavy, color-coded binding posts. And there is a switch on the back panel for converting the amp to bridged mono operation, with a rat-

ed output of 225 watts (23½ dBW) into 8 ohms. For a price about \$65 lower than that of the CC-3, you can get the slightly less elaborate Model 275-A, which is the same amplifier in a standard case (not rack-mountable) with no clipping indicators and half the power-supply capacitance. Its steady-state power and distortion performance is said by Audionics to be identical to that of the deluxe version reviewed here.

On Diversified Science Laboratories' test bench, the amp produced 20 dBW (100 watts) into 8 ohms with steady test tones and the equivalent of 20¼ dBW (120 watts) on the dynamic-headroom pulse that simulates musical waveforms. Its 4-ohm rating was surpassed with equal ease. (DSL did not test the unit in its bridged configuration.)

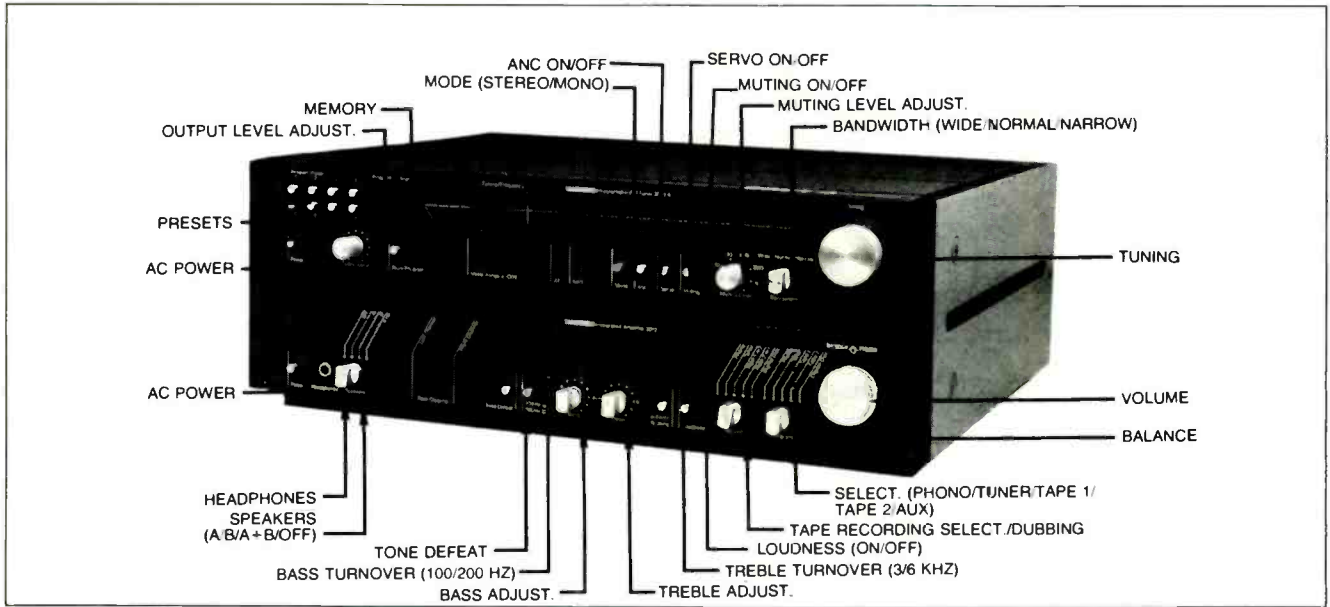
Response is very flat, and steady-state distortion is reasonably low—though not as low as in many mass-produced power amps these days. At 0 dBW (1 watt), total harmonic distortion (THD) exceeds 0.01 percent only at the extreme top of the frequency range; at rated power, it runs between 0.03 and 0.04 percent to above 6 kHz, reaching a maximum of 0.095 percent at 16 kHz, where the harmonics all fall to above the audible range. The third harmonic does predominate at this drive level, though the "smoother" second harmonic is the only significant distortion component at the low-

er level. Another Audionics design objective was to make the amplifier clip gracefully when driven too hard, and the lab confirms that the clipping appears "soft" when evaluated on the oscilloscope, indicating a relatively low level of the high, odd-order harmonics that make some other amps sound harsh when overdriven.

The CC-3 acquits itself as well in our listening room as it does on the test bench. It's almost axiomatic that dramatic individ-

uality is unlikely to characterize a power amp—and would presumably be cause for complaint if it did. For home use, the relatively generous power capacity and the soft clipping characteristic help ensure that clipping will not be a source of such unwanted individuality. So, although it is not unique in any single respect, the CC-3 certainly ranks among the top separate power amplifiers built in this country.

Circle 102 on Reader-Service Card



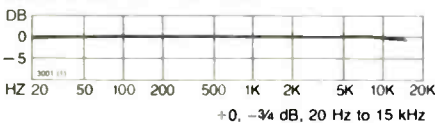
Tandberg's Deluxe "Separates Receiver"

Tandberg TPT-3001A FM tuner and TIA-3012 integrated amplifier, paired as one "receiver" with wood end pieces. Dimensions: 18 1/4 by 6 1/2 inches (front panel), 14 inches deep plus clearance for controls and connections. AC convenience outlets: one switched, one unswitched (300 watts max. each). Price: \$2,090. Warranty: "limited," three years parts and labor. Manufacturer: Tandberg A/S, Norway; U.S. distributor: Tandberg of America, Inc., Labriola Court, Armonk, N.Y. 10504.

TPT-3001A FM tuner

All data for normal IF setting except as noted

MONO FREQUENCY RESPONSE



PERHAPS IT ISN'T FAIR to compare a combination of two superbly engineered separates to a true, all-in-one receiver. But if it is, this set from Tandberg rates as the finest "receiver" we have ever tested. And if your response to the \$2,000 price tag is that this had better be the world's greatest receiver, or something very close to it, we'd point out that very few combinations of any description yield anything like comparable performance at this price. From this point of view, the ensemble is a bargain.

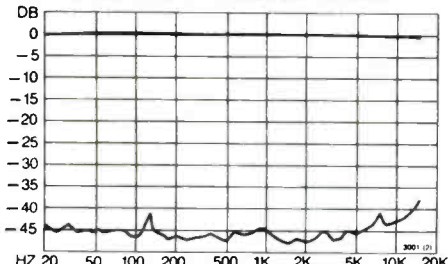
The FM tuner "section," otherwise known as the Tandberg Programmable Tuner (TPT-) 3001A, is a recently improved version of the previous TPT-3001. The moment you start hooking it up you become aware of some of its unusual features. There are two signal output pairs, one of which can be adjusted at the front-panel level knob. Then there's a pair of pin jacks to drive an oscilloscope for multipath/antenna-orientation evaluation, plus a single jack for detector output. A switch affords 75-, 50-, or 25-microsecond high-frequency de-emphasis—the standards, respectively, for U.S. broadcasting, European broadcasting, and U.S. Dolby transmissions. With all these options, it's a little surprising to find only a single (75-ohm) antenna input: a coaxial jack, but not the "F" type used in the U.S. for 75-ohm

antenna leads. Tandberg supplies two adapters: one with screw terminals for the conductor and braid elements of any coaxial cable, and one with a balun transformer interposed between the screw terminals and the coaxial. The latter is intended to match 300-ohm twinlead to the 75-ohm input.

Turning to the front panel, you're immediately struck by the dial and tuning knob, which almost seem like relics in this age of digital readouts, frequency synthesis, and stepper tuning buttons. Tandberg's view is that when the chips are down (pun intended), the residual noise in a true digital front end will always be greater than that in a "conventional" tuning circuit. The familiar memory buttons, which are almost a natural by-product of digital tuning, are included here (eight of them) and govern some unusual control functions. The window next to the buttons displays the "program" (preset) number when you select one of the buttons, "P" when the tuner is in the act of memorizing, and "F" when tuning is manual—which occurs automatically when you touch the tuning knob.

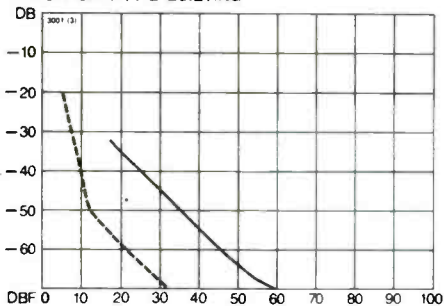
To the right of this alphanumeric window is a signal-strength meter calibrated from 1 microvolt to 3 volts in two ranges. Few of today's tuners have meters for this purpose; fewer still have ever been calibrated in objective units. (Most LED dis-

STEREO RESPONSE & CHANNEL SEPARATION



Frequency response
 — L ch +0, -3/4 dB, 20 Hz to 15 kHz
 - - - R ch +0, -1 dB, 20 Hz to 15 kHz
 Channel separation
 ≧ 41 dB, 20 Hz to 7 kHz;
 ≧ 37 1/2 dB, 20 Hz to 15 kHz

FM SENSITIVITY & QUIETING



— stereo quieting (noise)
 - - - mono quieting (noise)
 Stereo sensitivity (for 50-dB noise suppression)
 35 dBf at 98 MHz, with 0.38% THD+N
 (35 1/4 dBf at 90 MHz; 36 dBf at 106 MHz)
 Mono sensitivity (for 50-dB noise suppression)
 12 1/4 dBf at 98 MHz
 Muting threshold 15 1/2-82 dBf (adjustable)
 Stereo threshold 23 1/2 dBf
 Stereo S/N ratio (at 65 dBf) 72 1/2 dB
 Mono S/N ratio (at 65 dBf) 86 1/4 dB

CAPTURE RATIO 2 dB

ALTERNATE-CHANNEL SELECTIVITY

wide IF mode 28 3/4 dB
 normal IF mode 61 3/4 dB
 narrow IF mode 64 1/4 dB

ADJACENT-CHANNEL SELECTIVITY

wide IF mode 2 1/4 dB
 normal IF mode 11 1/4 dB
 narrow IF mode 30 1/4 dB

HARMONIC DISTORTION (THD+N)

	stereo	mono
at 100 Hz	0.19%	0.10%
at 1 kHz	0.10%	0.060%
at 6 kHz	0.062%	0.068%

STEREO PILOT INTERMODULATION 0.062%

IM DISTORTION (mono) 0.030%

PILOT (19 kHz) SUPPRESSION 99 3/4 dB

SUBCARRIER (38 kHz) SUPPR. >100 dB

TIA-3012 Integrated amplifier

RATED POWER 20 dBW (100 watts)/channel
 OUTPUT AT CLIPPING (both channels driven)
 8-ohm load 20 3/4 dBW (119 watts)/channel
 4-ohm load 21 1/4 dBW (133 watts)/channel
 16-ohm load 19 dBW (79 watts)/channel

DYNAMIC HEADROOM (re rated power, 8-ohm load)
 1 3/4 dB

HARMONIC DISTORTION (THD; 20 Hz to 20 kHz)
 at 20 dBW (100 watts) ≤ 0.023%
 at 0 dBW (1 watt) <0.01%

FREQUENCY RESPONSE

+0, -1/2 dB, <10 Hz to 29.9 kHz;
 +0, -3 dB, <10 Hz to 81.5 kHz

RIAA EQUALIZATION

fixed-coil phono +1/2, -3/4 dB, 30 Hz to 20 kHz;
 -29 3/4 dB at 5 Hz
 moving-coil phono +1/2, -3/4 dB, 30 Hz to 20 kHz;
 -29 3/4 dB at 5 Hz

plays are relatively useless for signal evaluation and antenna orientation.) Next comes a similarly calibrated—and therefore similarly astonishing—channel-centering meter. This doubles as a frequency meter whenever a preset is in use, because the main tuning dial is used only for manual tuning and remains where you last set it when you go dial-hopping via the presets.

Also unusual is the muting adjustment. Some tuners have two or three muting options, but very few have continuous adjustments to suit any aural predilection or reception condition—and we recall none with this one's range. There is also a button to defeat the muting altogether. Two other buttons nearby control the "servo" and the noise cancelling feature. The former is an automatic tuning lock, which disengages automatically when you touch the tuning knob; the latter introduces a blend into weak stereo reception to improve listenability.

Certainly the key feature for some listeners will be the three-position IF-bandwidth selector, which Tandberg calls a selectivity control. In theory, the central ("normal") position should be a good trade-off between the extreme options available in IF filtering. The wide position should allow passage of sidebands unfettered, reducing distortion and increasing channel separation, but at a price, namely noise and interference on weak stations or those beset by powerful neighbors. Conversely, the narrow setting should shave off sidebands and block out near neighbors, but with some compromise in the signal quality of otherwise strong, clear stations. We'll see how well the Tandberg's behavior matches this scenario as we go through Diversified Science Laboratories' performance measurements.

Response is outstandingly flat and virtually identical in both mono and stereo and in all IF modes. Channel separation, which is superb in NORMAL and WIDE, is about 40 dB up to 4 kHz even in NARROW. This IF mode improves noise performance markedly at extremely low signal strengths (where you would expect to use it); WIDE does get noisy under those conditions, but both special settings match the NORMAL performance very closely once input becomes reasonably strong. NARROW makes the automatic stereo switching (which, incidentally, has unusually good resistance to flicking in and out under borderline conditions) somewhat more sensitive. This seems sensible, in view of its superior stereo noise suppression. Distortion is good in NARROW, admirably low in NORMAL, and superbly low in WIDE.

The IF setting affects only one other measured parameter—selectivity. The alternate-channel figures show how much WIDE—which is extremely wideband—must give up in this characteristic to achieve its improvements elsewhere. In contrast, NARROW can make little improve-

ment here over the already very good NORMAL figure. When DSL measured adjacent-channel selectivity, the TPT-3001A in WIDE proved the equal of many other tuners in their normal IF modes—2 1/4 dB, which is not atypical for this measurement. In NORMAL, the adjacent-channel figure improves to an excellent 11 1/4 dB, and NARROW yields an astonishing figure of 30 1/4 dB, making it our champion to date.

Turning to the TIA-3012 amplifier, we find such refinements as MOS FET transistors in the output stage, elimination of electrolytic capacitors from the signal path, passive tone controls using precision (1-percent) resistors, and Tandberg's Thermionic Servo Loop to eliminate DC offset in the output. Following current IEC recommendation, Tandberg has built into the phono-preamp section an infrasonic filter, which slopes off at 18 dB per octave to keep warp information and similar spurious subbass signals out of the audio. (Since this filter is not defeatable, it is not listed separately in the data column.)

Both tone controls have turnover controls. Since the "3-dB" points for each depend to a large extent on the degree of boost or cut in the adjustment, the marked turnovers (100/200 Hz in the bass and 3/6 kHz in the treble) can't be taken literally. But the curves produced by the various options make good sense. Even at the most extreme settings, the essential midrange (say, about 300 Hz to 1 kHz) is left nearly flat. The loudness compensation is unusually gentle, raising the very deep bass no more than 4 1/2 dB above the midrange and treble at the test settings. But some listeners will choose to give the curve a little more heft by a bass-control touch-up.

Distortion is all below our reporting threshold of 0.01 percent at the 0-dBW (1-watt) level and only slightly above it at full power. Highest distortion figures are, as usual, at 10 kHz and above, but even here

About the dBW . . .

We currently are expressing power in terms of dBW—meaning power in dB with a reference (0 dBW) of 1 watt. The conversion table will enable you to use the advantages of dBW in comparing these products to others for which you have no dBW figures.

WATTS	dBW	WATTS	dBW
1.00	0	32	15
1.25	1	40	16
1.6	2	50	17
2.0	3	63	18
2.5	4	80	19
3.2	5	100	20
4.0	6	125	21
5.0	7	160	22
6.3	8	200	23
8.0	9	250	24
10.0	10	320	25
12.5	11	400	26
16	12	500	27
20	13	630	28
25	14	800	29

INPUT CHARACTERISTICS (re 0 dBW; A-weighting)

	sensitivity	S/N ratio
aux	17 mV	85 dB
fixed-coil phono	0.21 mV	77½ dB
moving-coil phono	16 µV	75 dB

PHONO OVERLOAD (1-kHz clipping)

fixed-coil phono	260 mV
moving-coil phono	20 mV

PHONO INPUT IMPEDANCE

fixed-coil phono	48.2k ohms; 32 pF
moving-coil phono	150 ohms

OUTPUT IMPEDANCE (at tape out) =1,000 ohms

DAMPING FACTOR (at 50 Hz) 135

they are low and consist predominantly of the relatively benign second harmonic. The amp meets its power specification with ease: The 1¼-dB headroom measurement means that it can achieve the 150 watts per channel into 8 ohms on typical musical waveforms, which is a lot of muscle for anything even resembling a receiver.

Finally, the sound quality of the ensemble is superb. It has been achieved, in our estimation, by a combination of control flexibility to cover the many situations that might diminish the signal's bloom (consid-

er, in particular, the IF-bandwidth switch and the tone controls) and close attention to fine detail. On occasion, some companies have created prodigies with a stroke of engineering legerdemain, but this is not the case here: For all the suavity of its European exterior and the smoothness of its switches and knobs, this ensemble reminds us of Edison's dictum on the importance of perspiration to achievement. And these components certainly represent a significant achievement by Tandberg.

Circle 103 on Reader-Service Card

Sony's Big-Little Headset



Sony MDR-CD7 stereo headphones. Cord length: 10½ feet. Price: \$120. Warranty: "limited," one year parts and labor. Manufacturer: Sony Corporation, Japan; U.S. distributor: Sony Corporation of America, Sony Dr., Park Ridge, N.J. 07656.

PROBABLY THE BEST KNOWN of Sony's headsets these days are the ones that come with the Walkman. Like almost all those intended for use with quality personal portables, they are very lightweight models whose earpads are small, acoustically transparent foam "buttons" that rest on the ear, rather than surrounding it with an isolating earcup, as almost all models did during the first decade of stereo headphones. In the MDR-CD7, Sony has sought to combine the best of both headphone types, and it has succeeded to a surprising degree.

The ear cushions of the MDR-CD7 are oval: 1¼ by 2¼ inches. Thus, they still rest on the ear, though on a larger area than previous MDR models have covered. The cushions are fashioned of extremely compliant urethane foam covered by a plastic "skin." Unlike the foam of the button designs, these pads do not transmit sound; in the center is a round opening a little larger than the ¼-inch diaphragm, just visible behind a gauze-protected diffuser. The driver enclosure is vented with fifteen tiny holes on the far side.

The purpose of the foam pads seems to be multifold. The inside opening creates a cavity through which the sound is coupled to the ear. The extreme compliance of the foam helps spread what load there is (since the headphones weigh less than three ounces and the spring pressure of the headband is only moderate) evenly over the pinna to prevent uncomfortable pressure. In doing so, it also forms a more intimate seal with the pinna than a less compliant material, which would tend to bridge over its corrugations.

The headset geometry is slightly unusual in the offset angle of the earpiece swivels, which rather suggests the offset in a pivoted tonearm. Sony evidently has been studying the variations to be observed in the pinnae of the human ear—both in what it calls "twisting angle" (azimuth, or tilting from the vertical) and "flapping angle" (splaying of the trailing edge away from the head). The offset angle is said to provide optimum comfort, a claim that our ears can substantiate.

The diaphragm is said to be pure 24-carat gold. Litz wire is used for the 10½-

foot straight cable. The latter terminates in what looks like a standard ¼-inch stereo phone plug, but the outer portion unscrews to reveal that it really is an adapter, concealing a miniature stereo phone plug within. Thus the set can be used either with stereo components or with personal portables.

And it is very well suited to either. For portables, it is a superset in that the bass is more extended than that of any ultralight headset we've worked with before, while isolation is much higher than it is in any of the foam-button types (which is good for the sound but possibly not for the safety of the wearer in traffic); and sensitivity is remarkably high, making the most of the portable's output capability.

What really surprised us, however, was the comparison between the MDR-CD7 and various heavy, sealed-cup models in our collection. Conventional wisdom says that to create really good bass—even when so small a volume of air must be moved—it's necessary to go for relatively oversize driver diaphragms. And to get the high isolation needed for a monitoring headphone, you need both good earcup seal and a completely sealed driver compartment, to keep ambient sounds from entering by the back door, so to speak. Well, the little Sony does have good earcup seal, but the driver compartment is vented and the diaphragm itself is smaller than those in any of the headsets to which we compared it. Nonetheless, it rated equally good or almost as good in isolation, equally good or better in bass reproduction and in overall smoothness, and considerably lower in distortion.

In other words, these are headphones that you well may want to use for monitoring live recordings. Where ambient levels are high, they may not be quite as effective, but they're far more comfortable to wear than traditional monitoring headsets. Their very high sensitivity—significantly outstripping all of our conventional models—will also make the most of the often skimpy output from cassette decks and preamps, if you're using home equipment in your recording setup. In short, we think Sony has another winner in the MDR-CD7.

Report Policy: Equipment reports are based on laboratory measurements and controlled listening tests. Unless otherwise noted, test data and measurements are obtained by Diversified Science Laboratories. The choice of equipment to be tested rests with the editors of HIGH FIDELITY. Samples normally are supplied on loan from the manufacturer. 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. HIGH FIDELITY and Diversified Science Laboratories assume no responsibility for product performance or quality.

6

Sixth in a series of how Delco Electronics and Bose technology contribute to your enjoyment of driving.

Deceptive... isn't it.

The control panel of this Electronically Tuned Receiver (ETR) is simple—and deceptive. Simple so that the receiver is easy to operate. Deceptive because a very sophisticated technology lies behind it. A technology that produces high fidelity reception from the Delco-GM/Bose Music System under conditions that are even difficult for ordinary radio reception.

The key to this technology is Delco Electronic's own custom integrated circuits. These circuits respond automatically to changing reception conditions and program requirements. So you can enjoy music and driving more.

When you visit your GM dealer* you will understand why Len Feldman wrote in *Popular Science*: "It's as good as or better than the best home systems I've heard."

*Available as a factory-installed option on Cadillac Seville and Eldorado, Buick Riviera, Oldsmobile Toronado, and Corvette by Chevrolet.

Delco  **BOSE**

Sound so real it will change how you feel about driving.



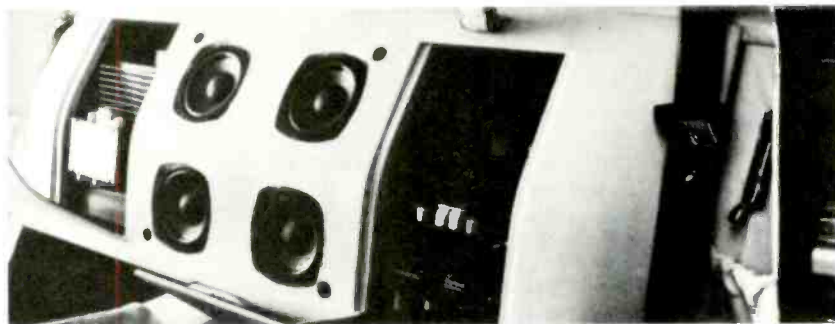
Learning from a Pro

A dream-car sound installer shows how it's done in southern California.

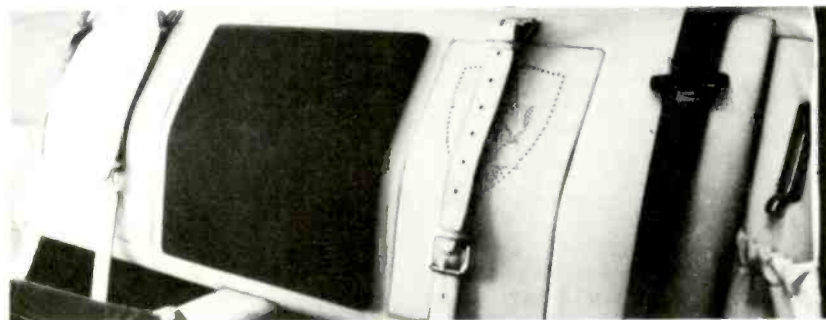
by Gary Stock



AARON RILEY



If you owned a \$100,000 Ferrari Boxer, you might not think that \$19,000 was too much to spend for a car-stereo system—at least if it were a system designed and installed by L.A.'s Charles Apcar. These photos show what makes such an installation so costly: meticulous attention to detail and painstaking craftsmanship. Apcar virtually re-created the car's rear parcel area. First, a wooden enclosure was built for the system's four 5 1/4-inch woofers and the amplifiers necessary to power them. The enclosure was then covered in glove leather and a Ferrari prancing horse symbol was punched in to add a bit of panache. Leather strapping secures the hinged amplifier-enclosure doors, and only the foam speaker grille suggests that anything un-Italian is lurking behind.



IN THIS GREAT big country of ours, there's a locale associated with every kind of endeavor. Computers and Silicon Valley are as natural a pairing as pastrami and the Lower East Side of New York. And, just as

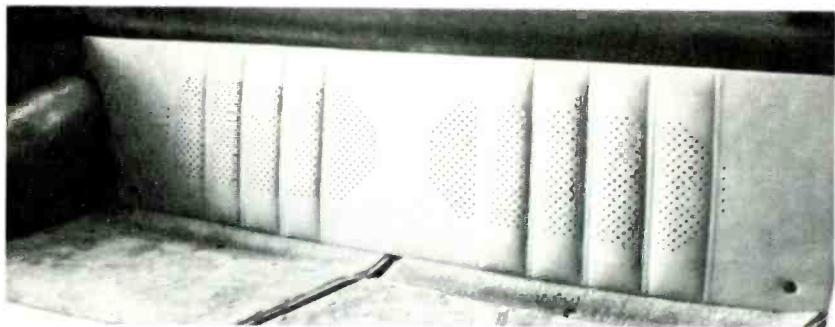
you would journey to the dusty plains of West Texas for the best chili, your search for the most exotic and outrageously pricey car-stereo installations would unquestionably lead you to southern California, where

the automobile is worshiped. To be sure, there are hundreds of car-stereo installers doing careful, journeyman work in other places, but the City of Angels towers over all other contenders when it comes to mega-

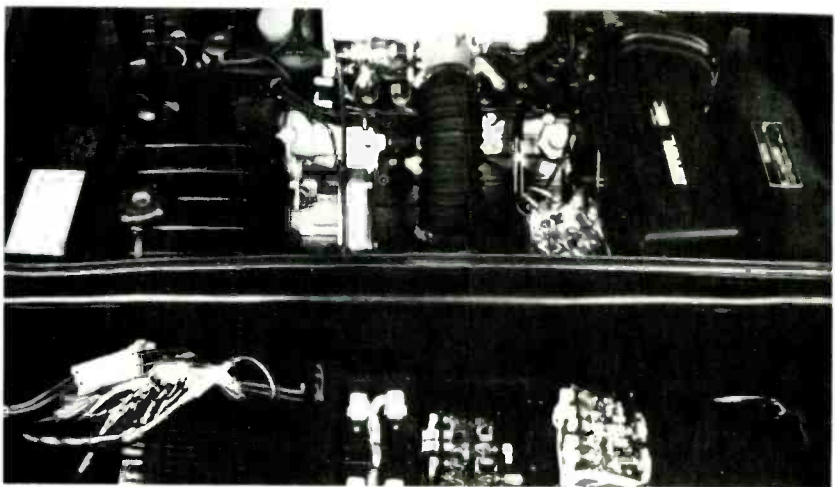
CAR STEREO



This Porsche 911 is equipped with a sound system E. Power Biggs might have loved. The four-woofer array is mounted in a 4-inch deep, airtight enclosure. The enclosure is bolted to the car's rear fire wall, and perforated leather upholstery gives it a factory-made finish.



Here's a sight that should delight auto and audio enthusiasts alike. A fuel-injected, light-alloy Ferrari V-8 engine mounted sideways in a 308 GTSi Spyder nestles next to multiple Audiobile power amplifiers and electronic crossovers. The engine puts out 205 horsepower through a five-speed gearbox; the amplifiers put out in excess of 400 watts through a four-way crossover system. An insulating dividing wall protects the amplifiers from excessive heat.



buck systems.

Charles Apear runs one of the outfits in Los Angeles that build dream-car stereo systems. His two Sound-on-Wheels shops cater to the city's movers and shakers and to the cars that mirror their worldly state—Porsches, Ferraris, BMWs, and Mercedes Benzes. Logically enough, ministering to such expensive automobiles does not come cheap. Although Apear does a fair number of \$1,000 "budget" installations, his stock-in-trade are systems in the \$5,000 to

\$15,000 range.

Since none of us at HIGH FIDELITY could afford this sort of stuff—or indeed even the freight charges to ship one of our econoboxes West—we decided to invoke journalistic privilege and pick Apear's brains on the subject of how to go about building a southern-California-style system at moderate prices. After the expected comments about silk purses and sow's ears, Apear finally agreed to share with us the rudiments of his craft. The choicest nuggets

from his brief course of instruction are here rendered in the master's own words.

Speaker Placement

"I use frequency range to determine where speakers should be placed. Bass speakers aren't directional, so they can go wherever you can fit them, as long as they are able to fire into the car's interior. Usually, when I'm dealing with a big formal car like a Roller or a Benz [lingo for Rolls

The New **Boston C700.**

Good enough for your living room. Tough enough for your car.

This is the new Boston C700 two-way automotive speaker system. We designed it to meet the same high standards we set for our home speakers.

The C700 is a component-quality speaker system. It has a long-throw 5¼-inch polypropylene woofer, our optical-precision CFT/2 1-inch copolymer dome tweeter, and a five-element crossover network.

Both drivers use high-technology materials that survive extremes of temperature and

humidity that can destroy ordinary car speakers. We have baked the C700 to make sure it would play on sunny days, and frozen it in dry ice to make sure it would play on cold days. We have submerged it in water, taken it out and played it, to make sure it would play on rainy days. To provide better protection against accidental overload, we added a "smart" tweeter protection circuit that makes changing fuses a thing of the past.

Although the C700 will probably be the most reliable part of your car music system, it is also a Boston Acoustics speaker. We designed it, we build it, and we expect you to judge it on the basis of its acoustic excellence. When you do, we think that you will choose the C700, even over car speakers that cost more. It delivers the performance and value that have quickly earned Boston's reputation among listeners and reviewers around the world.



Thinline housing takes only one inch above panel.

Genuine two-way speaker system with L/C crossover at 3,000 Hz.

Exclusive CFT/2 1-inch copolymer dome tweeter.

Paralign™ magnet structure for exact, permanent alignment of critical voice coil and magnet structure components.

Long-throw 5¼ inch woofer delivers solid, deep bass.

Only 1½ inches clearance needed under mounting panel.

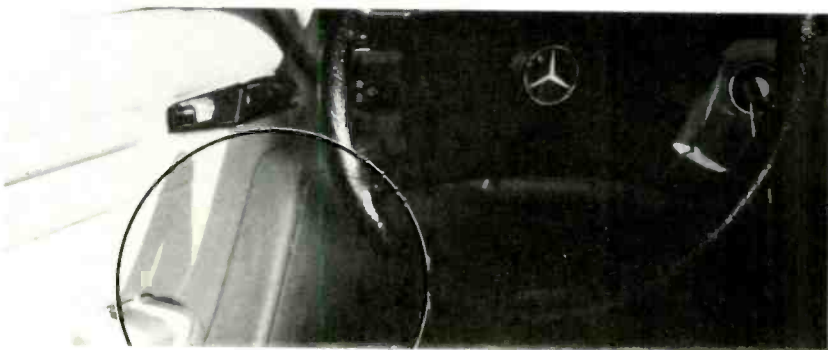
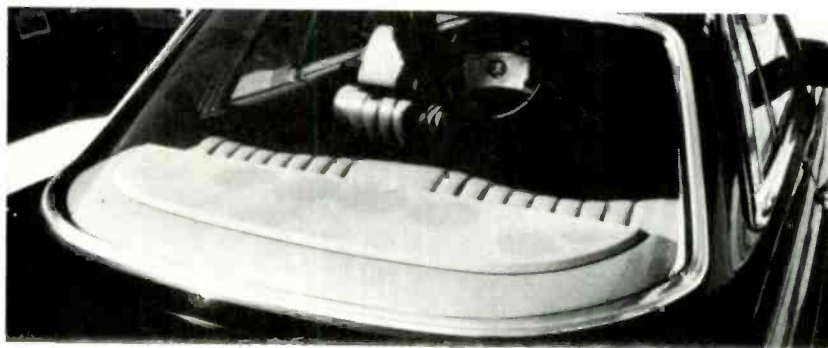
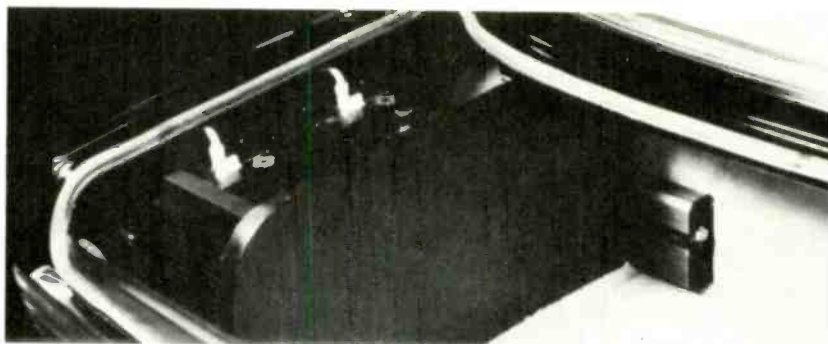
Would you like to talk with us?

Send us this coupon (or write us) to receive a free, full-color leaflet describing the C700. If you wish (it isn't necessary), write in your daytime phone number; we'll call you, give you the name of your nearest C700 dealer, and answer any questions about the C700 or other Boston products.

Name _____
Address _____
City _____ State _____ Zip _____
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Area Code _____ Number _____

Boston Acoustics, Inc.
(C700)
247 Lynnfield Street
Peabody, MA 01960

Boston Acoustics



In a Mercedes 380 SLC, Aparcar sacrifices some luggage space in the trunk for power amplifiers and electronic crossovers (top). On the rear deck, a wooden grille covered in color-matched fabric protects a subwoofer system and two midrange/tweeter arrays (middle). And so artfully are the front speakers disguised, that we have directed your attention to the leather-covered enclosure just in front of the armrest. It contains a midrange driver and tweeter.

Royce and Mercedes Benz] I hang a subwoofer enclosure below the rear deck so that its front plate is flush-mounted with the deck. For a sports car without a rear deck—say a Porsche 928 or a Ferrari Boxer—I'll build an enclosure out of 3/4-inch particle board and have it upholstered in a material to match the interior. Then I'll bolt it somewhere into the rear cargo compartment.

"Midrange speakers are more directional, but still don't require placement directly facing the driver. The ideal location for them is on the dash, but I've built some

excellent systems where the midranges were in the kick panels [usually located forward of the front door, near where the front passenger's feet go]. When I do build systems with kick-panel midranges, I usually construct a small enclosure, upholster it, and angle the enclosure toward the driver.

"For decent imaging, the tweeters pretty much have to be on or just adjacent to the dash so that they fire toward the driver. I don't like the disembodied effect you get when you separate the midrange from the

tweeter by any distance, so I keep them close together and arrange them vertically to prevent image shifts when the driver's head moves.

"As far as I'm concerned, one speaker system is ideal in a car. I don't buy the idea of a second pair of full-range speakers for 'rear fill.' Some installers in southern California are doing systems where the primary sound source is in the rear of the car, but I'm opposed to that approach as well. I'll start doing it when I start sitting backward at concerts."

CAR STEREO

Connections and Wiring

"I have three standing rules for my installers: One, solder everything you can; two, cover every joint with heat-shrink tubing; and, three, never use electrical tape because temperature extremes eventually break it down.

"I use a heavy, low-resistance cable for all speaker connections, and attach Molex nylon connectors near the speakers so that the panel can be removed if need be without cutting the cables. To keep screws and bolts from coming out, I use lock washers and a thread-locking compound like Loctite on all fasteners. And I fill any enclosures I build either with acoustical fiber or with an acetate fiber.

"To avoid ground loops, I ground the entire system to the same point—usually a big, shiny chassis bolt somewhere near the front-end unit. And if I get engine-noise problems, I experiment with the routing of the signal cables—which solves the problem maybe half the time—or bypass the ignition and power leads with 0.05-microfarad 'can' capacitors that run from the lead to ground. That solves noise problems the other half of the time."

Antennas

"Since most of the cars I work on are German or Italian, I can often use the stock antennas—they're excellent Hirschmann units. If I do add an antenna, I also choose a motorized Hirschmann, but I wire it in such a way that a dash switch can be used to vary its height. It's amazing what a 6-inch change in antenna height can do to improve reception when you're riding around in hill-

country or out here where there are many closely spaced stations. When I do any top-flight system—say over \$10,000—I'll add an antenna height-adjustment switch even if the car's stock antenna would normally be fully automatic. It's the single most important modification you can make to the antenna.

"A lot of antennas don't work well for an amazingly simple reason: The fender that they're attached to rusts around the mounting hole, and they don't have a proper ground. Especially if you live in wet country, it's critical to get a clean, shiny-metal-to-shiny-metal contact between the antenna base and the fender."

Installing and Protecting the Front-End

"A simple cardinal rule here: Never mount the front end by its shafts! More units fail because of pressure on the shafts than for any other reason. I always use one or two rear support straps when I install a front-end unit, and sometimes I add foam blocks to support the bottom.

"I don't try to prevent theft by hardening up the dash or center console with extra braces or covers. In my experience, that only makes sure that the robbers ruin the radio *and* the dash if they get inside. I'd rather put the security elements on the *outside* of the car, and then allow the crooks to take the radio if they get inside, without tearing up the interior."

Equalizers

"Generally speaking, I use a triamplification arrangement to tailor the balance of sound, rather than build an equalizer into

the system. In cases where the customer really wants an equalizer, I recommend putting it in the glove box out of easy reach. In fact, after its settings have been chosen, you should forget the equalizer and use the front end's tone controls for minor adjustments. Also, I can't stand the appearance of an underdash equalizer, so I never mount them there."

Assembling a Top System One Step at a Time

"Start with a good front end—a tuner with excellent sensitivity, a tape player with a rugged transport, and a good low-distortion power amplifier. These elements shouldn't be skimmed on—you can always upgrade the speakers later if you've started out with high-quality electronics.

"Unless you're skilled at woodworking, and bold enough to take apart your car's interior, I'd recommend a pair of self-enclosed minispeakers—Braun, Polydax, ADS, AR, and few others make them—as your primary sound sources. They should be mounted at an angle in the kick panels, as high up as possible. If necessary, move the hood release or footbrake to accommodate them.

"You may find yourself looking for more output level or more bass. In either case, a subwoofer with its own amplifier and an active electronic crossover are the next steps. Only after that would I go to additional speaker pairs or equalization. The key to a natural-sounding car-stereo system is to use as few speakers and ancillary electronic components as possible to do the job. Then work carefully and slowly to get everything installed right." **HF**

How We Test Car Stereo Gear

THIS MONTH'S CAR-STEREO equipment reports continue the series that began in the May issue and are based on the same ground rules. There are some differences in detail, however. This time we did not necessarily request an amplifier for those products not containing one, though Diversified Science Laboratories measured the Nakamichi TD-1200 through the output of its companion PA-300 power amp and the Concord HPL-122 receiver/tape deck through its built-in amplifier stage. This may give a slight advantage in such measurements as frequency response and distortion to products like the Alpine 7347, which, lacking a built-in amplifier, was tapped at its line outputs. For our road tests, we continue to use our standard ADS amplifier/crossover/speaker setup, bypassing the power amp stage of those front ends so equipped.

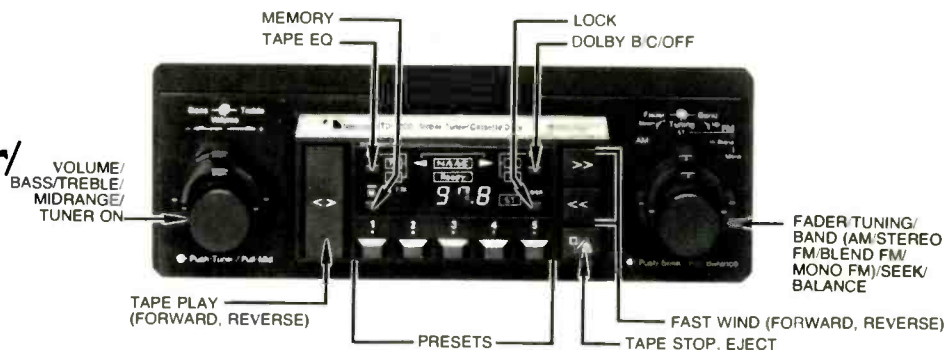
In addition, a change in the road test procedure was occasioned by the demise during an ice storm of the antenna tower used by our primary test station (WAMC, Albany, N.Y.). This time, we substituted a station (WMHT, also of Albany) whose antenna is farther away, but whose reception—as the test car drove into, through, and out of a good reception zone flanked by high hills—proved a particularly revealing test. When the first station is back in full stereo operation, we will use both for further equipment testing.

As Ed Foster outlined in "Tackling the Tests" (May), there are some differences between how DSL tests car and home audio gear. First, since AM reception is probably more important to you in the car than at home, we test that portion of the front end's circuitry. AM sen-

sitivity is given in microvolts, and the lower the number, the better. Automatic-volume-control range suggests the constancy of sound level as you drive farther away from a station; here, the larger the number, the better.

FM curves are also presented somewhat differently. Since some auto-sound tuners are designed to mute gradually as the signal fades and so reduce noise under those conditions, we plot both the audio signal level and the noise level as a function of RF input. And, since car tuners may have various reception modes, a number of curves may appear on the same graph. Finally, some tuners cannot be assigned a 50-dB stereo quieting figure, because, despite the stereo beacon's indication that they are tuned to a stereo broadcast, they are in mono at that quieting level.

