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*"It has the ability to make your
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Stereo Review Magazine

Matthew Polk's magnificent sounding new 3rd generation SDA 2A incorporates many new advances pioneered in his top-of-the-line Signature Edition SRSs. It achieves stunningly life-like musical reproduction which would be remarkable at any price but is simply extraordinary at \$499. each. Stereo Review said, "listen at your own risk." Once you hear them you'll never be satisfied with anything else!

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The magnificent sounding new SDA 2A incorporates Polk's revolutionary True Stereo SDA technology. This patented, critically acclaimed, Audio Video Grand Prix Award winning breakthrough is the most important fundamental advance in loudspeaker technology since stereo itself. In fact, the design principles embodied in the SDAs make them the world's first and only True Stereo speakers.

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"Breathtaking...a new world of hi fi listening."

Stereo Buyers Guide

The spectacular sonic benefits of SDA technology are dramatic and easily heard by virtually anyone. Reviewers, critical listeners and novices alike are overwhelmed by the magnitude of the sonic improvement achieved by Polk's SDA technology. Stereo Review said, "These speakers *always* sounded different from conventional speakers — and, in our view, better — as a result of their SDA design."

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always better than would be achieved by conventional speakers". High Fidelity said, "Mind Boggling...Astounding ... Flabbergasting...we have yet to hear any stereo program that doesn't benefit". With SDAs every instrument, vocalist

"Mindboggling, Astounding, Flabbergasting"

High Fidelity Magazine

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High Fidelity

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APRIL

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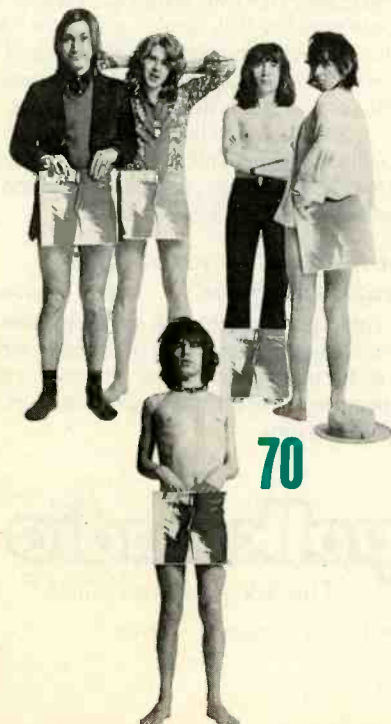
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COVER DESIGN:
ROBERT V. DELEVANTE, JR., AND
MICHAEL O. DELEVANTE

COVER PHOTO:
NICK BASILION

ON THE COVER:
FROM TOP: ADS CD-4 COMPACT
DISC PLAYER, NAKAMICHI CA-7A
PREAMPLIFIER, NEC DX-2000U
VHS HI-FI VIDEOCASSETTE
RECORDER



HIGH FIDELITY (ISSN 0018-1455) is published monthly at 825 Seventh Ave., New York, N.Y. 10019, by ABC Consumer Magazines, Inc., a division of ABC Publishing, Inc. and a subsidiary of American Broadcasting Companies, Inc. © 1987 by ABC Consumer Magazines, Inc. The design and contents are fully protected by copyright and must not be reproduced in any manner. Second-class postage paid at New York, New York, and at additional mailing offices. Authorized as second-class mail by the Post Office Department, Ottawa, and for payment of postage in cash. Yearly subscription in the U.S.A. and Possessions \$13.95; elsewhere \$20.95. Single copies \$2.50 (Canada \$3.50). Subscribers: Send subscriptions, inquiries, and address changes to HIGH FIDELITY, P.O. Box 10759, Des Moines, Iowa 50340. Change of address: Give old and new addresses, including ZIP codes. Enclose address label from last issue and allow five weeks for change to become effective. POSTMASTER: Send change of address to HIGH FIDELITY, P.O. Box 10759, Des Moines, IA 50340.

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F R O N T L I N E S

BY MICHAEL RIGGS

DAT AT THE CROSSROADS

FOR THE FIRST TIME IN ITS HISTORY, THE recording industry is trying to hamstring the introduction of a new means of distributing its product. It is a strange turn, brimming with irony. I remember a press conference a few years ago at which CBS announced its CX noise reduction system for LP's. At the time, many people saw CX as an attempt to prolong the old black disc's life in the face of competition from that shiny newcomer, the Compact Disc. A company spokesman replied to a question along these lines by saying that CX was intended to improve the quality of records and that if it gave the medium a few more years of vitality, so much the better. But in the end, he said, CBS was in the music business: If someone figured out a way to record on paper plates and there were enough demand for music in such a format, the company would start making paper.

It is therefore particularly disheartening to see CBS Records among those leading the charge against DAT (digital audio tape). I'm disappointed. CBS invented the long-playing record and gave it (literally) to the world—a farsighted act that has benefited us all immeasurably. Now that same company is seeking to cripple the most important advance in home tape technology since the introduction of the compact cassette with a copy protection system it has invented to restrict access to the music it sells. What an amazing about-face.

If the record industry succeeds in its drive to foist this system on tape deck manufacturers and the music-buying public—a scheme that makes neither ethical nor financial sense—the damage will be incalculable. Is it unreasonable that I should be able to make a tape copy of a record or CD (one that I've bought) for use in a portable player or a copy of a cassette for my year-old son, who has not yet mastered the fine points of tape care? I hardly think so. Will preventing me

from making such copies put more money in the pockets of the record companies and their artists? Again, I think the answer is no. Not many of us can afford to buy multiple copies of every recording we'd like to hear in more than one setting, and very few people who tape other people's records would actually buy the recordings if they couldn't copy them.

In the long run, copy-protecting music will hurt the record companies as much as it will their customers. Most of their business is now in prerecorded cassettes. Yet this is not a trade the record industry nurtured. The market emerged naturally from the proliferation of cassette decks, which originally were sold strictly on the basis of their ability to make recordings of existing material. Even the popularity of car and Walkman-type portable cassette players is based on the existence of home decks that can be used to make tapes for them. No one is going to buy recorders that can't record. The initial effect of copy-coding will be to stop DAT dead in its tracks, but eventually, inevitably, it will drag down sales of the prerecorded cassettes that have piggybacked on the success of home recording. And it will close off the development of a potentially lucrative new tape market.

The record companies don't have to come out with prerecorded DAT cassettes immediately. This is an important difference from the introduction of the CD, which required some up-front investment from them if the format was to have any chance of success. They can do what they did with analog cassettes: Stay out of the way until a large number of recorders are in use (which will take some time), then climb on for the ride. And once again, everyone will benefit. Unfortunately, that's a far cry from their current strategy. For a close look at what they're up to now (and why), see this month's "Currents." Then write your legislators. ■

HIGH FIDELITY is published monthly by ABC Consumer Magazines, Inc., a division of ABC Publishing, Inc., and a subsidiary of American Broadcasting Companies, Inc. © 1987 ABC Consumer Magazines, Inc. Member, Audit Bureau of Circulations. Indexed in Reader's Guide to Periodical Literature. Current and back copies of **HIGH FIDELITY** are available on microfilm from University Microfilms, Ann Arbor, Mich. 48106. Microfiche copies (1973 forward) are available from Bell & Howell Micro Photo Div., Old Mansfield Rd., Wooster, Ohio 44691.

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Editorial correspondence should be addressed to The Editor, **HIGH FIDELITY**, 825 Seventh Ave., New York, N.Y. 10019. Editorial contributions will be welcomed, and payment for articles accepted will be arranged prior to publication. Submissions must be accompanied by return postage and will be handled with reasonable care; however, the publisher assumes no responsibility for return of unsolicited photographs or manuscripts.

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L E T T E R S

HOW TO BE A FEISTY LETTER WRITER

IN RESPONSE TO THE CARTOON PRINTED IN your January "Medley," entitled "How to Be a Feisty Rock Critic": I am sixteen years old, an audiophile, and a subscriber to HIGH FIDELITY for nearly three years, and I truly appreciate all classifications of music. Of course, being the age that I am, rock is my favorite category. When I saw the cartoon, I was appalled by the demeaning way it presents rock critics.