Nakamichi TD-1200 Tuner/ Tape Deck



WITH THE TD-1200, Nakamichi makes an auspicious reentry into the car-stereo field. The ultra-high-tech design, the unique security system, the product format, and even the price (\$1,260) all tell you that this front-end is definitely out of the ordinary. In many respects, it is the nearest thing to home componentry we've tested to date, and some aspects, notably the automatic azimuth correction, are revolutionary in a car deck. For a complete Nakamichi system, you might add the PA-300 power amp and the SP-400 loudspeakers.

We were awed by the Nakamichi Automatic Azimuth Correction (NAAC) system when we reviewed it in the Dragon deck (April), because it took in its stride tapes made on decks with extreme azimuth adjustments (or misadjustments). When played back on most decks, such tapes would deliver muffled sound. Dolby B emphasizes this problem; Dolby C and DBX tend to emphasize it even more. In its ability to perform azimuth corrections in playback, the NAAC bidirectional drive (which the TD-1200 shares with the Dragon) is arguably the most important single advance in cassette recording since high-performance noise-reduction systems (Dolby C and DBX) appeared. That it should be available for automotive use within a year of its first home incarnation is astonishing. There are other special technical details embodied in the TD-1200—circuitry to suppress engine-induced impulse noise, for instance—but nothing to match the virtuosity of NAAC.

The antitheft scheme is intriguing,

however. It consists of a five-digit code (which comes engraved on a "key" and presumably works only on your particular sample) that must be punched into the five preset buttons (used as a keypad) in order to turn the unit on. Since more than 3,000 permutations are possible, a thief would have to be patient indeed to stumble onto the one needed to operate his prize; but even then he would fail unless he had previously attached three wires (ignition, battery, and ground) in the correct sequence. Once the code has unlocked the unit, it stays unlocked until the battery wire is disconnected (or the battery discharged) or you push the lock button on the front panel—which therefore prevents use by parking attendants as well as thieves.

There are two drawbacks to this scheme, however. Unless the would-be thief is well informed about car-stereo equipment, he won't know that he can't use the TD-1200 until *after* he has taken it. And the ineluctible unlock sequence—which also includes a three-minute wait between battery connection and code entry—can be a major frustration to any installer who messes up the sequence or unknowingly has a blown fuse in a power line.

Nakamichi has chosen to adopt DIN dimensions for the front-end proper. Since that allows insufficient space for all its electronics, there's a second chassis that connects to it by two 62-inch umbilicals; the antenna attaches to this second module. Since it has no controls of its own, it can be mounted anywhere within the reach of the umbilicals.

There are three selectable modes of FM reception: stereo, blend, and mono. The quieting graph suggests what happens during stereo reception as signal strength drops. At around 50 dBf, noise is beginning to creep up; but as the antenna input drops farther, output is cut back (by about 6 dB below 40 dBf), and noise performance starts to improve again. This is the result of an automatic blend function that saves the listener from the full consequences of the weak signal without forcing a manual switch to blend or mono. In fact, the per-

formance is essentially mono before the noise has crept as high as -50 dB. That's why you'll find no stereo-sensitivity figure in the data: Stereo isn't available at the rating point. This scheme works very well: Stations I have considered unlistenable with typical car equipment are surprisingly clean on the TD-1200. The audio output, however, is so broad in response that what spitting does occur is reproduced crisply on wide-range speakers, taking a little joy out of multipath-ridden listening. Overall, the TD-1200's tuner section is at least the equal of any car tuner we've tested, AM included.

And the tape deck is simply superb. Its measurement figures are outstanding, and while I thought I detected a very slight (and very brief) waver after the worst road shocks, the in-transit stability is among the best. When you press EJECT to insert a tape, the entire nosepiece moves out, revealing the transport's horizontal platform on top. Tape play continues to the end of the music; when no signal is sensed for 20 seconds, the deck fast-winds to the end, switches to the other tape side, fast winds past the leader to the beginning of music, cues itself up, and recommences playback. We liked this feature in the home deck; in a moving car, where the driver can do no more than glance at the deck controls and fumble a little whenever the music stops, it's particularly welcome. And the NAAC sees to it that even Dolby C tapes are reproduced with a top end whose detail is unmatched in most car decks.

However, the control scheme, while adequate, does not reflect the excellence of the unit's performance. The Dolby button, for example, sequentially switches from off to B to C to off. You are supposed to tell which setting it has reached from the pilot LEDs. But strong sunlight makes them all but unreadable to the driver, whose attention is, at least partially, engaged elsewhere.

Finally, Nakamichi flaunts tradition in its three-band tone control system. BASS affects only the very deep bass, and MIDRANGE is centered extremely low—

Laboratory data for HIGH FIDELITY's auto-sound equipment reports were supplied by Diversified Science Laboratories; road testing and text are by Robert Long. Preparation was supervised by Michael Riggs and Peter Dobbin. All reports should be construed as applying to the specific samples tested. HIGH FIDELITY and Diversified Science Laboratories assume no responsibility for product performance or quality.

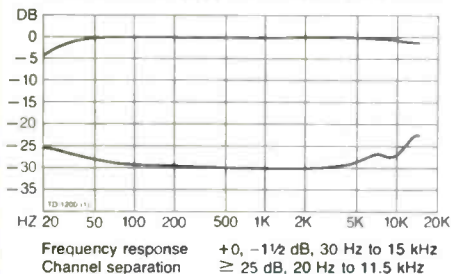
CAR STEREO

near 200 Hz. (That may sound like bass territory, but 200 Hz is the approximate fundamental frequency of the G below middle C on the piano, making it lower midrange from this viewpoint.) Nakamichi says these ranges were chosen because it has found them the most appropriate for solving problems of automotive acoustics.

Nakamichi TD-1200 AM/FM/cassette front end, with Dolby B and C, bidirectional cassette transport with automatic azimuth correction. Dimensions: 7¼ by 2¼ inches (chassis front), 6 inches deep; escutcheon, 7¾ by 2¾ inches; "nose," 4 by 1⅞ inches; main shafts, 5½-6¼ inches o.c.; electronics module, 7¼ by 2 by 5¼ inches. Connections: flat-clip female for ignition, battery; 8-pin & 10-pin DIN-style interconnect cables to electronics module; round single-wire female for on/off power to amp; bared wire for ground; pin-jack female for front and back line outputs; standard coaxial female for antenna input. Fuses: 5-amp in ignition and battery lines, ½-amp in remote-amplifier switching line. Price: \$1,260. Warranty: "limited," one year parts and labor. Manufacturer: Nakamichi Research, Inc., Japan; U.S. distributor: Nakamichi U.S.A. Corp., 1101 Colorado Ave., Santa Monica, Calif. 90401.

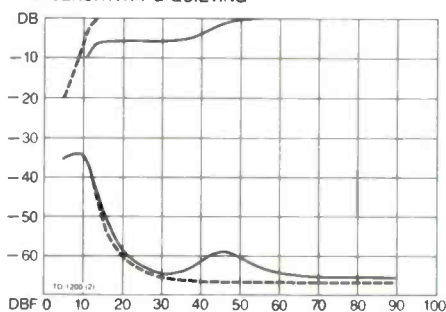
FM tuner section

FREQUENCY RESPONSE & CHANNEL SEPARATION



And by varying the "body" and "under-pinnings" ranges separately, the controls create a genuinely useful flexibility not found in conventional designs. We must add, however, that this flexibility comes at some cost to ease of control. Because the three (presumably) set-and-forget functions are all on the same knob and are accessed by

FM SENSITIVITY & QUIETING



— stereo quieting (noise) & output
 - - - mono quieting (noise) & output
 Stereo sensitivity (for 50-dB noise suppression) see text
 Mono sensitivity (for 50-dB noise suppression) 15 dBf

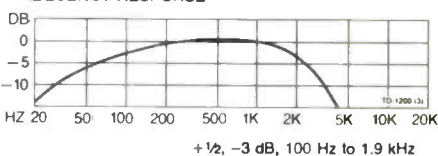
CAPTURE RATIO	1¾ dB	
SELECTIVITY (alternate-channel)	33 dB	
AM SUPPRESSION	61 dB	
DISTORTION (THD+N)		
	stereo	mono
at 100 Hz	0.16%	0.13%
at 1 kHz	0.088%	0.082%
at 6 kHz	0.20%	0.19%

pushing, pulling, or a combination thereof, they are difficult to operate while driving.

Make no mistake: This is a superb piece of equipment. If price is not too important to you, but accurate tape playback (in both forward and reverse) and great FM reception are, then give the TD-1200 a test drive.

AM tuner section

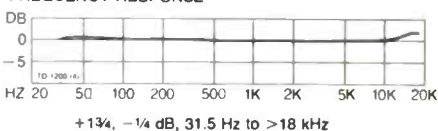
FREQUENCY RESPONSE



SENSITIVITY 1.8 µV
 AVC RANGE 73 dB

Cassette transport section

FREQUENCY RESPONSE



WOW & FLUTTER ≤ ±0.09% average;
 ≤ ±0.11% peak
 SPEED ACCURACY ≤ 0.5% fast, 10.8-14.4 volts

Preamplifier section

BASS CONTROL +15, -16½ dB at 50 Hz
 MIDRANGE CONTROL +9, -10¼ dB at 200 Hz
 TREBLE CONTROL +10, -12¾ dB at 15 kHz

Alpine 7347 Tuner/Tape Deck



ALPINE, WHICH MANUFACTURES the prestigious Luxman line of home equipment, also incorporates some "touches de Lux" into its car equipment. This is particularly apparent in the styling of the 7347's memory/preset section; indeed, the overall appearance of the front end—particularly its simulated wood-grain escutcheon panel (a black alternative is provided as well)—is extremely attractive.

Like most companies, Alpine is faced with the problem in their top automotive models of providing multiple controls without clutter in an extremely limited

space. Its solution is elegant in appearance, but occasionally problematic in operation. The main knobs are fitted with two outer rings each: treble and bass on the left, balance and fader on the right—a logical deployment. And both of the main knobs have added push functions: When you touch the VOLUME firmly, the 7347 switches from cassette play to tuner; the tuning knob (which turns continuously for swift dial traversal) triggers a scan mode when you press it.

Among the four buttons at the lower left is one marked PMS (Programmable

Music Sensor), which is used for random access to tape selections. When you press it, a "1" appears in the readout window, and the numbers step upward with each subsequent press. Then when you press one of the fast-wind controls, the transport advances to the intersong blank reflected in the readout window (or stored in the memory) and plays the next selection. At the other end of the panel are the preset buttons, designated MEMORY, 4, 5, 1, 2, 3. They're a good size for an adult's fingers, though the memory button (which is also used to cancel a PMS setting) is easily pressed by

CAR STEREO

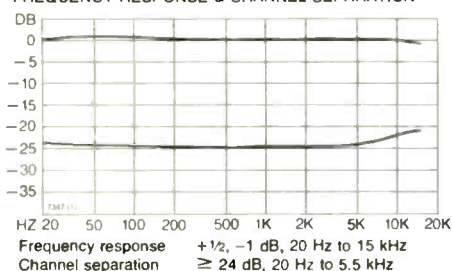
mistake and the numbers are quite small.

Lettering on the four-way rocker plate could be somewhat larger, in our opinion, given the variety of functions this single touch-pad controls. The upper left corner operates tape EQ (70 or 120 microseconds) or DX/local reception (the switching of a 20-dB RF pad), depending on which source you're listening to. The lower left corner switches Dolby noise reduction in and out; the lower right determines whether it's Dolby B or C. And finally, the upper right switches DBX decoding, which can be activated even when Dolby is engaged. Minute LEDs light for one option in each binary pair ("Metal" EQ, DX, Dolby on, Dolby C, and DBX on), but they're difficult to see, and their meaning is sometimes hard to assess when your mind is on your driving.

Alpine Model 7347 AM/FM/cassette front end, with Dolby B and C and DBX noise reduction. Dimensions: 7 by 2 inches (chassis front), 5 inches deep; escutcheon, 7½ by 2¾ inches; "nose," 4½ by 1¾ inches; main shafts, 5¾ inches o.c. Connections: separate 8-pin male connectors for front and back, each with pins for ignition, battery, ground, B+ output for ancillary equipment, and left and right signal outputs; flat-clip female for power antenna; standard coaxial female for antenna input. Fuses: none supplied (though 5 amps in ignition line and 3 amps in battery line of adapter cable supplied to us for testing). Price: \$600. Warranty: "limited," one year parts and labor. Manufacturer: Alpine Electronics, Inc., Japan; U.S. distributor: Alpine Electronics of America, Inc., 19145 Gramercy Pl., Torrance, Calif. 90504.

FM tuner section

FREQUENCY RESPONSE & CHANNEL SEPARATION

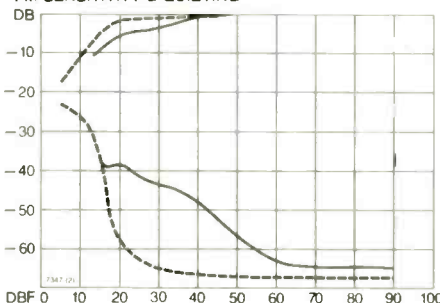


And the one-button design makes it easy to switch functions unintentionally.

Performance measurements on the tuner section resemble those of home equipment, except that output and separation reduce progressively as stations fade for graceful behavior under these conditions. Thus the listenability is even greater than the raw figures would suggest. That is to say, a progressively collapsing stereo image is less disconcerting than one that snaps in and out of focus. Here, however, the multipurpose rocker plate intrudes on enjoyment because it's so easy to find yourself on local reception (instead of DX) of a weak station simply because you recently listened to a 120-microsecond tape, which occupies the same switch position.

The presence of the three noise-reduc-

FM SENSITIVITY & QUIETING



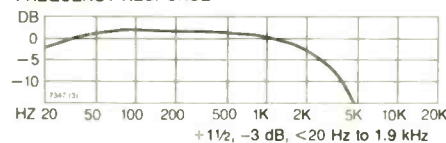
CAPTURE RATIO	3 dB
SELECTIVITY (alternate-channel)	66 dB
AM SUPPRESSION	56½ dB
DISTORTION (THD+N)	
at 100 Hz	stereo 1.3% mono 0.26%
at 1 kHz	stereo 0.71% mono 0.33%
at 6 kHz	stereo 0.52% mono 0.75%

tion systems certainly enhances the options for recordists who use them in their own taping. High-frequency response of the transport is not very flat, however, and some treble-control brightening seemed in order—particularly with noise reduction, of course. The transport is very insensitive to road shock, maintaining its very good wow performance even on bad roads.

If you're considering the 7347, you may want to consider Alpine amplifiers as well, so you don't have to mess about with adapters for the special connectors. (I could find none locally; Alpine supplied them for our tests.) And finally, though we have our reservations about the configuration of the unit's controls, it cannot be denied that the 7347 is one of the most feature-packed models we've seen.

AM tuner section

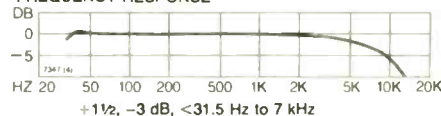
FREQUENCY RESPONSE



SENSITIVITY	2.9 µV
AVC RANGE	67 dB

Cassette transport section

FREQUENCY RESPONSE

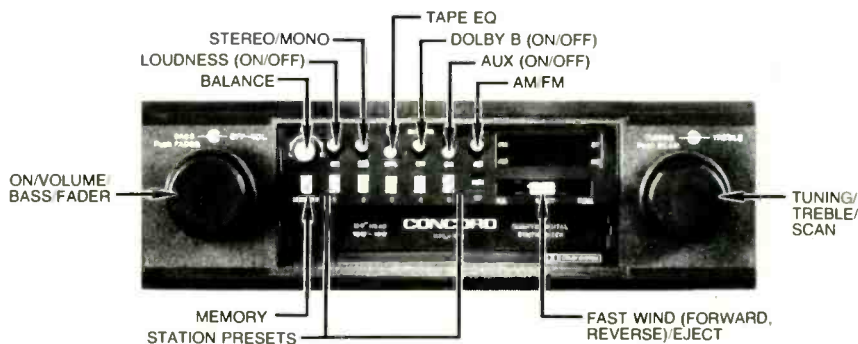


WOW & FLUTTER	±0.14% average; ±0.17% peak
SPEED ACCURACY	1.8% fast at 14.4 volts; 2.2% fast at 10.8 volts

Preamplifier section

BASS CONTROL	+11, -9½ dB at 100 Hz
TREBLE CONTROL	+10, -11½ dB at 10 kHz

Concord HPL-122 Receiver/Tape Deck



IN THE HPL-122, Concord has a decidedly straightforward car receiver in terms of con-

cept and control functions, but with a degree of sophistication in one key respect

that sets it apart. After the subtly complex multipurpose switches and knobs that char-



Concord DBX decoder

acterize the top models of most brands, Concord's single-purpose controls are refreshing. It's true that the main knobs have push functions as well as rotary ones: The left-hand volume knob doubles as a fader, while the right-hand one adds a tuner-scan function to the tuning itself. But the second functions are not so hair-triggered as to compromise the uses of the main ones.

The BALANCE has its own separate knob—so tiny that it's a bit difficult to manipulate; but that's just as well, and what bulk it possesses helps keep fumbling fingers from inadvertently pressing the MEMORY instead of one of the presets. The remaining slider switches are tiny but not difficult to operate, and their silver-against-black appearance makes their settings easy to read in daylight (unlike most LEDs); at night, you must rely on feel plus memory.

The tape transport control combines all functions on one lever: fast wind in each direction, depending on which way you move it, and eject when you press it. There's no need for PLAY or STOP since the receiver switches to cassette automatically when you insert one and starts playback immediately; ejection also turns off the cassette section. My only reservation with this degree of programmed behavior is that it produces a momentary shriek when you insert a tape, as the transport briefly winds the tape past the head at high speed (to remove loose loops, perhaps) before settling down to standard-speed playback.

The most unusual feature is the aux, which actually is designed like a processor loop, with both inputs and outputs controlled by its on/off switch. Thus it can be

used as a regular aux, for an extra source input (say, an eight-track player), but it can also be used for equalizers or ambience devices—any outboard electronics that must take the preamp signals, manipulate them in some way, and return them to the preamp for delivery to the power amplifier. I attached the Concord HPQ-90 DBX decoder to the aux for these tests. It has a decode/bypass button (and a mounting bracket to hold it suspended under the dash), so you can keep the HPL-122's aux permanently on and do your switching at the HPQ-90 if you want. I found it easier to leave the HPQ-90 on DECODE (and even hidden away) and do the switching on the receiver.

Mating the two Concord units is easy because they have matching 9-pin input/output connectors. Since either may be used with equipment made by other companies, however, both come with adapters for regular pin connections. And the 9-pin connector on the receiver comes with a jumper so that, if nothing is attached to it and you accidentally switch in the aux, the signal will feed through the jumper, and the program will remain uninterrupted.

On the road—as on the test bench at Diversified Science Laboratories—the front end's tuner proved unusually capable at pulling in stations, particularly in FM. Since this is a no-nonsense design, there's no monkeying with the separation or audio output on fading stereo reception. As a con-

sequence, borderline reception proved somewhat more irksome than necessary, unless the Concord had been switched to mono-only reception. Conversely, borderline stations sounded unusually clean with the car stationary, because of the excellent sensitivity and selectivity. Incidentally, the tuning control is the type that behaves like a capacitor in that, to tune quickly across the dial, you keep rotating the knob, rather than applying static torque—a small point, but traditionalists will like it.

Apart from the side-effects of tape insertion, the transport section is well above average. Wow, which is low on the test bench, is generally inaudible even on roads severely damaged by potholes. Response is unusually broad and flat. Dynamic range with DBX is so broad you want to stop the car to listen to the pianissimos. There is automatic tape ejection when you turn off the ignition.

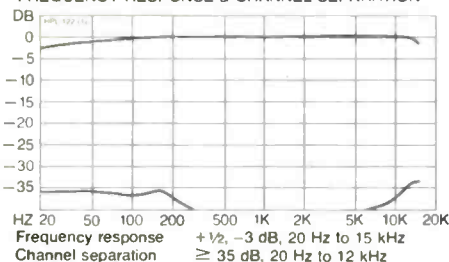
The sonic quality of the HPL-122—which includes an amplifier section that delivers a moderate (but much more than minimal) 5 watts or so to each of four speakers—is well above average. Incidentally, it has a level adjustment for the line outputs: A chassis adjustment will accommodate ancillary equipment that would "prefer" input voltages above or below the 330-millivolt factory setting. Whether you find the Concord's no-nonsense approach too bare-bones or superbly logical is largely a matter of taste. (I like it.) One further point: The owner's manual is much clearer and more comprehensive than most in the car-stereo field.

Circle 105 on Reader-Service Card

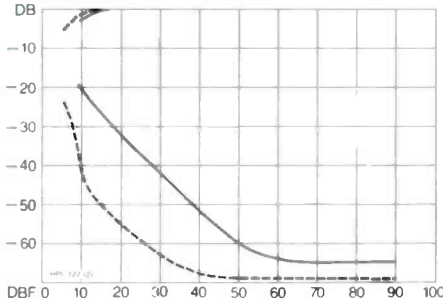
Concord HPL-122 AM/FM/cassette car receiver, with Dolby B; reviewed with HPQ-90 outboard DBX adapter. Dimensions: 7 by 2 inches (main chassis front), 4 1/4 inches deep; escutcheon, 7 1/2 by 2 1/4 inches; "nose," 4 1/4 by 1 3/4 inches; main shafts, 5-6 1/4 inches o.c.; DBX adapter, 4 3/4 by 1 by 3 1/4 inches deep. Connections: unterminated wires for ignition, ground, power antenna; special 9-pin interconnect plus pin-jack adapters for aux in/out; female pin jacks for front and back line outputs; 4-pin interconnect plus unterminated wires for speaker outputs; standard coaxial female for antenna input. Fuse: 1/2-amp in-line power fuse. Price: HPL-122, \$400; HPQ-90, \$100. Warranty: "limited," one year parts and labor. Manufacturer: made in Japan for Concord Electronics Division of Westland International, 6025 Yolanda Ave., Tarzana, Calif. 91356.

FM tuner section

FREQUENCY RESPONSE & CHANNEL SEPARATION



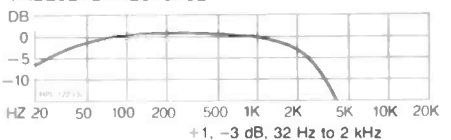
FM SENSITIVITY & QUIETING



CAPTURE RATIO	1 1/2 dB	
SELECTIVITY (alternate-channel)	62 1/2 dB	
AM SUPPRESSION	52 1/2 dB	
DISTORTION (THD+N)		
	stereo	mono
at 100 Hz	1.3%	1.8%
at 1 kHz	0.58%	0.44%
at 6 kHz	0.33%	0.34%

AM tuner section

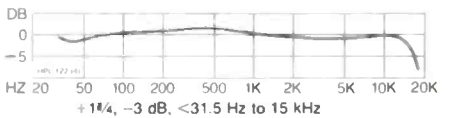
FREQUENCY RESPONSE



SENSITIVITY 2.0 μ V
AVC RANGE 78 1/2 dB

Cassette transport section

FREQUENCY RESPONSE

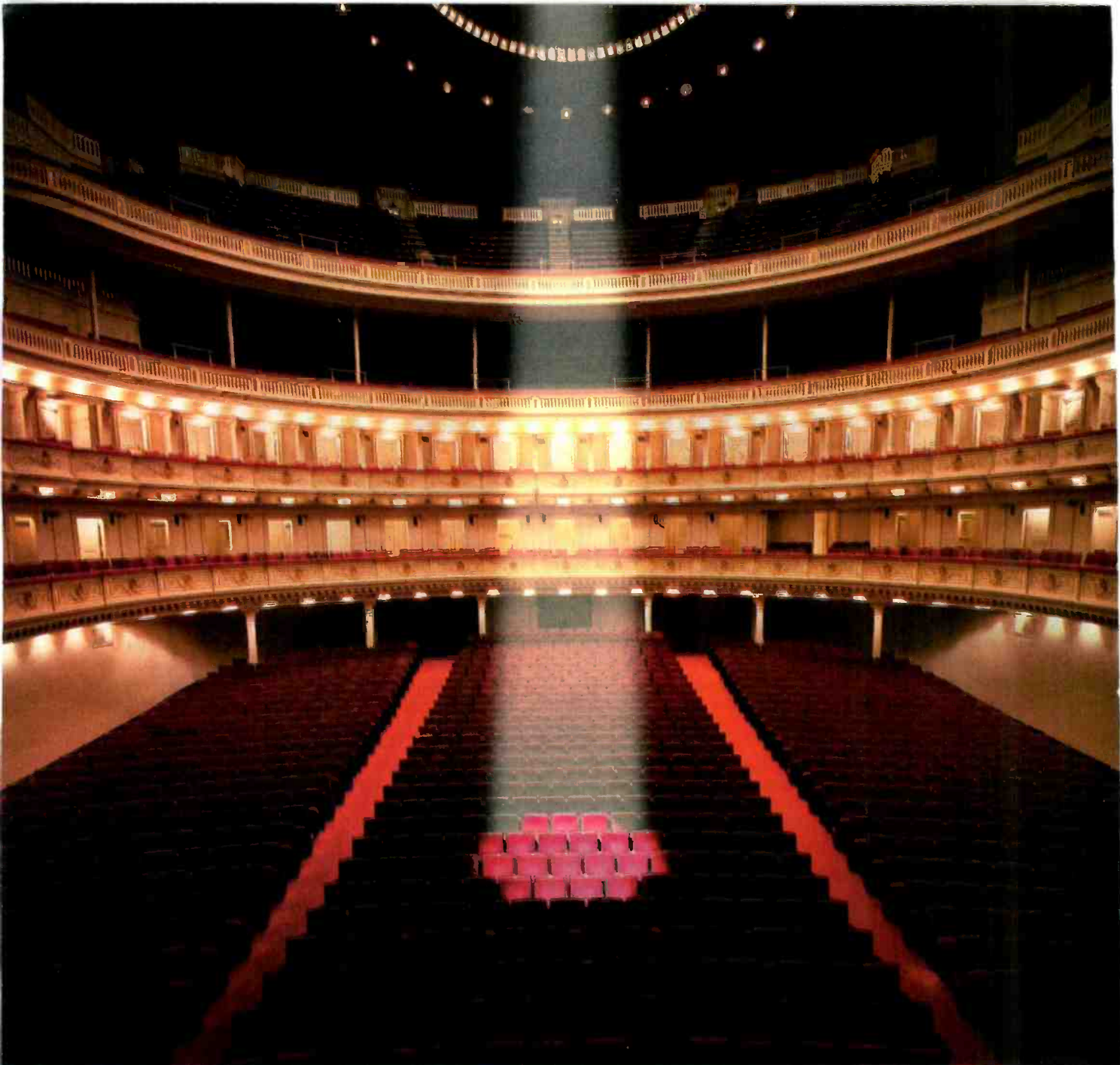


WOW & FLUTTER $\pm 0.27\%$ average; $\pm 0.36\%$ peak
SPEED ACCURACY $+0.3\%$ fast, 10.8 to 14.4 volts

Preamp/Amplifier section

BASS CONTROL ± 12 dB at 100 Hz
TREBLE CONTROL $+13, -11$ dB at 10 kHz

OUTPUT (per channel into 4 ohms, at 3% THD+N)
at 100 Hz 4.5 watts (6 1/2 dBW)
at 1 kHz 5.3 watts (7 1/4 dBW)
at 6 kHz 5.3 watts (7 1/4 dBW)



Sony creates seventh row, center. Forever.

INTRODUCING THE SONY COMPACT DISC PLAYER.

The inventor of digital audio processing is pleased to raise the curtain on the CDP-101. Hailed by the discriminating ears at *High Fidelity* as "the most fundamental change in audio technology in more than eighty years."

There are compelling reasons for such applause.

The CDP-101, based on the world's first compact disc system co-developed by Sony and Philips of Holland, offers concert-hall freedom from distortion, wow, flutter, and other sonic gremlins. Plus an awesome dynamic range exceeding 90dB. To bring you the full

beauty of Mahler or the Moody Blues as never before.

This highest of fidelity remains faithful, too. Because the digital discs are read by laser beam, there's none of the physical wear inevitable with tape or vinyl. While the CDP-101 ingeniously ignores scratches, dust, and fingerprints.

Equally ingenious, an infrared remote control even lets you select tracks without budging from your armchair. Yet for all its sophistication, the CDP-101 is thoroughly compatible with whatever sound system you now own.

We suggest you hear the CDP-101

soon. For a sound you can't believe, from the audio innovator you assuredly can.

SONY.
THE ONE AND ONLY



NEW
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Video

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Software Reviews

INSIDE *the* COMPACT DISC SYSTEM

BY

PETER MITCHELL



MAGNAVOX FD-2000 SL CD PLAYER. See test report elsewhere in this issue.

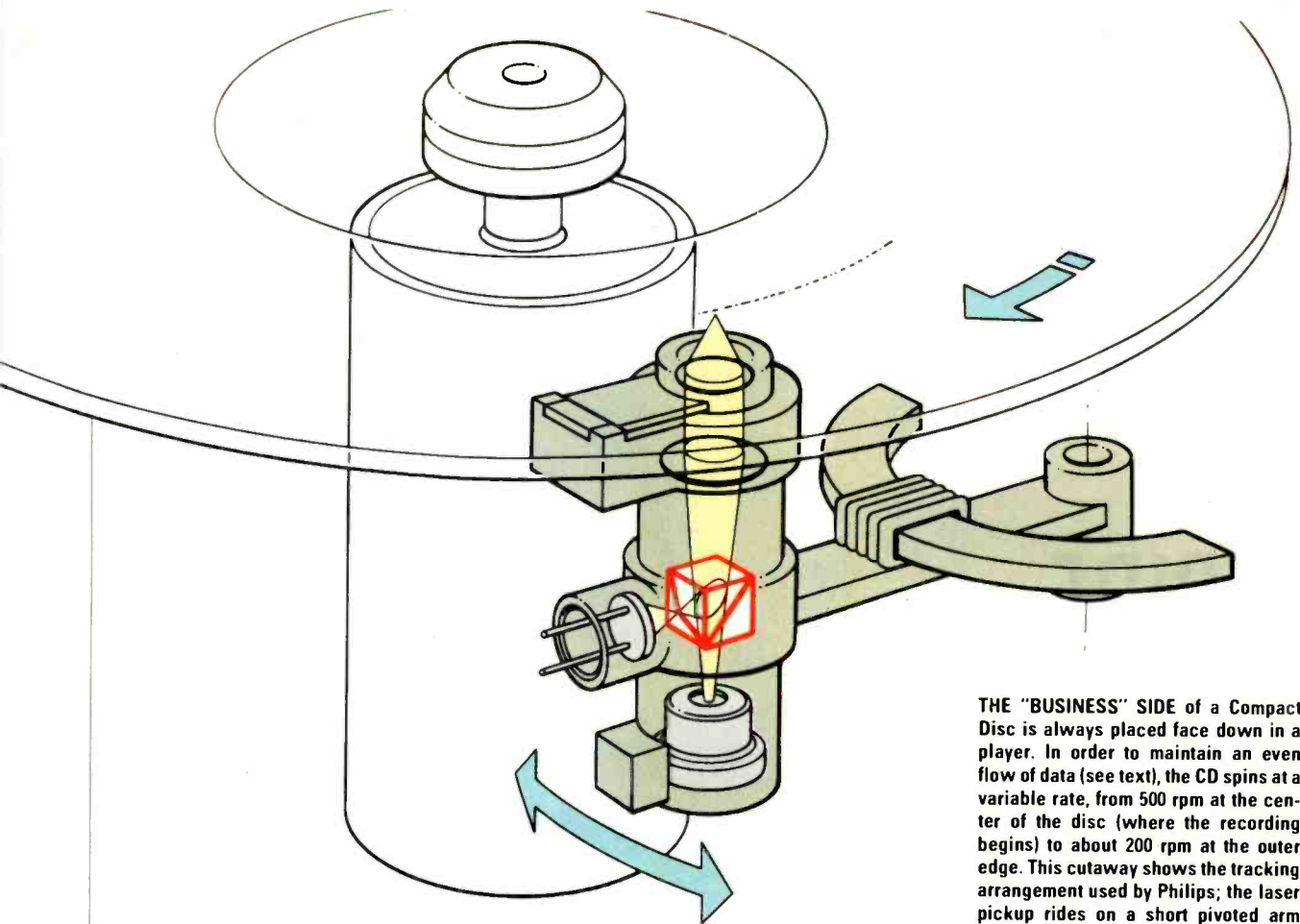
THE MYSTERIES OF THE MEDIUM ARE REVEALED IN THIS
GUIDE TO THE BRAVE NEW WORLD OF COMPACT DISCS.

THE MAGIC of Compact Disc (CD) playback—its broad dynamic range and freedom from background noise, wow and flutter, inner-groove distortion, and ticks and pops—has been well documented (see "It's Here," HF, December 1982). Understanding this magic, however, may seem daunting, especially since we are used to the CD's less complicated analog precursors. But if

examined on a "bit by bit" basis (pardon the pun)—from disc mastering and pressing to final playback—the CD can eventually be understood and appreciated.

The CD is a product of two very different technologies: the optical video disc and the digital computer. Extensive research and development enabled the CD to evolve from a figment of science fiction to a mass producible item. Even then, the project required extraordinary cooperation between the European-based Philips/Phonogram conglomerate—which specializes in plastics, optics, electronics, and record

Peter Mitchell is a prolific writer on science and technology, as well as president of the Boston Audio Society and proprietor of Mystic Valley Audio, a design and consulting firm based in West Medford, Massachusetts.



THE "BUSINESS" SIDE of a Compact Disc is always placed face down in a player. In order to maintain an even flow of data (see text), the CD spins at a variable rate, from 500 rpm at the center of the disc (where the recording begins) to about 200 rpm at the outer edge. This cutaway shows the tracking arrangement used by Philips; the laser pickup rides on a short pivoted arm that describes an arc over the disc.

manufacturing—and the entire Japanese consumer electronics industry, led by Sony.

Basically, Philips developed the laser-tracking optical video-disc system and created a compact version for digital audio. Sony's engineers then perfected the elaborate and sophisticated data-coding and error-correction circuitry that ensures accurate reproduction of the original audio signal despite dust, fingerprints, scratches, and minor manufacturing flaws.

FROM PCM TO EFM

The first step in the creation of a Compact Disc is the conversion of the original audio waveform into a digital signal. Among the several ways this could be done, the one that was chosen is called linear pulse code modulation, or PCM.

Converting an analog signal to

digital is a two-stage process: sampling and quantization. At regular intervals, a sample-and-hold circuit instantaneously freezes the audio waveform voltage and holds it steady while the quantizing circuit selects the binary code that most closely represents the sampled voltage. Since the CD is based on a 16-bit PCM system, the quantizer has 65,536 (2^{16}) possible signal values to choose from, each represented by a unique sequence of 16 ones and zeroes. At a sampling rate of 88,200 16-bit conversions per second (44,100 alternating left/right pairs for the two channels), a total of 1.4 million code bits are generated during each second of music—or five billion bits per hour.

In principle, these digital codes could be engraved directly on the CD, with a pit representing each 1 and a flat area for each 0. But in practice it is impossible to guarantee the correct

reproduction of every one of these billion bits in playback, and PCM playback is a "go or no-go" process: The code is either exactly right or it's wrong, and when a bit is wrong, the effect can be startling—like misreading one letter in a printed word. A mouse and a house are objects of very different size, and in PCM playback the digital code "10000100 11111111" corresponds to an amplifier output power a thousand times greater than "00000100 11111111." Incidentally, the 16-bit PCM codes are processed as pairs of eight-bit "bytes" in the circuitry, just as in a computer. (To add to the confusion, in the jargon of error correction the bytes are called symbols.)

Because of PCM's sensitivity to bit errors, much of the recording and playback circuitry is devoted to error detection and correction. A detailed analysis of this subject could fill a full-

semester college course, but, in brief, the process is handled in four stages: parity checking, interleaving, EFM (eight-to-fourteen modulation), and—when all else fails—interpolation.

Parity Checking

The basic idea in parity-checking is simple. When a recording is made, the number of ones in each digital code is counted, and an extra bit indicating whether an even or odd number of ones was found is appended at the end of the code. If even, the parity bit is a zero; if odd, it's a one. Thus the entire code, including the added parity bit, will have an even number of ones in it. In playback, the total number of ones in each code is counted again; if it isn't an even number, there's an error.

You can now begin to see how efficient this process is: Merely by adding one bit to the code, the system can detect all playback errors involving the misreading of one or any other odd number of bits. But it is impossible to know at this stage which bit was misread, and a single-bit parity check can be fooled if two bits (or another even number of bits) are misread during playback.

To overcome these obstacles, a more elaborate procedure is used: The parity test is performed not on the entire code but on several combinations of the bits in each code, yielding several added parity bits. The combinations are selected so that each bit in the code is involved in more than one parity test. By cross-checking the results of the parity tests, it is possible not only to detect multiple-bit errors, but also to identify exactly which bits are wrong and correct them—and thus to reconstruct the original code accurately. This may sound like a complex procedure, but it's simply a matter of doing a lot of high-speed sums.

Interleaving

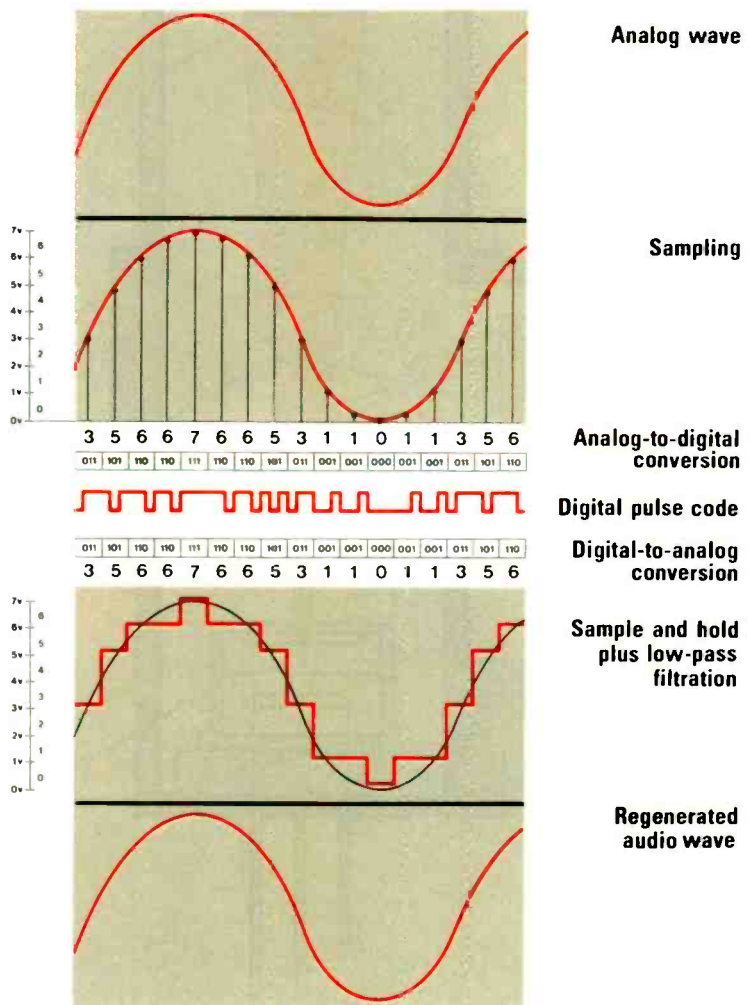
Of course, if all the bits in a code are misread or destroyed because of a dropout in a digital tape or a scratch on a digital disc, nothing can be done to recover them. Interleaving prevents this problem by scrambling the order of the data samples before they are recorded on the disc and then restoring the correct order during playback. CD players do this by briefly storing the digital data in a random-access memory (RAM) and reading it back in a

different order. (It involves a slight delay, so you actually hear the music a fraction of a second after it comes off the disc.)

As a result, the data samples that originally were contiguous in time are not adjacent to each other on the disc, so a scratch can't destroy consecutive signals. Conversely, if a scratch destroys a series of adjacent samples of data on the disc, the de-interleaving process splits the loss into individual samples of bad data interspersed between good data samples, making it

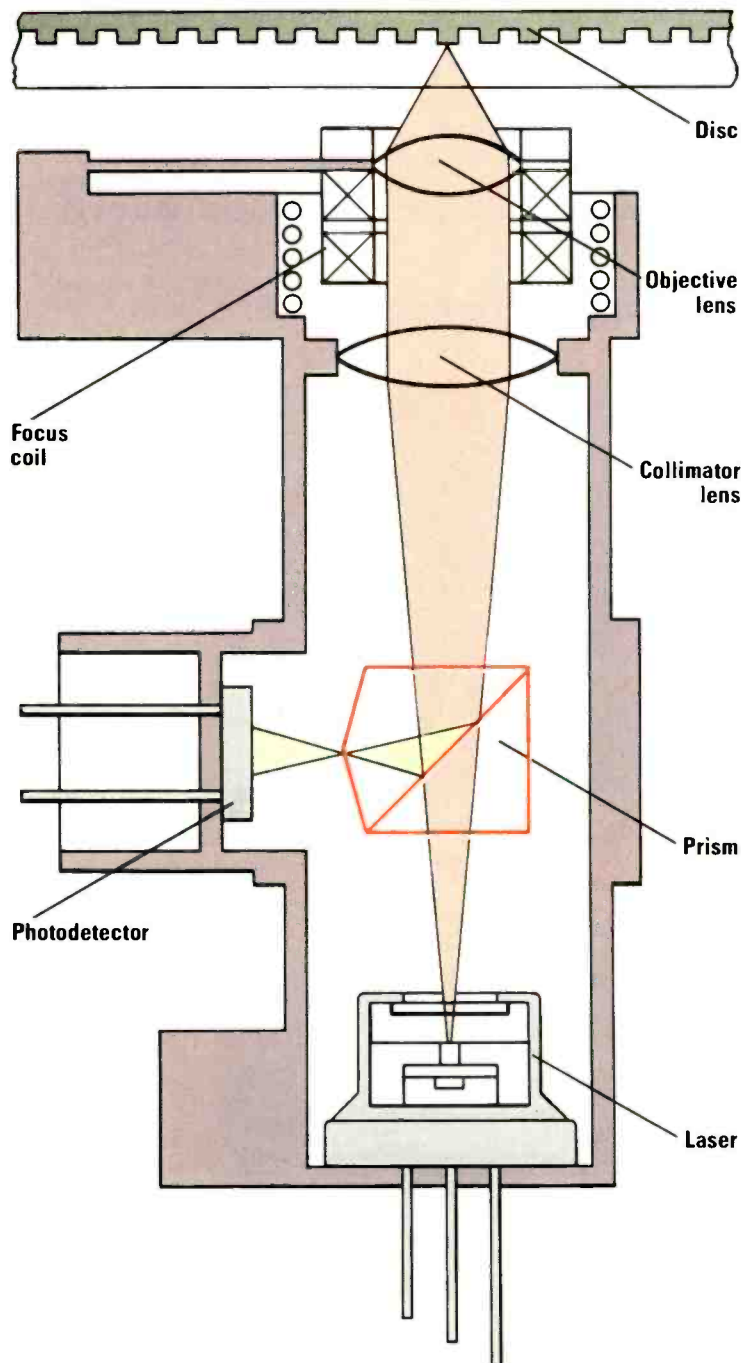
easy for the parity-checking system to identify and correct the lost data bits. Incidentally, as I noted earlier, each 16-bit digital code is processed as two 8-bit bytes, or symbols, and, during interleaving, it is the order of the symbols that is scrambled; thus, even the two halves of each sample are recorded separately on the disc, so a scratch or disc defect typically won't damage more than half the bits in any single data sample. This system, using multiple parity-checking and data interleaving, is called the Cross

THE PCM PROCESS



CONVERSION OF A CD'S DIGITAL CODES back into an analog waveform is a mirror image of the process used in the original analog-to-digital conversion. Above, a simple analog waveform is sampled sixteen times and a binary code (ones and zeroes) is assigned to describe the voltage level corresponding to each sample. These codes are part of the digital information pressed into a CD and in playback provide the data points necessary to recreate the original analog waveform.

LASER OPTICAL PICKUP



THIS CUTAWAY VIEW of the laser optical pickup used by Philips depicts the path of the laser beam as it reads a CD. Light from a small semiconductor laser passes through a semireflecting prism and is brought to sharp focus on the surface of the CD. Reflections return through the lens system to the prism, where they are diverted into the photodetector. The weak reflection caused by a raised area on the disc excites a low voltage in the photodetector's output; this translates into a binary zero. Strong reflections from non-raised areas on the CD are read as binary ones.

Interleave Reed-Solomon Code (CIRC).

What this all means is that a CD player will be able to correct completely as many as 3,500 data bits destroyed by a disc defect or scratch as much as 2.4-millimeters wide. Consequently, when you are cleaning dust or fingerprints off a CD you should wipe it with *radial* strokes from center to edge, so that if you cause a scratch it will run across the circular data tracks, damaging only a small (and easily reconstructed) part of each track. If you wipe the disc in a circular motion, as you are accustomed to doing with LPs, you might produce a long scratch running along a single track, destroying more bits than the CIRC system can correct.

EFM

In eight-to-fourteen modulation, every 8-bit byte is replaced by a selected 14-bit code. This is done to avoid codes in which ones and zeroes alternate in rapid sequence (e.g., 10101010). In the substitute 14-bit sequences, every pair of ones is separated by at least two or three zeroes, effectively reducing the rate at which the transitions from zero to one occur. This improves the reliability of the playback process, and it's one of the steps that made it possible to put an entire hour of music on one side of a 4.7-inch disc.

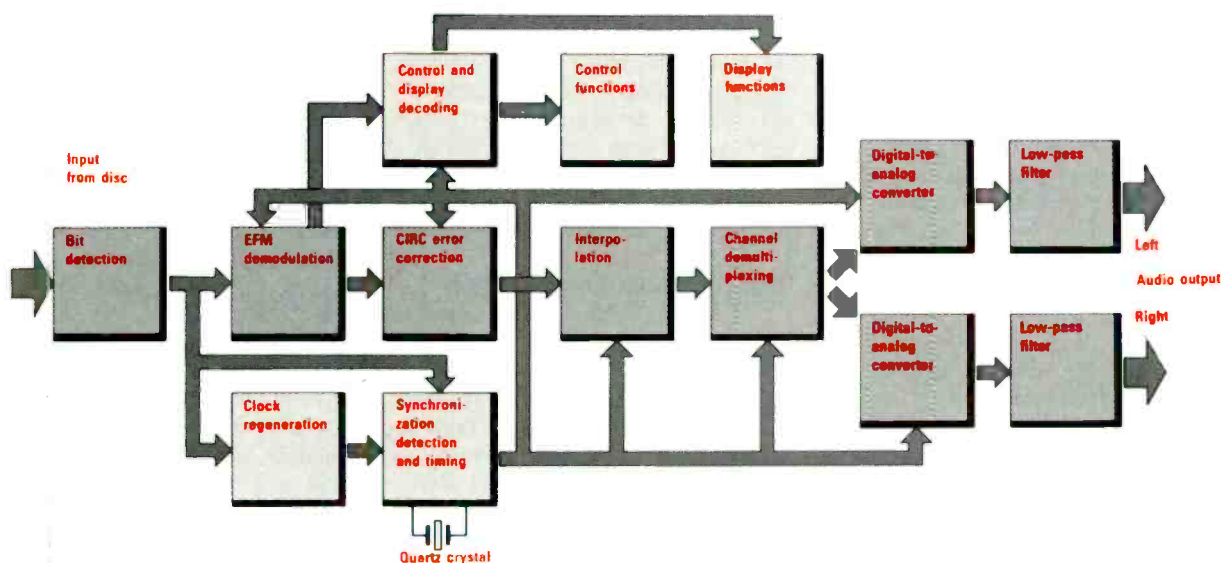
Interpolation

When errors occur that are too large for the CIRC system to correct, the playback processor ignores the data samples that are known to be bad and tries to make a smooth transition from the last bit of good data to the next known good sample. Most of the time this works so well that you don't hear it happening. The combined effect of the error correction and interpolation is that, on the average, audible ticks will occur at a rate of less than one per record.

CD Manufacture

Before a CD is cut, extra digital codes are added to the signal on the digital master tape. These include control and display signals that enable the player to cue instantly to the beginning of each song or movement, show the song's number and running time, provide a continuous display of elapsed time, and switch on a treble de-emphasis circuit

CD DECODING



THIS SIMPLIFIED BLOCK DIAGRAM shows the processes that must occur during CD decoding. Not all manufacturers, however, do it the same way. Philips, for instance, uses a digital filtration stage in addition to low-pass output filters. Though handled differently, NEC also interposes a digital filtration stage, and, instead of demultiplexing the left- and right-channel signals while they are still in digital form, NEC uses a very fast electronic switching circuit to separate the signals after their conversion to analog.

if a corresponding 10-dB treble boost has been applied to the recorded signal. Additional subcode space is reserved for future use, to display song lyrics, opera librettos, and other text, for instance.

The production of a master disc uses technology first developed for creating the intricate microscopic patterns in integrated-circuit (IC) chips. A precisely polished glass disc, coated with light-sensitive photo resist, is rotated on a turntable under a high-power laser, which is rapidly switched on and off by the ones and zeroes in the digital code. The exposed areas are etched away in a chemical bath, yielding a string of pits along a spiral track that begins near the center of the disc and ends near its rim. The pits are about 0.1 micrometer deep and 0.5 micrometer wide. (A micrometer is a millionth of a meter, or one twenty-five-thousandth of an inch.) They vary in length from 1 to 3 micrometers, with a spacing of 1.6 micrometers between tracks. This small spacing causes the finished discs to behave like a diffraction grating, scattering light in a rainbow.

In a sequence of nickel-plating and

molding operations, like those used to produce LPs, matching metal stampers are created and used to impress the spiral pattern of pits on one surface of the final transparent acrylic plastic disc. The pitted surface is coated with a reflective, molecule-thick layer of aluminum, a thin protective coating of lacquer is applied over the aluminum, and the printed label is then applied over the lacquer. In playback, the pattern of pits is read by a low-power laser that looks at the disc through its transparent rear surface. This laser's light, at a wavelength of 7800 angstroms, is invisible to the naked eye, since normal vision extends from about 4000 angstroms (blue-violet) to 7000 angstroms (deep red).

In contrast to LPs, the signal surface of a CD is completely protected from dust, fingerprints, and other contamination. The laser is focused on the pits, where it forms a scanning spot only 1 micrometer in diameter. But at the out-of-focus rear surface of the disc, the laser beam is nearly a millimeter in diameter, so only a large scratch or dirt particle could significantly obstruct the beam. That doesn't mean you have license to

handle the disc carelessly, though: A sharp object could easily penetrate through the label and the thin lacquer coating to damage the signal surface beneath.

PLAYBACK

Unlike an LP, which rotates at a constant 33 rpm, the CD spins clockwise at a variable rate. It begins at about 500 rpm for the "inner grooves" close to the center and gradually slows to about 200 rpm as the spiral track moves outward toward the edge, so that the disc is scanned at a constant linear speed of about four feet per second.

To read a CD, light produced by a laser diode passes through a polarizing beam splitter and is focused onto the signal surface, where the aluminum coating reflects the light straight back along the same axis. The polarized returning beam is reflected laterally by the beam splitter and then focused onto light-sensitive photodiodes that produce an output voltage proportional to the intensity of the light falling on them.

As the disc rotates, the illuminated laser spot falls alternately on the pits and on the flat areas between them.

The flat areas reflect the light beam back at full intensity and thus produce a high output from the photodiodes. When the laser spot falls on the pits (which appear as raised bumps since they are being viewed through the rear surface of the disc), they scatter some of the light. Since the height of the bumps is a quarter-wavelength they also reflect some light back a half-wavelength out of phase with respect to the light that is reflected off the adjacent flat areas. The combination of scattering and out-of-phase cancellation produces a weak return beam and thus a low output from the photodiodes. This ensures a well-defined, high-low output signal that corresponds to the alternating flat and pit areas.

THE PHOTODIODE ARRAY is divided into several sensitive areas. The relative balance of their outputs is amplified and used to control the focusing and tracking servos, while their total output is used for the digital data. The focusing servo drives a coil/magnet assembly located around the focusing lens (similar to the voice-coil system in a loudspeaker), moving the lens rapidly up and down in order to keep the laser beam focused precisely on the reflective surface.

The entire optical assembly is carried on a tracking mechanism that follows the row of bumps from the center of the disc to its rim. As the laser spot moves off the center of the track more light is reflected from one side of each bump than the other, yielding an unbalanced output from the photodiodes that is used to control the tracking in the original "one-spot" system devised by Philips. An alternative "three-spot" system used in many Japanese players uses a diffraction grating near the laser to produce two extra illuminated spots bracketing the main scanning spot on the disc. Supporters of the three-spot system claim that it provides more reliable tracking, especially of flawed discs that may be slightly off-center or have imperfectly formed pits.

Not surprisingly, the processing of the digital playback signal is complicated. First the bit rate is compared to a crystal-controlled reference frequency, and the difference is used to regulate the speed of the motor that spins the disc. Then the bit stream is synchronized with the reference frequency, eliminating any

wow and flutter that might have been caused by slight motor speed variations. The 14-bit EFM codes are converted back to 8-bit bytes, the control/display codes are separated from the signal data, and the parity bits are used by the CIRC error-correction circuit to restore lost or misread data bits. Finally, the alternating left- and right-channel data samples in the bit stream are separated and fed to two DACs (digital-to-analog converters) that recreate the original audio signal.

DIGITAL-TO-ANALOG CONVERSION

Two quite different approaches are used for converting the 16-bit digital codes back into a continuous audio waveform. In the majority of Japanese-made players (Sony, Hitachi, Technics, et al) the D/A conversion is exactly the inverse of the A/D process that was used to make the digital recording. A complete 16-bit DAC is contained in a single IC. Since its output contains ultrasonic energy in "sidebands" surrounding the 44.1-kHz sampling rate—energy that could cause intermodulation distortion if not removed—the converter is followed by a nine-pole (54-dB-per-octave) filter that rolls off very steeply above 20 kHz.

In the D/A system developed by Philips and used in the Magnavox line of CD equipment, the 44.1-kHz playback signal is oversampled by a circuit that produces four copies of each bit, yielding a 176.4-kHz effective sampling rate. Then the bit stream is fed through a 96-tap digital transversal filter to eliminate unwanted ultrasonic noise. Philips then uses a 14-bit DAC to decode the 176-kHz digital signal and recover the original audio waveform, plus a simple three-pole (18-dB-per-octave) output filter to eliminate the residual 176-kHz noise. Ordinarily the use of a 14-bit rather than 16-bit DAC would cause a 12-dB degradation in the signal-to-noise ratio, but the oversampling and filtering provide a 13-dB improvement, so the final result is that the Philips system is equally noise-free.

Incidentally, a transversal filter is one in which the signal is mixed with slightly delayed versions of itself, producing cancellations at frequencies related to the delay times. For instance, if you delay a 1-kHz signal by one two-thousandth of a second, the delayed version will be going down

when the original signal is going up, and vice-versa, so they exactly cancel out. With multiple delays a broad range of frequencies can be cancelled.

What does all this mean when the technical jargon is translated? The Japanese approach uses direct 16-bit decoding plus elaborate and costly analog filters whose component tolerances must be tightly controlled in order to prevent audible frequency-response errors. The Philips approach uses a more arcane digital circuit, with digital signal filtering, but that allows the use of a low-cost 14-bit DAC and a simple analog filter.

Philips says that there are two main advantages to its approach: One, that, at the present state of the manufacturing art, it is easier to make reliable, low-distortion DACs in 14-bit than in 16-bit form; two, that the steep output filters of the 16-bit systems cause much greater phase shift than Philips' simple filter. Only time will tell whether either of these points makes any difference to the sound, but the question of phase shift is likely to provoke discussion among audiophiles.

Any filter adds phase shift, or "group delay," to the audio signal, and the steeper the filter's rolloff, the greater is this time-smearing. The 20-kHz filters used in digital recording and playback typically cause the high frequencies in any transient sound to be spread out over about one ten-thousandth of a second instead of arriving together. Even if this is audible (which is unlikely), it is a small and subtle loss of fidelity. In any case, it may prove hard to hear any improvement from simpler playback filtering as long as most digital recordings are being made on PCM tape recorders that contain steep anti-aliasing filters.

AMORE LIKELY SOURCE of audible differences among CD players is the treble de-emphasis circuit. Most digital recordings are made with a 10-dB treble boost, and CD players contain a complementary 10-dB treble cut that spans the entire range above 3 kHz. Ordinary production tolerance in this circuit may cause one CD player to be half a dB brighter or duller than another, and, since this small deviation spans 2½ octaves of the audio spectrum, it is likely to be more audible than any imperfections above 10 kHz caused by nonideal filters. **HF**

*News and
new equipment*

A SWEETER SONG

Those of you who find the speaker built into the Apple II Plus computer less than adequate for musical purposes might want to investigate an outboard replacement. A company called the



Alien Group offers a \$25 speaker fitted with the Molex connector necessary for a simple plug-in substitution. In addition to bringing purity to your polyphony, it is said to add pow to the noise that accompanies video games. **Circle 130 on Reader-Service Card**

PICTURE BRIGHTENS FOR PORTABLE VIDEO

That the "8-mm Video" Committee (representing some 122 manufacturers worldwide,) took only one year to thrash out standards for the next generation of portable VCRs is remarkable in itself. But that the recently announced standards for the 1/4-inch format encompass the possibility of a two-channel PCM soundtrack is astounding.

The new VCRs, which will probably appear early in 1984, are expected to be offered in at least two configurations: integrated video-camera/VCR combinations and stand-alone ultralightweight portable decks.

For video recording, the 1/4-inch

decks will use a helical-scan rotating head drum. For audio, the standards specify three possible recording techniques, though only mono AFM (audio frequency modulation like Beta Hi-Fi's) will be mandatory. Those manufacturers opting for two-channel audio in their decks will, therefore, include PCM recording capability in addition to AFM. The standards even make provisions for an "auxiliary" conventional stationary recording head.

Mandatory for all three audio recording techniques will be a "compansion" type of noise reduction. A compression-expansion ratio of 2:1:2

is specified for AFM and PCM, while a 4:3:4 ratio is given for stationary-head recording.

Unfortunately, the PCM audio specifications are still somewhat vague. Sampling rate is stated as $2f_H$, or twice the highest desired audio frequency. Since it seems unreasonable to ask for reproduction above 15 kHz or so, a sampling rate of 32 kHz might finally be adopted. Quantization, or word length, is similarly unclear; the specification gives it as "10 to 8 bits." The announcement of the standards has also given rise to some conjecture about the future of the current 1/2-inch formats—VHS and Beta. If recording time can be increased from the 90 minutes specified as a minimum, then the new decks can be used at home for taping and playback of feature-length films. What this may mean for 1/2-inch VCRs is best expressed as a question: Why continue to manufacture and promote competing formats when a single, extremely attractive option exists? The answer will ultimately hinge on the quality of the playback and on how willing people are to transfer their present tape collections.

OPTICAL-DISC RECORDING



Matsushita Electric (parent company of Panasonic, Quasar, and Technics) has recently built an optical video disc system capable of repeated recording and erasure. Although the prototype is said to be an office device because of its document and still-image storage capability, company officials confirm that the product could also be used for recording moving video images and digital data.

Using an eight-inch disc, the system can store 10,000 to 15,000 still pictures, depending on the desired resolution, or about eight minutes of moving images. Alternatively, it could hold approximately 700 megabytes of digital data—a capacity far greater than that of any similarly sized computer storage medium.

The new disc is composed primarily of tellurium suboxide with small amounts of germanium, indium, and lead. The resulting compound can be switched between crystalline and amorphous states by the machine's semiconductor lasers. Presumably, these molecular-level changes alter the compound's reflectivity, permitting read-out of a modulated signal.

A small number of erasable-recordable optical decks are expected to be offered for business and industrial use in 1984. And, though the number of applications for the system is fairly staggering, so is the projected price—over \$35,000. The company says it has no present plans to develop a consumer version.

EUROPEAN REPORT

BY

PETER DOBBIN

FROM VIDEO ON CD TO COMPUTER-CONTROLLED SIGNAL PROCESSING, THE INVENTORS OF THE COMPACT DISC HAVE BIG PLANS FOR THE FUTURE—AND THEY ARE ALL DIGITAL.

THE INVITATION WAS IRRESISTIBLE: The chance to tour Philips' headquarters in Holland, to meet with the engineers who developed the Compact Disc system, and to see first-hand CD mastering and pressing procedures promised a wealth of information. With just three days and an itinerary that included stops at Eindhoven in the Netherlands, Haselt in Belgium, and Hanover in West Germany, the tour was all business and all digital. In fact, the digital theme continued even through the writing of this report: My constant companion on the trip was Radio Shack's new, battery-powered computer-cum-word processor, the M-100, which proved invaluable as a note-taking tool.

The most pressing issue for everyone on the junket was software—how much, how soon. Polygram, the record conglomerate whose CD-pressing facility we visited in Hanover, expects about 1,000 titles to be available on CD from all labels by the end of '83. Though that figure seems optimistic, remember that Polygram (which is owned jointly by Philips and Siemens) has a vast repertory at its disposal, as does every American record label that has announced plans to market CDs this year. A Polygram executive emphasized that point by noting that tapes for Warner's first CD releases had just arrived in Eindhoven for mastering.

Whether there will be enough discs to go around is another story. In the U.S., Polygram plans to make 400,000 CDs available this year. It

estimates that Japanese companies with CD pressing facilities—CBS/Sony, Matsushita, and Nippon Columbia (Denon)—probably will offer an additional 300,000. Next year, the situation should improve dramatically: Polygram will up the U.S. ante to six million, with Japanese suppliers

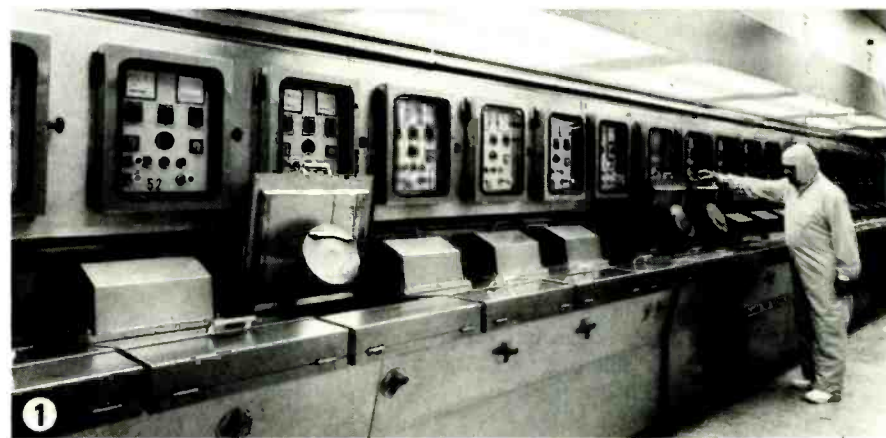
kicking in another four million discs.

Much has been written about the information-storage capacity of a CD, but a Philips engineer mentioned in passing a figure more than three times larger than I had presupposed: 16 gigabits. Though simple arithmetic might lead one to assume that this could open the door to three-hour CDs (it takes about five billion bits of data to store one hour of stereo music), the complex coding scheme and error-trapping redundancies built into the system make it impossible to store more than 75 minutes of two-channel audio.

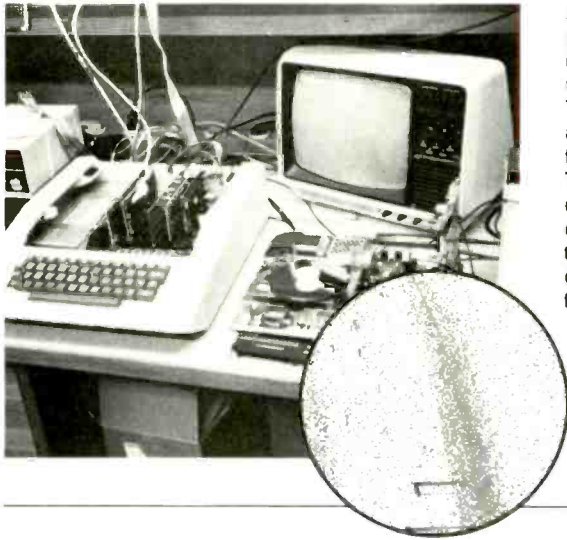
Even on an hour-long CD, however, there is lots of room left over for additional information. Currently Philips is working with Sony to finalize subcode recording standards, which will enable them to exploit that extra space. Still-frame video and low-resolution graphics are high priorities as additional program material for music-bearing CDs.

If the work going on at Philips' Fundamental Research Lab is any indication, digital technology will have a profound effect on the entire audio

HOW POLYGRAM DOES IT



ALL OF THE PHOTOS here depict various stages in the production of Compact Discs at Polygram's Hanover, West Germany, manufacturing facilities. Until the disc is finally coated with a protective lacquer finish, clean room conditions are necessary to prevent contamination of the disc's surface. **PHOTO 1** shows the electroforming machinery used to make CD stampers, each of which can be used to press about 500 discs. The production of stampers is actually three generations removed from the disc master; the positive disc master is nickel-plated to produce a negative copy, or father. From this, multiple positives, or mothers, are created, which form the matrixes for sons, or stampers. CD pressing machines in **PHOTO 2** use a combination of injection molding and stamping; cycle time for each disc is about 35 seconds. The hopper behind the window feeds the polycarbonate (Lexan) to the press. The discs are then coated with a microscopically thin layer of



An Apple II computer helps Philips engineers see the errors on a CD. The call-out image is a printout from the monitor. The nebula-like dot clusters are errors on the disc; the heavy dots are errors too grave for correction.

signals in the digital domain, they could be processed with exceptional accuracy.

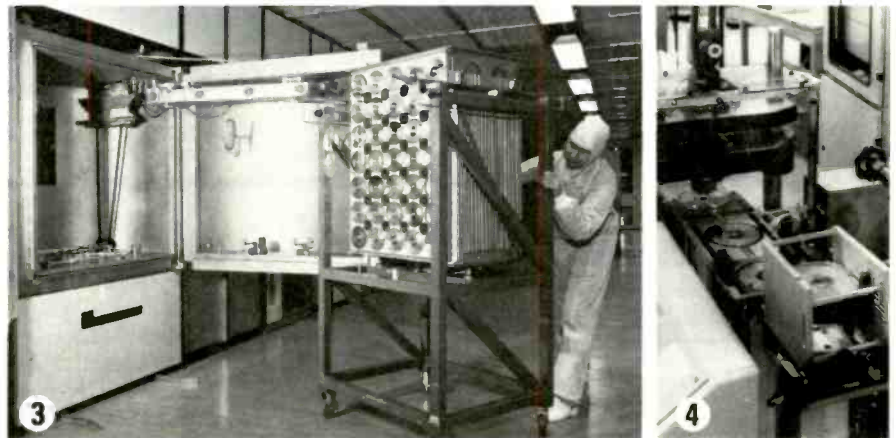
Finally, if you want to get into the CD mastering business—which, considering the scarcity of facilities, might be a very lucrative business—Philips will supply everything you need, including siting, construction, and consultation, for \$2 million. Machines to handle every step of the mastering process, from photo-resist coaters to laser-beam recorders and disc-master players, are described in a lavish, four-color brochure. If you want a copy of it, try writing to Philips Exports B.V. (Optical Disc Mastering Group, P.O. Box 218, 5600 MD Eindhoven, the Netherlands).

CD pressing is a bit trickier. Polygram engineers explained that every bit of machinery involved in the pressing and handling of CDs was developed expressly for this purpose and, as such, is not yet available for sale. Therefore, it's still too early to think about rolling your own. But, what the heck, so you won't have a full-service plant to start out with. The only problem is that \$2 million . . . HF

chain. One highlight of the trip was a morning seminar at this vast engineering complex where blueprints for a fully digital audio system are being drafted. The speakers (all under 35 years old, "to keep ideas fresh," said the director of the lab) elaborated on the architecture and functions of an

audio system that would convert analog inputs to digital as a necessary preliminary to digital switching and signal processing. Such a scheme would allow for direct input of digital sound sources—CD, of course, but also digital audio transmissions relayed to the home via satellite. With all

aluminum in a sputtering process. PHOTO 3 shows 700 discs loaded in magazines being placed into the sputtering chamber at once. The discs are then coated with protective lacquer and removed from the clean room. Finally, the center hole must be punched with far greater accuracy than is necessary for LPs. The punch press in PHOTO 4 determines the correct position for the center hole by optically reading the position of the



"tracks" on each disc. A three-color press then prints labels directly on each disc. Polygram is running this machinery around the clock to satisfy the demand for CDs. Production capacity in the Manover facility is 24,000 discs a day; the plant is being expanded to bring that number up to 40,000. The production reject rate is said to be 30 percent (each disc is visually inspected for defects). Polygram claims that fewer than 1 percent of defective discs slip through to market. To emphasize the incredibly close tolerances necessary in the CD manufacturing process, Polygram engineers suggest that, if a CD were enlarged to the diameter of the Colosseum in Rome, each "pit" on its surface would still only be the size of a grain of rice. And, if all the grains of rice necessary to code an hour's worth of stereo music on a single disc were gathered together, the result would be a pile that weighed in excess of 300 tons.

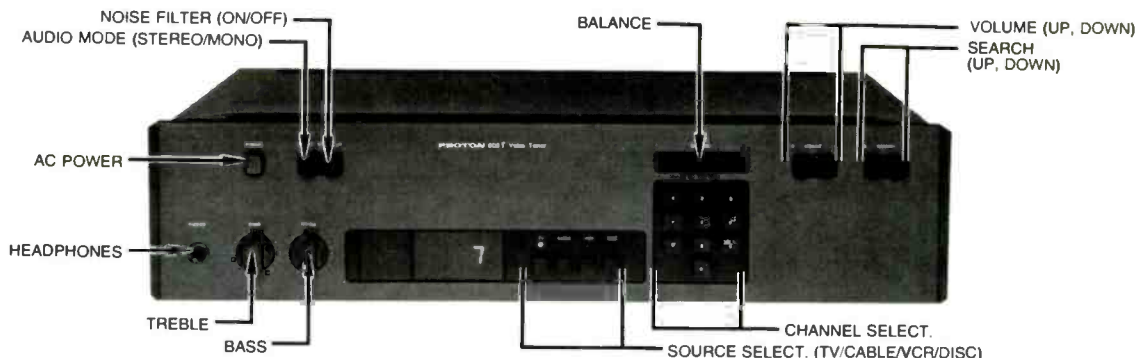
PETER DOBBIN

COURTESY POLYGRAM



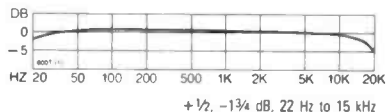
PROTON 600T TV TUNER

Proton 600T television tuner and switchbox. Dimensions: 16½ by 4 inches (front panel), 11½ inches deep plus clearance for connections. Price: \$400. Warranty: "limited," one year parts and labor. Manufacturer: made in Taiwan for Proton Corp., 19600 Magellan Drive, Torrance, Calif. 90502.



TV TUNER SECTION

AUDIO FREQUENCY RESPONSE



AUDIO S/N RATIO (A-weighted)

best case (no video signal)	46½ dB*
worst case ("window" display)	34 dB*

RESIDUAL HORIZONTAL-SCAN COMPONENT (15.7 kHz)

-37 dB

MAXIMUM AUDIO OUTPUT (at variable output)

0.46 volt

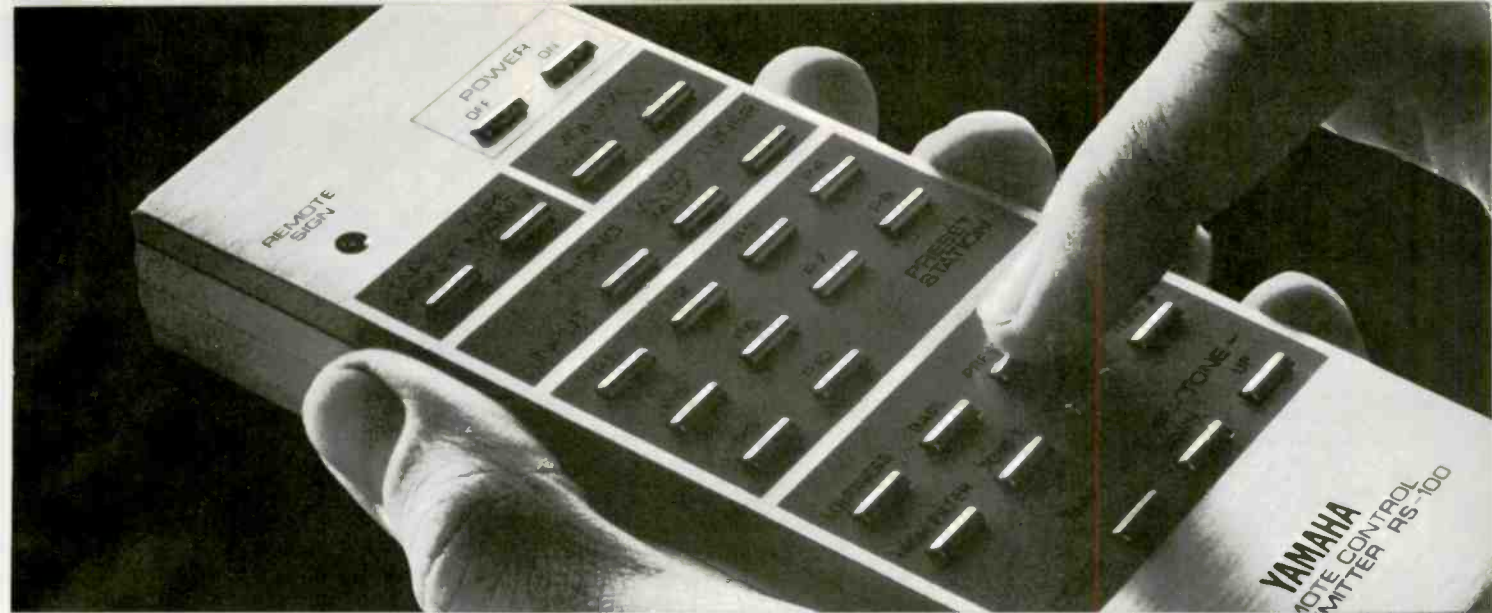
CHOOSING THE RIGHT TV tuner can require more planning than does selecting a monitor. Though a bare-bones tuner might suffice in a simple setup, a full-featured unit such as Proton's 600T that has its own VOLUME, extensive switching capabilities, and a wireless remote control might make more sense in an evolving multicomponent video system.

As a switcher, the Model 600T handles four video sources: TV (antenna) and cable, both via its own tuner, and VCR and video disc via

direct-video connections. The source you select is sent simultaneously to your monitor for viewing and to your VCR for recording. (You can dub between two VCRs by connecting one to the video disc input and the second to the VCR output.)

Push buttons on either the main unit or the remote control select among three RF inputs. Since you're likely to use either cable or antenna, the other can serve as an auxiliary RF input. For example, if you are receiving signals from the antenna, the cable input can

Laboratory data for HIGH FIDELITY's video-equipment reports are supplied by Diversified Science Laboratories. Preparation is supervised by Michael Riggs, Peter Dobbin, and Edward J. Foster. All reports should be construed as applying to the specific samples tested. HIGH FIDELITY and Diversified Science Laboratories assume no responsibility for product performance or quality.



YAMAHA NATURAL SOUND STEREO RECEIVER R-100

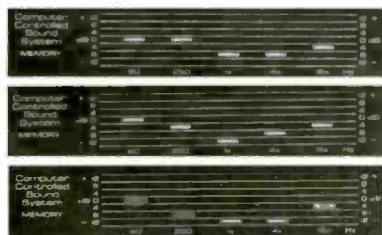


MAKE THE MUSIC LISTEN TO YOU.

Introducing command performance music. Introducing the R-100, the most astounding, musical-sounding receiver ever to come from Yamaha. Or anyone.

There's 100 watts RMS per channel (both channels driven into 8 Ohms, 20 Hz to 20 kHz, with no more than 0.01% Total Harmonic Distortion) combined with our unique Zero Distortion Rule circuitry to virtually eliminate power amplifier and thermal distortion. But such wonders have been heard from Yamaha before.

The unheard-of part is the phenomenal control the R-100 gives you over your music. For the first time, a five-band graphic equalizer is combined with a microcomputer. This unique Computer-Controlled Sound System (CCSS) allows you to select from five different preset frequency response curves (Loudness, Bass, Presence, Treble, or High Filter), and then further adjust each of the five curves in four different preset variations. You can then store any three of the preset variations in memory for instant recall.



THREE PRE-PROGRAMMED LOUDNESS CONTOUR CURVES.

And if you really want to be creative with your music listening, you can adjust the five bands independently to form any frequency response curve you choose, then store it in memory.

The CCSS offers you unparalleled flexibility to tailor the music to your personal taste and listening environment.

And you can control all this (and a lot more) by just pressing the right button on the remote control unit that is a standard accessory.

There's more that comes standard with the R-100. Like Yamaha's spatial expander, dynamic noise canceller, the ability to handle low impedance loads, and the headroom to handle "hot" source inputs.

And there are four more models to choose from, each with the same natural sound Yamaha is famous for.

Whichever one you choose, you'll hear your music like you've always wanted to hear it. Give a listen at your Yamaha dealer. Or write Yamaha Electronics Corporation, USA, P.O. Box 6660, Buena Park, CA 90622.

FOR THE MUSIC IN YOU.



VIDEO FREQUENCY RESPONSE

at 500 kHz	-1 dB
at 1.5 MHz	-2 dB
at 2.0 MHz	-2 dB
at 3.0 MHz	-2½ dB
at 3.58 MHz	-5¾ dB
at 4.2 MHz	-20 dB

LUMINANCE LEVEL ≈9% high

LUMINANCE NONLINEARITY (worst case) ≈3%

CHROMA LEVEL ≈6 dB low

CHROMA DIFFERENTIAL GAIN ≈23%

CHROMA DIFFERENTIAL PHASE ≈±9°

CHROMA PHASE ERROR

red	+9°
magenta	+10°
blue	+3°
cyan	+19°
green	+15°
yellow	+20°
average error	+12°

AUDIO PREAMP SECTION

MAXIMUM OUTPUT LEVEL (at 1 kHz for 1% THD)

fixed (tape) output 0.45 volt

variable (main) output 0.31 volt

MAXIMUM INPUT LEVEL (at 1 kHz for 1% THD)

0.50 volt

MAXIMUM GAIN

fixed (tape) output -1.1 dB

variable (main) output -4.1 dB

S/N RATIO (re 0.5 volt, A-weighted)

fixed (tape) output 99½ dB

variable (main) output 79¼ dB

HARMONIC DISTORTION

(THD at 0.25-volt input, 20 Hz to 20 kHz)

fixed (tape) output ≤ 0.12%

variable (main) output ≤ 0.11%

FREQUENCY RESPONSE

fixed output +0, -½ dB, <10 Hz to 15.1 kHz;
+0, -3 dB, <10 Hz to 22.2 kHz

variable output ±½ dB, 11 Hz to 16.8 kHz;
+½, -3 dB, <10 Hz to 23.0 kHz

HIGH FILTER -3 dB at 9.8 kHz, ≈8 dB/octave

OUTPUT IMPEDANCE

fixed (tape) output 970 ohms

variable (main) output 820 ohms

INPUT IMPEDANCE 85k ohms

*See text

be used for a computer or video game (with RF output) or a pay-TV broadcast via a descrambling box. Alternatively, if you use a cable hookup, the feed can be split and sent directly to the cable input and, via a cable pay-TV descrambler, to the VHF-antenna input. The tuner's back panel has separate 75-ohm "F" connectors for cable hookup and VHF, plus 300-ohm screw terminals for UHF feed from an antenna.

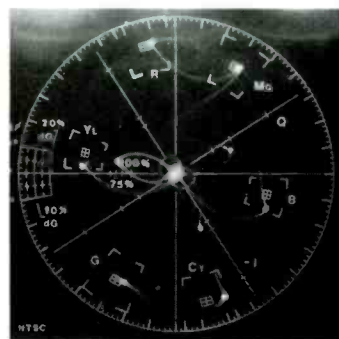
When the TV input (antenna feed) is chosen, the 600T's tuner covers Channels 2 through 83 sequentially. Search buttons on the main unit and the remote let you scan up and down for the next occupied channel. To access any channel directly, punch up

viewing) and at the VCR output (for recording). Two pairs of stereo audio outputs are provided. One is fixed in level and unaffected by the 600T's tone controls (but does pass through its noise filter); the other is controlled by all the 600T's audio circuitry. The former is meant to feed a tape recorder, the latter to feed a stereo amplifier or receiver (or the Proton Powered Speaker).

In its simplest hookup, the 600T can be used with any NTSC-composite video monitor and a set of powered speakers (or separate power amp and speakers). This gives you a complete video receiver capable of stereo sound from the proper video source. And unlike the tuner section of an ordinary



COLOR ACCURACY. The shortfall and counterclockwise rotation of the color vectors in this vectorscope photo indicate low color saturation and some hue distortion.



CORRECTED COLOR. This photo, taken with the chroma gain increased and the phase shifted, shows the best correction one can achieve with the color and tint controls on a monitor.

its number on either the local or remote keyboard. In the cable mode, VHF channels appear in their normal positions, while the mid-band Channels A through I are assigned to Channels 14 through 22. The 600T also handles superband Channels J through W on Channels 23 through 36. Direct-video connections are made via standard pin jacks. Each of the two inputs—VCR and disc—has its own level control on the rear panel to reduce direct-video signals that exceed the standard 1-volt peak-to-peak level. And each is accompanied by a pair of stereo audio inputs that are switched with the video.

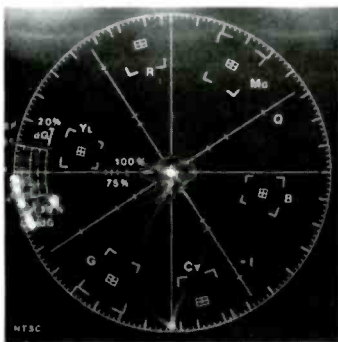
NTSC-composite video appears both at the monitor output (for

TV, the Proton 600T has separate tone controls (which have an approximate ±15 dB range at frequency extremes) and a noise filter that rolls off gently above about 10 kHz to reduce tape hiss. The mono button ensures that both speakers are fed identical signals from mono video sources. There's also a headphone output with more than adequate drive capability.

On Diversified Science Laboratories' test bench, the audio portion of the tuner checked out quite well with one exception—input overload. When the unit's VCR or video-disc audio inputs are driven at a standard 0.5-volt level, distortion is already 1 percent, independent of

volume setting. Above that level, distortion rises rapidly.