For the most part, rock critics take pride in their work—unlike the sentiment expressed in the cartoon. There are a few who just glance at the cover and consume alcoholic beverages, but aren't there any classical critics who sip wine in the midst of reviewing a recording?

I am a "feisty rock critic" for my school newspaper. Numbers 1 through 5 of the cartoon's "Basic Exercises" are true for me. Numbers 6 and 7 are not, because I don't get paid for my writing. As a matter of fact, I purchase the selections I review out of my own pocket.

I knew when I subscribed to HIGH FIDELITY that it was biased toward classical music, but I never thought the editors would let something this belittling and insulting be published in its pages. Maybe you should consider changing the magazine's name to ENQUIRER FIDELITY.

Jason Griffith
Byesville, Ohio

Popular Music Editor Ken Richardson replies: I, too, was sixteen years old once, and I, too, was a feisty rock critic for my school newspaper. But I also had—and still have, I hope—a sense of humor. As Ted Libbey wrote in his portion of January's "Medley," "It's a good idea to step back from ourselves every now and then and not take everything so seriously." Or as David Letterman, one of my favorite feisty rock critics, is wont to say, "It's only a joke."

DIGITAL SLOP

HOORAY FOR YOUR EXPOSÉ ON DIGITAL SLOP ["Bits & Pieces," January]. I am a digital aficionado and I added Magnepan MG-III speakers and Krell amplifiers shortly after buying an early-model Yamaha Compact Disc player (a CD-X1, which has since been improved with a new analog section designed according to Walt Jung's no-capacitor philosophy). I had always chalked up some of the sounds I heard to poor equipment, but with this setup, I got out the 'scope and started seeing what you have seen. Luckily, I have a local shop that runs a used-CD swap bin. When I find digital slop, that's where it goes.

A few bad discs that I've found: all four of the Denon recordings of the Smetana String Quartet doing Beethoven and a two-disc Nikolai Harmoncourt recording (I can't re-

member the name). The clipping occurs well below maximum level on the CD, so it must be the mixers, as you suggest.

Anyway, I just wanted to confirm that all that is put on CD is not 90+ dB of digital perfection.

Donald A. Feldman
Shaker Heights, Ohio

DAVID RANADA'S "DIGITAL SLOP" STRUCK A responsive chord with me. I had been wondering whether those who engineer and edit the tremendously overpriced digital discs could hear some of the defects that are so obvious to me. I am convinced that we have reared a generation of people deafened not only by rock music (or any music played at a volume that tends to cause distortion), particularly when listened to via headphones, but also by street noises that tend to surfeit the sensitive hearing mechanism to the extent that background noise on master tapes escapes them. They learn to tolerate, either physiologically or psychologically, such clicks, buzzes, and the like. Even the hum of air conditioning or the incessant drone of fluorescent lights will mask things captured on tape by high-powered microphones.

I am sometimes amused by what is picked up in an otherwise superb recording. I still treasure the Bach Prelude and Fugue in C played by E. Power Biggs on one of those historic Silbermann organs in some little out-of-the-way chapel. Between the prelude and the fugue, you can hear the sound of birds chirping, seemingly in appreciation of Bach's inimitable music.

I also have a recording by Richter of Musorgsky's *Pictures at an Exhibition* in its original piano version. It was recorded live during what had to be one of the worst flu epidemics ever to hit Moscow. The audience's coughing during the playing of this masterpiece is at first infuriating and then amusing. I would not take anything for either of these prime examples of extraneous noise, but in general, I agree with Mr. Ranada: It is irritating in the extreme, especially when we have paid extra to obtain the highest-quality sound, to find that we got some little "bonuses" on our discs or tapes.