As long as the input is kept below 0.25 volt, distortion is negligible (approximately 0.025 percent) at all but the highest frequencies. But since there is at least a 4-dB loss at the variable output, a 0.25-volt input will result in only a 160-millivolt output, which probably is not sufficient to drive a separate power amp to its maximum rating. The loss to the fixed output is only about 1 dB, but using that output means forfeiting the ability to adjust the volume via the remote control. One solution is to feed the 600T's output to your receiver's or preamp's aux input, which has more than enough gain to deliver full power.



COLOR CONSISTENCY. The radial and angular spreads of the dots indicate how much color saturation and hue vary, respectively, with changes in brightness.

Input and output impedances are well designed for interconnection with other equipment. Audio frequency response, while not entirely flat, is quite good; noise level is negligible compared with the noise inherent in most video sources.

Unlike some TV tuners that notch audio response at 15.734 kHz to reduce horizontal-scan whistle, the 600T's TV tuner shoots for flat audio. Indeed, response is within $\pm 1/2$ dB, $-1 3/4$ dB from 22 Hz to 15 kHz. But this bandwidth results in the horizontal-scan component being down only 37 dB. On the test bench, DSL found that the video program created noise in the audio portion. Some test patterns

caused much more "buzz" than others. But, this is a very severe test, since broadcasts seldom contain the repetitive video information that test patterns do. On actual broadcasts, the audio was usually clean, although occasionally buzz could be heard when printed material was being broadcast.

Video bandwidth is very good—essentially flat to 3 MHz and down less than 6 dB at the 3.58-MHz chroma-burst frequency. This suggests a horizontal resolution of better than 450 lines on any monitor capable of displaying it. And, as expected, picture clarity was excellent on a high-quality monitor, especially on live sports broadcasts, game shows, and soap operas, which frequently have the best picture quality. Luminance level is just a trifle high—though not enough to cause problems for a good monitor—and gray-scale (luminance) linearity is excellent. Chroma level is low, but this usually can be remedied by advancing the monitor's color control.

The vectorscope indicates substantial chroma-phase inaccuracy, which is not completely correctable with a typical monitor's tint control. With "standard" settings, blue emerges most accurately, followed by red and magenta. Yellow, cyan, and green are handled least well, with yellow tending to take on a green cast and cyan a bluish tone. Critical viewing of broadcasts tends to confirm the laboratory readings, although the eye is remarkably tolerant of tint inaccuracy without a direct means of comparison at hand. Most viewers will find the 600T's color accuracy quite acceptable, and, probably much better than they're used to.

Chroma differential gain is negligible except for a 23-percent shift in chroma strength at the highest luminance level. Thus, except in the very brightest scenes, color saturation remains constant. Differential phase is within acceptable bounds (± 9 degrees) but shifts gradually with each change in luminance. This suggests some change in hue as a function of brightness. Again, only the critical viewer is likely to notice the shift.

The 600T is quite sensitive—on a par with the best TV tuners we have used. Color is pleasant (albeit with a slight predominance of blue), definition is excellent, and sound, in general, acceptably clean and wideband.

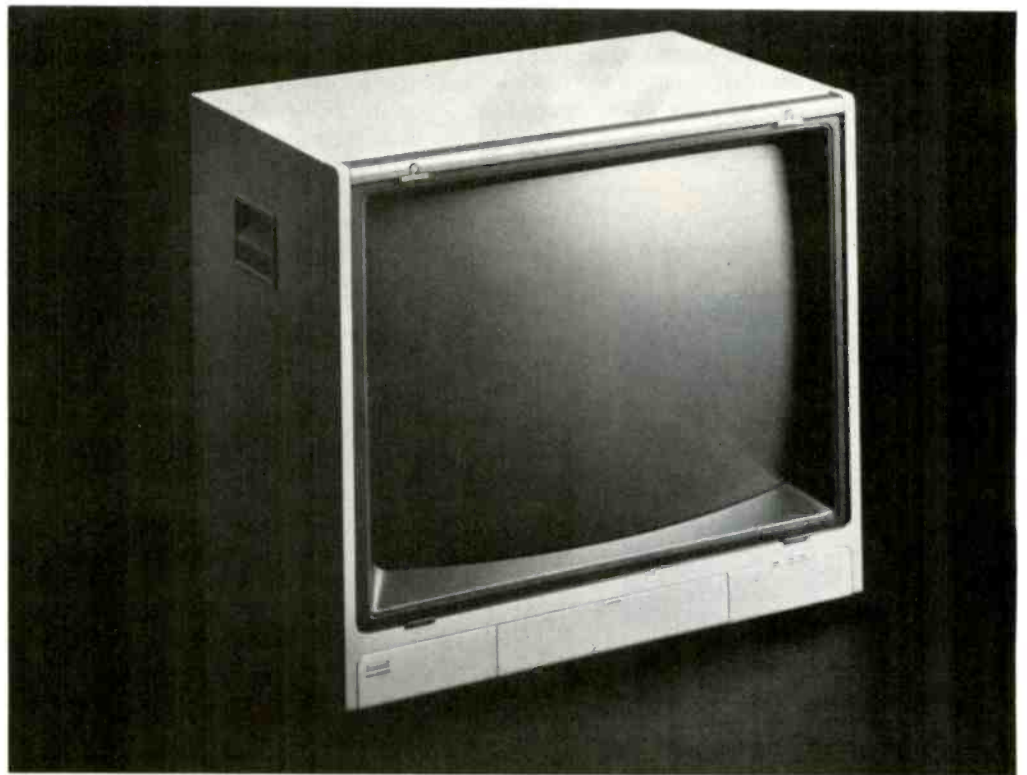
Circle 107 on Reader Service Card



REMOTE CONTROL. The 600T's wireless remote control enables you to turn the tuner on and off, switch between the cable and antenna RF inputs, change channels, adjust the volume, and mute the main audio outputs.

JENSEN AVS-3250 VIDEO MONITOR

Jensen AVS-3250 color video monitor. Dimensions: 25 by 22½ inches (front), 20¾ inches deep. Price: \$1,030. Warranty: "limited," two years parts and labor on the picture tube, one year parts and labor on all other components. Manufacturer: made in Japan for Jensen Sound Laboratories, 4136 North United Parkway, Schiller Park, Ill. 60176.



HORIZONTAL RESOLUTION (3.58 MHz trap off)

minimum	>380 lines
typical	>450 lines
center of screen	≈600 lines
INTERLACE	perfect
OVERSCAN	
horizontal	≈10%
vertical	8%
CENTERING	
horizontal	right ≈1¼%
vertical	perfect

WITH THE ARRIVAL OF component home video systems, a number of high-quality monitors are now available to mix and match with separate video tuners. Jensen has two models, both of which can be used in conjunction with its AVS-1500 Audio+Video receiver (see Video Equipment Reports, June), or with any other device that delivers an NTSC composite video output. Though this review tackles the 25-inch AVS-3250, a 19-inch model in Jensen's line (the AVS-3190) is said to offer essentially the same performance.

The AVS-3250 accepts an NTSC-composite video signal and decodes it into the three primary color signals that drive its picture tube. A push button in the control cluster behind the flip-down

door under the screen selects either the "video" or the "aux video" input. Connection is made via pin jacks on the rear deck.

A high-impedance loop-through connection is used with the primary video input, allowing you to "daisy-chain" additional monitors on the line. A rear-panel slide switch (MULTIPLE/NORMAL) terminates the line with a 75-ohm load if only one monitor is used (or if this monitor is the last one in the chain). The auxiliary input provides the necessary 75-ohm termination at all times and is fitted with a control to reduce the incoming video-signal level to the standard 1 volt peak-to-peak, if required. Any NTSC-composite signal, such as that from a VCR, video-disc player, or computer/game console can

be used with the auxiliary input.

Also on the rear panel is a screwdriver-adjustable horizontal-hold control, an unswitched 200-watt convenience outlet, and a slide switch that activates a 3.58-MHz chroma trap (more about this later). A jack lets you connect the monitor to either the Jensen AVS-1400 or AVS-1500 receiver, so that the monitor will turn on whenever the receiver is on and set to a video input or for TV reception.

Behind the front-panel door lie the main controls. Because of Jensen's excellent automatic color circuitry, you'll rarely need to use any except the input selector and the power switch (if you haven't tied the monitor into one of Jensen's receivers). Lights just beneath the lower right corner of the screen indicate power status and which input you've selected.

When PRESET COLOR is on, black level, picture, color, and tint are set automatically, and their respective controls are inoperative. (Service adjustments are accessible via screwdriver holes just above and to the left of each control.) A center detent denotes the recommended sharpness setting. Advancing this control clockwise boosts high-frequency video response to emphasize detail. Too high a setting exaggerates whatever video noise is in the source and results in a snowy picture. Counterclockwise rotation softens sharp edges and reduces snow.

With electronically generated test patterns, Jensen's factory settings were very good, and Diversified Science Laboratories used this preset mode for most bench tests. With a lower-quality video source, you can defeat the presets and use the four individual controls. Jensen provides clear instructions on this procedure in its manual. BLACK LEVEL essentially adjusts brightness, and, since this is a critical setting, the recommended position is indicated by a center detent. PICTURE simultaneously adjusts contrast, brightness, and color saturation to keep all three in relative balance for a given black level. Finally, COLOR controls saturation, while TINT adjusts hue.

In DSL's tests, the AVS-3250 exhibited horizontal and vertical overscan of 10 percent and 8 percent, respectively, indicating that virtually the entire scene being broadcast appears on the screen. (Some overscan

is generally built into monitors and TV sets to avoid black borders when line voltage is low.) Vertical centering is perfect; horizontal centering, almost so. Convergence is good to outstanding over most of the screen. Color fringes were most apparent at the extreme upper-left and lower-right corners (these are to be expected), but also were noticeable over a fair area on the left of the screen. Of course, such errors are much more apparent on test patterns than on normal video programs.

Geometric accuracy—the ability to render straight lines straight and circles round—is excellent. DSL did note some horizontal elongation of small

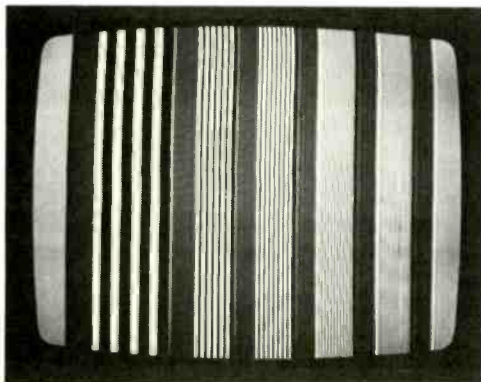


THE MAIN CONTROLS, behind a small door below the screen, include (left to right) **BLACK LEVEL** (brightness), **PICTURE** (which adjusts contrast, brightness, and color saturation together), **COLOR**, **TINT**, **VERTICAL HOLD**, and **SHARPNESS**. A button to the right overrides these adjustments, returning the monitor to its factory settings. The remaining buttons are for input and power switching.

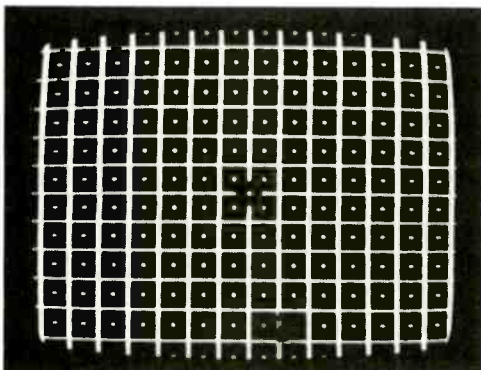
dots at the lower right of the screen and a slight narrowing of horizontal lines as they approach the left and right quadrants. These "local" distortions are unlikely to be noticeable as long as relatively large figures are defined accurately, which this monitor does very well indeed.

Blooming, or the enlargement of individual color dots due to defocusing, is negligible over the entire range of the picture control and absent entirely in the preset mode. Black retention is outstanding; even large black areas of the screen remain totally dark. (On many sets, dark black areas gradually lighten to gray, causing a loss of contrast.) A small amount of overshoot occurs in abrupt black-to-white transitions—the white starts off whiter

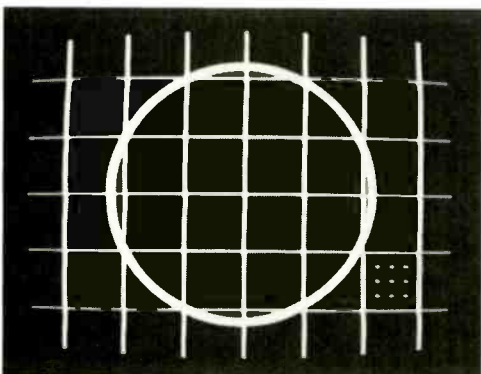
than it should be—but the disturbance occupies no more than 1 percent of a scanning line and it can be eliminated entirely by reducing SHARPNESS a little.



HORIZONTAL RESOLUTION is determined by feeding a multi-burst signal to the monitor. You can then see in which frequency band the individual lines begin to smudge together and lose their distinctness. From this you can calculate the resolution, which in the case of the AVS-3250 is excellent.



CONVERGENCE is tested with this crosshatch display. Narrow, well-defined lines indicate good convergence. Whenever the monitor begins to lose convergence, the lines will broaden and become fuzzier. The Jensen exhibits good to outstanding convergence over most of the screen.



GEOMETRIC ACCURACY and overscan are checked with this display, consisting of a crosshatch, a circle, and a set of dots. The AVS-3250 exhibits some minor local geometric distortions, but is generally excellent in this regard. Overscan is also very low.

Gray-scale (luminance) linearity is very good except for a slight compression at the topmost level, indicating that the AVS-3250 executes brightness changes very accurately.

Vertical interlace is perfect, which means that vertical resolution is as good as the NTSC system will allow.

Horizontal resolution is very good also. Since the chroma trap (a narrow filter that helps keep chroma and luminance signals separate) removes 3.58 MHz information, resolution is limited to about 400 lines with the trap engaged, but that's still well above average. When the trap is switched out, horizontal resolution is first rate—better than 450 lines over 80 percent of the screen, better than 380 lines at the top 20 percent, and pushing 500 lines in the center! (In normal use, the trap can be left off. If slight rippling occurs along the edge between a bright and dark area—most likely when you are using the monitor with a video game or computer console—you can cure it by switching the trap on.)

Red, green, and blue rasters are pure over the entire area of the screen. Red and blue subjectively seem quite accurate and are well saturated. Relative to them, green is a bit weak in saturation and leans toward yellow. This makes yellow areas somewhat brown (or beige) in tinge. As well as one can tell by eye, hue remains constant with changes in scene brightness (indicating negligible chroma differential phase), and, except for the brightest scenes, saturation remains relatively constant (indicating good differential-gain characteristics).

In an *audio* system, the most critical component is the loudspeaker, which converts electricity into sound. Much can go wrong at this step—and whatever errors are introduced will reduce the fidelity of the entire system, making the match between the recreated sound and the original sound, from which the electrical audio signals were generated, poorer than it otherwise might be. A monitor is to a video system what a speaker is to an audio system: It must convert an electrical signal into light, re-creating as faithfully as possible the form, shading, and color of the image picked up by the video camera at the head of the chain.

As should be apparent, we think Jensen's AVS-3250 performs this crucial task very well and certainly suggest you check it out for yourself.

Circle 106 on Reader-Service Card

CORRECTION

Two frequency-response graphs in last month's report on the Jensen AVS-1500 Audio+Video receiver (page 50) were inadvertently reversed. The curve shown for mono FM response is actually the audio response of the TV tuner section, while the curve that is said to represent the TV tuner's audio frequency response is the mono FM response.

REVIEWS

*Pop and classical
music releases
on video disc,
video cassette,
and digital
compact disc*

Video Puccini, Verdi, and Jagger

The Good, the Bad, and the Sometimes Ugly

A LASER BOHÈME SURVIVES THE TRANSFER TO VIDEO BETTER THAN A GRANDIOSE AIDA; A ROLLING STONES CONCERT FARES BETTER ON BETA HI-FI TAPE THAN RUSH'S ON CED VIDEO DISC.

POPULAR

THE ROLLING STONES:

Let's Spend the Night Together.

Hal Ashby, director; Ronald Schwary, producer; Bob Clearmountain, audio mixer. EMBASSY HOME ENTERTAINMENT 1231, \$39.95 (Beta Hi-Fi and stereo VHS cassette); \$29.95 (CED disc and CX-encoded laser disc).

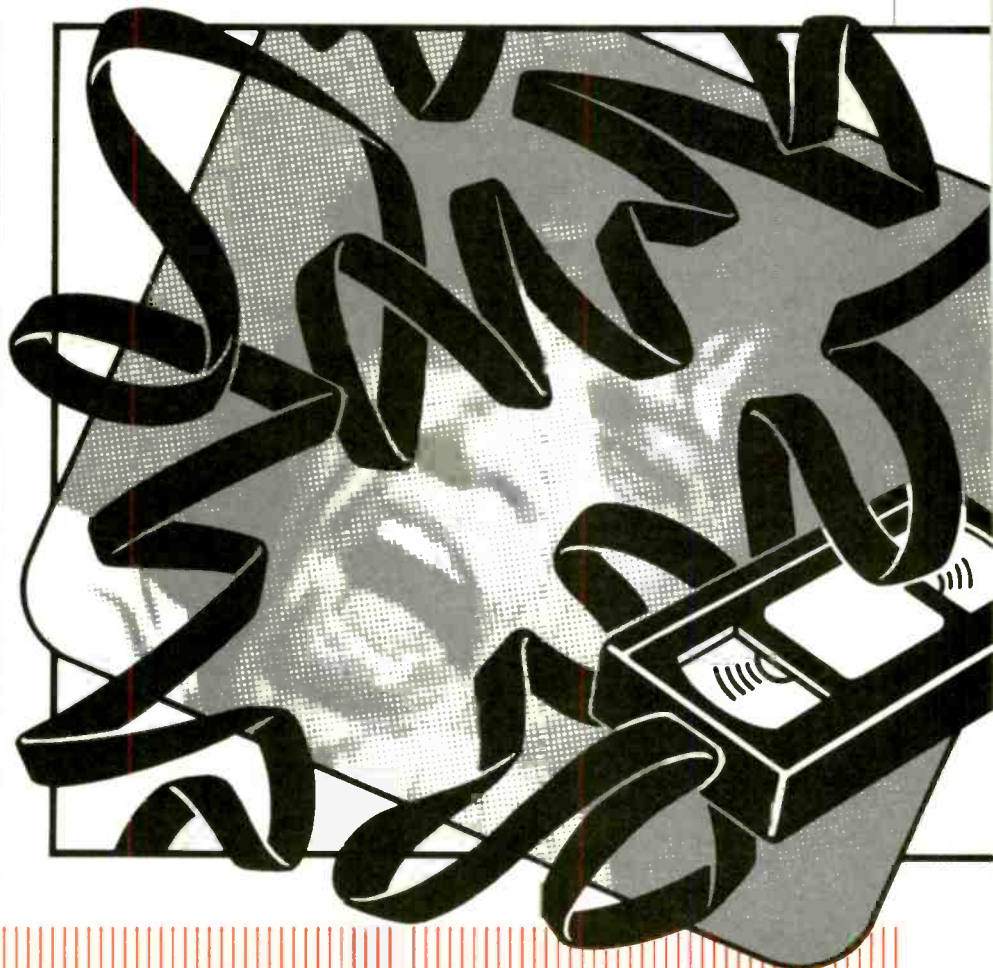
RUSH:

Exit Stage Left.

Grant Lough, video producer; Terry Brown, audio producer. RCA Videodisc 12127 \$24.98 (CED disc); PIONEER ARTISTS PA 83-035, \$24.95 (CX-encoded laser disc).

Though there are signs of activity in the made-for-the-medium camp, the vast majority of music titles available on video disc and cassette originally were made as movies or television shows. This may seem a waste of a new outlet to some, but it does have its advantages when it comes to capturing a concert on tape. The Rolling Stones "Let's Spend the Night Together" concert tour was designed with a major film release in mind. The Rush "Exit Stage Left" tour was not. The former is, for the most part, an effective home-video presentation. The latter is decidedly not.

In fact, "Let's Spend the Night Together" is a surprising improvement



over its cinematic incarnation. In Manhattan's state-of-the-art Loew's Astor Plaza Theater, the 90-minute condensation of the Stones' 1981 U.S. tour was an endless abomination. Viewed several months later in its Beta Hi-Fi video-cassette form, it is a great take-home rock & roll show that should stand up well to repeated viewings. Using Sony's new Beta Hi-Fi Model 5200 VCR and a 13-inch Profeel monitor and speakers, I found the sound to be far better and the scale of the show more realistic.

In the theater, drummer Charlie Watts's hi-hat cymbal consistently crashed out at you from a rear right speaker, coating the entire soundtrack with a thin, trebly veneer. Bill Wyman's rock-steady bass thud-thudded along to assaulting effect. Mick Jagger's vocals were lost in endless echoes, his lyrics totally incomprehensible. And Keith Richards' and Ron Wood's guitar solos were all but buried in the general din. The six-track mix and "surround-sound" speaker arrangement in the theater did little to help matters. Attempts to pan the mix to correspond to the players' positions on stage only made my head swim.

Going down to two tracks for the video cassette has apparently forced a certain amount of simplification, and less is definitely more in this case. Watts's cymbal is still overbearing, but bearable. You can understand Jagger's lyrics, and there's some impressive instrumental interplay between Richards and Woods that I never even heard on the film's soundtrack.

Unfortunately, what has been gained in audio clarity has been lost in color contrast. At the time I saw "Let's Spend the Night Together" there were only a handful of Beta Hi-Fi copies around and it is possible that further work has since been done in this area. But the bright, contrasting colors and imaginative lighting effects that were so impressive in the shows and on the film are lost on the video cassette. The Stones themselves look ashen—despite all the makeup they wear for arena-sized shows like this one. One can only assume that the general pallor of the tape set in somewhere during the transfer from film. [Embassy Home Entertainment had no explanation for this phenomenon.]

On the plus side, visually, is how

well the concert works on a small screen. Designed on the grandest of scales, the live show's backdrops were as long as an entire football field, with Jagger's perpetual motion an assured focal point. Watching what was designed to be larger than life blown up many times on a movie screen was downright obnoxious. No matter how famous Jagger's lips and rear end may be, seeing a closeup of one or the other of them fill an entire movie screen is an assault on the human condition. The die-hard fans who sat in the front row at the live show were at least spared that. Their perspective was entirely different from that of the majority of the audience; they missed the impact of the full presentation. For most of us, the experience was like watching television—which is precisely why the video cassette works so well.

The flip side, so to speak, of these issues is apparent on Rush's "Exit Stage Left." Viewed on both an RCA stereo CED disc and a Pioneer Artists laser disc, a visually distinctive live show is on a home screen a mess of bleeding colors. The sound of the 59-minute concert (there are a few words from each of the band members between the cuts) is good enough; Rush does not display the kind of precision playing or musical subtlety that would demand great sonic definition anyway. Turn off the picture and you have a typical Rush recording with somewhat better separation and clarity than you would find on a regular LP or audio cassette. You also eliminate the discs' intermittent sync problems.

But the biggest disappointments are in the visuals. While a stage that is bathed in red and blue light can set a mood in a live context, on a video disc those broad washes of color become one great blur and render the complexions of the performers ugly. And the light diffraction that results from pointing the camera directly into a spotlight—a technique that is used unsparingly here—is most disconcerting. To its credit, Rush did attempt to customize the show for home video by adding some animated sequences. But the brightly colored highway that careers in and out of *Red Barchetta* and the slow-motion effects during *YYZ* neither illustrate nor illuminate the rather pedestrian proceedings.

—IRA MAYER

CLASSICAL

PUCCINI:
La Bohème

C A S T

Mimi	Ileana Cotrubas (s)
Musetta	Marilyn Zschau (s)
Rodolfo	Neil Shicoff (t)
Parpignol	Daniel McCoshan (t)
Marcello	Thomas Allen (b)
Schaunard	John Rawnsley (b)
Colline	Gwynne Howell (bs)
Benoit	Brian Donlon (bs)
Alcindoro	John Gibbs (bs)
Customs Official	Richard Hazell (bs)
Sergeant	David Whelan (bs)

Chorus and Orchestra of the Royal Opera House, Covent Garden, Lamberto Gardelli, cond. [John Copley, stage prod., Brian Large, video prod., Graham Haines, audio prod.] PIONEER ARTISTS PA 82-028, \$49.95 (CX-encoded laser disc) [recorded in performance, February 16, 1982].

VERDI:
Aida

C A S T

Aida	Maria Chiara (s)
Priestess	Maria Gabriella Onesti (s)
Amneris	Fiorenza Cossotto (ms)
Radames	Nicolo Martinucci (t)
A Messenger	Gian Paolo Carradi (t)
Amonasio	Giuseppe Scandola (b)
Ramfis	Carlo Zardo (bs)
The King	Alfredo Zanazzo (bs)

Ileana Ilescu, George Iancu, Rosaiba Garavelli, and Richard Duquesnoy, principal dancers; Arena di Verona Corps de Ballet, Chorus, and Orchestra, Anton Guadagno, cond. [Giancarlo Sbragia, stage prod., Brian Large, video prod., Jay David Saks, audio prod.] PIONEER ARTISTS PA 82-017, \$59.95 (two CX-encoded laser discs) [recorded in performance, July 1981].

Not surprisingly, given their popularity, Verdi's *Aida* and Puccini's *La Bohème* are among the first operas to be offered on laser video discs. What is surprising is the gulf in quality—in nearly every department, from vocal to visual—between these video productions, both directed by Brian Large and both recorded live.

Let's begin on the brighter side, with Covent Garden's *La Bohème*, filmed in February 1982. Even apart from the work's illustrious history on stage and LP, *Bohème* by now qualifies as a video war-horse; recent years have seen two productions televised from the Met, one from the Philadelphia Opera Company. The Covent Garden version, while not the most extravagant (that distinction will probably always remain with the Met's second *Bohème* telecast, a Franco Zeffirelli spectacular), is in many ways the most beautiful visually; in most important respects, it offers everything an operatic video disc should—in a nutshell, a solid performance that bears repeated viewing.

The cast features fine singers who

are also excellent actors, and who, as box-office middleweights, devote more energy to creating their characters than to egotistical display. They may well have been playing more to the cameras than to the house, but only in the sense that their gestures are confined to a scale that looks natural in close-up—a rare quality in televised opera and one of the chief attractions here. A telling example occurs in the middle of the first act, when Rodolfo (Neil Shicoff) and Mimi (Ileana Cotrubas) search for Mimi's lost key. Rodolfo finds it and must communicate this to the audience before hiding the key from Mimi. Other televised performances have presented gestures too grand for so furtive an act, appropriate for the theater, perhaps, yet overdone on screen. Here, seemingly aware of the closely watching camera, Shicoff makes do with a "cat that ate the canary" smirk—obvious enough, but more natural than stagy, and characteristic of his acting throughout. Shicoff's voice, though neither huge

nor weighty, by no means lacks tone or projection, and it makes for a nicely poetic Rodolfo.

Cotrubas, too, has a knack for making the right moves in the right places, and her smooth, easy soprano is endearing. Marilyn Zschau becomes a bit shrill vocally but portrays a comparatively restrained Musetta. Similarly, the two male comic cameos, the landlord, Benoit (Brian Donlon), and Musetta's rich admirer, Alcindoro (John Gibbs), are rendered preposterous by the flow of events around them rather than by foolish overacting. And the ensemble work—from the well-choreographed horseplay of Rodolfo's garret-mates to the soberer scenes of the third and fourth acts—is handled wonderfully by the cast and underscored by Lamberto Gardelli's tightly paced conducting.

The successful stage chemistry and economical direction are, fortunately, mirrored in the video production. Perhaps the best thing about the camera work is that one doesn't notice it—

which would hardly merit mention if the exact opposite weren't true in the *Aida* production. In *Bohème*, the camera movement and switching are well planned and smoothly executed, and the chosen shots, invariably the logical focal points, are taken from distances and perspectives that suit the action and do justice to the finely crafted sets.

The sound, too, is surprisingly good for a live recording. While it lacks some of the polish and control of a studio performance, it achieves near perfect balance between stage and pit, and captures the stereo image nicely. There is little intrusive noise from the audience, the stage, or the orchestra, and, although one can hear the audience faintly tittering during the clowning in the Café Momus, applause is withheld until the end of each act. Since this disc (two acts per side) is laser-scanned and CX-encoded, there is no surface noise per se, yet a faint buzz can be detected during the quietest sections when the disc is heard

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ENDEARING MIMI: Cotrubas has a knack for the right moves in the right places.

end of the first act, Radamès stands in front of a stone wall. Not much happens to the immovable Martinucci, but the stone wall keeps melting in and out of focus as the cameraman fiddles with his lens. Later, in the triumphal march, there's an odd skip. The music continues smoothly, but the picture somehow jumps ahead, followed by an abrupt camera switch. If this were merely a one-shot telecast, such sloppiness might carry less weight, and some of it would undoubtedly pass unnoticed. But it's difficult to fathom why any self-respecting video producer would consent to have this immortalized on disc and released to the public—which, one assumes, is meant to watch it more than once.

Video discs can, of course, have a life independent of the tube: Since they are, ideally, high-fidelity stereo recordings played through an amplifier and speakers, they can be played like LPs, heard but not seen. With the *Bohème*, this works well enough, although I suspect that most listeners would opt for an LP version with a stellar cast. In the *Aida*, with a cast not nearly so good, the same goes without saying. Still, the soundtrack is fairly well balanced, and, in the dance music and certain of the climactic scenes that use full orchestra and chorus, the performance really begins to catch fire, sonically. In quieter passages though, the soundtrack sometimes becomes unacceptably messy, live sound at its worst: Onstage foot-shuffling is probably unavoidable, particularly where large masses of extras are moving around; but one also hears, interspersed throughout the work, objects being dropped by the orchestra players, audience noise, and even what seems to be comment from within the orchestral ranks. Given the almost festive nature of this outdoor performance, it is neither surprising nor unreasonable that a good deal of enthusiastic applause follows each major number; however, some viewers may be put off, seeing the performers occasionally step out of character to acknowledge it.

The key scenes in both *Aida* and *Bohème* have been assigned "chapter" numbers by Pioneer Artists, and these can be used, by viewers with the proper equipment (a player with the remote scan feature), to locate the highlights within a few seconds.

—ALLAN KOZINN

through headphones.

Just about every feat performed successfully in the production of the *Bohème* disc is poorly managed in *Aida*. In truth, some of the trouble lies in the work itself: Whereas Puccini's opera is impelled by stark realism and peopled with human, warm-blooded characters, Verdi's is a wholly different sort of creation, in which the grandeur of the spectacle and the brilliance of the vocal writing compensate, in a good performance, for the fact that the work's cardboard characters don't really *do* much. For *Aida* to work on the small screen, the cast must be equal to the music, and the camera crew must somehow manage to convey a sense of awesome spectacle without showing up the paucity of action between the moments of monumental staging and dance.

This production, filmed at the Arena di Verona in July 1981, is rarely more than passable. Probably the greatest inherent problem is the cast, for the most part mediocre, both vocally and visually. The only singer whose voice has any power and sheen is Giuseppe Scandola, but his Amonasro accounts for a small fraction of the singing in this four-side set. Fiorenza Cossotto plays a dull and dumpy Amneris; she's not bad vocally, but her repertoire of body language consists of folding her arms, clenching her fists, and stretching her arms (in

two varieties, upward and outward). Though her stiffness finds a perfect match in Nicolo Martinucci's Radamès, the *Aida*, Maria Chiara, is slightly more animated and sometimes sings beautifully.

The Arena di Verona is said to be the place to go for a visually grand *Aida*, and, clearly, the immensity of the place comes into play in the building of this large-scale production. But however striking this may be to anyone in attendance, too much has been lost in the translation to disc, largely because of senseless, inept camera work. During the ballets, for instance, the cameramen offer an array of perspectives: from the sides, from a close-up camera in front, from above, and from the nether reaches of the arena—this last making the lines of dancers seem like so many ants wending their way across the bottom of one's television screen. Sure, it gives a great idea of how enormous the semipyramid set looms, and how completely it dwarfs even a large number of creatures on the stage; and yes, some of the shots create interesting screen images. Yet lost in all the switching of cameras and shifts of dimension is the choreography itself. One never sees enough of it from a steady perspective to judge its overall shape.

Elsewhere, the camera work is just plain sloppy. At one point toward the

Compact Disc REVIEWS

THREE NEW CLASSICAL AND FOUR NOT-SO-NEW POPULAR RECORDINGS FIND THEIR WAY TO CD, WITH MIXED RESULTS.

CLASSICAL

BEETHOVEN:

Symphonies:

No. 5, in C minor, Op. 67*;

No. 6, in F, Op. 68 (*Pastoral*)†.

Leonore Overture No. 3, Op. 72b.‡

Philharmonia Orchestra, Vladimir Ashkenazy, cond. [Andrew Cornell, prod.] LONDON 400 060*†, 410 0031 (fully digital Compact Discs) [prices at dealer's option], LPs (2): LDR 72015*†, \$12.98. Cassettes (2): LDR5 72015*†, \$12.98.

Ashkenazy as conductor is still a bit puzzling. It would be convenient to attribute a few instances of less than precise execution in these Beethoven performances to a lack of experience and stick technique. A concurrent Sibelius LP (Seventh Symphony and *Tapiola*, London LDR 71080), however, is altogether bolder in style and magnificently executed, so perhaps this represents yet another instance of

that studied imprecision so many younger maestros emulating Furtwängler affect in Beethoven, along with self-indulgent tempo fluctuation and a penchant for Wagnerian "overbloat."

But since Ashkenazy has recorded all 32 of the piano sonatas as well as the 10 piano-violin sonatas (not to mention the five concertos and, apparently, now the trios), he plainly knows his Beethoven. And since the Philharmonia is no novice in this literature either, the music is in safe enough hands.

The Fifth Symphony, as Ashkenazy oversees it, is broad and generalized. Apart from a quite lively finale, the tempos are leisurely to middling, with the apparent Furtwänglerisms kept within reasonable limits. (The end of the second movement is drawn out, although never

limp to the degree of Furtwängler's recently reissued 1947 broadcast with the Berlin Philharmonic.) On the whole, the rhetorical Sturm und Drang inflection makes for a persuasive reading.

The *Pastoral* is similarly deliberate and quite bucolic. The thunderstorm is not particularly incisive, and instances of tenuto chording blunt other details, though never to any serious degree.

There are, to be sure, more sophisticated performances of these works, and competition is undoubtedly imminent, even in the brand-new CD format, but all the essentials are here, delivered in agreeable sound and playing. Comparison with the LP versions shows the CDs to have a slightly richer midrange, and a wider dynamic spectrum, yet the LPs hold up surprisingly well.

The conventional packaging offers two symphonies for the price of one; the CDs are available separately at full price (whatever it is), but London makes partial amends by including a fine *Leonore* No. 3 after the Fifth. Ashkenazy, incidentally, gives all repeats in both symphonies (though not the dubious one in the Fifth's scherzo).

—HARRIS GOLDSMITH

SCARLATTI, A.:

Sinfonie di concerto grosso (6).

William Bennett and Lenore Smith, flutes; Bernard Soustrot, trumpet; Hans Elhorst, oboe; I Musici. Philips 400 017 (analog recording; digital Compact Disc) [price at dealer's option], LP: 9500 603, \$10.98. Cassette: 7300 725, \$10.98.

Symphonies: No. 1, in F*†; No. 2, in D†; No. 3, in D minor; No. 4, in E minor†; No. 5, in D minor†; No. 6, in A minor.

Into these miniature symphonies, the first of a set of 12, from the threshold of the classical period, Scarlatti pours an abundance of melodic and rhythmic invention that keeps renewing the allure of their invariant five-part form, as do the contrasting colors of his constantly shifting complements of soloists. In the performances by I Musici, gravity and resilience mesh as gratefully in the limpid ariosos as in the ubiquitous fugues in which the composer pays tribute to the waning baroque. Flutist William Bennett, heard in every selection, plays the dancelike Adagio of Symphony No. 6 with a cool, fetching sweetness; joining him for Nos. 1 and 5, second-flute Lenore Smith blends in nicely. The oboe part in No. 4 is in the able care of Hans Elhorst, whose trills have a special poise and lightness. In No. 2, Bernard

EXPERIENCED HANDS: Vladimir Ashkenazy, though still a puzzling conductor, knows his Beethoven.



Soustrot's trumpet scatters festive excitement. Nor must the rhythmic alertness, melodic sensitivity, and textural clarity of the string band and continuo, the sine qua non of the enterprise, be overlooked as the gold stars are being passed out. The buzzy acoustics of the recording convey the atmosphere of an intimate paneled chamber, an apt and pleasant setting for music of this scope and scale.

—MATTHEW GUREWITSCH

TCHAIKOVSKY:

Symphony No. 6, in B minor, Op. 74 (*Pathétique*).

Los Angeles Philharmonic Orchestra, Carlo Maria Giulini, cond. [Hans Weber and Günther Breest, prod.] DEUTSCHE GRAMMOPHON 400 029 (fully digital Compact Disc) [price at dealer's option]. LP: 2532 013, \$12.98. Cassette: 3302 013, \$12.98.

Giulini's EMI *Pathétique* with the Philharmonia, one of the best things this conductor has given us, remains available on a budget-price Seraphim LP (S 60031). The Los Angeles remake (which I haven't heard in LP format) is more matter-of-fact. Its plainer phrasing, good but less polished execution, and dryish reproduction surprisingly remind me of Toscanini's 1954 broadcast performance with the NBC Symphony (though, of course, minus that account's disastrous mistake in the first-movement exposition).

Giulini never falsifies sentiment, but neither does he exalt or generate crackling electricity as he did in 1961. For the most part, rhythms are doggedly square and—as with Toscanini on that off-day—lack the customary note-to-note, phrase-to-phrase continuity. The orchestra plays sturdily, if without the lustrous blend and unanimity of its more recent recordings.

The CD is not terribly alluring here—the soft playing is spaciouly reproduced, but whenever a climax comes, a certain constriction sets in. Some may consider it a virtue that the passage just before the development section in the first movement is so soft that it verges on the inaudible (but not so inaudible as to hide Giulini's substitution of bass clarinet for Tchaikovsky's specified bassoon!).

As the first CD version, this is certainly a satisfactory *Pathétique*, but there will doubtless soon be others (the Ashkenazy/Philharmonia analog account?) joining it.

—HARRIS GOLDSMITH

POPULAR

AL DiMEOLA, JOHN McLAUGHLIN, PACO DELUCIA:

Friday Night in San Francisco.

Al DiMeola, John McLaughlin, & Paco DeLucia, producers. CBS/Sony 35DP 9 (analog recording; digital Compact Disc). LP: CBS FC 37152; reviewed 7/81.

MILES DAVIS:

The Man with the Horn.

Teo Macero, producer. CBS/Sony 84708 (analog recording; digital Compact Disc). LP: CBS FC 36790; reviewed 10/81.

BRUCE SPRINGSTEEN:

Born to Run.

Bruce Springsteen, Jon Landau, & Mike Appel, producers. CBS/Sony 80959 (analog recording; digital Compact Disc). LP: CBS JC 33795; half-speed remaster reviewed 11/80.

BOB JAMES & EARL KLUGH:

One on One.

Bob James, producer. CBS/Sony 35DP 10 (analog recording; digital Compact Disc). LP: CBS/Tappan Zee FC 35241; reviewed 1/80.

Recently, I spent a long afternoon sequestered in HIGH FIDELITY's listening room, comparing four commercially available Compact Discs with their LP counterparts. Having missed the first HF critics' listening panel [January], I confess to having been as uninitiated to the CD sound experience as I was innocent of prejudice. All four CBS/Sony discs were mastered in Japan from their original analog master tapes; "Born to Run" was recorded in 1975, making it the oldest of the lot.

I listened to the LPs first to get an idea of the original production values: "One on One" is slightly bland jazz fusion that was superbly engineered

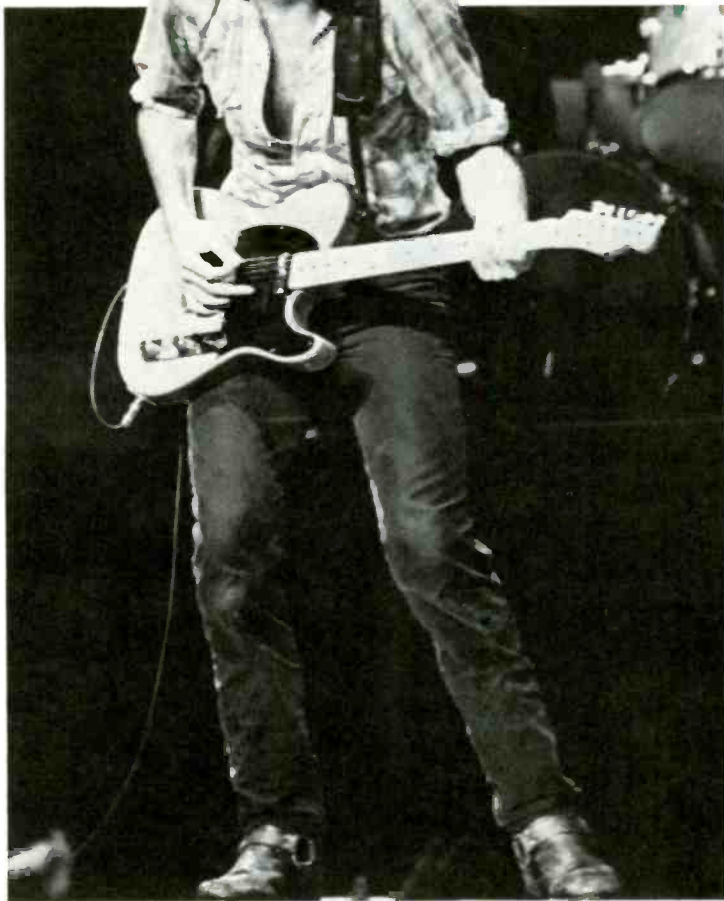
particularly in terms of equalization and stereo imaging. At the other extreme, "Born to Run" packs a lot more wallop into a production that is sometimes a bit muddy in the low end. Then I started on the CDs. I was startled. The most immediately obvious improvements are, of course, the absence of surface noise and wow and flutter. But "improvements" is the wrong word. The changes in frequency response, dynamic range, and timbral expansion make the CD listening experience different in character than its analog or even its live counterpart. This may raise objections in some quarters, especially among classical listeners. But if you're a pop-music aficionado, for whom a recording is a listening experience in and of itself—rather than an acoustical representation of a particular performance—then CD will undoubtedly figure in your future.

"Friday Night in San Francisco," which documents a live concert with guitarists John McLaughlin, Al DiMeola, and Paco DeLucia, was recorded at San Francisco's Warfield Theater. The material is Spanish-tinged, and both the trio and the duo performance configurations tend toward deft thirty-second-note runs. In the analog-to-CD comparison, the former sounds compressed and smaller than the latter; indeed, the CD's concert-hall ambience feels larger than life, with the notes reverberating off into space. That overriding spaciousness and depth contributes to several other differences: Attacks on notes sound crisper, vibratos are more vibrant, and there seem to be more overtones in the bass and midrange. On the Egberto Gismonti composition *Frevo Rasgado*, a duet by McLaughlin and DeLucia that contains some of the album's most stirring moments, the ascending lines in unison, octaves, and thirds generate some beautiful overtones that simply cannot be heard on the LP. In fact, I'm not at all sure they were even audible at the concert; they may be entirely a product of the digital process.

I've heard complaints from several music critics that CDs tend to push the high frequencies too far, and when the original master is an old noisy one, recorded on out-dated equipment, the results can be disquieting. One critic I know has heard a number of European-market Philips CDs that were mastered in Holland. He says they sound less trebly than their Japanese-mastered

MILES: probing the nether regions





SPRINGSTEEN: refuting the argument that digital isn't suitable for gritty rock

counterparts, a phenomenon he attributes to the Japanese possibly wanting to hear more high end when they master. In any case, the highs on the "Friday Night in San Francisco" CD are breathtaking, adding considerable merit to an album that is long on virtuosic technique and somewhat short on substance.

Miles Davis' "The Man with the Horn," on the other hand, is packed with musical substance. Released in 1981, it was a fine comeback filled with deceptively casual compositions, several brilliant storytelling solos, and a panoramic sense of rhythmic space. It was recorded in CBS's mammoth midtown Manhattan studio, once a huge church, so the space is no accident. In fact, the LP sounds full and airy, even compared with the CD. But individual instrument sounds differ widely between formats. On *Fat Time*,

drummer Al Foster's New Orleans-style second-line beat sounds much further back in the analog mix, while his tom-toms resonate more deeply on the CD; similarly, Marcus Miller's pulsing bass probes and extends much further down into the aural nether regions on the digital disc. Even Miles's trumpet, recorded and equalized by Teo Macero with the utmost care, has more depth, especially during his Harmon-muted soloing. And though *Backseat Betty's* crashing ride cymbals hold up quite well on LP, the CD has a slightly cleaner edge and a timbral shimmer that aren't on the LP.

The Bruce Springsteen album offered an acid test. While "Born to Run" could in no way be called abrasive hard rock, it is, nonetheless, quintessential rock & roll. Such tunes as *Thunder Road* and the title track feature a classic rock combo sound

whose careening aural wash epitomizes what Springsteen and producer Jon Landau had in mind. That quality, partly achieved by (intentional) bleed-through of the instrumental tracks, remains intact on the CD. And once again, the most dramatic improvement is in the individual sounds—even compared to the CBS half-speed remaster audiophile pressing. There, the piano intro to *Thunder Road* sounds boxed-in and fuzzy next to the CD, where it seems to peel. The rim-shot drumming during the song's first verse (called "cross-sticking" in studio parlance) cuts through the guitars with much greater definition, while in the last verse the glockenspiel leaps above the mix, rather than peeps over the top. On a quieter, cleaner track like *Tenth Avenue Freeze-out*, the horn section sounds more focused in attack, as David Sanborn's baritone kicks in on the downbeats with grit and bite. A note to rock & roll listeners: These CDs have a "hotter" high end than their LP counterparts, and this one still sounds more cohesive and centered at high volumes than the LP. In other words, the oft-cited argument that digital isn't suitable for gritty rock music doesn't hold up on this classic '70s recording. If anything, the CD rendered the original's rock ambience all the more effective.

As noted in the January issue, Bob James and Earl Klugh's "One on One" is an outrageously clean and carefully produced recording—each instrument has superb definition. Again, the CD differences are dramatic: Neal Jason's bass is full-bodied and carpet-like, deeper and more pleasing in effect; the already complex and impressive stereo imaging seems almost cinematic in dimension; Ralph MacDonald's percussion instruments subtly nudge, but never intrude on, Klugh's glistening guitar arpeggios. The listener feels witness to a true juxtaposition of sounds in space, rather than against a flat wall.

Perhaps the only real barrier to the CD's potential stampede into the marketplace is the nature of its sound. Its differences may in fact be due to enhanced overtones that are either inaudible or less apparent in an analog recording or live performance. But with these four albums I found that quality to be enjoyable and anything but artificial.

—CRISPIN CIOE

Wagner Recordings: The Love Stories



LOUIS MELANCON

Isolde at sea (Birgit Nilsson at the Met): What's happened to make her act so oddly?

In the worlds of *Lohengrin* and *Tristan und Isolde*, folks don't always say (or even know) what's on their mind.
by Kenneth Furie

WE MEET WAGNER now on the brink of plunging into *The Ring*, and then coming up for air some three-fifths of the way through. Make of it what you will. *Lohengrin* and *Tristan* are his only operas whose central business is a romantic relationship—or, to be precise, the failure of a romantic relationship. They are also his trickiest and most troubled operas.

Procedurally speaking, the larger quantity of broadcast-derived material included in this installment is intended as a supplement to, not a substitute for, the commercial recordings, especially as the sound, while listenable, isn't competitive. Compare the 1958–60 Bayreuth *Lohengrins* or the 1962 *Tristan* with Philips' lovely 1962 *Tannhäuser*, *Lohengrin*, and *Parsifal* recordings.

Thanks to German News Company for the Melodram material. In one of the later

This continues a discography we began in May, with Dutchman and Tannhäuser. The next installment, projected for September, will take up Meistersinger and Parsifal, with The Ring to follow.—Ed.

installments we'll be catching up with such odds and ends as EMI's new seven-disc "Wagner on Record" anthology of mostly familiar 1926–42 performances.

Lohengrin

What we have here is, at least in part, a failure to communicate.

In *Dutchman* and *Tannhäuser*, Wagner had gone as far as he could with people who mean what they say and pretty much say what they mean. We all do this sometimes in real life, but more often we either aren't sure what we mean, or would rather not acknowledge it to ourselves, or are concealing it from others. Amid the pageant-like "public" scenes of *Lohengrin* (i.e., all of Act I and the second scenes of Acts II and III), its four central characters grope toward goals so veiled that most audiences come away thinking the opera is about Elsa and her damned forbidden Question.

It's clear that something goes terribly wrong in the Bridal Chamber Scene, which begins so promisingly. It really looks as if Elsa and Lohengrin, two genuinely nice and

deserving people, are going to be able to fulfill for each other needs that go to the heart of their images of themselves and their place in society. How can this come apart so quickly?

Wagner gives us scads of words and notes and gestures, but they often conceal more than they reveal about the desires of the characters. If we want to penetrate their defensive shells, the first thing we have to do is to *really* look and *really* listen. For example, if we were to *really* listen to the opening of the Bridal Chamber Scene (using, say, Melchior's 1926 recording of the opening, with Bettendorf, in Seraphim IB 6086), wondering at Lohengrin's singular conversational choices and his manner of expression, I think we would sense that (a) he is scared (put him on the battlefield, sword in hand, and he's a holy terror, but put him in the bedroom, as it were unarmed, and he's something else), and (b) whatever he wants from Elsa, it is extremely important to him. (Listen to the phrase "Elsa, mein Weib!")

What does Lohengrin want? For me the picture doesn't begin coming into focus

until Elsa has asked The Question. Among the recriminations that follow, note the section of "Höchstes Vertrau'n" (of which the Seraphim Melchior set conveniently includes a good 1928 recording) that begins: "Your love must richly repay me for what I gave up for you." Get it? It wasn't Lohengrin's free choice, but Elsa's connivance, that led him to give up Grail Ranging for wedlock.

Uh-huh, sure. What Lohengrin seems to want is . . . well, everything. Aware of emotional gaps in his life, and aware that they can in some manner be filled by Elsa, but not able or willing to deal honestly with those needs, he dumps the whole burden on her. In exchange for his physical presence, he expects her to be so "sweet" and "pure" as to make him whole—not only to meet all his unarticulated needs, but to compensate him for his great sacrifice.

How can such a relationship succeed? By its very ground rules, Elsa can't know who and what Lohengrin is. In fact, she can't even entertain the *desire* to know—as if it were humanly possible to exclude the possibility of certain *thoughts*. It could be argued that Elsa all the same agrees to these conditions, which he sets out clearly before agreeing to defend her, even repeating them word for word and note for note to make sure she gets it. But *does* she get it?

Skipping over the extreme duress under which Elsa agrees (in our time, in Act III, she'd get herself a good lawyer, and Lohengrin would be lucky to come out with custody of the swan), can we say that our great communicator has really made his conditions perfectly clear? The *words* are clear enough: "Never shall you ask me, nor have any concern about knowing, where I came from on my journey, nor what my name or lineage is." But once again, let's really *listen*. For two (identical) phrases, he hammers, even harangues, and then suddenly he shifts tone, becoming well-nigh passionate. Would Elsa be entirely wrong here to hear something more than a severely extracted oath?

This is another puzzle whose solution seems to slip out in Act III, though among our recordings you'll hear it only in Acanta, Richmond, Cetra, Angel I, RCA, DG, and Angel II—the only ones to include the section after the Grail Narrative that begins with Lohengrin's "O Elsa! What have you done to me? When my eyes first took you in, I felt myself enflamed with love for you, and quickly I had known a new happiness." (The standard cut continues to the chorus' shouts of "Der Schwan," pages 775–809 of the Eulenburg score.)

Enflamed with love? Would you have guessed? Not unless you were to listen through the words to what might really be on Lohengrin's mind.

The intertwining of tangled public and private agendas makes *Lohengrin* perhaps the trickiest Wagner opera to conduct, and

there are several recordings that objectively seem well conducted but that don't draw me back.

Sawallisch (Philips) is in excellent control of the piece. His tempos are unfailingly alive, the Bayreuth forces play and sing beautifully for him, and the sound is lovely. For these qualities I do enjoy returning to this set, and yet the pleasure isn't long-lived, even though the cast is probably better matched to its assignments, role for role, than those of his *Dutchman* and *Tannhäuser*. The problem would appear to be that the cast's deficiencies are of a nature that calls attention to the gaps.

The same sort of thing happens in Acanta, where Kempe's reading is clear, logical, and forward-moving, and the cast is frequently on the brink of taking charge of the music. But this doesn't often come to pass, and the performance doesn't really get off the ground. Neither does Heliodor, where Jochum seems to be trying to create an appropriate framework for his generally burly, even lumbering cast. His reading is darker and weightier than his Bayreuth performance two years later (Cetra), and his dependable musicianship is evident throughout. But that musicianship doesn't produce distinctive results until the problematic second scene of Act II, where Wagner's solo writing seems to slide down a notch or two, landing in more congenial territory for all four of these principals. This is one of the scene's most effective recorded performances.

On the other hand, with several recordings that I *do* enjoy, I'd be hard put to make much of a case for the conducting. In RCA, for one, Leinsdorf seems less to make things happen than to allow the performance to unfold. A key factor in my enjoyment is the Boston Symphony, which plays with such consistent focus and involvement that the score's larger phrase shapes develop an emotional scale that might not be possible in a harder-driven context. This happens also to be a performance in which the singers' strengths come to the fore more than their weaknesses. Next to DG, this is the *Lohengrin* I'm most likely to pull off the shelf.

Angel I is a funny set. I like it, and usually enjoy returning to it, but between hearings I don't retain much impression of it. The unattractive recording acoustic doesn't help, and overmiking of the soloists is sometimes a problem, as in the Ortrud/Telramund scene. Still, the cast is a good one, and Kempe builds the big ensemble scenes nicely. Elsewhere, though, he may have gotten too chummy with the piece. While nothing in it is exactly cheated, not much pops off the page either.

Angel II is another funny set. This is the recording, herewith receiving its official HF review, begun at the time of Karajan's ill-starred 1976 Salzburg Easter Festival production and completed at some unspecified date with one change of cast—

the original Ortrud, Ursula Schröder-Feinen, having apparently disappeared from sight. Although the lower male voices do show some inconsistencies, they may or may not reflect this hiatus, and in any event Karajan's approach doesn't allow for many inconsistencies. The performance is so controlled and refined as to drive some listeners up the wall. (Before buying, you should if possible check out Conrad L. Osborne's exasperated review in the May 1983 *Key-note*.) At least on preliminary acquaintance, however, I like it. No other recording deals this openly with the score's dourness and desperation, a view the singers are adequate to realize.

Kubelik (DG) strikes the best balance between maintaining control (note the high level of choral and orchestral discipline) and giving the performers their head (note how the brasses respond to the freedom he gives them). He is also the conductor most sensitive to the distinction between public and private scenes, so that his reading remains equally responsive in the blare of the massive ensembles and in the hush of the Ortrud/Telramund scene. If not for the problematic Ortrud, this recording could be recommended almost without reservation.

There are two especially distinctive live performances: Keilberth's (Richmond), from the first season of Wolfgang Wagner's Bayreuth production (1953), and Heger's (Preiser), from wartime Berlin. Keilberth's broad and sober approach proves well suited to this cast, while the more extroverted Heger's solid musicianship and forward drive accommodate his seasoned cast well, though the choral work gets rather scrambled.

Jochum's Bayreuth performance (Cetra), from the season after Keilberth's, is lighter in texture and more fluid—attractive if not memorable. The same is true of Cluytens' more lyrical and affectionate conducting (Replica) from the first season (1958) of brother Wieland's famous production, which unlike Wolfgang's made cuts (somewhat different from year to year). From the following season, Von Matačić (Melodram I) is solidly musical but surprisingly deadpan.

From the season after that, Maazel (Melodram II) can be heard making all sorts of provocative choices: bringing out inner voices, pressing heated passages, stretching intense ones. Many of the choices are interesting but unpersuasive, in part because the singers just aren't in on the game. But the choices that work, like the passionate, sinuous Bridal March, make you wonder what he might do with the piece today, should someone assemble a suitable cast that he'd be willing to work *with*.

There's nothing fancy about what Schüchter (HMV/RCA) and Swarowsky (Westminster) do, but they do it honestly. Schüchter provides lift without hysteria, and HMV/RCA gets off to a running start thanks to the unusually strong Herald/King/

Telramund threesome and the lusty choral combine—the performance sags later when the opera zeroes in on Elsa and Lohengrin. Swarowsky sounds more pedantic, but it must say something for him that a performance by these forces can be listened to.

Leaping the bounds of Germanic orthodoxy, Melodiya absorbs the opera, through both voice typing and rhetorical patterns, into its native repertory. It's too bad we couldn't have heard this process carried out at the level of Boishoi forces, with the A-team cast that could have been assembled at the time. Except for the Lohengrin, the singers have sizable but unsteady voices. Still, it's all done with conviction. Even the cuts are hacked out with disarming gusto.

Among a strong group of Elsas, the winner in the vocal-achievement category is Steber (Richmond). Coming on cold (live recording, remember), she sings a remarkably full-toned and secure Dream, and then meets the other challenges of this long and diversely demanding role with the same even-scaled aplomb. If we can occasionally see the beads of sweat forming, she *is* working hard.

In the personal-favorite category, I'd pick Grümmer (Angel I, Melodram I) and Janowitz (DG). Especially in the studio recording, Grümmer sings the music as well as anybody except Steber, giving us generous measures of her characteristic vocal warmth and personal intimacy. Janowitz' lighter-weight, emotionally contained Elsa isn't to all tastes, but I find the instrumental beauty of her timbre enormously attractive, and her containment itself suggests the sheltered-debutante quality that makes Elsa's mere existence so galling to Ortrud.

The remaining Elsas can be grouped by vocal weight. At least in theory, the heavier voices have an advantage in the big ensembles and the dramatic confrontations of Act II, Scene 2, but are at a disadvantage elsewhere in the role, which places a premium on solidity of line and maneuverability. Rysanek (Replica) generally conforms to this model. There are flashes of vocal excitement throughout, but her difficulty in keeping the voice under precise control suggests why she didn't sing Elsa much—or Elisabeth, for that matter. Emotional repression is an important part of both women, and vocal inhibition isn't what we look to Rysanek for.

We would probably say the same of Nilsson, and inhibition *is* a problem with her 1954 Elsa (Cetra) in that she has few opportunities to open the voice out in the manner so familiar from the Nilsson of just a few years later, who would seem better matched to Ortrud. In fact, though, this isn't quite the same singer. She is working for a connected and rounded tone, and I don't think I've heard any lovelier singing from her.

In Melodram II we hear Nordmo-Löv-



HIGH FIDELITY ARCHIVES

For Lohengrin, the size of Thomas' voice serves him nicely.

berg in her brief heyday, and the basic sound in the middle is full and attractive. But the top isn't secure, suggesting a voice that was never well-knit, and there is hardly any interpretive profile beyond the vocal hits and misses. I'm inclined to include Kupper (Heliodor) among the heavy-weights, not because the voice is one, but because it appears to handle like one. It sounds edgy and tentative much of the way, but gels at full cry, in Act II, Scene 2.

Among the lighter-weight Elsas, the most successful are Tomova-Sintov (Angel II), Müller (Preiser), and Schech (Acanta). Tomova-Sintov sings the music attractively and sincerely, and I enjoy her without being gripped as I am by Janowitz, to whom there is an obvious resemblance in the coolness of timbre and personality. Müller and Schech, with pleasing voices of appropriate presence for Elsa, sing fairly well but demonstrate just how difficult this music is to sing with real steadiness of line.

Amara (RCA) and Cunitz (HMV/RCA) don't really fill out the music and are forced into periodic overload, yet they are both conscientious singers. I've learned to live with Amara, while Cunitz is almost impressive in Act I and Act II, Scene 1; after that, the music overwhelms her. Silja (Philips) gets off to a squealy start in the Dream and never gets much singing tone in the sound.

Among the many pleasing recordings of Elsa's arias, we might note Flagstad's late Dream with Knappertsbusch (London OS 25101, OP), which the two turn into a miniature tone poem. Of the scene with Ortrud there is a 1948 complete recording, beginning with "*Euch Lüften*," that cap-

tures Tiana Lemnitz in somewhat tremulous shape and Klose singing nicely—more lightly but also more cautiously than in any of her complete recordings (EMI Germany 1C 147-28989/90, Lemnitz). Emmy Bettendorf and Karin Branzell made an attractive but also rather cautious 1928 recording of the final section, from "*Ortrud! Wo bist du?*" (LV 182, Branzell).

My favorite Bridal Chamber Scene is the moderately abridged 1937 French recording by Germaine Martinelli and Georges Thill (Pathé FCX 50005, a Thill Wagner collection that also includes his Grail Narrative and "*Mein lieber Schwan*"). Martinelli is very good, but the real attraction is Thill's stunning work: the voice full and lush, with large reserves of tone for the climaxes, all guided by a remarkable dramatic intelligence. The recording made at Bayreuth in 1936, running through "*Amnest du nicht*," finds Müller and especially Völker in tonally fuller shape than in the Preiser set (complete with Prelude and Bridal March in Telefunken's "*Famous Wagner Interpreters*," KT 11017; the duet only on LV 81, Müller). The 1940 Flagstad/Melchior recording, complete except for a small cut near the end, is sluggish and overblown (Victrola VIC 1681, OP).

For Lohengrin, we have to scrape a bit. Thomas (Angel I) doesn't always maintain a steady tone (this problem is generally more severe in the live Philips performance), but he sings most of the role quite well, and the size of his voice serves him nicely at many points. No one on records sings "*Heil dir, Elsa! Nun lass vor Gott uns geh'n*," the last solo line in Act II, as beautifully. King (DG), with a voice of similar weight, also sings well, though in that over-earnest all-purpose "expressive" mode of his. Kónya (RCA, Replica, Melodram I) is lovely at his best, but even with a voice of this weight he has trouble keeping the line steady. Even lighter-voiced is Kozlovsky (Melodiya), who takes on quite exciting fullness and ring above the break.

Kollo (Angel II) sings with his familiar squeezed production, but Lohengrin seems to me one of his most successful roles. His tone, such as it is, is under good control, and he makes a nice point of the transition from mezza voce to full voice going from "*Nun sei bedankt*" to "*Heil, König Heinrich*" in Act I. Neither sound is in itself terribly impressive, but the switch from private to public reality is effectively realized. Völker (Preiser) also delivers an intelligent reading that is undercut by the dried-out condition of the voice. Schock (HMV/RCA), operating within the limits of a lyric instrument that hasn't much bloom or freedom, gets through the role whole. Fehnerberger (Heliodor) can sound impressive when the writing stays low, and Vincent (Acanta) has passages of striking firmness and beauty, but in both cases, what about the rest?

Other listeners may respond more favorably to Windgassen (Richmond, Cetra, Melodram II), and in all three performances there are phrases of strength and authority. But for the most part the sound itself is so uningratiating, heading into the realm of wailing, that I can't take him very seriously. He is on the whole in freshest voice in 1960, perhaps because he wasn't singing Siegfried that summer.

Melchior's commercial Lohengrin excerpts tend to suggest that the voice was too heavy for the role. However, the live performances I've heard, from 1943 and 1947 (i.e., near the end for him), are vocally extraordinary, and something of their ringing impact comes through in the 1943-ish recording of the entrance, from "*Nun sei bedankt*" through the interrogation of Elsa (Odyssey Y 31740, OP), with the young Varnay reminding us that she was in those years quite a lovely Elsa (and with Janssen sounding silly in the King's few lines).

Marcel Wittrisch is also most impressive, though in a more lyric, liquid way, in his 1931 recording of the Act I interrogation with Käthe Heidersbach, included in Electrola's Bayreuth centennial box (IC 181-30669/78) along with his Grail Narrative. Melchior's 1939 Grail Narrative and 1938 "*Mein lieber Schwan*" with Ormandy (RCA CRM 3-0308, OP) will have to do, and among the many other recordings of these excerpts we might note Domingo's Grail Narrative on his first RCA recital disc (LSC 3083, OP), by way of reminder to the record companies that this is a role he should still be able to sing well.

What I hope someday to hear in an Ortrud is a voice secure enough to attack the first A sharp of "*Entweihte Götter*" head-on, and then maintain the assault of this agonized moment of release without monitoring the intermediate A naturals and F sharps or anticipating the climactic second A sharp. Just pinpoint Ortrud's needs here, and go for them. The rage that she bares in this one moment of complete privacy, as she waits for Elsa to reappear, suggests an accumulation of psychic abuse almost too corrosive for public exhibition.

Unfortunately those sopranos who gravitate to Ortrud tend not to be terribly secure on top, as witness the agonies into which Jones (DG) rams her voice. Varnay (Richmond, Cetra, Replica, Melodram II, Philips) is certainly an imposing Ortrud, but even in 1953 her pulverizing soprano isn't free on top, and as the years pass the top becomes less and less secure. Klose, approaching the role from the dramatic-mezzo direction, is still in her lustrous prime at the time of Preiser, but even here she has to husband the top. By the time of Acanta and HMV/RCA, she has become an even more interesting artist, but the whole voice has lost a measure of its former steadiness.

Gorr (Melodram I, RCA), another dramatic mezzo, is also an exciting Ortrud, but

Lohengrin

Preiser (Austria, NR). Maria Müller (Elsa), Margarete Klose (Ortrud), Franz Völker (Lohengrin), Jaro Prohaska (Telramund), Ludwig Hofmann (King), Walter Grossmann (Herald); Berlin State Opera, Robert Heger. * LOH 0004 (1941, 4m).

Melodiya (U.S.S.R., NR). Elizaveta Shumskaya, Yevgenia Smolenskaya, Ivan Kozlovsky, I. Bogdanov, Gennady Troitsky, Yuri Galkin; U.S.S.R. State Radio, Samuel Samosud—in Russian. D 04734/41 (1949, 4m).

Acanta (Germany). Marianne Schech, Klose, George Vincent, Andreas Boehm, Kurt Böhme, Willi Wolff; Bavarian State Opera, Rudolf Kempe. HB 22.326 (1951, 4m, formerly Urania URLP 225).

[DG] Heliodor (Germany, OP). Annelies Kupper, Helena Braun, Lorenz Fehenberger, Ferdinand Frantz, Otto von Rohr, Hans Braun; Bavarian Radio, Eugen Jochum. 2703 001 (1952, 5m, formerly Decca DXP 131).

HMV/RCA (OP). Maud Cunitz, Klose, Rudolf Schock, Josef Metternich, Gottlob Frick, Horst Günter; Cologne Radio Chorus, Hamburg Radio, Wilhelm Schüchter. LHMV 800 (1953, 4m).

Richmond (OP). Eleanor Steber, Astrid Varnay, Wolfgang Windgassen, Hermann Uhde, Josef Greindl, Braun; Bayreuth Festival 1953, Joseph Keilberth. * RS 65003 (5m).

Cetra (Italy, NR). Birgit Nilsson, Varnay, Windgassen, Uhde, Theo Adam, Dietrich Fischer-Dieskau; Bayreuth Festival 1954, Jochum. * LO 77-4 (4m).

Replica (Italy, NR). Leonie Rysanek, Varnay, Sándor Kónya, Ernest Blanc, Kieth Engen, Eberhard Wächter; Bayreuth Festival 1958, André Cluytens. * RPL 2489/92 (4m).

Melodram I (Italy, NR). Elisabeth Grümmer, Rita Gorr, Kónya, Blanc, Franz Crass, Wächter; Bayreuth Festival 1959, Lovro von Matačić. * MEL 591 (4m).

Melodram II (Italy, NR). Aase Nordmo-Lövberg, Varnay, Windgassen, Gustav Neidlinger, Adam, Wächter; Bayreuth Festival 1960, Lorin Maazel. * MEL 601 (4m).

Philips. Anja Silja, Varnay, Jess Thomas, Ramon Vinay, Crass, Tom Krause; Bayreuth Festival 1962, Wolfgang Sawallisch. * 6747 241 (4s).

Angel I. Grümmer, Christa Ludwig, Thomas, Fischer-Dieskau, Frick, Otto Wiener; Vienna State Opera Chorus, Vienna Philharmonic, Kempe. SEL 3641 (1963, 5s).

RCA (OP). Lucine Amara, Gorr, Kónya, William Dooley, Jerome Hines, Calvin Marsh; Boston Chorus Pro Musica, Boston Symphony, Erich Leinsdorf. LSC 6710 (1965, 5s, now RCA Germany 26.35120 and RCA Italy VLS 43413).

Westminster [Gold] (OP). Leonore Kirschstein, Ruth Hesse, Herbert Schachtschneider, Heinz Imdahl, Walter Kreppel, Hans Helm; Vienna State Opera Chorus, Southwest German Philharmonic, Hans Swarowsky. WGSO 8285-4 (1968, 4s).

DG. Gundula Janowitz, Gwyneth Jones, James King, Thomas Stewart, Karl Ridderbusch, Gerd Nienstedt; Bavarian Radio, Rafael Kubelik. 2713 005 (1971, 5s).

Angel II. Anna Tomowa-Sintov, Dunja Vejzovic, René Kollo, Siegmund Nimsgern, Ridderbusch, Robert Kerns; Deutsche Oper Berlin Chorus, Berlin Philharmonic, Herbert von Karajan. SELX 3829 (1976-81, 5s).

Notes: Listings are current domestic issues unless indicated otherwise. OP = out of print, NR = not released in the U.S., * = live performance, m = mono, s = stereo, d = digital. Recording dates are in some cases best estimates.

she too inclines to caution on top, even in the vocally more secure Bayreuth performance. One solution is a lighter-weight mezzo, and both Ludwig (Angel I) and Vejzovic (Angel II) do have some success this way, though neither attacks the top with real freedom.

To understand Telramund you really have to hear Blanc (Replica and, not quite as focused in tone, Melodram I), or at least Metternich (HMV/RCA). Their ability to encompass the vicinity of the break, rather than negotiating it or ramming their way through, changes the character of the music entirely. Instead of the usual sleazeball, we get a proud man—and lovely vocalism.

Stewart (DG), Dooley (RCA), and Uhde (Richmond, Cetra) are struggling at the break, but with enough success to sustain the solid singing they do farther down in the voice. "Solid" isn't the word for Fischer-Dieskau (Angel I), but in his light-weight way he gets the job done. Nimsgern (Angel II), Prohaska (Preiser), Vinay (Philips), Boehm (Acanta), and Frantz (Helio-

dor) all have usable equipment for the role but are driven into some form of vocal overload. Neidlinger (Melodram II) has some solid tone below and is an experienced break-rammer above, and the ramming is sometimes exciting. (It's presumably for his convenience that unusual cuts are made in Act II—pages 245-51, 497-502.)

The best Kings are Ridderbusch (DG) and Crass (Philips), both producing a full and lovely sound all the way up to the role's dizzying heights. Crass is solid but less focused-sounding in Melodram I, while Ridderbusch ranges from still-pretty-good to now-rather-mushy in Angel II. He's at his best in the mezza-voce questions to Elsa in Act I.

Frick (HMV/RCA, Angel I) is less easy on top but still makes a good sound. Hines (RCA), although not very imaginative, has that dark, weighty bass in good order. Adam (Cetra) isn't really a bass, of course, and is shy at the bottom, but actually sings fairly attractively. (The voice is somewhat drier in Melodram II.) The role is

sometimes solved with a higher, lighter bass, as with Kreppel (Westminster), Engen (Replica), and Von Rohr (Heliodor). Moving in the other direction, there is the full if not lush bass of Hofmann (Preiser).

The most personable Herald is Marsh (RCA). The most imposing vocally is Wächter (Replica, Melodram I, Melodram II). There are also sturdy performances by Kerns (Angel II), Krause (Philips), and Fischer-Dieskau (Cetra), and decent ones by Günter (HMV/RCA), Nienstädt (DG), and Grossmann (Preiser); the others are best unmentioned. It would be a shame if Allan Monk's splendid Herald went unrecorded.

In the matter of cuts, in addition to those already noted, among the sets that make the big Act III cut—which is to say Preiser, Melodiya, Heliodor, HMV/RCA, Replica, Melodram I, Melodram II, Philips, and Westminster—all but Preiser also do some trimming in the series of choruses at the top of Act II, Scene 2. RCA restores the extension of the Grail Narrative cut by Wagner himself.

Tristan und Isolde

In demonstrative performance terms, the *Tristan* discography doesn't afford much to talk about. Conductors and singers each divide into two broad categories. Among conductors, there are the theoreticalists and the nose-to-the-grindstoners. Among singers, there are those who make it and those who don't.

The theoreticalist conductors are those who begin with flashcard-style aphorisms (such as "*Tristan* is about passion" and "*Tristan* is symphonic"), enough of them to cover all the opera's basic moods, and then make all interpretive decisions as illustrations of these flashcards. Since much of Act II, while not exactly *about* passion, at least has it in there somewhere, the theoreticalists have an edge here. But in Act I, between the Prelude and the fateful meeting of the protagonists, whatever is going on, it isn't passion, and the edge usually goes to the nose-to-the-grindstoners, who trust that a series of catchy moments will add up to an opera.

This leaves us with two major gaps: a long one in Act III, between the surefire opening music (Prelude and Shepherd scene) and the *Liebeshod*; and one that only seems long in Act II, after Marke's untimely interruption of his wife and nephew's *Liebesnacht*. The first gap can't really be solved without a tenor capable of making something of Tristan's delirium. A good Kurwenal will get you farther into the act, and a sharp razor blade will leave you less apt to get into, but this still leaves an awful lot of raving.

The second gap can't be solved period—neither the theoreticalists nor the grindstoners have figured out what to do about Marke. The results speak for themselves: All four obvious postwar candidates



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As Tristan, Vinay rises to the climaxes and sings intelligently.

have recorded the role, and, while I haven't heard Frick (in the 1950 Urania recording conducted by Konwitschny, with Bäumer and Suthaus, which I've never heard), there's not much more than some pleasant singing to be heard from Talvela (DG I), Ridderbusch (Angel II), or Moll (DG II).

Yes, Marke is another of Wagner's eternal understanders-and-forgivers, and one reason he has been given so much time in Act II to grapple with the discovery of his nephew and wife's adultery is to allow us in the audience both the time and the *necessary information* to appreciate the scope of Tristan's betrayal. We learn, after all, that it was entirely on Tristan's insistence that Marke remarried. If we recall that Tristan chose the bride, and chose as his de facto stepmother a woman he was infatuated with, doesn't it begin to look as if he has on some level *deliberately* set out to outrage and humiliate the man who has been closer to him than most fathers are to sons?

Now how many *Tristan* audiences do you suppose have found themselves mulling over anything of this sort during Marke's so-called monologue? Of course it's not a monologue, which is a speech that involves only one person. The whole point about what Marke is doing here is that he is addressing first Melot and then Tristan, wanting something from each of them.

And this is the point: Instead of starting with the question "What does Marke want?," performers almost always try to translate printed notations directly into performance terms. The stage direction tells us that Marke is in deep shock and his voice is trembling; the musical direction says *p*. So the singer tries to act shocked, and sing soft

and trembly, and not a blamed thing happens until the first crescendo (on "*traf mein Herz mit feindlichstem Verrat!*"), after which this pattern continues. The quiet passages drop out completely.

In real life, though, the most powerful emotional moments often *are* quiet ones. Wagner's textual specifications are only surface indications of the result of the human process at work. The performer needs to find this *process*, because that's what audiences can become truly involved with. In Marke's case, for example, what if we were to assume that his purpose here is not to show us how he feels? That the intensity of his feelings is in fact a major *obstacle* for him.

He wants to keep control of himself, he wants to get some answers from Tristan, he wants to find out somehow that what he's seeing isn't so—whatever he wants, the turmoil inside him, all that anger and pain, is what he has to *overcome*. If the performer were to pursue the moment this way, we would in all likelihood *see* him in shock, and we would hear him singing softly—except in those moments when he becomes unable to hold it all in—and possibly even trembling. But now what we are responding to is the human being in action, not an illustration of shock and trembling.

This may explain why for me neither the theoreticalists nor the grindstoners have much chance of solving *Tristan*. Powerful as Furtwängler's performance (Angel I) is in many ways—so carefully and intelligently thought-out, so decisively and even intensely executed—it has for me a mechanical quality that stands between me and the moment-to-moment life of the characters, very much part of his live *Meistersinger* and *Ring* performances but processed out here.

The grindstone approach too can yield impressive results. Listen in DG I to the first snatches of dialogue between Isolde and Brangäne, just after the Sailor's song—in particular to Brangäne's answers to Isolde's peculiar questions ("Where are we?" and, in effect, "Where are we going?"). In large part by *listening* to the music, to Wagner's choice and vocal positioning of particular vowels and to the melodic and harmonic twists of the line, Ludwig conveys Brangäne's own ambivalence and her gingerly handling of Isolde, carefully taking in and adjusting to her response.

But the grindstone approach is limited by lack of context. It's all very well to deal in the moment, but those moments can't happen unless they are part of the full lives of the characters. For example, how long at curtain rise have Isolde and Brangäne been at sea? What has the sailing been like? What have they been *doing* all this time? Only by answering such questions can you find how the text expresses the mental blockages and leaps that account for Isolde's strange behavior.

After Furtwängler, the most success-

ful theoreticalist is Knappertsbusch (Discocorp II), who lumbers through Act I but generates a good deal of intensity in the later acts. What Goodall (London II) is after eludes me. His English National Opera *Ring* cycle is also slow, but something happens there. The *Tristan* is slow and serious, but not much else.

On the whole I am currently more comfortable with the grindstoners, and I have a lot of respect for what Böhm accomplishes in DG I. It's interesting to compare Melodram IV, from the first season (1962) of Wieland's legendary *Tristan*. The earlier performance has the same basic sense of let's-get-on-with-it objectivism, but it is often less compulsively driven. At times this greater freedom has its attractions, but especially as the performance progresses I frequently miss the concision and sense of purpose of 1966.

Unfashionably, I will admit to fondness for Solti's headlong assault (London I). Despite the problematic *Tristan*, I enjoy hearing the music laid out with such freshness and enthusiasm rather than being intellectualized or attitudinized to death. Interestingly, the Karajan of 1952 (Melodram II) often got even more carried away with the score, and this is quite an exciting performance to hear—at least once or twice. From the following year, Jochum (Melodram III) predictably offers a more moderate grindstone approach, forward-moving but lyrical and well balanced.

Reiner (Discocorp I) occasionally seems on the verge of overly savoring details, but doesn't completely lose the larger view. Of course vocal presences like Flagstad and Melchior are a great help in keeping the show going, and Leinsdorf (MET) is a possibly undeserving beneficiary. This is dislikable conducting—in its corner-cutting, edge-rounding, line-of-least-resistance way much closer to the Leinsdorf I've known in the opera house in recent years than are the studio recordings, including the RCA *Lohengrin*, he has made over this same period. If such conducting gives the grindstone approach a bad name, the best answer is Elmendorff's work in the abridged 1928 recording (EMI), which has such life and sense of purpose that the singing becomes quite bearable.

Three performances defy easy classification. Since I don't think of Erich Kleiber (Melodram I) as having much in common interpretively with Knappertsbusch, I keep thinking that there ought to be more immediately observable differences between their Munich performances than the fact that Knappertsbusch has Schoeffler as Kurwenal and Kleiber doesn't.

More seriously, I'm puzzled by Karajan (Angel II) and Carlos Kleiber (DG II). On first hearing, I loved Kleiber's Act I, and still like it; it sounds like the long-awaited theoreticalist-grindstone synthesis, with playing of considerable intensity that responds both to larger structures and to

Tristan und Isolde

EMI (Germany). Nanny Larsen-Todsén (Isolde), Anny Helm (Brangäne), Gunnar Graarud (Tristan), Rudolf Bockelmann (Kurwenal), Ivar Andréson (Marke); Bayreuth Festival 1928, Karl Elmendorff—abridged. IC 181-03031/3 (3m, formerly Columbia 78s and Entré 11).

Discocorp I. Kirsten Flagstad, Sabine Kalter, Lauritz Melchior, Herbert Janssen, Emanuel List; Covent Garden, Fritz Reiner. * RR 471 (1936, 4m, also Discoreale 11027/30).

MET. Flagstad, Kerstin Thorborg, Melchior, Julius Huehn, Alexander Kipnis; Metropolitan Opera, Erich Leinsdorf. * MET 3 (1941, 4m).

Discocorp II. Helena Braun, Margarete Klose, Günther Treptow, Paul Schoeffler, Ferdinand Frantz; Bavarian State Opera, Hans Knappertsbusch. * IGI 345 (1951, 5m).

Angel I. Flagstad, Blanche Thebom, Ludwig Suthaus, Dietrich Fischer-Dieskau, Josef Greindl; Covent Garden Chorus, Philharmonia, Wilhelm Furtwängler. EL 3588 (1952, 5m).

Melodram I (Italy, NR). Braun, Klose, Treptow, Rudolf Grossmann, Frantz; Bavarian State Opera, Erich Kleiber. * MEL 014 (1952, 4m).

Melodram II (Italy, NR). Martha Mödl, Ira Malaniuk, Ramon Vinay, Hans Hotter, Ludwig Weber; Bayreuth Festival 1952, Herbert von Karajan. * MEL 525 (4m, also Cetra LO 47-5).

Melodram III (Italy, NR). Astrid Varnay, Malaniuk, Vinay, Gustav Neidlinger, Weber; Bayreuth Festival 1953, Eugen Jochum. * MEL 535 (4m).

London I. Birgit Nilsson, Regina Resnik, Fritz Uhl, Tom Krause, Arnold van Mill; Vienna Singverein, Vienna Philharmonic, Georg Solti. OSA 1502 (1960, 5s).

Melodram IV (Italy, NR). Nilsson, Kerstin Meyer, Wolfgang Windgassen, Eberhard Wächter, Greindl; Bayreuth Festival 1962, Karl Böhm. * MEL 625 (4m).

DG I. Nilsson, Christa Ludwig, Windgassen, Wächter, Martti Talvela; Bayreuth Festival 1966, Böhm. * 2713 001 (4½s).

Angel II. Helga Demesch, Ludwig, Jon Vickers, Walter Berry, Karl Ridderbusch; Deutsche Oper Berlin Chorus, Berlin Philharmonic, Karajan. SEL 3777 (1972, 5s).

London II. Linda Esther Gray, Anne Wilkins, John Mitchinson, Philip Joll, Gwynne Howell; Welsh National Opera, Reginald Goodall. LDR 75001 (1980, 5d).