Gene M. Lacy
Houston, Texas

8mm MYSTERY

IN THE EARLY DAYS OF BETA HI-FI, THE VHS camp realized it had a problem. Because the VHS head drum was smaller and the longitudinal tape speed was about the same, VHS had a lower writing speed. This was not a big problem for standard VHS, but it left no easy way to make space for the FM audio carriers required for Hi-Fi recording, since it was not possible to move the video carrier to a higher frequency. After a year and a half of re-

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search, they resorted to separate audio heads with a different azimuth from that of the video heads so that the audio signals could overlap the lower video sideband without interference.

I thought I understood this until I read "Why 8mm?" in your February issue, where you state that the longitudinal tape speed of the 8mm format is only 14.5 mm per second, which is very close to VHS LP speed. And one of the figures shows the diameter of the 8mm head drum to be much smaller than that of a VHS head drum, but with the same amount of tape wrap. So how can 8mm use a higher video carrier frequency?

Robert Moffitt
Paramus, N.J.

The heads themselves and the tape formulation also play a role in determining the highest recordable frequency. In the 8mm system, the disadvantages you cite are overcome by means of narrower head gaps and metal tape (instead of chrome or ferricobalt).

—Ed.

BLAMING MUSICIANS IS NOT THE ANSWER

AS A MEMBER OF THE INDIANAPOLIS SYMPHONY since 1970, I eagerly approached David Rubin's article, "Endangered Species" [No-

vember 1986], hoping it would shed some new light on a subject of great importance to me. However, I was disgusted to once again see, from yet another source, the by-now-cliché recording industry explanation that musicians' fees are primarily responsible for the decline in new recordings by American orchestras. It has always been more expensive to record here than in Europe. I hate to think of the gap in my record library, to say nothing of my musical education, if American recording companies years ago had done as CBS's Christine Reed advises and abandoned U.S. orchestras for European ensembles. I was inspired to become an orchestral musician because of the phenomenal legacy of recordings by Ormandy/Philadelphia, Reiner/Chicago, Szell/Cleveland, Munch/Boston, Bernstein/New York, et al.

American consumers willingly pay the high prices of the best lawyers, physicians, and psychologists, but American symphonic musicians of international caliber are criticized because they charge too much for their services. It seems decidedly unpatriotic in these tough economic times for Reed to advocate purchasing a foreign product that is, with very few exceptions, unquestionably inferior. I don't see recording engineers and

executives boasting of how they've cut back on their fees and salaries in order to generate more sales, yet the American Federation of Musicians will be making concessions during negotiations in November [1986] without any promise of future recording in return.

Why didn't Mr. Rubin mention the restrictive contracts made between conductors and recording companies that virtually prohibit internationally known conductors from recording their repertoire with American orchestras? Contrary to Reed's statement, interest in American orchestras is at an all-time high both here and abroad. Witness concert attendance at home and when U.S. orchestras tour Europe and the Far East.

U.S. recording companies have been overwhelmed by the Compact Disc boom, and they clearly need to develop more aggressive marketing methods. Blaming the musicians is not the answer. Bravo! to those American companies who have tied their fortunes to domestic ensembles. Just during the past year, for example, New World Records released two new recordings with John Nelson and the Indianapolis Symphony.

I condemn those companies that have

Sony just extended the range of



decided to ignore their obligation to our cultural history in search of the fast buck. Thomas Edison must be turning in his grave.

Charles A. Rader, Jr.
Indianapolis, Ind.

WRONG CHURCH, WRONG PEW

I ENJOYED R. D. DARRELL'S INFORMATIVE review [January 1987] of the Handel *Roman Vespers* recording very much. However, I would like to respond to a misleading statement regarding Rachmaninoff and his setting of the vespers. [Our reviewer had cited Rachmaninoff as an example of the many composers who have used *Roman Catholic* vespers as a setting for their works.—Ed.]

The canonical hours, of which vespers is one, are a feature of both the Roman Catholic and the Eastern Orthodox churches. There are differences between them in both doctrine and order. For example, in the Orthodox Church, the *Magnificat* is not heard at vespers but at matins.