DG II. Margaret Price, Brigitte Fassbaender, René Kollo, Fischer-Dieskau, Kurt Moll; Leipzig Radio Chorus, Dresden State Orchestra, Carlos Kleiber. 2741 006 (1980, 5d).

events of the moment. I'm still with him in the opening chord of Act II, which has such striking weight and beautiful balance as to make you sit up and take notice. Then I'm lost. Perhaps it's the wearing-off of Act I's illusion of vocal adequacy, but the most suitable voice in the set, Moll's, isn't heard until Act II. In the later acts, all passages quieter than forte seem simply to drop out, both vocally and orchestrally, and of course in those passages that ask for vocal climaxes, the wrong people are being asked here.

In Karajan's case, all I pick up is a theoreticalist who hasn't quite decided what his theories are. He and the recording team must have had something in mind with the peculiar shifts of sonic ambience, but they come out as merely annoying. Up to a point he seems to be interested in a big-sound *Tristan*, but he keeps the orchestra just contained enough so that it can't strike through to any sort of statement. What's so frustrating is that he has five quite interesting, or at least plausible, singers assembled. They sing well enough to keep me coming back—and becoming puzzled all over again.

Talking about the singers is simplified by the writing's outsize weight and ease-of-handling requirements. Especially with regard to the title roles, this tends to divide singers, as noted earlier, into those who can and those who can't, with perhaps a subcategory for those who *almost* can.

Wouldn't we all like to have an Isolde of greater sheer timbral beauty than Flagstad and Nilsson? Something along the lines of Frida Leider as heard in her 1928 Narration, the abridged 1929 *Liebesnacht* with Melchior, and the 1931 *Liebestod* (all on Angel COLH 132, OP). Sure, but who?

Demesch (Angel II) sings much of the music very attractively, but even if we wanted to overlook the fact that the voice isn't quite filling it, we couldn't ignore the weakness of her top. Price (DG II) is actually present in Act I, where she sounds bright and ample enough, but she vanishes thereafter. Gray (London II) has what sounds like a nice voice of some size, but not of Isolde size, and Goodall is no help to her.

Mödl (Melodram II) and Varnay (Melodram III) meet the size requirements, but neither voice is ideally balanced for the kinds of singing Isolde has to do. Mödl has passages of striking beauty unexpected from her more stolid commercial excerpts with Windgassen and Johanna Blatter (Telefunken KT 11037), but the voice is often combat-ready rather than sensuous, the lunge into the top is more pronounced than Varnay's, and there are passages when the voice simply poops out and we hear the ravaged *Frau ohne Schatten* Nurse of a decade later. Varnay too has impressive passages ("lovely" would be stretching in her case), though frustratingly in the *Liebesnacht*, where Vinay also has impressive passages, the two never seem to connect at

the same time.

Flagstad is heard to best advantage in Discocorp I, where the voice retains its youthful freshness and vigor of attack. MET catches her on one of those sluggish days when the voice doesn't move very freely, and in this respect Angel I is preferable, even though it captures the voice in significantly older condition, with the top no longer functioning well. (We all know that the high Cs aren't hers.) This is also the only place I've heard her sing the uncut *Liebesnacht*.

Flagstad has two edges over Nilsson: more plushness of tone and a naturally more ingratiating personality. Nilsson's virtues are most impressively on display in DG I: the weight and vibrancy of tone, the ease and precision of attack, the flexibility of handling that encompasses tricky passage-work as well as huge spans, the limitless stamina (this is a live performance, remember). In the 1962 Bayreuth performance (Melodram IV), she does seem to be pacing herself early on, and she is more generalized in phrasing, as she is in the hearty 1960 studio recording (London I).

Apart from Leider's, the most notable Isolde excerpts are by none other than Flagstad and Nilsson: Flagstad's 1948 Narration and Curse with Elisabeth Höngen (Seraphim 60082 and EMI Germany IC 147-01491/2), the 1939 *Liebesnacht* with Melchior (Victrola VIC 1681, OP) and the 1949 "O sink' hernieder" with Set Svanholm (EMI Germany IC 147-01491/2), and assorted *Liebestods*; Nilsson's early Narration and Curse (with Grace Hoffman) and *Liebestod* with Knappertsbusch (London OS 25138, OP). For weight, evenness, and beauty of sound, the Traubel Narration and *Liebestod* that filled out the Odyssey reissue of Melchior's great delirium scene (32 16 0145, alas OP) make easy listening.

With Tristan as with Tannhäuser, we have Melchior, and then we have Others. Nobody else has made this kind of sense of the Act III ravings (even he himself lets the tone drop out in the air-check performances I've heard), where at last we get a glimpse of the long-suppressed emptiness and hurt that, left to fester unattended, have produced the extraordinarily destructive behavior we witness. Hear how the Shepherd's piping of "die alte Weise" (the old tune) threads through the consciousness of Tristan the orphan (*Waise*), who suddenly finds himself back in the childhood home where he saw neither of his parents, and where from the moment of birth the ideas of life and love were mingled with death and abandonment. How could Kurwenal possibly guess that of all the possible havens to have brought Tristan to, the friendly environs of Kareol are emotionally the least "safe"?

Next to Melchior, the Tristans with the most to offer are Vickers (Angel II), whose contact with the role is erratic but whose big, ripe dramatic tenor actually encom-

passes it, and Vinay (Melodram II and III), whose voice isn't of this caliber but does rise to the climaxes and is handled with considerable intelligence. Treptow (Discocorp II, Melodram I) sounds fine as long as the writing stays below the break, and Suthaus (Angel I), although vocally more consistent on top, makes no real vocal impact except in his buzzy baritone bottom and is dramatically absent.

As for our Squeeze Trio, Lorenz (Acanta excerpts, 22.316) displays the strongest vocal presence, but as usual gives no pleasure in the actual sound. Windgasen (Melodram IV, DG I, plus assorted excerpts) manages through sheer determination to keep himself in the picture so that no holes develop in the performances, but no character gets created. Kollo (DG II) is *not* in the picture, and his vocal insufficiency is most conspicuous not in the full-voiced passages, where he can at least scream his lungs out and produce *some* sound, but in the quiet passages of the *Liebesnacht* and the ravings, where he makes no impact at all. Uhl (London I) is similarly miscast, though he toughs it out a bit better, sounding more consistent (though still inadequate) throughout. Mitchinson (London II), a sensible artist, is swamped most of the time.

The most noteworthy additional Tristan excerpts are Melchior variants, the 1930 "O König" and "Und drauf Isolde" (both included in "Wagner on Record").

We talked about the quality and importance of Wagner's secondary characters in connection with *Dutchman*, and *Tristan* contains some of his most remarkable. The Shepherd's music, for example, is some of the most affecting he wrote. A lot of our feeling for the protagonists depends on our response to their relationships with their devoted Brangäne and Kurwenal.

If only Ludwig (DG I, Angel II) had ampler vocal reserves to help her through the more heated exchanges of Act I and the first scene of Act II, she would be sensational. As noted, I especially admire her moment-to-moment responsiveness, and the voice is in many ways a good one for the role. Given its light weight, however, she can't even attempt to sing the Watch in full, connected phrases.

For some weight and fullness of sound, the Brangänes of choice are Kalter (Discocorp I) and Klose (Acanta excerpts, Discocorp II, Melodram I). Thorborg (MET) also has a mezzo of good size and scores many points along the way, but like Ludwig she has trouble keeping the sound steady. There are adequate performances by Thebom (Angel I), Resnik (London I), and Fassbaender (DG II).

My favorite Kurwenal is Wächter (DG I), who sings the music with such warmth and tonal security that the character transcends the frequent buffoon stereotype in Act I. (In Melodram IV, he ends the reply to Brangäne with a sneering laugh borrowed

from the Baronets of Ruddigore. Happily it disappeared by 1966.) A true Heldenbaritone is certainly welcome in the role, however, and in Act III Schoeffler (Discocorp II) is quite eloquent. (He's even better in a 1937 Covent Garden performance under Beecham.)

Berry (Angel II) isn't bad, and would likely have been better still with either a more helpful conductor or the warmer vocal presence he commanded a few years earlier. Huehn (MET) has a nice meaty voice, but isn't secure on top and falls into the barking trap in Act I. Krause (London I), although light-voiced, manages a decent account, while the young Fischer-Dieskau (Angel I), even wronger for the role, has attractive moments. In DG II, nearly twenty years later, with the upper part of the voice managed only by a raucous bellow, Fischer-Dieskau sounds like one of those old-time German bawlers (cf. Prohaska in the Acanta excerpts).

We have one outstanding Marke: Kipnis (MET), who doesn't command the same tonal luxuriance he had in the Thirties but still possesses a voice of notable fullness and finds life in those quiet passages that even his best-endowed successors (see above) let slip by, although I would surely choose them over the other available options. Van Mill (London I) and Howell (London II), both ingratiating performers with attractive but not quite sufficient voices, start nicely but don't take off.

The Sailor's strategic and difficult song is sung with excellent presence and lyric quality by Discocorp II's unidentified tenor and Melodram III's Eugene Tobin. Also quite good are Emery Darcy (MET), Waldemar Kmentt (London I), and Peter Schreier (Angel II), while still adequate are a more pinched-sounding Schreier (DG I), Gerhard Unger (Melodram II), and Eberhard Büchner (DG II).

The outstanding Melot is Ernst Kozub (London I), whose tonal vibrancy reminds us what a promising instrument this was. Another seeming Heldentenor-in-the-making is Hasso Eschert (Melodram III). Also solid are Darcy (MET), Albrecht Peter (Discocorp II, Melodram I), and Bernd Weikl (Angel II).

My favorite Shepherd is Paul Kuen (Discocorp II, Melodram I), followed in descending steps by Arthur Davies (London II) and Gerhard Stolze (Melodram II, III, IV); Peter Klein (London I), Schreier (Angel II), and Erwin Wohlfahrt (DG I); and Rudolf Schock (Angel I) and Anton Dermota (DG II).

In the matter of cuts, Discocorp I and MET make the common whopper in the *Liebesnacht* (from Tristan's "Dem Tage! dem Tage!" up to Isolde's "Doch es rächte sich der verscheuchte Tage," pages 286-333 of the Dover study score). Discocorp I lops one chunk out of Tristan's ravings (pages 487-94), while MET snips out two more (pages 518-22, 526-33). **HF**

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Mozart Symphonies: Classical or Romantic?

Rafael Kubelik, always a big, warm-hearted conductor, especially in Mozart, offers a ravishing No. 39, an affectionate Prague.

New recordings make compelling cases for taking either approach—or combining both.
Reviewed by John Canarina

GIVEN THE CURRENT Mahler mania, it's comforting to know that Mozart symphonies are still recorded. One's reaction to these performances will depend upon one's perception of Mozart. Is he the epitome of classicism, to be performed coolly and objectively, precisely as written, with few or no dynamic gradations and tempo modifications? Or is he, at least in the late works, the first of the great Romantics, open to interpretation, to be played warmly and expressively, with subtle (and not so subtle) dynamic inflections and tonal colorations? James Levine and Wolfgang Sawallisch espouse the former view, Rafael Kubelik advocates the latter, and Neville Marriner and Gerard Schwarz fall somewhere between. Of course, Mozart is both, and it is a measure of his greatness that he responds equally well to the two treatments.

To single out one disc before taking up the works in order, the best performance here is

Kubelik's ravishing No. 39. Kubelik has always been a big, warm-hearted conductor, especially in his Mozart. The opening chord, perfectly tuned and weighted, has the sonority of an organ, and the introduction, so often static, here proceeds at a perfectly natural pace. The Allegro, since it grows out of the Adagio, begins fairly slowly, picking up tempo at the first forte. Kubelik's approach, not as taut as George Szell's in this work (CBS MG 30368), offers the warmth of Bruno Walter's Mozart without Walter's sentimental indulgences. Kubelik is keenly aware of the Mozartean operatic style and its relation to the symphonies. (Actually, most conductors are aware of this, but few communicate it so well.)

Beautiful string playing, found throughout Kubelik's cycle (except perhaps for the double basses, sometimes gruff), is never more evident than in No. 39's slow movement, where the Bavarian Radio Sym-

phony violins are absolutely creamy. A detail seldom noticed comes to the fore in measures 132–35—the low, sustained fifth (A flat in the cellos and basses, E flat in the horns) underpinning the imitative woodwind passage.

A sturdy, expressive Minuet leads to a wonderfully good-humored Finale, in which, for once, the violins' running sixteenth-note passages are played musically rather than as virtuoso perpetual-motion display. Though I'm no stickler for repeats at all cost, my sole regret is that Kubelik omits the second reprise in the Finale, one of the truly great repeats in the literature. (Just listen to a performance that observes it, and you'll hear what I mean.)

I've always liked Kubelik's first recording of the *Prague*, some 30 years ago, with the Chicago Symphony (Mercury, deleted). Predictably, his new account is more affectionate, neither so swift nor so driving. Here Kubelik doesn't hesitate to

broaden the tempo for the first movement's second theme. In the Andante, he heeds the music's darker side. One senses the *Prague's* relationship to *Don Giovanni* more in this performance than in Marriner's, of which more later. But I don't like the way Kubelik—among others—softens some cadences, particularly the one preceding that second theme. As in his earlier recording, he observes the repeat in the Finale but skips those in the first two movements.

Back to the earlier works: The ubiquitous Marriner has greater success here, especially in Nos. 28 and 29, than in most of the later works, though all are impeccably played by his Academy. Number 28 appears in the autograph version without timpani, though the liner notes mention timpani as part of the orchestration. Szell, using timpani, gives a more virile, more warmly recorded reading (CBS, deleted), with greater charm. (Yes, Szell was capable of charm.) Walter is more genial (CBS mono, deleted), not so dryly staccato in the first movement's quarter-note phrases as are Marriner and Szell. Marriner's tempo for the Presto finale is—like the Academy's playing—breath-taking.

Marriner gives the delectable No. 29 a very enjoyable reading, and I particularly like the way the second violins sing their half notes accompanying the first movement's opening theme. Tempos are finely judged throughout, though some may find the Minuet brisk. Colin Davis' admired version (Philips Festivo 6570 207), more moderato than Marriner's in the first movement, now sounds a bit sleepy by comparison. Davis is given warmer sound, however; Marriner's recording is clinical in its clarity.

The rarely performed No. 30, though frankly not one of Mozart's more memorable works, is attractive enough on the surface. Marriner makes a good case for it, as he does for the exuberant little No. 32, a work in the fast-slow-fast form of an Italian overture. A textual matter concerning the latter: In measure 21 of the Andante, the violas play G natural, as printed, producing a bare fifth with the second violins' D, with no other instruments playing on that beat. Surely the violas should play F sharp, keeping their sixth-relationship with the violins. Also, Marriner here includes timpani, omitted in Mozart's autograph.

Least successful of these earlier symphonies is No. 33, in which Marriner's first movement is not as buoyant as Szell's (CBS, deleted)—or, in fact, as Marriner's other performances in the series. The rustic elements of the Finale (the staccato oboe-and-bassoon theme and its repetition by strings) are too refined. Finally, the normally bouncy last four bars, a musical tag that recurs throughout the movement, are played diminuendo. What is the authority for this?

This diminuendo only emphasizes an absolutely infuriating characteristic of all of Marriner's readings on these discs, the constant tampering and fussing with Mozart's dynamic markings. The frequent softened cadences and subito pianos and crescendos emasculate the music at moments that suggest a little more emphasis and virility. While I'm not saying there shouldn't be dynamic gradations and inflections, they should work *for* the music, not against it.

As a "bonus" on this disc Marriner includes the Adagio maestoso, K. 425a—none other than the introduction Mozart wrote for a Symphony in G by Michael Haydn, formerly numbered Mozart's "Symphony No. 37." As an introduction to a symphony, the fragment is impressive. Heard by itself, it makes no sense at all.

Marriner's tiresome fussing with dynamics continues into No. 34. (I won't mention it again; just assume it's there.) Here, as in the earlier works, the reading is lively and alert, though it wouldn't have hurt had Marriner delayed a fraction of a second after the two introductory bars, and also before the development section. The beautiful slow movement for strings, with divided violas, is sensitively done (with a bassoon appropriately added to the bass line), and the marvelous opera-buffa Finale is exciting. Marriner adds at the end the Minuet, K. 409, thought by some to have been intended for the Viennese premiere of this symphony and often incorporated into the work. (The conductor, by the way, can be heard grunting at various points throughout this series; somehow, I never thought of Mozart as a composer to grunt by.)

Marriner's *Haffner*, the finest of his performances, is based largely on Mozart's autograph, and every detail tells. The prominence given the violas' statement of the theme beginning at measure 48 of the first movement recalls Thomas Beecham's approach. In the Finale, the timpani rolls are especially effective, as are the eighth-note passages with a *fp* on each beat. These are usually too loud—they are difficult to play otherwise—but Marriner and his Academy

show how effective they can be when played lightly, respecting the *p* in *fp*. Since Marriner repeats only the first half in the slow movements of Nos. 28 and 29, one wonders why he observes both repeats in the *Haffner's* Andante. (Perhaps the question should be the other way round.)

Kubelik's *Haffner* is bigger and warmer than Marriner's, slightly slower in the first movement, less pompous in the Minuet, less militant in the Finale. He performs the "normal" version and, like many conductors of his and an older generation, plays the final two bass notes at the end of the Minuet, which musicology has determined should be omitted the last time.*

Kubelik has the *Linz* to himself here. In all his performances, he separates the violins, as was customary in Mozart's time and even a generation or so ago. This enables the many antiphonal passages to emerge more clearly, and even in nonantiphonal sections the second violins become more than just a shadow of the firsts—to wit, the wonderful statement of the *Linz's* introductory theme by the seconds. Kubelik again shows a fine grasp of the work's character and spirit, but again he shares Marriner's annoying habit of softening cadences and otherwise fussing with dynamics—here more than in his other performances. The reading is not flawless. Two bars before the first-movement repeat the woodwind chord is late the first time around; though excusable in concert, this could prove irritating on repeated hearings. There is an awkward tempo shift at the finale's recapitulation—surprising since Kubelik usually judges his tempos so well.

The *Prague* is the least successful of Marriner's readings. A work that cries out for big treatment, it is greeted instead with dynamic restraint. The Academy plays beautifully, as always, but the late symphonies don't respond to Marriner's basically impersonal treatment as well as do the earlier ones. The Allegro is a bit deliberate, which would be OK if it went somewhere. Similarly, the Andante lacks the ebb and flow that we find with Kubelik. The Presto

MOZART: Symphonies.

Academy of St. Martin-in-the-Fields, Neville Marriner, cond. PHILIPS 9500 652*, 655†, 790**, 791††, \$10.98 each. Cassettes: 7300 755*, 758†, 857**, 868††, \$10.98 each.

Symphonies: No. 28, in C, K. 200*; No. 29, in A, K. 201*; No. 30, in D, K. 202**; No. 32, in G, K. 3: 8**; No. 33, in B flat, K. 319**; No. 34, in C, K. 338††; No. 35, in D, K. 385 (*Haffner*)†; No. 38, in D, K. 504 (*Prague*)††; No. 40, in G minor, K. 550†. Minuet in C, K. 409.†† Adagio maestoso, K. 425a.**

Bavarian Radio Symphony Orchestra, Rafael Kubelik, cond. [David Mottley and *†Friedrich Welz, prod.] CBS MASTERWORKS IM 36703*, 36729†, 36730‡ (digital recordings). Cassette: IMT 36703.* [Prices at dealer's

option.]

Symphonies: No. 35†; No. 36, in C, K. 425 (*Linz*)†; No. 38‡; No. 39, in E flat, K. 543‡; No. 40*; No. 41, in C, K. 551 (*Jupiter*)*.

MOZART: Symphonies Nos. 40, 41.

Chicago Symphony Orchestra, James Levine, cond. [Jay David Saks, prod.] RCA RED SEAL ARC 1-4413, \$12.98 (digital recording). Cassette: ARE 1-4413, \$12.98.

Czech Philharmonic Orchestra, Wolfgang Sawallisch, cond. [Jaroslav Rybář, prod.] EURODISC 202 550, \$9.98. Cassette: 402 550, \$9.98.

Los Angeles Chamber Orchestra, Gerard Schwarz, cond. [Marc J. Aubort and Joanna Nickrenz, prod.] DELOS DMS 3012, \$17.98 (digital recording).

Finale, restrained in both dynamics and tempo, lacks the feel of one-beat-to-a-bar.

This Mozart marathon concludes with no fewer than five G minors and four *Jupiters*. To consider the G minors first: Kubelik's is disappointing when compared with his other performances. The opening Allegro *molto* is not *molto*—it's too comfortable, not agitated. Beautiful as it is, it shows little feeling for the work's drama. In the warmly felt Andante, the woodwinds lose precision in the thirty-second-note pairs just before the repeat (not taken), and the Minuet could have more weight. Only the finale (repeatless) comes off with impact and drama. The development sounds louder than the rest, with the woodwinds closer.

Levine, in his first Mozart symphony recordings, is the only conductor here to observe every repeat in both the G minor and the *Jupiter*, and RCA manages to accommodate each on one side (about 35 minutes for the former, 37 for the latter). In contrast to Kubelik's Romanticism, Levine's orientation in No. 40 is strictly classical. There are only small dynamic inflections, no softened cadences, and no slowing for second subjects. The Allegro really is *molto*, a good bracing tempo that becomes relentless, yet not driven—in short, a very dramatic, almost stark, treatment of the score. The flowing Andante is faster than Kubelik's but also cooler, with the recorded volume higher at the end of the movement and in the second repeat than elsewhere. The forward-moving Minuet has great thrust, as does the finale, fast, urgent, and very exciting; here, though, the cellos and basses seem a bit hard-pressed to maintain tempo in some of their eighth-note passages. Assorted moans and groans emanate, presumably from the podium, at odd moments.

Marriner's first movement, while fast enough, is marginally slower than Levine's and lacks his urgency—still good, though. Marriner's Andante is similar in tempo to Levine's; his Minuet, a little slower, properly weighty without seeming ponderous. The finale is light and polite—no drama at all, and not enough contrast between the piano opening phrase and the forte response. The double basses are too closely miked, not the case in Marriner's other recordings. One hardly notices the cellos.

Sawallisch's first movement is the fastest of all—Allegro *molto* with a vengeance. This is a lithe, direct, no-nonsense account, with no dynamic alterations and hardly any dynamic inflections. If it's not in the score, it isn't here. In the Andante, the opening theme should be more expressive than Sawallisch's six flatly repeated notes. The finale, with both repeats observed, is fast, though neither so quick nor so dramatic as Levine's. While the entire reading shows restraint, one senses agitation just below the surface. There's more here than Marriner's politeness.

Schwarz, fast becoming ubiquitous, makes *his* Mozart symphony recording debut with a pair of energetic, none too subtle readings. In the G minor's opening movement, taken at moderate tempo, he does not play the theme straight, in the manner of Levine and Sawallisch, but infuses it with dynamic swells à la Kubelik and Marriner. The lead-back from the development to the recapitulation is clumsy, missing the subtlety of Szell's ritard (CBS MY 37220).

The Andante is impersonal and impatient; the Minuet, weighty but too placid; the Trio, expansive, with unnecessary pauses on either side. Schwarz alone among

The Chicagoans prove equal to a task infinitely harder than playing Mahler.

the five conductors makes a pronounced ritard at the end of the Minuet—only to demonstrate that it's not needed. The finale goes at a good Allegro assai clip, though the development, even faster, sounds rushed. The repeated two-note figures on D (quarter-note upbeat, dotted-half downbeat) are too smooth, with the upbeat played quasi-legato. Schwarz observes exposition repeats in the outer movements. Like Kubelik, he separates his violins; strangely, however, his seconds are often barely heard.

Kubelik, Levine, and Schwarz perform the version with clarinets; Marriner and Sawallisch, the one without. Even though the latter is the original version, and was used by such greats as Beecham and Wilhelm Furtwängler, it seems perverse to do without clarinets, which add such a wonderful color to the score.

Kubelik's *Jupiter*, basically sweet-toned, lacks the Olympian quality one expects, or at least hopes for, in this work. The first movement opens ponderously, but that soon passes. The military rhythms of the brasses should cut through the orchestral fabric more than they do and are, in fact, quite submerged. A flexible Andante cantabile moves ahead slightly in the syncopated passages, appropriately emphasizing the music's agitation. The Minuet is spacious without being too slow, and the Trio is played with great character. Surprisingly in this series, the excellent finale is marred by a deterioration in sound toward the end. Only the first-movement repeat is observed.

With Levine we have almost two *Jupiters*, what with all the repeats. Recognizing that opinions vary on such matters, I can only say that Levine adopts what is for me the perfect tempo for the first movement and imparts to it an alertness it lacks under

Kubelik. Everything is in its place and entirely free of mannerism. Again, though, the military brass rhythms are too far back. RCA's sound is tight and dry as opposed to the openness and bloom given Kubelik. Certain important string details normally covered by the winds in other recordings, including those discussed here, emerge very clearly in Levine's performance of the Andante, which goes at just the right tempo. The *Molto* allegro finale really moves; the violins, pushed hard in their running eighth-note passages, still play cleanly. In its first Mozart recordings since the days of Fritz Reiner (!), the Chicago Symphony proves itself more than equal to a task infinitely harder than playing Mahler.

Sawallisch, as in the G minor, is lithe and fleet, with a first movement comparable to Levine's in alertness. Once again, those brasses are not heard sufficiently. The Andante is slightly too slow, without Kubelik's flexibility; ditto the Minuet, also a trifle heavy. I dislike the pause between the Trio and the return of the Minuet. The finale is again brisk, with only the first repeat observed. Sawallisch alone among these four conductors enters the finale's recapitulation a tempo, without ritard. The Czech Philharmonic, too, plays excellently, with great precision.

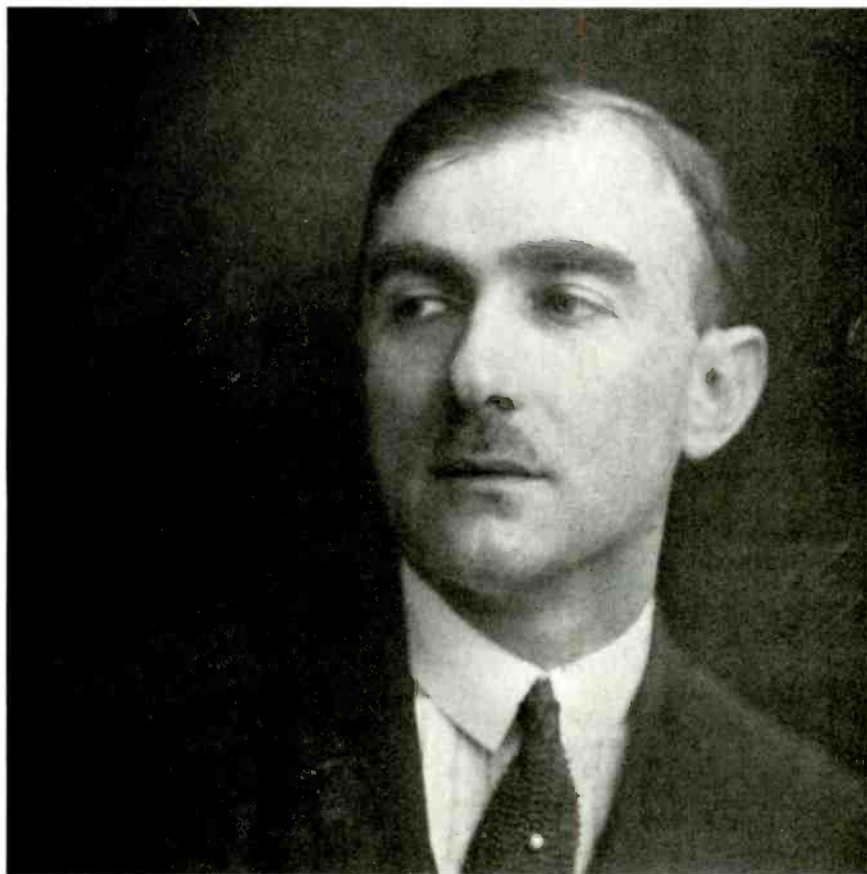
Not surprisingly, it is Schwarz, a former trumpet player, who gives those important brass figures their due in the first movement, and they really do add to the work's impact. He also adopts a good tempo and modifies it as well, allowing more time for the lyrical themes than do his colleagues. His Andante is similar to Sawallisch's, but, like Kubelik, he moves ahead in the agitated passages. The Minuet, taken moderately, has a nice lilt; alas, Schwarz takes the same annoying pause after the Trio. The woodwind playing is beautiful.

Molto allegro or not, Schwarz's brilliant finale really is too fast—the fastest I've ever heard. To compound matters, the tempo is pushed even harder, faster and faster at the passages involving emphatic half notes. Schwarz then makes a sentimental ritardando at the beginning of the coda, a section written in whole notes that already slow the pace on their own. He succeeds in making this finale, one of Mozart's noblest creations, sound like a Rossini overture.

To sum up—and add a bit more: In spite of reservations expressed, Marriner's series offers playing as close to perfection as one is ever likely to hear, in recordings of utmost clarity, with every detail heard in proper perspective. Following these performances with a score, one delights in the way the notes leap off the page into sound. Kubelik is given warmer, more radiant acoustics; his readings, also warmer, more vibrant, and larger-scaled, have an element of humanity missing from Marriner's.

No doubt because of the full sides, (Continued on page 95)

Reviews



Karol Szymanowski: Why has his music never caught on in the West?—See page 79.

AUBER: Overtures (6).

Monte Carlo National Opera Orchestra, Sylvain Cambreling, cond. [Paul Vavasseur, prod.] MUSICAL HERITAGE MHS 4664, \$7.75 (\$4.95 to members) (add \$1.95 for shipping; Musical Heritage Society, 14 Park Rd., Tinton Falls, N.J. 07724).

Le Domino noir; La Muette de Portici; Les Diamants de la couronne; Fra Diavolo; Marco Spada; La Part du diable.

This first Auber overture collection to come my way is grand fun. Certainly none of the selections has been overexposed (*La Part du diable* is claimed to be a first recording), and the music turns out to be chock-full of catchy ideas. The ideas may not be as catchy as Rossini's, and Auber rarely thinks of much to do with them except to repeat them or contrast them. Still, the ideas are catchy, enough so to bear a fair amount of repetition, and the contrasts are effective. Auber seems equally adept at full-bodied tuttis, perky sprints, and debonair lyrical episodes, and the unhysterical, spirited performances and Pathé's robust sound make a winning case. Cambreling, who has worked his way up to music director at the Monnaie in Brussels, sounds like a conductor to watch.

K.F.

BEETHOVEN (arr. Liszt): Symphony No. 6, in F, Op. 68 (Pastoral).

Cyprien Katsaris, piano. TELEFUNKEN 6.42781, \$10.98 (half-speed mastering).

BERLIOZ (arr. Liszt): Harold in Italy, Op. 16.

Aldo Bennici, viola; Daniel Rivera, piano. [Jurg Grand, prod.] MUSICAL HERITAGE SOCIETY MHS 4606, \$7.75 (\$4.95 to members) (add \$1.95 for shipping; Musical Heritage Society, 14 Park Rd., Tinton Falls, N.J. 07724).

Liszt's ministrations on behalf of other composers fall into several categories: First in musical importance are such endeavors as the six *Paganini Études*, in which incandescent violin virtuosity is artfully transformed into equally incandescent keyboard virtuosity. Less significant artistically but still interesting are the operatic paraphrases, with a splashiness that again shows a lot of creativity. Finally, there are the reductions of Beethoven and other symphonic masterpieces for piano solo. These mostly dutiful—and faithful—arrangements were useful in disseminating music that, in prephonographic days, might have been inaccessible save for isolated concert performances. These, in my opinion, should be examined in score rather than

Reviewed by:

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performed in public, although there is perhaps some small justification for making an example or two available on recordings.

Cyprien Katsaris—who will be recording all nine of the Beethoven-Liszt symphonies!—negates the only possible rationale for this project by adding all sorts of extras to Liszt's condensation. His defense is worth quoting: "I discovered a number of places where the music could, in my opinion, have remained closer to the original in the adaptation for piano. In no way did I entertain the thought or the presumption that I could 'do it better' than Liszt, who achieved a quite exemplary rendering for piano. However, hoping to arrive at something as close to Beethoven's text as possible, I did want to try and bring out several instruments which Liszt failed to include and which, accordingly, are not to be heard. Needless to say, performance of the piano version is made infinitely more difficult, since I have only added things, and have subtracted nothing."

Katsaris, in other words, is as good at double-talk as he is at double octaves. Now Liszt may well have left out those instruments for a very good reason: He probably knew (as Katsaris obviously doesn't) that—unlike an orchestra, which gets richer and richer—a single keyboard tends to get more and more clattery and opaque as detail is piled upon detail. Suffice it to say that this half-speed-mastered disc seemed to take twice as long as any normal recording of the *Pastoral*, and before I was very far into its first movement, my thoughts pleasantly turned to a weekend (or a whole year) in the countryside, away from such oddball reviewing chores.

Harold in Italy is at least mildly interesting in that—contrary to his practice in reducing Beethoven's Ninth, for example, where the vocal parts are squashed in with the orchestration—Liszt retains Berlioz' obbligato viola. But (assuming that Bennici and Rivera aren't also "improving" the arrangement), that instrument assumes some of the work assigned elsewhere in the

N.B.—For additional reviews of classical recordings released on digital Compact Discs, please see NEW TECHNOLOGIES, "Reviews."—Ed.

Critics' Choice

The most noteworthy releases reviewed recently

BACH: *Goldberg Variations*. Gould. CBS IM 37779, Jan.
BEETHOVEN: *Fidelio*. Báthy, Rösler, Klemperer. HUNGAROTON LPX 12428/9 (2), April.
BEETHOVEN: *String Quartets (complete)*. Talich Qt. CALLOPE CAL 1631/40 (10), June.
CESTI: *Orontea*. Müller Molinari, Jacobs. HARMONIA MUNDI FRANCE HM 1100/2 (3), May.
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HAYDN: *Symphonies (6)*. L'Estro Armonico, Solomons. CBS 13M 37861 (3), May.
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HILDEGARD OF BINGEN: *Sequences and Hymns*. Gothic Voices, Page. HYPERION A 66039, April.
KODÁLY: *Háry János*. Takács, Nagy, Ferencsik. HUNGAROTON SLPX 12187/9 (3), June.
MAHLER: *Symphony No. 7*. Chicago Symphony, Levine. RCA RED SEAL ATC 2-4245 (2), March.
MOZART: *Flute Quartets (4)*. Kuijken. ACCENT ACC 8225, June.
MOZART: *Piano Concertos Nos. 20, 27*. Curzon: English Chamber, Britten. LONDON CS 7251, April.
PFITZNER: *Songs (17)*. Fischer-Dieskau, Höll. PANTHEON ORFEO S 36 821, May.
POWER: *Masses and Motets*. Hilliard Ensemble, Hillier. EMI ELECTROLA RÉFLEXE 1C 069-46402, March.
PUCCINI: *Turandot*. Ricciarelli, Domingo, Karajan. DG 2741 013 (3), June.
SCHUBERT: *Lazarus, D. 689; Salve Regina, D. 676*. Mathis, Hollweg, Chmura. PRO ARTE

2PAD 203 (2), May.
SCHUBERT: *Piano Sonata, D. 960*. Goldsmith. AAG A 014, May.
SCHUBERT: *Songs (93)*. Various. EMI RLS 766 (8), April.
SCHUMANN: *Symphony No. 3; Manfred Overture*. Los Angeles Philharmonic, Giulini. DG 2532 040, May.
SHOSTAKOVICH: *Unpublished Works*. Rozhdestvensky. VOX CUM LAUDE VCL 9035, April.
TCHAIKOVSKY: *Symphony No. 2 (orig. version)*. London Symphony, Simon. CHANDOS ABRD 1071, May.
WAGNER: *Tristan und Isolde*. Price, Kollo, Kleiber. DG 2741 006 (5), Feb.
CAMBRIDGE BUSKERS: *Soap Opera*. DG 2532 072, June.
ELMER ISELER SINGERS: *Spectra*. CENTREDISCS CMC 0281, April.
OFRA HARNOY: *Arioso*. DISCOPAEDIA MBS 2013, March.

original. And quite surprisingly, one detail that might have worked reasonably well—that spot in the first movement where solo viola and bassoon travel in unison—fails to materialize here; the pianist, presumably, has his hands full elsewhere.

How dreadful both scores sound with their brilliance and color atrophied; so many moments are made simply laughable with pianolalike tremolos and other such stage icycles. Both recordings, then, represent a perverse exercise in futility. If you really crave an example of Liszt's "piano-stration," I recommend investigating Idel Biret's account of the *Symphonie fantastique* on Finnadar SR 9023. (I haven't heard the record, but I once heard her do the piece surprisingly well in concert). H.G.

CACCINI: *Euridice*.

CAST:

Dafne/Venere	Catalina Moncloa Dextre (s)
Euridice	Véronique Dietschy (ms)
La Tragedia	Judith Mok (ms)
Nymph/Proserpina	Anne Perret (ms)
Orfeo	J. Inigo Foronda (t)
Shepherd/Divinity	Carlos Manuel Soto Chavarria (t)
Arctero	Vincente Encabo (t)
Man/Divinity	José Luis Beatobe (t)
Tirsi/Caronte	Francisco Javier Valls Santos (b)
Aminto	José Luis Alcade Chapinal (b)
Plutone	Gregorio Poblador Fuente (bs)
Radamanto	

Juan Francisco Poblador Fuente (bs)

Chorus, instrumentalists, Rodrigo de Zayas, dir. [Ariane Segal, prod.] MUSICAL HERITAGE SOCIETY MHS 824579, \$15.50 (\$9.90 to members). [Recorded in performance, January 1980.] Add \$1.95 for shipping; Musical Heritage Society, 14 Park Rd., Tinton Falls, N.J. 07724.)

The popularity of baroque music and the phenomenal growth of the "authentic performance practice" movement brought a thriving influx of amateurs and semiprofessionals into these fields. This is not surprising; all novel (or locally novel) disciplines draw enthusiasts who like to be part of the

exciting new discoveries. It happened when ethnomusicology was new in this country: Anyone who could afford a tape recorder and a round-trip ticket to the Congo or the Aleutians was in business. The amateur musicologists used to be tune detectives or radio announcers who—Lord forgive them, they also wrote books—virtually guided the musical taste of the public. But now an entirely new type is taking over: performing musicians, often very talented, who used to execrate musicology and now practice it—often illegitimately.

The amateur scholar always likes to start *ab urbe condita*, "from the founding of the city," as the Roman saying goes, and what could be more interesting and rewarding than to rediscover and resuscitate "the first opera." This engaging but exacting task is the subject and substance of this recording. I have never heard of Rodrigo de Zayas, credited with the "direction and realization" of Giulio Caccini's *Euridice* (Florence, 1600), though in more than half a century as a musicologist I would expect to have encountered somehow, somewhere, the scholar equipped to undertake this weighty and most complicated enterprise, which presupposes long preliminary studies. And indeed his lengthy notes and commentaries explain why his name does not figure anywhere in the professional literature: He shows an encyclopedic lack of scholarly information and judgment, hardly compensated for by the unshakable faith and enthusiasm of the neophyte.

Everyone knows the story of the Florentine Camerata, intellectuals and musicians who wanted to recapture the dramatic theater of ancient Greece, which, they believed (and not without reason), was sung, in part or in whole. We are also told in all popular (and not so popular) books on music history that opera developed from such ancestors as the medieval mystery and miracle plays, the French *jeux*, and the madrigal comedy. But the combination of

dramatic action with music is not necessarily opera, a distinct species of the theater. Take the delightful and amusing madrigal comedy: It does not present individuals with their private woes, triumphs, loves, and hatreds; it is ensemble music. Opera is pronouncedly human drama, and of *that* there isn't a trace in *Euridice*. The urge for dramatization—i.e., for *communication*—was natural, manifest long before man learned to write and use a logical and expressive language. Dramatization contributed to both religion and art, vide the magnificent cave paintings and carvings from the Upper Paleolithic age in France and Spain some 30,000 years ago.

Now far be it from me to belittle Caccini's contributions to music history; they are solid and important. He left his impress on the new monodic style. But he did not compose operas. Rather, he faithfully carried out the ideas of his learned colleagues in the Camerata, giving absolute preference to the recited poetry by accompanying it with music that nowhere impinges on the poet's primary rights, music that is impersonal, deliberately primitive in harmony and melody; after 15 minutes of this psalmodylike repetition of formulas and cadences, one has had enough. The only spots where Caccini's genuine lyric gifts come to the fore are the inserted little madrigalian choral pieces, which are *composed*, not simply arranged; but they are few and far between.

Yet Zayas goes on record calling *Euridice* "an authentic opera," nay, "one of the summits of the lyric theater." Purely a *faux-naïf* vision, this ignores the tremendous artistic decline shown at this stage of the monodic movement in comparison to the dazzling richness of Renaissance music. Everything in this work (except those choral inserts) is formula music, with no organization and with no attempt at imaginative composition and expressive warmth. The idea that "music must be the poet's ser-

vant" was new and intriguing, and, while the recitative was alluring to musicians imbued with Renaissance theories concerning the arts of antiquity, they did not know how to organize and exploit the new means. But doesn't this idea sound familiar? Every great "reformer" of opera, Monteverdi, Gluck, and Wagner, subscribed to it, and every one of them threw it out the window when really possessed by creative fervor. Monteverdi declared that "the word should be the master of music." Gluck insisted that, when setting a dramatic text, he "tried to forget that I am a musician." And Wagner—well, he wrote a whole confusing book on it. To take one example, however, as the second act of *Tristan* opens, a torrent of irresistible music inundates everything in its way, as if a dam had been breached—no words could survive in it. This is what happened to the proto-opera of Peri and Caccini: It ceased to exist the moment an overwhelming genius picked up the new means and techniques and breathed life into the bloodless music. Monteverdi's *Orfeo* (1607) is truly dramatic, original, bold, highly personal, and expressive; it is the first authentic opera, still alive and beautiful, its music sensibly organized, logical, expressive, and moving. Everything beyond *Orfeo* that is called "opera" is mere past history—important, to be sure, but no longer viable.

The performance here is not bad. The

singers, obviously well indoctrinated by their director, stick nobly to their anemic psalmody, and the choruses are pleasant, yet what takes place in the pit is sheer fiction. True, this is not quite the production's fault, for we know next to nothing of the accompaniments to the "operas," but then no one should have the temerity to speak of authentic restoration. The improvisations, especially the half-hearted embellishments, are amateurish and at times a bit ludicrous. I should think that the "Old-Music Guild" itself would raise its voice against such well-meant but really embarrassing and misleading productions. P.H.L.

GERSHWIN: Songs—See Recitals and Miscellany.

HAYDN: Concerto for Violin and Orchestra, No. 1, in C—See Vieux-temps.

HAYDN: Die Jahreszeiten.

Hanne Edda Moser (s)
Lukas Eric Tappy (t)
Simon Philippe Huttenlocher (b)
Suisse Romande Radio Chorus, Lausanne
Pro Arte Chorus, Lausanne Chamber Orchestra,
Armin Jordan, cond. [Pierre Lavoix, prod.]
MUSICAL HERITAGE MHS 834655, \$23.25
(\$14.85 to members) (three discs, manual
sequence) (add \$1.25 for shipping: Musical Her-
itage Society, 14 Park Rd., Tinton Falls, N.J.
07724).

COMPARISONS:

Böhm/Vienna Sym.
Davis/BBC Sym.

DG 2709 026
Phi. Fest. 6770 035

This may be just the recording for those who haven't previously been seduced by *The Seasons*. Jordan announces straight-away, in his quickish, bluntly accented orchestral introduction, that he wants nothing to do with the sentimentality that so often suffocates it. Fortunately, his intentions prove less brusque than they first appear. He relaxes appealingly for Hanne's first entrance ("Seht, wie vom Süden her") and demonstrates thereafter that even in briskly handled quick numbers a firm hand doesn't necessarily exclude sensitivity to the music's inner rhythmic life or appreciation of its wholesome beauty.

Even veteran collectors will want to hear this recording for Tappy, who shows—in something like the way Wunderlich did in Karajan's *Creation* (DG 2707 044)—that this writing can be a vocal treat. Listen to his sunny octave rise, from G to G, on "und fleht darum den Himmel an" in the recitative (No. 5) before the trio in "Spring." Moser sings with her expectable vocal efficiency, but also with a less expected warmth and grace—Jordan does seem to have his performers listening to and enjoying this music. Huttenlocher, despite his laboriousness of attack and huffy tone production, sings with unaffected openness of spirit. The orchestral playing and choral

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CLASSICAL Reviews

work are vital and attractive, as is the Erato sound.

Jordan isn't the first conductor to find some rhythmic bite in *The Seasons*. There's a good measure of it in Böhm's more diversely imagined DG recording, which also has a marginally more distinctive soprano (Janowitz) and a more sonorous bass (Talvela). This recording would mate nicely with Karajan's large-scale, reflective Angel version (only temporarily out of the catalog, let's hope), and at budget price it's a serious alternative to Davis' less interestingly sung, more orthodox Philips Festivo version (in English). **K.F.**

LISZT: Concerto in the Hungarian Style (orch. Tchaikovsky); Fantasy on Hungarian Folk Melodies. SCHUBERT-LISZT: Fantasy for Piano and Orchestra, in C (Wanderer).

Cyprien Katsaris, piano; Philadelphia Orchestra, Eugene Ormandy, cond. [John Mordler, prod.] ANGEL DS 37888, \$12.98 (digital recording). Cassette: 4XS 37888, \$9.98.

The novelty here, the unfamiliar *Concerto in the Hungarian Style*, is no long-lost masterpiece. For years, it has languished in limbo as the handiwork of Sophie Menter (1846-1918), the pianist whose premiere performance of Liszt's E flat Concerto drew praise (though that work was blasted for its use of the triangle as a cosoloist, then unheard of).

Liszt was extremely fond of his one-time star pupil, and it is entirely possible that—as claimed here—he presented her with this vehicle for her virtuosity. For whatever reason (Liszt's indifference, Menter's inability?), the work remained in two-piano draft until Menter turned it over to Tchaikovsky for orchestration. Since the Russian had little use for Liszt or his music, it is conjectured that Menter tactfully kept him in the dark about the work's true authorship. Whether by Menter or mentor, it amounts to a potpourri (goulash?) of sound and bravado, signifying little. In form and style, it resembles its disemate, the popular *Hungarian Fantasy*, and is thus (albeit pleasant) entirely ephemeral.

The Schubert-Liszt confection is to its original what glazed fruit is to the wholesome natural product. The storm and stress of Schubert's piano solo—which furthers the heroism and expressivity—is artfully removed in Liszt's division of labor, and the music emerges sugary, wrinkle-free, and cosmetical. It's fine for those who like empty calories.

Cyprien Katsaris, Eugene Ormandy, and the Philadelphians give all of these works high-gloss treatment. An orchestral backdrop of posh rotundity sets off the pearly glitter of the piano solos. All those little cello solos in the *Wanderer* and the clarion ring of the brass in the "Hungarian" (actually Gypsy) pieces are roundly conveyed in bright, suave digital sound. The jaunty tempo taken in the first section

of the *Wanderer*, though plausible in this souped-up arrangement, would undoubtedly prove disastrous in Schubert's unadorned version.

Not the record of the year, but, in its way, effective. **H.G.**

MOZART: Le Nozze di Figaro, K. 492.

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Countess Almaviva	Kiri Te Kanawa (s)
Susanna	Lucia Popp (s)
Marcellina	Jane Berbić (s)
Barbarina	Yvonne Kenny (s)
First Girl	Lynda Russell (s)
Cherubino	Frederica von Stade (ms)
Second Girl	Anne Mason (ms)
Don Basilio	Robert Tear (t)
Don Curzio	Philip Langridge (t)
Count Almaviva	Thomas Allen (b)
Figaro	Samuel Ramey (bs)
Bartolo	Kurt Moll (bs)
Antonio	Giorgio Tadeo (bs)

London Opera Chorus, London Philharmonic Orchestra, Georg Solti, cond. [Christopher Raeburn and Michael Haas, prod.] LONDON LDR 74001, \$51.94 (digital recording; four discs, manual sequence). Cassettes (4): LDR5 74001, \$51.94.

Like so much of Georg Solti's recent work for the phonograph, this *Figaro* is bewildering to the point of incomprehensibility. After listening to it three times with some care, I find myself unable to understand what the conductor is driving at, so unaccountably changeable is his manner, so bereft of all sense of purpose. In a work that demands (and deserves) considerably more commitment and affection than he seems capable of bringing to it, he oscillates between noisy, even brutal, comic bustle (as in the opening presto of the Overture) and an incompatible swooning sentimentality (as in the Countess' music) that cheapens the opera's profound emotional expressivity. Only the call of duty kept me listening each time to the end of the performance, which I can recommend solely for the work of some of its vocal participants.

Among these, Lucia Popp is the most outstanding. Though with the passage of time her voice has lost some of its sensuousness, she offers a Susanna of spirit, wit, and marked individuality. In the darkened garden of Act IV, moreover, she rises with complete conviction to the revelations of feeling that Susanna offers in her incomparably graceful aria, "Deh vieni, non tardar." More shrewly beautiful in sound though Kiri Te Kanawa is, she remains less convincing—largely because she lacks the gift of spontaneity. She never once touches the heart, as any really successful Countess must (and as, for example, Sena Jurinac invariably did). Where Te Kanawa scores is in the ensembles, to which her clarity of line and loveliness of sound make an important contribution.

Similarly notable in the ensembles is Samuel Ramey, whose firm bass provides them with a welcomingly solid tonal foundation. This fine young artist's Figaro is inter-

estingly serious, even saturnine, though somewhat lacking in individuality. In the latter respect, Thomas Allen is far more successful. An alert, intelligent singer, he presents the Count as authoritative and autocratic, but always elegant and never a mere bully. His handling of the difficult florid ending to the Count's Act III aria, "Vedrò, mentr'io sospiro," is impressively smooth. Equally good are Kurt Moll (a few uncertainties in Italian apart) as Bartolo, and Giorgio Tadeo, with a ripely characterized Antonio.

The weakest of the leading singers is Frederica von Stade, the Cherubino, who rarely ever sings out properly and therefore sounds intolerably prissy and mannered, as well as unnervingly below pitch at several crucial moments. Like Von Stade, Jane Berbić, the Marcellina, sings the same role in the current Karajan *Figaro* (London OSA 1443). Here Berbić's performance shows a decline in vocal adeptness, and her Act IV aria is something of a strain. So is Robert Tear's performance of Basilio's aria in the same act. Tear, invariably overemphatic, un-Italianate, and ugly in sound, is even less pleasant to listen to here than in the Colin Davis *Figaro* (Philips 6707 014), where he sings the same role.

The recitatives, though brilliantly played by Jeffrey Tate, are taken so fast—presumably at the direction of the conduc-

tor—that all sense of character is annihilated in the frantic rush. The recording, like the conducting, keeps changing focus but invariably lacks bloom. The Italian-English libretto carelessly places "Dove sono" before the sextet, though Solti reverts to tradition by playing it after the sextet. Those in search of a more coherent view of this most generous-hearted of operas will do better with Giulini (Angel SZCX 3608), Erich Kleiber (London OSA 1402), or Davis, my own preference right now inclining to the last.

D.S.H.

MOZART: Symphonies—See page 70.

SCHUBERT-LISZT: Fantasy for Piano and Orchestra (Wanderer)—See Liszt.

SZYMANOWSKI: Orchestral Works.

Wojciech Musiał†† and Wiesław Kwaśny††, violins; Zdzisław Lapiński, cello††; Piotr Paleczny, piano††; Wiesław Ochman†, Kazimierz Pustelak††, and Andrzej Bachleda††, tenors; Jan Harazim, speaker††; Polish Radio Chorus (Krakow)‡, Polish Radio National Symphony Orchestra*†††, Jacek Kasprzyk†† and Jerzy Semkow†††, cond.; Polish Radio Chorus (Krakow)‡‡, Polish Radio Symphony Orchestra (Krakow)††††, Antoni Wit, cond.††††. [John Willan and Gerd Berg, prod.] EMI GERMANY IC 165-43210/2. \$34.50 (three discs, manual

sequence) (distributed by International Book and Record Distributors, German News Co.).

Concert Overture, in E, Op. 12.* Symphonies: No. 2, in B flat, Op. 19†; No. 3, Op. 27 (*Song of the Night*)‡; No. 4, Op. 60 (*Symphonic concertante*)**; Mandragora, Op. 43.†† Harnassie, Op. 55.‡‡

The music of Karol Szymanowski has occupied the extreme outer fringe of the repertory for some time, at least outside his homeland, which considers him the most important Polish composer since Chopin. This album, issued to celebrate the 1982 Szymanowski centenary, provides an excellent opportunity to come to terms with an interesting and unusual composer, and to understand why he has never really caught on in the West.

The earliest work in the set is the *Concert Overture* (1904-5), which the New York Philharmonic performed as its contribution to the rather limited centenary festivities. (Szymanowski, along with Kodály, had the misfortune to be born the same year as Stravinsky; he died in 1937.) The overture's arresting opening might lead one to believe that this is a long-lost work of Richard Strauss, a feeling that continues into the lyrical and sensuous second subject, and throughout, though from time to time Scriabin and Mahler also make their presence felt. What the work lacks, in spite of its gorgeous Straussian orchestration, is

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Strauss's thematic distinction. Still, it's an attractive piece that can easily make a good effect in concert.

Scriabin looms even larger than Strauss in the Second Symphony (1909–10), a two-movement work with an important solo-violin part. The chromatic harmonies, combined with the elusiveness of some of the themes, produce a rather stifling hothouse atmosphere, at least in this Polish performance, which emphasizes the work's sprawling structure. Strings frequently sound thin in the high registers, and the second movement's fugal finale, reminiscent of Reger, is quite heavy-handed. By contrast, Antal Dorati's recent Detroit Symphony account (London LDR 71026) is more supple, flowing, and cohesive; the orchestra, more secure. Dorati's version is also quicker by about eight minutes—almost a different piece, in fact. Are we to assume that the Poles know better how to play this music, and that it should ramble as discursively as it does here? I think not.

The Third Symphony, *Song of the Night* (1914–16), scored for tenor soloist, chorus, and large orchestra, is a setting of a mystical poem from the works of Jalal-uddin Rumi, the greatest of the Persian Sufi poets (for which evaluation I put my trust in Felix Aprahamian's excellent annotations). By now, Strauss has departed, Scriabin remains, and Debussy enters the picture; but a Szymanowski style also begins to emerge. It's all pretty exotic stuff, passionate and sensuous, yet still ultimately stifling. Though Szymanowski today is considered a nationalist composer, his works up to this point show no such tendency.

The Polish Radio National Symphony plays with greater security, refinement, and commitment in this symphony, under the veteran Jerzy Semkow, than in the Second, under Jacek Kasprzyk (b. 1952). Semkow and Dorati are pretty evenly matched in their presentations of the Third.

In the *Symphonie concertante* (1932), also known as the Fourth Symphony, the folk element for which the composer is known finally appears. Written for Arthur Rubinstein, whose RCA recording with Alfred Wallenstein has long been out of print, this is not quite a piano concerto—more a symphony with an important piano part that sometimes recedes to a subsidiary role. Lacking the exoticism and pretensions of its symphonic predecessors, it's an extremely attractive work with a bustling toccatalike finale in the rhythm of a Polish *oberek*. Other Polish dances, such as the mazurka, are also heard. Piotr Paleczny delivers a sparkling performance, ably seconded by Semkow and company. I'm sure it's the work's title, neither here nor there, that has kept pianists away, for this is certainly one of Szymanowski's finest scores.

The score for the "ballet-grotesque" *Mandragora* (1920), finds the composer in an unusually light and entertaining mood.

Composed as a harlequinade for a performance of Molière's *Le bourgeois gentilhomme*, it brings to mind, in its commedia dell'arte idiom, Busoni—and even Falla of *The Three-Cornered Hat*, though Szymanowski's piece is certainly not Spanish in flavor. At one point he quotes the same Lully minuet that Strauss employed in his *Bourgeois gentilhomme*. Along with a brief but treacherous (or so it sounds here) tenor solo, sung in Italian, there is a recurring cello solo, the first few notes of which could derive from Sibelius' *Swan of Tuonela* (!). The "speaker" is confined to four intonations of the word "Mandragora."

When Szymanowski becomes his own man, the music is more striking.

(Aprahamian fails to tell us who, or what, Mandragora is.)

The ballet *Harnasie* (1932) really reveals Szymanowski the nationalist. It's based on the folk music of the Tatra highlanders, which the composer began to study in the 1920s, and about which he wrote an essay in 1924. *Harnasie* is a very impressive score—colorful, dynamic, vibrant, highly rhythmic—with important choral parts. One can see here the origins of early Lutosławski, specifically, prefigurations of his *Concerto for Orchestra*.

With the exception of the Second Symphony, all the performances in this set are excellent and idiomatic. The recordings are first-rate throughout; the surfaces, beautifully silent.

Why, then, has Szymanowski never really caught on? From this evidence, I would say that the lack of a strong individualistic profile in the early works, with all their resemblances to other composers' music, militates against wide acceptance. When the influences disappear and Szymanowski becomes his own man, the music is more striking, more exciting, but the profile remains enigmatic, not really pronounced. Certainly more Szymanowski would be welcome on records. How about the opera *King Roger*? J. C.

TCHAIKOVSKY: Songs (17).

Dietrich Fischer-Dieskau, baritone; Aribert Reimann, piano. PHILIPS 6514 116, \$10.98. Cassette: 7337 116, \$10.98.

A tear trembles, Op. 6, No. 4. Six Songs, Op. 16: No. 3, Accept just once; No. 6, In dark Hell (New Greek Song). Six Songs, Op. 25: No. 2, As o'er the burning ashes; No. 5, I never spoke to her; No. 6, As they reiterated: "Fool." Six Songs, Op. 27: No. 3, Do not leave me; No. 6, My spoilt darling. No response, or word, or greeting, Op. 28, No. 5. Six Songs, Op. 38: No. 1, Don Juan's Serenade; No. 3, Amid the din of

the ball; No. 4, Oh, if only you could for one moment; No. 5, The Love of a Dead Man. I bless you, forests, Op. 47, No. 5. On the Golden Cornfields, Op. 57, No. 2. Exploit, Op. 60, No. 11. My Genius, My Angel, My Friend.

Tchaikovsky's songs, of which even scores, let alone alternative recordings, are hard to come by, span his career, and Fischer-Dieskau's new album surveys the entire terrain. The quality varies, but the expressive spectrum is not particularly broad, the pieces tending chiefly to the brooding, the melancholy, and the soulful, touched off by thoughts of lost love or unaccommodation in the world. There are exceptions, such as "My spoilt darling," which traces a lover's mental state from shy, hands-off infatuation to frank lust; "Don Juan's Serenade," with its driven, chilly gallantry; and the dreamily nostalgic "Amid the din of the ball," threaded through with recollections of faded waltzes.

In general the vocal writing has a conversational or declamatory cast. In this respect, too, there are exceptions, notably the "New Greek Song," treating of women's souls in hell, in which initial melodiousness disintegrates into fretful recitation; "Exploit" (thus in *New Grove*; called "Heroism" on the album), surely the finest of the songs recorded here, aglow with a contained, profound spirituality; or the folklike "As they reiterated: 'Fool,'" which builds to a climax of great rhetorical power. But much of the interest throughout lies in the accompaniments. In "I bless you, forests," the airy refreshment of the piano part is not altogether untroubled, and thus captures, more fully than the singing can do, the poem's mood of longing that even amid the serenities of nature must forever remain unfulfilled. In "On the Golden Cornfields," it is the minimal, impressionistic rumbling that most persuasively conveys the bitterness named in the song's romantic text.

The involvement and verbal nuance of Fischer-Dieskau's performance are evident even to ears that surpass themselves to pick out vocabulary as advanced as *du* and *nyet*. (Listeners with greater knowledge of Russian will regret the absence of original texts; only translations are provided.) The baritone's vocal performance has the virtues and shortcomings of this, the reigning autumn of his great career. The control at medium volume and below is still masterly, as the melismatic close of "My Genius, My Angel, My Friend" attests, begun at mezzo piano and scaled down further in a shapely diminuendo. Pinched tone, rawness, and unsteadiness creep in under pressure, as at the climax of "A tear trembles," and growling afflicts the lowest registers, as in "Do not leave me." If time has taken its inevitable toll, there is still voice sufficient to support the accustomed artistry and insight.

But the surprise of the recording is the

pianism. Reimann, whose name recognition on these shores rests uniquely on his score for the opera *Lear*, written for and premiered and recorded by his partner in the present venture, proves an accompanist of the highest order. He articulates the phrases, soft or loud, with fullness and clarity, constantly registering, commenting, carrying things along, indeed *singing*, and yet never in competition with the voice. The roiling agitato of "As o'er the burning ashes," the busyness of "Accept just once," the tuneful instrumental connectives between the speechlike song stretches of "I never spoke to her," the somber chordal introduction to "The Love of a Dead Man," the impetuosity of "Oh, if only you could for one moment"—all are equally at Reimann's command. In "No response, or word, or greeting," where the piano rides to the crest emotions first proposed in the vocal part, the duetic collaboration between singer and accompanist is of special beauty. If not yet in the works, a Fischer-Dieskau/Reimann *Winterreise* should at once be put on the agenda. M.G.

VIEUXTEMPS: Concerto for Violin and Orchestra, No. 5, in A minor, Op. 37. HAYDN: Concerto No. 1, in C.

Cho-Liang Lin, violin; Minnesota Orchestra, Neville Marriner, cond. [Steven Epstein, prod.] CBS MASTERWORKS IM 37796 (digital recording). Cassette: IMT 37796. [Price at dealer's option.]

Young violinist Cho-Liang Lin makes his recording debut here. (Born in Taiwan in 1960, he came to study at Juilliard at age 15.) He is particularly at home in the Vieuxtemps, a virtuoso's paradise. His formidable facility, enticingly sweet tone, and gentle sensibility all contribute to a reading that is natural and appealing in its obvious sincerity. He does not treat this work in the eye-popping Heifetz manner, all stops out, but instead emphasizes its important lyric impulse. Note, for example, how close one of the subordinate themes sounds to the second subject of Schubert's *Quartettssatz*, D. 703, in this polished, subtly persuasive, and well-proportioned interpretation. Neville Marriner's expert orchestra supports Lin's elegant playing admirably, and CBS's clean, acute, well-balanced digital production gives crisp definition to the orchestral framework.

The Haydn, too, displays taste and craft, and concessions are made to period style—crisp articulation by the reduced orchestra and the presence of a continuo harpsichord. Here, however, the limitations of Lin's approach prove more damaging: For all his impressive natural talent, he—like virtually all of today's younger violinists—pays greater attention to technique than to style and musical interpretation. Phrasing tends to go slack as everything is sacrificed to sheer sound. Vibrato is constant and, therefore, a bit uninteresting; color is applied evenly, as with a spray gun.

The sameness dissipates the healthy stresses and smoothes Haydn's phrase patterns in a kind of somnolent blandness.

Still, Lin is a potential star, and it will be interesting to see how long it takes him to become his own man, rather than merely an excellent exponent of a certain pedagogic philosophy. H.G.

Recitals and Miscellany

ELLY AMELING: After Hours.

Elly Ameling, soprano; Louis van Dijk, piano. PHILIPS 6514 284, \$10.98. Cassette: 7337 284, \$10.98.

BLAKE: I'm Just Wild About Harry. DUKE: Autumn in New York. GERSHWIN: Embraceable You; I Got Rhythm; The Man I Love; My Cousin in Milwaukee; Someone to Watch Over Me. GREEN: Body and Soul. KATSCHER: When Day Is Done. KOSMA: Les Feuilles mortes. PORTER: In the Still of the Night. RODGERS: With a Song in My Heart.

GERSHWIN: Songs.

Barbara Hendricks, soprano; Katia and Marielle Labèque, pianos. PHILIPS 9500 987, \$10.98. Cassette: 7300 987, \$10.98.

Porgy and Bess: Summertime; I Loves You, Porgy. Has Anyone Seen Joe? I Got Rhythm. The Man I Love. They Can't Take That Away from Me. Medley: Our Love Is Here to Stay; But Not for Me; Embraceable You; Nice Work if You Can Get It.

Elly Ameling's cabaret set on the new album "After Hours" is as elegantly put together as her Lieder programs. The material is various and attractive; the performances are fresh. The renowned recitalist adapts well to the casual style of her popular melodies. In the opening cut, "Body and Soul," she descends to a bluesy baritone. She dresses up a reprise in "The Man I Love" with riffs. In the comic "My Cousin in Milwaukee," she playacts at vamping with great charm. But her loveliest moments come in "In the Still of the Night," with its rhapsodic climax blossoming out of an easy parlando.

Ameling's English diction is, in the main, flawless, although the "tipsy" in "Embraceable You" is broken rather too crisply into its syllables, and the phrase "this dream of mine" in "In the Still of the Night" whines a little. The phrasing is artful but straightforward. (Note "the city I hate [staccato; caesura] and adore" in "Autumn in New York.") And where she sings in her wonted registers, Ameling's tone is as mellow as ever. With the discreet but inventive accompaniment of Louis van Dijk at the keyboard, she makes a winning chanteuse. The scale and mood are so cheerfully intimate that she seems to be singing to an audience of one.

The Gershwin recital by Barbara Hendricks and Katia and Marielle Labèque, on

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CLASSICAL Reviews

the other hand, bristles with a glamour that connects with nothing outside itself. The vocal and pianistic razzle-dazzle is as remote from crass commercialism as it is from coziness. The arrangements by François Jeanneau (who is acknowledged microscopically on the record label and nowhere else) are concert pieces on a very elaborate order. Happily, there is none of the generic confusion that makes much crossover material so unbearable. The artists shun all classicizing affectations and turn their minds to jazz.

Floating in the stratosphere that is so congenial to her, Hendricks makes free and easy with the melody of "Summertime." She is right in step with the syncopations of "Nice Work if You Can Get It" and "I Got Rhythm." Her casual manner in "Our Love Is Here to Stay" and "Embraceable You" gives the songs a nice, improvisational feel. Her delivery is grander and broader in "I Loves You, Porgy," in keeping with the song's operatic origin, but not so grand and broad as to suggest a diva's go at a juicy excerpt.

There is much more to the piano parts here than on "After Hours," and the Labèques play them with verve. The hit of the collection—a 12-minute arrangement of "Has Anyone Seen Joe?"—owes much to a sweet-and-low-down introduction and an interlude between the two stanzas that starts by dying away, then catches a second wind and goes driving hard toward a slam-bang ending. (After this display, the second stanza is sung once, straight through with no lingering, giving way to the peaceful close.)

Elsewhere on the album, the accompaniments (hardly the word) are just as extravagant but hardly so expressive. In "They Can't Take That Away from Me," when the pianos doodle around on "wrong" notes in illustration of the line "The way you sing off-key," it doesn't quite work. In "But Not for Me," they lay too strong and clipped an accent on the tag line, as does the vocalist. Such moments briefly ruffle the aura of spontaneity that, amid all the fancifications, the trio of artists manages, against all odds, most of the time to preserve. M.G.

COLOGNE MUSICA ANTIQUA: Conversation Galante.

Cologne Musica Antiqua. Reinhard Goebel, dir. [Wolfgang Mittlehner and Andreas Holschneider, prod.] ARCHIV 2534 006, \$12.98 (digital recording).

F. FRANÇEUR: Trio Sonata, in E. Op. 2, No. 6. GUILLEMAIN: Sonate en quatuor, in A minor, Op. 17, No. 6. F.-A. D. PHILIDOR: L'Art de la modulation, Op. 1: Sinfonia No. 3, in G. J.-B. QUENTIN: Sonate à quatre parties, in D. Op. 12, No. 4.

Collectors already familiar with the excellent work of the Cologne Musica Antiqua will hasten to acquire this recording, confident of its quality of performance and enterprise of repertory.

Having done valuable service in German and Italian literature, the group turns here to French material—predictably, with much intelligence. Anthologies of French baroque chamber music have been with us almost as long as the LP, but few have attempted to sort out stylistic epochs very coherently. In their fixation upon the *grand siècle*, programmers and performers have tended to lump together music of the Sun King's era and the years immediately following with that of the mid-eighteenth century. The composers of Couperin's generation, who had yet to reconcile their chamber-music writing with the Italian styles that court tastes had so long excluded, were different from those who would flourish under Louis XV: By then, French musicians could draw less self-consciously upon Italian models, while still remaining loyal to a confidently French tradition.

Many recordings of mid-eighteenth-century French music have concentrated either on opera or on the flute. The contemporaneous art of the chamber ensemble is perhaps best-known to us through the music of assimilators and adapters outside France, notably Telemann. Recorded programs of mid-eighteenth-century French ensemble music have been few and far between—and none so fine as this. The four works are either trios or "quadros," two involving flute, the other two, only strings and continuo.

The two older composers, Louis-Gabriel Guillemain (1705-1770) and François Francœur "le cadet" (1698-1787), offer fairly conservative works that still hew strongly to French ornamental style and a texture in which the lower parts mingle more equally with the upper than in Italian practice of that period. Still more interesting and individual is the contribution of François-André Danican Philidor (1726-1795), famous as both a last member of a great French musical family and one of the great chess experts of all time. His three-movement quartet is almost an anticipation of classic style, with its deft slitherings from one key or mode to another. The hit of the program, however, is the quadro by Jean-Baptiste Quentin "le jeune" (167?-c. 1750). Two brief and rather free introductory movements lead up to the heart of the work, a long chaconnelike section, followed by a beautifully subdivided Aria: music of arresting beauty and wonderfully imaginative diversity of texture. This is a composer who merits greater exposure.

What emerges from this collection is, in the first place, an amplified respect for these rococo French composers, plainly influential in their day beyond France. But, as the "conversation" in the album title suggests, there is a clear demonstration intended here of what this generation of French composers contributed to the formulation of balanced instrumental ensemble writing as "elegant conversation" of (Continued on page 95)

The Tape Deck

Critiques of new cassette and open-reel releases by R. D. Darrell

Mozart-Kugeln

Whereas we Americans name candy bars after baseball heroes, the Viennese chose a composer for such confectionary memorializing. That may have been a dubious—however significant—honor: As I remember *Mozart-Kugeln* from my lone, long-ago encounter, they were a kind of chocolate drop too sweet and rich to constitute a gustatory equivalent to Mozart's music. Perhaps the Viennese never have fully understood their hero, honored only posthumously. For that matter, neither do most of his worldwide admirers. Yet, in recent years, a growing number of perceptive, historical-minded recording artists have enabled open-minded home listeners to hear more, and more authentic, Mozartiana than ever was possible before—and, in that wealth of novel as well as familiar works, to realize the near-infinite variety of rewarding musical experiences it opens up.

Like many others today, I owe my freshest and most precious Mozartean revelations to the restoration—in period-instrument, stylistically authentic recordings—of something close to his music's original sound and character. Among the finest are the Hogwood/Schröder/Academy of Ancient Music series of the complete symphonies. This superb project now nears its conclusion—Vol. 6 is still to come—with Vol. 7 (Oiseau-Lyre K 173K33, \$32.94), a Prestige Box brimming with treats more piquantly appetizing and much more nourishing than any *Mozart-Kugeln*: the great No. 40, in G minor; No. 37, actually by Michael Haydn; Nos. 6, 7, and 8 of 1767–68; and Nos. "43" and "55," from the same period. Also the *Finta semplice* Sinfonia (a reworking of No. 7); the questionably authentic K. Anh. 216, in B flat (1771?); and the un-Köcheled *Neue Lambach*, in G (1768?), which annotator Neal Zaslaw now credits to father Leopold rather than Wolfgang. No one who prizes the earlier sets in this series can afford to miss this one!

Sweeter-toned modern instruments and other instant gratifications make the *Kugeln* metaphor a bit more appropriate for a cassetteful of goodies. 25 little *German Dances* (K. 509, 571, 600, 602, 605) plus three marches (K. 189, 335), all delectably played and recorded by Neville Marriner and his St. Martin's Academicians (Philips 7337 207, \$12.98).

And while I can't award topmost rat-

ing to any of the latest Mozart piano-concerto tapings I've received (four of those examined in Harris Goldsmith's extensive survey last April), each has distinctive appeals. Anyway, this repertory, more than any other, justifies duplication: Its miniature music dramas reveal inexhaustibly diverse attractions as variously enacted by different soloists, directors, and supporting (orchestral) casts. Pianist Tedd Joselson doubles as conductor of the Norwegian Chamber Orchestra in disarmingly intimate versions of the Concertos Nos. 11 and 12 (Turnabout CT 4780, \$5.98); Emanuel Ax is elegantly virtuosic, but his collaborators (Zukerman/St. Paul) are too preciously mannered in Nos. 17 and 18 (RCA Red Seal digital/chrome ARE 1-4522, \$12.98); Richard Goode and the conductorless Orpheus ensemble are Romantically warm if a bit oversweet in Nos. 17 and 23 (Nonesuch digital/ferric 79042-4, \$11.98); elder statesman Alfred Brendel is more individualistic than any of these youngsters, more expertly accompanied (by Marriner's Academy), and even more lucently recorded in Nos. 15 and 21 (Philips digital/chrome 7337 148, \$12.98).

... and authentic Haydn. Perhaps it's because I haven't heard the British Saga (disc) sets of the earliest ("Morzin") Haydn symphonies by Derek Solomons and L'Estro Armonico that I'm so bowled over by their six *Sturm und Drang* Symphonies (CBS Masterworks Prestige Box, digital/chrome 13T 37861, three cassettes, price at dealer's option). Surely there's no truer Haydn than these first recordings of the 1766–68 Esterhazy symphonies in proper chronological order (Nos. 39, 35, 59, 38, 49, 58) by period-instrument forces. 18 to 20 strong. This ensemble isn't yet the peer (except for its horns and oboes) of the best-known period specialists, and there are some lamentable lapses (leaning on accents and midnote bulges) but the playing is mostly zestful, and the tonal pungency and musical imaginativeness are incomparably fascinating.

Maverickiana. All such Great Originals provocatively expand our musical horizons. Witness Janáček's uniquely evocative piano music, never more persuasively introduced than by Ivan Moravec in well-nigh ideal recordings (produced by Max Wilcox) of eloquent early and late representations (Nonesuch digital/ferric 79041-4, \$11.98—one of the company's first releases with full notes). An empathetic Michael Tilson Thomas and the Concertge-

bouw Orchestra provide a luminous first digital recording of the Second Symphony of our own American Great Original, Charles Ives (CBS Masterworks digital/chrome IMT 37300, price at dealer's option). Then there are the two scarcely less strikingly individual Scandinavians: The Danish Nielsen's Fourth (*Espansiva*) Symphony (Unicorn-Kanchana UKC 8006, \$11.98, via Harmonia Mundi U.S.A., 2351 Westwood Blvd., Los Angeles, Calif. 90064) is remarkable in Yuri Ahronovitch's idiosyncratic Danish Radio concert performance with an unconscionable amount of applause included. The Finnish Sibelius is honored in an extensive program—Seventh Symphony, *Pohjola's Daughter*, *The Oceanides*—remarkable both as a crowning jewel of the justly acclaimed Ormandy/Philadelphia recorded Sibelius treasury and as the welcome first exemplar of RCA's new policy of including full notes with its analog/ferric cassettes (ARK 1-4566, \$9.98).

Barclay-Crocker: onward and upward.

Entering its twelfth year, the major open-reel producer celebrates by issuing its Catalog No. 8 (\$1.00), continuing its *Reel News* supplements, and moving from New York City up the Hudson valley (313 Mill St., Poughkeepsie, N.Y. 12601) without interrupting its steady flow of releases.

In addition to the first two Pro Arte reel programs I hailed last month, there are now three more (\$9.95 each). An admirably idiomatic Neumann/Czech Philharmonic performance in an unfaded 1973 Supraphon recording seems to be the only available taping (F 1064), in addition to Pro Arte's own cassette, of Dvořák's engaging, too little-known Fourth Symphony. Schubert's similarly seldom heard First and Second Symphonies are played more coarsely and heavy-handedly by Günter Wand and the Cologne Radio Symphony in robust 1980 Harmonia Mundi recordings (F 1038). But the somewhat better-known yet still underappreciated Prokofiev Sixth Symphony is outstanding here for the ultravidid sonic presence that Supraphon's engineers have captured in the 1981 Košler/Czech Philharmonic performance (F 1067).

There is also a Quintessence/B-C open-reel edition (E 7077, \$8.95) of Beethoven's Triple Concerto in the still dramatically impressive 1973 Supraphon recording of Kurt Masur's grandly conceived Czech Philharmonic version with superbly integrated solo playing from the Suk Trio.

HF

BACKBEAT

Widespread Jazz—No Longer Depressed!

A nine-piece swing band with great chops and energy to burn is blowing the lid off classic jazz.

by Crispin Cioe



ALL PHOTOS BY DEBORAH FEINGOLD

Louis Armstrong backs Hashim, Grey, Sandke, and Lillie—the Widespread Jazz Orchestra's core spokesmen.

EARLY IN 1978 on a tip from a friend, I happened into a Bowery rock & roll bar to hear a band called the Widespread Depression Orchestra. What I saw was nine young musicians dressed in vintage '40s-style double-breasted suits and wide-brim fedoras, pumping out their own exhilarating version of classic swing-era jazz and r&b. The group was brand new to New York in those days, but I knew from the jitterbugging preppies filling the dance floor, the wild applause after the formidable horn solos, and the genuinely energetic atmosphere of hot swing in the big city that Widespread would be around for quite a while. Five years later, after a name change, several key personnel shifts, five albums, and literally hundreds of performances (from Long Island weddings to the Newport/Kool Jazz Festival), the Widespread Jazz Orchestra, as it's now known,

has reached the point of sublime cohesion that only comes from weathering the usual music-business storms together while staying firmly focused on shared stylistic and artistic goals.

Last spring I caught WJO at Eddie Condon's, New York City's famed traditional jazz club on 54th Street. Though I had already interviewed some of the players for this article, I had not heard the band live in at least two years, so I was barely prepared for the experience. What had once been a very hip and talented expression of youthful exuberance had blossomed into a truly great combo with gifted players in well-defined roles. Alto saxist Michael Hashim—who also serves as bandmaster and a lively and informative MC onstage—plays impassioned solos that mix fluid, finger-bending bop lines with the flaming intensity of a Johnny Hodges-inspired tone.

Vocalist and second trumpet Billy Grey is a super-suave frontman, whether belting out a seductive version of the old Jimmy Lunceford-Louis Jordan steamer *Knock Me a Kiss*, or easing into a lush treatment of Ellington's *Don't Get Around Much Anymore*. Jordan Sandke on lead trumpet and Dan Barrett on trombone are full-bodied section players as well as potent soloists. David Lillie, the only founding member still in the band, has all the right moves on baritone sax, from an intimate working knowledge of Harry Carney's warm, centered approach to a breezy, melodic soulfulness on his solos. The propulsive rhythm section of drummer John Ellis, bassist Bill Conway, and pianist Tony Regusis (a veteran of the Mel Lewis Jazz Orchestra and a superb and technically adroit stylist) is equally at home in Ellington- or Basie-style settings. And tenor-sax man Tad Shull end-

ed the set at Condon's with a virtuosic, unaccompanied, honk-style solo on *Tadzila's Revenge* (a WJO original based on Shull's nickname) that conjured up the era of screaming-sax masters who played with their horns lifted to the sky and "walked the bar" for patrons. The jam-packed, hand-clapping audience gave the band an extended, standing ovation when Shull's squalling sermon came to an end.

Beyond sheer musicianship, though, there's a deeper significance to the phenomenon of WJO and the handful of other young musicians working similar terrain—tenor saxist Scott Hamilton, trumpeter/cornetist Warren Vache, the r&b group Roomful of Blues. None of them are dealing in mere nostalgia. Rather, after years of grounding themselves in the fundamentals of their genres—often studying with living masters for initial guidance—these players are continuing and actually expanding their chosen styles. WJO now has a solid body of original material in its book, along with scores of its own arrangements of well-known and obscure classics by Ellington, Basie, Lionel Hampton, Jelly Roll Morton, Django Reinhardt, and on and on. Its charts are tailor-made (mostly by Ellis), and while this is decidedly a band you have to see and hear live to fully appreciate, WJO's records give a good account of what they can do. My favorites are "Boogie in the Barnyard" and their new disc, "Swing Is the Thing."

The title cut on the new LP, written by Grey, is a swing shuffle that pulses with the message of the "jazz what has the razzmatazz and the swing what's got that zing," and it's clearly a "get up and dance" number. In contrast is Ellis' subtle and atmospheric arrangement of the Ellington/Billy Strayhorn mood piece *Chelsea Bridge*, which finds Shull's searing tenor in peak form. Also included is an obscure but captivating Hampton tune, *I'm On My Way from You*; a reading of W. C. Handy's *Memphis Blues* that sticks close to the Fletcher Henderson version; two more catchy originals; and several distinctive arrangements of Basie and Benny Goodman songs. From the evidence of "Swing Is the Thing" and the live show at Condon's, it's clear that WJO has the chops, the cohesiveness, and the commitment to revivify the very qualities that made swing the musical currency of the realm for well over a decade: great jazz playing, great dance music, and great entertainment.

I met and talked with Michael Hashim, Jordan Sandke, David Lillie, and Billy Grey at their agent's office in midtown Manhattan; their differences in background and personalities were as apparent in conversation as was their shared dedication to the Widespread Jazz Orchestra.

Backbeat: Your new album seems to have more original material than its predecessors. Do you think it's your best?

Michael Hashim: Probably, although I



Onstage at Condon's: Ellis on drums, Barrett on trombone, Conway on bass, Sandke on trumpet, Regusis on piano, Grey on vocals (back row): Shull, Hashim, Lillie.

really like things about our others, too. "Boogie in the Barnyard," for instance, has a great Hodges tune called *Little Rabbit Blues*, and a crazy Rex Stewart piece called *ZaZa*. But "Swing Is the Thing" does have some of our strongest originals: John Ellis' instrumental *Righty-O*, whose title comes from Felix the Cat's well-known expression, and of course Billy's title cut.

Billy Grey: I had been in the group about a year when I wrote that song. [Grey has been a member for just over two years. He replaced Jonny Holtzman, who has since gone out on his own.] Our audiences have always related most strongly to the boogie things we play, so I designed it specifically for the jitterbugs.

Boston for three years, and he has always played a melodic instrument, starting on guitar before drums.

Michael: He also has a knack for using our six-horn section to its fullest advantage. If you listen to *Chelsea Bridge*, you'll notice that it's not just the brass section playing a part, followed by the reed section, and so on. There are places in the song where alto and trombone play together against two trumpets and a bari sax—all kinds of different ways of breaking it up. That's what gives his arrangements such texture.