Rachmaninoff wrote for the liturgy of the Russian Orthodox Church 800 years after the Orthodox and Roman churches separated; by then, the Russian Church had developed a rich musical tradition of its own. Rim-

sky-Korsakov and Tchaikovsky had written music for use in its services and had used Russian Orthodox chant in several well-known orchestral works.

Another feature specific to the Slavic liturgy is the All-Night Vigil service. Rachmaninoff's inclusion of the wonderful "Bogoroditse Devo" ("Birthgiver of God, Rejoice") in his Vespers seems to indicate that he intended his setting to be used as part of the Vigil.

I suggest that readers interested in more information about Orthodox liturgical music write to St. Vladimir's Orthodox Theological Seminary, 525 Scarsdale Road, Crestwood-Tuckahoe, N.Y. 10707.

John Black
Dumont, N.J.

PHANTOM RECORDING

IT IS DIFFICULT TO TRUST THE OPINIONS OF reviewers who compare current issues to *nonexistent* recordings of the past—a practice becoming more frequent (and not only in your pages). In the December issue, Thomas L. Dixon spoke of "Charles Munch's early mono LP" of Schumann's *Manfred* Overture. Yes, it's memorable, but it's *Genoveva* (recorded in January 1951). Munch did not re-

cord Schumann's better-known overture until well into the stereo age (in October 1959).

Richard Sebolt
Springfield, Mass.

Father Dixon replies: I stand very unhappily corrected. And I wish that Munch had recorded more Schumann.

ORIENT SUCCESS

I HAVE BEEN CURIOUS ABOUT THIS FOR YEARS: Why do we know so little about the orchestras and conductors of Japan and other countries in the Far East? Surely the standards of excellence shown by Asian instrumentalists renowned in the West are indicative of generally high performance standards across the Pacific. Orchestras in Japan, Korea, Taiwan, Malaysia, etc. *must* cut LPs and CDs and sell them in quantity, but I don't know of one. What's the big secret?

Jeffrey Noah Asher
Montreal, P.Q., Canada

Weak brass.—Ed.

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BY

CHRISTOPHER

JESSE

THAT'S THE TITLE OF A 1936 NOVEL BY SINCLAIR Lewis about the quiet rise of totalitarianism in America before an unsuspecting and trusting public. We tend to take our rights for granted, and that seems to be one of the benefits of living in a democratic society. One of those rights is home taping. Although it's not directly addressed in the Constitution, we are permitted to tape our records, Compact Discs, prerecorded cassettes, and radio broadcasts for personal use. We are not entitled, however, to sell copies or acquire them (or the program material to make them) from someone else.

For decades, record companies have known that personal home taping goes on and have attempted to stop it. In a 1983 study commissioned by the Recording Industry Association of America (RIAA), it was estimated that home taping results in "displaced" revenue of approximately \$1.5 billion each year to the recording industry. (Contrary to what some hardware manufacturers might like to believe, the RIAA does not consider the home tapist a "pirate" or "bootlegger." Pirating is a separate problem, estimated to cost \$350 million annually in lost revenue). Considering that the total revenue for 1986 was about \$4.4 billion, it is understandable why now, at the time digital audio tape (DAT) is about to emerge as yet another recording medium, the RIAA is determined to cut the record industry's presumed losses.

Last year, an RIAA-sponsored congressional bill was introduced that proposed a 35-percent (as opposed to the usual 4-percent) tariff on any DAT machine entering the country that did not incorporate a special CBS-developed chip to prevent recording of copy-coded material (see "Currents," April 1986, for a description of the CBS anticopy chip). On February 5, a revision of that bill, which would altogether prohibit the importation of any DAT recorder without this anticopy chip, was introduced before the newly formed 100th Congress. But this is just the tip of the iceberg. Should this new bill be passed, another would likely follow with similar provisions against analog cas-

sette decks. (In fact, the proposed Home Audio Recording Act already calls for a 10- to 25-percent royalty [tariff] on imported analog decks.) And then, of course, the motion picture industry would pursue with renewed vigor anticopy legislation for VCRs. It is not unreasonable to assume that radio and TV broadcasts (which, at the moment, are fair game) could be encoded to prevent home recording.