Backbeat: There's an obscure old Hampton tune on this record, *I'm On My Way from You*, which leads me to believe the band has some rather serious record collectors.

Billy: True—together we probably have one of the finest swing collections in the country.

Backbeat: How are other tunes arranged or transcribed?

Michael: Our new trombonist, Dan Barrett, is an excellent writer and arranger and is contributing some stuff that points to some interesting new directions.

Backbeat: For instance?

Michael: For instance, the chart he did for us of a beautiful Reinhardt song called *Tears*. It's done in a very early '30s dance-band style. Also, Tad Shull did three transcriptions for the album: Jelly Roll Morton's *King Porter Stomp*, Handy's *Memphis Blues*, and Basie's *Swingin' the Blues*. This is an important part of our approach, too. The Basie tune, for example, was an Eddie Durham arrangement for a Basie lineup that included three trumpets, three trombones, five saxes, and a four-piece

The Players

David Lillie	Baritone Sax
Tad Shull	Tenor Sax
Michael Hashim	Alto Sax
Jordan Sandke	Trumpet
Billy Grey	Trumpet/Vocals
Dan Barrett	Trombone
Tony Regusis	Piano
Bill Conway	Bass
John Ellis	Drums

Backbeat: Who writes most of your arrangements?

David Lillie: The majority come from John Ellis, our drummer. He has a real feeling for the Ellington/Strayhorn songbook, and he knows as much about the actual working of Duke's music as anybody his age I've ever met.

Backbeat: What's his background?

David: He studied arranging at Berklee in

rhythm section. Tad took lead lines and voiced them out harmonically for our much smaller ensemble, and then we doubled up some solos, added others, and so on. So in the end the song actually sounds like us, but hopefully in the spirit of Durham's smooth Basic style.

Backbeat: I'd like to trace some band history. David, you're the ranking historian here.

David: Individually, we're from all over the place, but the original band started in New England in '73. We played colleges and clubs in areas like Southern Vermont, and we were much more r&b-oriented in the beginning. For instance, we would do something by Amos Milburn and His Aladdin Chickenshackers, something by Earl Hines, and then something by the Rolling Stones—there was a bar we played in at Stowe where, if you didn't play a Stones tune, they'd throw you out. So it was a very odd mix when we started. When Mike and John Ellis joined four years later, we were able to do more of what we wanted musically, so we moved to New York and stopped depending on a college scene that hadn't completely come around to our style of music—swing.

Moving to New York City really opened the jazz scene up to us. Two years ago we dropped the Widespread Depression moniker, because in promoting the band worldwide, we found it confused people. Also, as we continued to get more people in the band who were into swing, we got happier about what we were doing, so we were no longer depressed [laughs].

Backbeat: Jordan, what is your background?

Jordan Sandke: I'm from Chicago, where in the '60s I worked in various blues and soul bands. I played with people like Mighty Joe Young and Howling Wolf [he's on the latter's "London Sessions" LP]. I later studied at the New England Conservatory, which is where I met some of these guys. Then when I moved to New York, I found myself living in an apartment right next door to Tad and John. Soon after [1979], I was in the band.

Michael: I was 20 when I joined, but I've been playing since I was 13, starting in my hometown near Rochester, New York. A lot of older players around Rochester first showed me what to do in a jazz context, and later I moved to Boston, where I gigged

WJO on Record

Downtown Uproar. Stash ST 203; 1979.

Boogie in the Barnyard. Stash ST 206; 1980.

Rockin' in Rhythm. Phontastic Phont 7527; 1980.

Time to Jump and Shout. Stash ST 212; 1981.

Swing Is the Thing. Adelphi 5013; 1982.

with people like Tad Shull and John Ellis. We all just hung around Boston and played whatever jazz jobs we could; I worked as a janitor in a bank for a while, too. Then I started getting a lot of work in Rhode Island with a guitarist named Chris Florey, who's with Benny Goodman now, so I moved to Providence. It was a really wonderful scene there in the mid-Seventies, with people like Scott Hamilton and Roomful of Blues hanging out and working. Then I got the call

from Widespread, and, having always listened to Johnny Hodges with Ellington and Willie Smith with Lunceford, I was really excited.

I had no section-playing experience to speak of. But when I joined and moved to New York, I finally had the opportunity to study with some really deep players—Phil Woods, Jimmy Rowles, Jo Jones, Jimmy Lyons, and others. I was very lucky to get my real musical education while playing with this band.

Backbeat: When did Tad come into the picture?

David: He has been a friend of the band for the past eight years, but we didn't get around to hiring him until the fall of '81. He studied at New England as well and has worked with Rowles, Roy Eldridge, and Bob Wilbur's Smithsonian Jazz Ensemble. He definitely has a thing of his own going. You can't really say he sounds like Don Byas here or Ben Webster there because he has assimilated his influences. Playing in Widespread definitely brings out his more extroverted side; in a small group he might sound somewhat different.

Michael: In fact, there really aren't any imitators in the band. When somebody stands up to play a solo, the excitement coming out of his horn is authentic because he's trying to create something. There might be a squeak in there, but I'd rather hear somebody playing something of his own with a squeak than playing a Charlie Barnet solo note for note.

Backbeat: How do you explain the distinctiveness of your sound, considering the fact your material covers the '30s, '40s, and '50s?

Billy: It all encompasses the swing era, which spanned those decades. And the material is mostly four beats to the bar, although a couple of older things we do are two-beat. There's no rock & roll, no Latin.

Michael: We have what we call the "small band," too, which is the rhythm section and one or two horns, playing some jazz in the middle of a set. We've even been known to play songs by Charlie Parker and Monk in the small band.

Backbeat: Billy, your singing has obviously added a new dimension to the band. Do I note a tinge of Broadway?

Billy: Yes—I did musical theater for 10 years, including the lead in *Jesus Christ Superstar* on Broadway. I sang rock and roll for a long time but just got sick of the whole style, and I was getting typecast in Broadway circles as a "rock" singer, so I was in a rut, businesswise. Then I auditioned for Widespread and got the gig, and found that of all the singing I've done over the years, this band gave me the most opportunity to express myself. I originally started in the business on trumpet, but I



Grey and Lillie at Condon's: "We dropped 'Depression' because we found it confused people."



found as a teenager, gigging in Las Vegas and on the road, that being able to sing saved my trumpet chops from hurting so much.

When I first started performing I was in a group called Debbie Hayes and Her Musical Madmen, and one summer we were booked for six weeks in Vegas with Louis Jordan. A lot of the show biz shtick I use came from him; I've never seen anybody, to this day, work harder than he did onstage. He'd come off dripping wet, leaving the audience screaming. And he played brilliant alto sax to boot. Once he said to me, "Do you know all the songs that I do?" I said, "Well, I know a few, but not all the way through"; and he said, "You should know every note in somebody's show you're playing, in case the star's out one night, so you can fill in." I learned a lot from Louis, and now here I am singing a couple of his tunes in Widespread.

Backbeat: I understand Widespread has played with quite a few well-known jazz greats over the years.

Michael: Right. We met Bob Wilbur at a Newport Jazz Festival, and he asked us to record an album with him, which ended up being an Ellington tribute called "Rockin' in Rhythm" and a lot of fun. Also, we've jammed often with Doc Cheatham, Vic Dickenson, Red Norvo, Hank Jones, Roy Eldridge. My favorite incident was several years ago, when our singer also played vibes, and we were playing at a great New York club called the Blue Parrot. We were getting set-up to do a small band set, some jamming with just me and the rhythm section, when I walked Milt Jackson, who

had apparently been listening in the audience. He said, "Can I sit in on these?" pointing to the vibes; I said, "Sure!" and we played several tunes. It was quite a thrill, because they don't come any better than Milt Jackson, in my book.

Backbeat: Has business gotten easier since the band has become more known even outside of New York?

David: Sure—more people know us now. We play colleges still, and clubs, but we tend not to go out on the road for too long a time. To survive, we still play private parties, where we're always subject to somebody's mother-in-law wanting to hear *In the Mood* and nothing else. And of course we're not a re-creation band, so for people who have a very rigid definition of swing—who think it must sound exactly like Glenn Miller or it's not swing—well, we try to be gracious and say, "We'll try to get to that one later. . . ."

Five years ago, we were the only game in town, and, if somebody wanted a swing band, we would get the call. Now there is something of a swing revival going on, with lots of nostalgia bands around that do stock charts of Glenn Miller and so on. So the calls we get are usually from people who know and like specifically what we do. Our agent is interested in selling us to a hip college audience, nationally, but I'm also concerned about reaching an international jazz audience, where I believe our potential is enormous.

Jordan: We're always walking a precarious line between maintaining our musical integrity and becoming a more commercial venture, too.

Hashim and Sandke: "This music is moving toward a classic status; people like us are going to keep it alive."

Billy: But we haven't really had to "sell out," as such. We've even been playing discos lately—places like the Red Parrot in Manhattan—and they've been packed for our show. A few months ago we did a pilot for a cable jazz show with Jazzbeaux Collins and George Shearing, and, if the show goes, we could end up as house band on a cable-TV series. And our records consistently place in the Top 10 for jazz air-play.

Backbeat: So where do you see this swing revival and WJO headed in the future?

Michael: First of all, someday we're going to be what's left of this jazz tradition. The players who were around back when it started and are still active are getting fewer and fewer; there are even fewer left from the Charlie Parker era, which doesn't say much about the longevity of musicians. Someday we're going to be among a small group of the most experienced people around playing this kind of music.

The other thing is that I'm hoping this music is moving toward a classic status, that there will always be some musicians somewhere who regard it highly enough to perform it with care and love and authenticity, the same way that there will always be people around to perform Scarlatti and Beethoven. I think music by people like Ellington, Basie, and Hampton will last forever. And people like us are hopefully going to keep it alive.

HF

Minis, Maxis, and EPs of Recent Vintage

Reviewed by Steven X. Rea

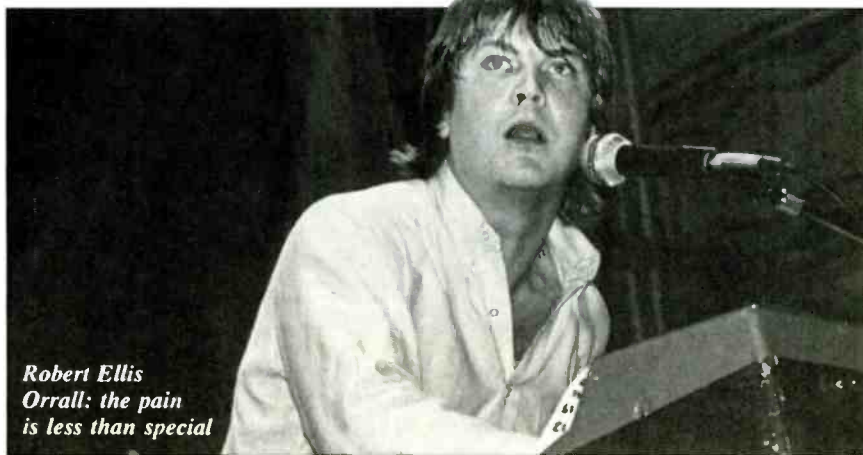
MAXI SINGLES. MINI LPs, extended-play 45s—whatever you want to call them, these 12-inch two-to-six-song albums are all the rage. Not since disco hit its peak in the mid-1970s have there been so many. Like disco, the current EP mania has a lot to do with dancing: Many of the records are by synth-pop bands (Thompson Twins, Thomas Dolby) and r&b acts (Prince, George Clinton) whose initial success came on the floors of dance clubs in London, New York, and L.A.

Record companies are delighted with the mini/maxi format. At a list price that usually runs from \$4.98 to \$5.99, the EPs have been selling briskly to consumers who have been avoiding the sky-rocketing prices of albums. New acts, such as Robert Hazard and Texas-based singer-writer T-Bone Burnett, can get major-label exposure at relatively minor expense, while top-sellers like the Pretenders and the B-52s can fill in the long gaps between full-length albums with special minicollections.

So, though packaging and pressing costs may run slightly higher than those of a standard 7-inch 45 single, record companies can make a handy profit and consumers can take more risks with what they buy. Some industry pundits even claim that the 12-inch whatever-you-want-to-call-it is breaking down barriers between black music, pop, new wave, and punk. If something only costs \$3 or \$4, they reason, and the packaging is provocative enough, people are likely to buy it *before* finding out what the music inside is all about.

What follows is a roundup of some of the EPs and 12-inch singles currently available. For our purposes here, an EP is defined as anything with three or more cuts, and a single as a two-song disc. Most of the former tend to play at 33 rpm, the latter at 45, but there are exceptions in both instances.

Note: Shanachie Records, the New Jersey-based independent that specializes in reggae and Irish music, deserves special mention for its all-encompassing approach to the 12-inch format: It calls its release by the Melody Makers, reviewed below, a "giant extended-play 12-inch 45 rpm single." That about covers them all.



Robert Ellis Orrall: the pain is less than special

EBET ROBERTS

EPs

Dire Straits: *Twisting by the Pool*

Mark Knopfler, producer
Warner Bros. 29800-0A

Three of the songs here feature Dire Straits frontman Mark Knopfler doing a bad imitation of Dave Edmunds doing some bad Sixties rave-ups, while the fourth, *If I Had You*, is a silly Dylan send-up. Even diehard fans will be disappointed with Knopfler's slapdash rock frivolity.

Ignatius Jones: *Like a Ghost*

Chris Gilbey, producer
Warner Bros. 29703-0A

These four unexceptional synth-pop songs contain enough pings and pongs to supply an army of table tennis-players. The rhythms clatter away, and the beat goes on—but who cares?

Little Girls: *Thank Heaven*

Liam Sternberg, producer
PVC 5904

Sibling singer-songwriters Caron and Michele Maso are the little girls—little girls who've been listening to too many Go-Go's records. Still, producer Liam Sternberg, who discovered Rachel Sweet, knows how to get the most out of the duo, and it's hard not to like their jaunty, bouncy pop tunes.

Major Thinkers

Ron Bacchicocchi, Larry Kirwan, & Pierce Turner, producers
Portrait BL 38644

The band is Irish, and the lyrics are steeped in computerese, but otherwise Major Thinkers is interchangeable with a half-dozen other semitalented technorockers.

Robert Ellis Orrall: *Special Pain*

Roger Bechirian, producer
RCA MFL 1-8502

Never mind that Elvis Costello and Squeeze producer Roger Bechirian has his name on this five-song EP, the music of New England-based singer-songwriter Robert Orrall is only mildly interesting. Worse, his lyrics have "I'm a poet" written all over them. But there is one reason to buy "Special Pain," and that is *I Couldn't Say No*, a terrific duet with Carlene Carter that deserves to be a hit.

Red Rockers: *China*

David Kahne, producer
415/Columbia 44-035629

"China" is three jangling, locomotive tunes from an exceptionally fine New Orleans-based outfit. The vocals echo in a wash of rhythm guitars and keyboards, but there's nothing gimmicky going on here—just spare, precise rock with a touch of lunacy to it.

The Rockats: Make That Move

Mike Thorne, producer
RCA MFL 1-8507

Though the group was among the first of many to jump on the rockabilly bandwagon, the Rockats' six-song collection is refreshingly devoid of affected, so-called exciting Fifties twang. Instead, the quintet delivers pretty good rock fare; lead singer Dibbs Preston has a booming Eric Burdon kind of voice, and the keyboards are sharp and splashy.

Roxy Music: The High Road

Rhett Davies & Roxy Music, producers
Warner Bros./EG 23808-1B

Two of these in-concert readings are from Roxy Music's "Flesh and Blood" album. The other two are covers, including Bryan Ferry's dapper and deadpan reading of Neil Young's *Like a Hurricane*. The former sound washed-out in comparison to their studio versions, but *Like a Hurricane* is a dark and moody masterpiece.

Bobby Stewart: Copyright on Love

Joe Ferry, producer
Warner Bros. 29692-0A

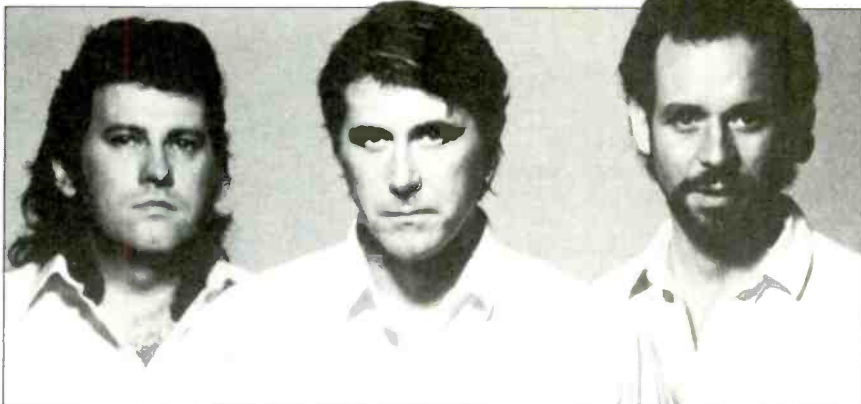
You've really got to love this (admittedly) cleverly titled percussion-laden dance track with its semicatchy hook, because it's featured three times on this four-track EP. That's right: a "long version," a "single edit," and an "instrumental dub." The other tune, *Interception*, isn't bad though, and it appears only once.

SINGLES

B-Movie: Nowhere Girl

Steve Brown & Mike Thorne, producers
Sire 29733-0A

A big Abba-esque wall of sound starts things off fine, but as soon as Steve Hovington's vocals signal the entrance of this British trio, "Nowhere Girl" becomes an excruciatingly painful listening experience.



Andy MacKay, Bryan Ferry, Phil Manzanera of Roxy Music: one moody masterpiece

**The Flirts: We Just Want to Dance
Jukebox/On the Beach**

Bobby Orlando, producer
O Records OR 723 & OR 724
(two discs)

These two 12-inch singles combine a Sixties girl-group style with a pulsating dance-beat mix and some second-rate Keith Richards guitar riffs. Still, *We Just Want to Dance* is fun in a smarmy sort of way.

Girls Can't Help It: Baby Doll

George McFarlane & Colin Campsie, producers. Sire 29773-0A

This is the cover "art": three pretty girls in Lollipop lingerie and thick gobs of makeup pouting into the camera as if their lives depended on it. This is the record: awful—more specifically, a bad dance-beat rap tune dished up by a female vocal trio that sings about the glories of being a submissive sex object and having breakfast in bed.

Madonna: Burning Up/Physical Attraction

Reggie Lucas, producer. Sire 29715-0A

Here's some electro-porn pop a la Berlin and Missing Persons, replete with grunts, groans, and orgasmic sighs. Madonna's lead singer coos ad nauseam, "I'm burning up for your love" and "I've got no

shame." That's for sure.

The Melody Makers: What a Plot

Grub Cooper & Ricky Walters, producers
Shanachie 5006

Four of Bob and Rita Marley's children form the core of this kiddie reggae outfit. The A-side drags on interminably, but the B-side, *Children Playing in the Street*, is a smart and funny ode to ghetto life that would make a catchy production number on *Sesame Street*.

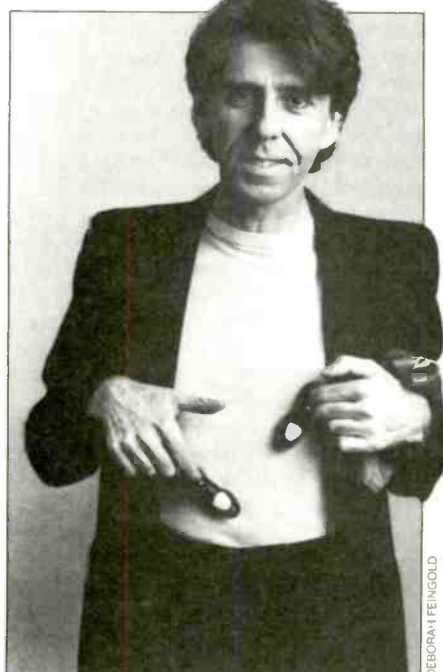
Jesse Rae: Rusha

Jesse Rae & Rod Houston, producers
Columbia 44-03374

Scottish multi-instrumentalist (you can tell he's Scottish because he's wearing a kilt on the cover) Jesse Rae herein submits some good, funky dance music. Former Funkadelic keyboardist Bernie Worrell plays on the title track. The B-side is a slowed-down dance tune called *Desire*. **HF**



Kiddie reggae: The Marley offspring are the core of the Melody Makers



Bobby Stewart. Stewart, Stewart, Stewart

Reviews

David Bowie: *Let's Dance*

David Bowie & Nile Rodgers, producers
EMI America SO 17093

Although its title accurately signals a return to the r&b roots of his protean mid-1970s foray into rock/disco, David Bowie's first album in nearly three years suggests the work of a true visionary. In mating a sharp sense of tradition with an up-to-the-minute grasp of where modern pop may be headed, Bowie has created his most accessible work ever without abandoning the darker thematic underpinnings of his past albums. At its surface, "Let's Dance" offers compelling dance music heated by rock dynamics and focused through shrewd restraint, yet its comparatively stripped-down lyrics still ring with his characteristic unsettling fatalism, which has been a constant in his work.

Central to the album's appeal is Bowie's shift toward simpler arrangements than those on his Berlin trilogy recorded with Brian Eno or the transitional avant-rock of "Scary Monsters," his last LP. In coproducer Nile Rodgers, he has found a complementary perspective that pares rock, pop, and soul elements to an infectious directness; and to the nimble but muscular rhythm arrangements, the duo adds a fascinating array of instrumental twists.

Modern Love seamlessly combines an opening rhythm-guitar motif familiar to heavy-metal fans with a thundering drum pulse, some punchy horn choruses cut from vintage soul cloth, wailing female vocal harmonies that straddle r&b and pop, and Bowie's raw vocal that testifies to the impossibility of romantic conventions in today's world. On the seductive *China Girl*, written with Iggy Pop, the bass line is as eloquent as the song's terse, evocative lyrics. Carmine Rojas' bass on *Let's Dance*, together with the chanted-sung echoes of the backing chorus, lends the track a hypnotic punch similar to that of Chic's records. Thus the song's vision of desperation is heightened rather than diluted by its familiar disco elements. A sultry, sexy grace pervades all these songs, making it easy enough to ignore Bowie's often dispiriting lyrics yet supplying them with added force for those who elect to listen.

Even the album's one apparently "false" move—a recasting of the chilling title song from *Cat People* into a more straightforward, up-tempo rock song—proves inspired. It also exemplifies the soulful power of the album's most significant instrumental contributor, Texas guitarist Stevie Ray Vaughn, whose scorching, elemental blues obbligatos throughout soar above the clenched fury of the rhythm arrangements.



Nona Hendryx: giving Gladys and Aretha a serious run for the roses.

Together with such embellishments as the frenzied, nearly atonal trumpet excursions that tug at the title song, Vaughn's supercharged blues guitar helps underline Bowie's ultimately grim lyrics, which juggle sadder-but-wiser vignettes with jarring flashes of broader social canvasses.

"Let's Dance" is easily Bowie's most inviting album in a decade, and, in its own, carefully modest way, is perhaps his most personally satisfying work in nearly as long.

SAM SUTHERLAND

Nona Hendryx: *Nona*

Material & Nona Hendryx, producers
RCA AFL 1-4565

Fonzi Thornton: *The Leader*

Robert Wright & Fonzi Thornton, producers. RCA AFL 1-4433

Together, "Nona" and "The Leader" cover the breadth of sophisticated New York City pop-r&b. Fonzi Thornton's solo debut is more conventional in scope than Nona Hendryx' adventurous magnum opus, but both testify to NYC's continuing hold on what is now called, in radio-programming

parlance, "urban contemporary music."

When Thornton first made a name in the late '70s as the slick lead tenor in the group Chic, he had already been a studio regular for several years, hailing from the same milieu as last year's new black pop superstar, Luther Vandross. But where Vandross' stunning vocal pyrotechnics are usually the centerpiece of his songs, Thornton prefers to stay within his compositions, alternately caressing, interjecting, and sparring with the music. His sparring partners are first-rate and include Chic's guitarist Nile Rodgers and bassist Bernard Edwards, and drummer Yogi Horton, one of the most graceful heavy-hitters in the business.

Thornton's craft as a singer and arranger is best exemplified in his clever adaptation of the Ronettes' wonderful early '60s classic, *Be My Baby*. Over a churning, simple bass and drums pattern, the rock standard is completely recast with minor chords and dark harmonic suspensions, immediately toughening it up and dispelling its traditional girl-group connotations. Yet Thornton's vocal is quite tender and

sensitive to the lyrics' essential innocence. Likewise on *Beverly*, an original written with coproducer Robert Wright, his earnest pitch to a woman who has been hurt in love before rings with understanding and sympathy. His ability to combine sophisticated pop conventions with real emotion, sans oversentimentality, makes Thornton a welcome new solo presence on the pop scene.

Though Hendryx is by no means a new solo presence, her career has certainly gone through some radical transformations. As an original member of that seminal vocal quartet Patti LaBelle and the Bluebells, which later became the hit group Labelle, Hendryx moved from the conventions of the Motown-era girl-group context to full-blown theatricality. Labelle was, in fact, an active catalyst in pulling together the mix of urban blacks, gays, and hipsters that became disco's core audience. When Hendryx set out on a solo career in '77, she moved through a virtual cornucopia of bands and projects, writing and recording with such diverse artists as Talking Heads, David Johansen, and Garland Jeffries, and putting out a series of dance-rock singles with various bands of her own. The most successful of these, *Busting Out*, was her first studio collaboration with Material, and that collective's leaders—bassist Bill Laswell and synthesist Michael Beinhorn—produced "Nona" with her.

On several levels, this disc is a true fusion of elements. *Transformation*, which leads off Side 2, combines a diamond-hard backbeat by the great Jamaican drummer Sly Dunbar with wafting up-to-the-minute synthesizer parts. On top of them sits Hendryx' rich, deep voice supported by a raft of backup voices that alternate between conventional-gospel and quirkily modal harmonies. The song's lyric theme—the intense changes that modern life wreaks on the individual—is picked up again on *Steady Action*, a jazzy reggae gem that features Olu Dara's delightfully earthy and pulsing trumpet playing: "It's not what you say," sings Nona "and it's not what you think/It's just what you do and if you're moving in sync."

Avoiding trite musical formulas and overly obvious sexual allusions, Hendryx manages to touch nerves on the crackling dance percolators *B-Boys* and *Living on the Border*. The two slower tunes that close Side 1 are more difficult, but she pulls them off beautifully. *Keep It Confidential*, a lovely midtempo number written by Ellie Greenwich, Jeff Kent, and Ellen Foley (the only song not cowritten by Hendryx), combines country-influenced melody with burbling synths, and gets a strong but vulnerable vocal reading. Her most stunning performance comes on the ballad *Design for Living*, where she gives soul coloraturas like Gladys Knight and Aretha Franklin a serious run for the roses. Backing her all the way is an all-star female instrumental line-

up that includes drummer Gina Schock (the Go-Go's), Talking Heads' bassist Tina Weymouth, Valerie Simpson on piano, Heart's Nancy Wilson on guitar, and the acclaimed avant-gardist Laurie Anderson on swooping electric violin. "Nona" is as assuredly "urban" as it is "contemporary" and to this listener is one of the best r&b-pop releases of the year. CRISPIN CIOE

Men at Work: Cargo

Peter Melan, producer
Columbia QC 38660

Australia's recent emergence as a thriving center for new, internationally acclaimed popular art invites the thesis that its creativity stems from the frontier spirit: The country's freedom from the yoke of an extended cultural tradition enables its writers, musicians, and filmmakers to work with a freshness and vigor not afforded their peers in the Old and no longer so New World.

That may be one explanation for the success of *Men at Work*, an endearingly offhanded quintet whose "Business as Usual" proved among the most popular pop debuts in well over a decade. Yet beyond the surface charms of the band's music lies a thematic darkness, one that has its equivalents in such Australian commercial successes as the films of directors Peter Weir and George Miller. In fact, those men respond to their homeland as perhaps the last frontier, imbuing their work with an urgent sense of the failed promises addressed in Europe, Asia, and the Americas. Their pop/rock cousins in *Men at Work* certainly bring a distinctive élan to their music, but they seem to share the sense that Australia may represent a last chance to take stock of the folly of the past.

If such an interpretation seems dour in the face of the band's often humorously deadpan demeanor, then "Cargo" offers potent evidence. Guitarist and songwriter Ron Strykert's arch cover drawing depicts a tropical shoreline dotted with the useless castoffs of "civilized" cultures. And the songs themselves amplify the world-weary tone that proved a secret weapon on *Who Can It Be Now*, *Down Under*, and *Be Good Johnny*, the singles that carried "Business as Usual" to prominence.

"Cargo" doesn't boast a sense of invention as arresting as that album's, because its authors are somewhat conservative, their lean and carefully nurtured style already well defined before the first album. Yet the new songs do represent subtle growth: The bluesy melancholy that added a puckish twist to the debut frequently sparks a deeper, darker mood here.

The economical buoyant thrust of the playing only reinforces the alienation that drives *It's a Mistake*, *Dr. Heckyll & Mr. Jive*, and the upbeat yet dreamy *Upstairs in My House*. The first single, *Overkill*, obliquely questions the band's own celebrity through its superficial proximity to the

arrangement that rendered *Who Can It Be Now* a left-field smash. Only on the brooding *No Sign of Yesterday*, a fatalistic eulogy for a world undone by its own technology, does lead singer and writer Colin Hay's riveting voice submerge comic irony entirely.

That's not to suggest that the new album is unremittingly stern. Like the band's debut, the new set trots along with admirable verve, Hay's whiskey-rich vocal timbre, Greg Ham's reeds, and Strykert's skeletal guitar figures combining in a sinewy but inviting pop style. The seeming devil-may-care slant of the first album will appear intact for those listeners who chose to tuck "Cargo" into an unthreatening niche as stylish, danceable pop. As if it were so simple. SAM SUTHERLAND

Pink Floyd: The Final Cut

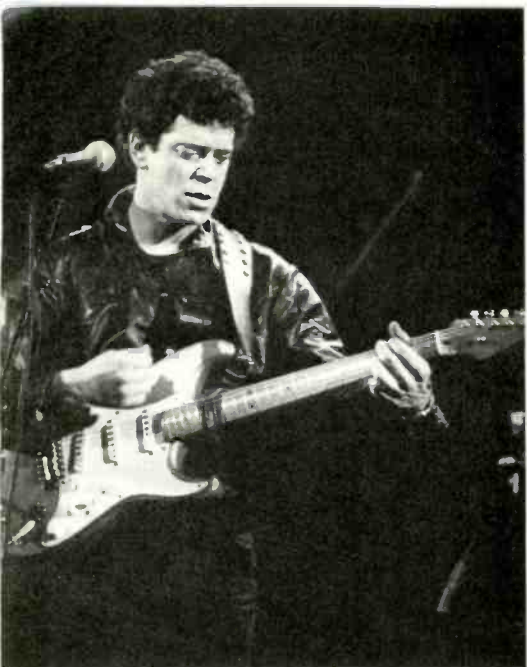
Roger Waters, James Guthrie, & Michael Kamen, producers
Columbia QC 38243

Pink Floyd is a band of professional pop paranoids. Lacking any sense of fun or human warmth, it successfully evoked George Orwell's *Nineteen Eighty-four* long before the year lurked right around the corner. As a survivor of the psychedelic age, it has embodied various aspects of the LSD experience, with original leader Syd Barrett fizzing out after too many trips, and current creative focus Roger Waters writing dogmatic material that is as intellectual as a dime-store savior.

The 12-cut leanness of "The Final Cut" looks promising after the excess of the double album "The Wall" and of that set's callow film adaptation. Dedicated to Waters' father, who died on the battlefield, the LP bears the subtitle "A Requiem for the Post-War Dream." But the reference to death on *The Gunners Dream*—"going round and round my brain/his dream is driving me insane"—is as close as Waters comes to evoking a sense of personal loss or outrage. Instead, he sketches a world where individualism is nonexistent: The protagonist of *The Final Cut*, for instance, considers it daring to even think of revealing his true feelings. Not coincidentally, Waters sees us all as victims of the world leaders who inhabit *The Fletcher Memorial Home*. And what does he propose to do once Thatcher, Begin, Reagan, and all the rest are confined to these quarters? "Now," concludes the song, "the final solution can be applied." This son of a British soldier would have made one good brownshirt.

Musically, "The Final Cut" is something of a surprise. There are still plenty of sound effects and production twists to keep the headphone set happy, and melody is, as usual, at a minimum. But with most other British bands awash in synthesizers, the

Reviews of pop and jazz Compact Disc recordings can be found on page 60.



EBET ROBERTS

Reed: internal battles that will never end

substitution of traditional keyboards for Richard Wright's synthetic textures makes the album sound almost old-fashioned. On a tune like *Not Now John*, this could be a refreshing change, were it not for Waters' holier-than-thou attitude. Surely he means to stick it to the jingoist instinct to "Compete with the wily Japanese," but he doesn't suggest an alternative. Art can enlighten a troubled world, but, by standing in sarcastic judgment and failing to recognize its own shortcomings, Pink Floyd is symptomatic of the very world it reviles.

JOHN MILWARD

Lou Reed: Legendary Hearts

Lou Reed, producer
RCA AFL 1-4568

Beneath his crusty urban veneer, Lou Reed has always been one of rock & roll's great humanitarians. Hearts like his, however, are made to be broken, and from his days of shadowy inspiration with the Velvet Underground through his erratic solo career, Reed has had every opportunity to bottom out and never come back. That's what makes "Legendary Hearts" and last year's "The Blue Mask" such impressive achievements—not only do they stack up against his best work, but they chronicle growing strength in a man who knows his battles will never end.

"He worked hard at being good," sings Reed in the title song, "but his basic soul was stained not pure." The world is rough on the romantic, what with the punch-clock pressure to produce (*Don't Talk to Me About Work*), and the temptation to blot it all out with artificial means (*The Last Shot*). Yet after fighting back from drugs, drink, and failed art, Reed again lays open his heart in love. As always, it's a risk, even in the security of the marriage bed where "Legendary loves haunt me in my sleep."

"Some people, they like to go out

dancing," he sang on his classic *Sweet Jane*. "Others of us, we gotta work." Blood, sweat, and toil—that's the stuff that makes modern love work, and on *Martial Law* he breaks up domestic spats with an iron fist: "If all you've got is poison in your mouth/Make sure that you don't speak." As this rocking track attests, Reed's resurgence owes much to his fine new band, which includes Robert Quine on guitar and Fred Maher on drums. (Both backed Richard Hell on 1982's excellent "Destiny Street.") He responds with some of the best singing of his career, rough and tough on *Martial Law*, and, on the title line of *Bottoming Out*, touchingly vulnerable—a quality that is underlined by Fernando Saunders' empathetic airy bass lines.

From the mixed-up Freudian nightmares of *Betrayed* to the pure indecision of *Make Up Mind*, Reed relentlessly portrays the many ways to fail at romantic love. After chronicling the victims in *Home of the Brave*, he returns to stoke the home fires. But on *Turn Out the Light* he confronts the truth: "Isn't it funny how pain goes away/And then comes back another day?"

JOHN MILWARD

Jazz

Wild Bill Davison: Papa Bue's Viking Jazzband

Storyville SLP 4029
(The Moss Music Group, 48 W. 38th St.,
New York, N.Y. 10018)

Since the mid-1950s, cornetist Wild Bill Davison has spent most of his time touring the world as a single, picking up backing work wherever he went—sometimes just in a rhythm section, sometimes with an established band. While he was living in Copenhagen, however, he played regularly with Papa Bue's Viking Jazzband, one of Europe's best traditional-jazz ensembles. This album documents his three years with that group.

Usually, Davison is the focal point of a band, with everyone else joining in as well as they can. But these musicians had time to develop a rapport with him and have a lot to say in their own right. The repertoire, aside from an original by pianist Jorn Jensen called *Farfar's Blues* (*farfar*, Davison's Danish nickname, means grandpa), is made up of tunes that he might play in any situation—I'm *Confessin'*, *Blue and Sentimental*, *Tishomingo Blues*. But the support that he gets enables him to play with more shading than usual.

The Viking Jazzband really swings. Its ensemble playing is tight and well balanced, and the excellent rhythm section provides a buoyant foundation for Davison's emphatic statements—typically, an explosion at the start followed by some

ruminative mutters and decorative growls.

A Cottage for Sale and *Farfar's Blues* are of particular interest. On the former, Davison sings in a high-pitched voice, precisely enunciating the lyrics and shaping his phrases in much the same way he would on cornet. The latter is an interesting melodic series of steps up and down. The bucket mute he uses here turns his sound into a muffled shout with little wah-wah asides.

JOHN S. WILSON

Liz Story: Solid Colors

William Ackerman, producer
Windham Hill C 1023

Pianist Liz Story is the latest thoroughbred to emerge from the growing stable of talent at Windham Hill. Like her label mates pianist George Winston and guitarist William Ackerman, she is staking out a new area of improvisation. Unlike such commercially prominent piano soloists as Chick Corea and Keith Jarrett, she makes little or no use of the traditional jazz resources of gospel and blues music. This will clearly pose a problem for listeners with a narrow perception of the acceptable limits of jazz. For those willing to let the music find its own level, however, Story's work yields many rewards.

At this early stage of her career, she is balancing between her limitations and her special skills. The pluses are self-evident: a virtually flawless technical capacity, a fine gift for melody, a great sense of creative passion. Pieces like *Things with Wings*, *Water Caves*, and *Pacheco Pass* reveal an extraordinary sense of rhythmic articulation. On the short, telling melody of *White Heart*, the simple repetitions of *Solid Colors*, and the mesmerizing little motive that dominates *Without You*, we are presented with a composer-performer whose melodic power can move an audience.

But *Things with Wings* also suffers from a deadening focus on the downbeat of the bar. Rhapsodically fleet though the piece may be, it loses its power of flight through its unwillingness to move away from rhythmic regularity. Even its lovely harmonic shift of gears halfway through gets lost in the predictability. So, too, does *Water Caves*—a work filled with a kaleidoscope of harmonic riches—tend to become grounded by the regular segmentation of Story's phrasing. In *Solid Colors*, a mercilessly repeated D-flat finally overcomes a fine melody. Yet, conversely, the three-note motivic repetitions of *Without You* enhance the performance's dramatic thrust.

The Protestant-sounding *Hymn*, the almost epigrammatic *White Heart*, and the roving *Bradley's Dream* have a better sense of balance, because Story never lets any idea wear out its welcome. And, perhaps more importantly, she seems more willing to let the themes find their own shapes and

(Continued on page 96)

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Weather Report: a superb programming balance and more solo space for Shorter

BACKBEAT REVIEWS

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sections. On Bill Evans' classic (yet rarely performed) *Peace Piece*, she rightly adopts the style and manner of the composer. And there is a piquant flavor of Erik Satie, Evans' inspiration, that gives the work a different, equally interesting point of view. On balance, "Solid Colors" is an impressive introduction to an impressive new artist. If Story fails to deliver completely what her talent promises, she nevertheless delivers very much.

DON HECKMAN

Weather Report: Procession

Zawinul & Wayne Shorter, producers
Columbia FC 38427

Neither the passage of time nor the changing of personnel seems to exert much effect upon Weather Report's music. Always interesting, always reaching for yet one more unusual sound, one more multileveled texture, the typical Weather Report recording generally has a snippet or two that will please almost anyone in its highly heterogeneous following.

"Procession" is no exception. Fans of leader Joe Zawinul's synthesizer textures will find plenty of interest in pieces like Omar Hakim's *Molasses Run* and Zawinul's commercially oriented *Where the Moon Goes*. Wayne Shorter followers will be equally pleased by the fact that the saxophonist receives far more solo space here than he has in other recent Weather Report outings. On *Molasses Run*, in fact, he stretches out with a fiery intensity rarely heard from him since he led his own bands. And the crisp, powerful rhythm sound—a feature of this group no matter who plays drums and bass—is sustained by the stunning work of drummer Hakim, bassist Victor Bailey, and percussionist Jose Rossy.

Characteristically, the programming balances out beautifully. The title track

sounds quite literally like a procession, starting softly, building to a climax, then drifting off into the distance. Charles Ives would have been impressed.

In the too brief *Plaza Real*, Zawinul's accordion-sounding synthesizer sketches out a lovely melody that evolves, somehow, into a Shorter-led, Ellingtonesque section. Marvelous things seem on the verge of happening until Zawinul brings back the accordion, Shorter slips into the background, and a fairly conventional Weather Report vamp-til-fade ensues. *Two Lines* is one of Zawinul's typically herky-jerky, start-and-stop up-tempo lines. The melody's persistently wavering accents around its key tone creates a momentum that is powerfully effective. Unfortunately in this instance, Shorter's tenor solo sounds dry and out of sorts.

On Side 2 the band is joined by the members of Manhattan Transfer (a fact noted on the album sleeve in the smallest of type). It's hard to avoid the suspicion that Zawinul somehow thought to duplicate the success of *Birdland*. No matter; it doesn't really work, despite Manhattan Transfer's gradual emergence from what sounds like a vocoder, and despite the determined repetitions of a white-note pentatonic-oriented melody.

The Well, a moody, introspective piece from a concert in Nagoya, Japan, chronicles a combined improvisation between Shorter's soprano and tenor saxophones and Zawinul's keyboards. While the whole-tone fragments sound a bit simplistic, this is, nonetheless, a good chance to hear two very fine players working in an uncluttered setting. Finally, Hakim's lightly swinging *Molasses Run* takes the band back to a more conservative style. The mix seems to favor his drums, giving us an opportunity to experience his light (for this band) but extremely propulsive style.

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