Consider what life might be like three years from now with an anticopy deck: Instead of making a copy of *your own* CD for your car cassette player (be it DAT or analog), you'd have to *buy* the cassette—assuming that it's available. And what about a tape mix of your favorite songs? It can't be done. And yet, RIAA spokesperson Trish Heimers says that it is not the RIAA's goal to stop the introduction of DAT, since "historically, ev-

Consider what life might be like three years from now with an anticopy deck: Instead of making a copy of your own CD for your car cassette player, you'd have to buy the cassette—assuming that it's available.

ery new technology has helped the recording industry." So what's going on here?

A lot has been made of the major record companies' reluctance to offer their catalogs for prerecorded DATs should the machines become available in the U.S. before any protective legislation takes effect. The popular conception is that prerecorded DATs will endanger the continued success of CDs. But there are other, more practical considerations. For instance, it is not known exactly when high-speed DAT duplication will be available or at what price. The changeover from LP to CD manufacturing has cost the record companies a good deal of money, and for many of them it is likely that profits on CDs will not be realized until at least the end

(CONTINUED ON PAGE 15)



SOMETIMES THE MAN WHO HAS EVERYTHING HAS A FEW THINGS TOO MANY.

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(CONTINUED FROM PAGE 11) of this year. For now, prerecorded analog cassettes are bringing in most of the profits.

One reason for this lag is that when the Compact Disc was introduced, the major record companies were slow to support it. Small companies took the lead, and this so far appears to be the case with prerecorded DATs as well. Mark Wexler, Director of Marketing for GRP Records, says that his company has already produced some sample DAT recordings even though 60 percent of its business is in CDs. He feels that although the copyright question is an important one, the real issue is a resistance to change on the part of the major labels. He expresses concern, however, that DAT should be introduced "in a way that educates both the consumer and the retailer to the proper relationship between DAT and CD"—basically, that DAT is to CD as the analog cassette is to the LP record. Marcia Martin, of Reference Recordings, is taking a wait-and-see attitude on prerecorded DAT. She says the company is willing to support the format but wonders if consumers will demand that the two-hour capacity of a DAT cassette be filled. She notes that consumers have clamored for the full 74 minutes of playing time possible on a CD.

Can DAT succeed without prerecorded software? Digital recording has been available to the consumer for years via PCM adapters combined with VCRs, yet consumers haven't exactly been knocking down doors to get to it. The DAT recorder is certainly a logical and exciting development, but this alone does not guarantee its success. Robert Heiblim, Vice-President of Sales and Marketing for Denon (a company that makes both hardware and software), questions whether the DAT format is yet configured, at least in a marketing sense, to be of maximum benefit to the consumer.

Enveloping the economic issues is the copyright issue. Mr. Heiblim notes that record companies "absolutely believe that they are losing money every time a consumer makes a tape" of copyrighted material. As difficult as it might be to swallow this argument, it's even harder to refute it. Record companies control the music, and who's to say how much money is enough? The long-term concern is that unchecked copying will constrain the record companies to fund only proven artists, leading to stagnation of the creative music environment and limitation of consumer choices.

The Electronic Industries Association (EIA), which represents the interests of most of the American divisions of Japanese hardware manufacturers, as well as the majority of American manufacturers, stands firmly against the legislative action being advocated by the RIAA. "We will not modify our

hardware" with an anticopy chip, insists Allan Schlosser, Staff Vice-President of Communications for the EIA. Indeed, one wonders how much revenue has been generated for record companies merely because the American public and most of the rest of the world are enchanted with recording devices. The ability to record compilations of favorite songs certainly accounts to some degree for many people's growing collections of LPs and CDs. The EIA has strongly criticized the methodology, statistics, and assumptions in the RIAA's study, although it believes that protecting the interests of copyright holders is important to both industries. Another study, "Why Americans Tape," was commissioned by the Audio Recording Rights Coalition (of which the EIA is a member): It found that those who tape the most are also the ones who buy the most records and CDs and that very few recordists make use of borrowed materials for their taping. The RIAA's study also attempted to take into consideration sales stimulated by the ability to record, but such a subtle symbiotic relationship probably defies calculation. Consider this, however: EIA figures for 1986 show total blank cassette sales to consumers of 265 million units. Based on the RIAA's estimate of \$1.5 billion, each blank-cassette sale would represent a loss to the recording industry of about \$6, which is probably close to the average wholesale cost per unit of record, prerecorded cassette, and CD sales combined. So if each blank cassette purchase directly (or even indirectly) inspired the purchase of just one recording, the record companies' "displaced" revenue would be replaced.

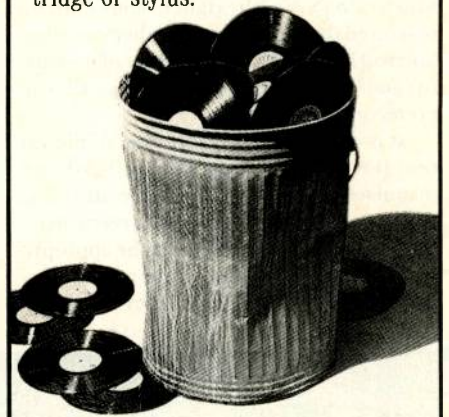
The issue is complex, and emotions are running high. One electronics industry trade journal has called the affair "DAT-gate," although it is clear that few representatives from either front have been inclined to "take the fifth." A heated point was the possibility that some DAT machines would be able to make master-quality direct digital recordings from digital-output CD players. Since then, Japanese manufacturers have stated through the Electronic Industries Association of Japan that no such machines will be made, at least for the consumer market. But that was a false alarm anyway: Every direct digital copy that we've tried to make (through a digital-input PCM adapter) has been preempted by an already existing copy-protect mechanism in the CD system (not related to the RIAA's proposed encoding).

The hardware and software makers are really two sides of the same coin. Audio manufacturers rely on a vital recording industry, as well as happy consumers. Record companies rely on a vital audio industry and sufficient income to invest in new artists. If their income were to be supplemented by a

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royalty on analog cassette recorders or higher prices on copyable (nonencoded) material, how should this money be best distributed? According to the RIAA, the money would be paid out by the Copyright Royalty Tribunal (a government organization) to the various record companies based on sales and airplay of their copyrighted music. *Airplay?* Keep in mind the recently publicized payola scandal, in which certain independent record promoters were indicted for procuring airplay of their clients' artists through bribery—and in some cases thumb-twisting. If the amount of airplay becomes even more important to the wealth of a record company, one can only imagine the potential for corruption. The home recordist who has to pay for the right to copy must be reassured that somehow his or her contribution will lead to the development of new artists and music or perhaps to lower pricing on prerecorded material.

It is certainly in everyone's best interest that the record companies and hardware manufacturers come to an understanding. But this requires some sort of agreement on the nature of the problem and the appropriateness of any proposed solution. Is the record industry really being hurt by home tap-

ing? Would copy-coded recordings be degraded by the proposed encoding process? And how long would it take before someone markets a kit to neutralize the anticopy chip? It's hard to imagine that the current proposal will do anyone any good. The scary thing is that in its present form, the anticopy-chip bill comes dangerously close to being *trade* legislation. It would be a shame if upcoming debates on copyright matters were influenced by protectionist sentiments. Any solution must have only one clear-cut winner: the consumer, whose love of music keeps both sides in business. —Christopher J. Esse

ON THE RADIO

"AUDIOPHILE AUDITION" IS A WEEKLY ONE-hour radio program that features interviews with leading experts in the various fields of audio, an "audio hints" segment that discusses technical matters and offers tips for improving an audio setup, and a selection of interesting musical material. Past shows have included surround-sound broadcasts and other specialty recordings. Coming up on April 5 is a program commemorating the 100th anniversary of disc recording. It will include a recorded interview with the late

Arthur Keller of Bell Labs, who discusses, among other things, the early (1931) experiments in stereo in which he participated. The June 14 program will feature binaural recordings (wear headphones), including some new ones on Compact Disc from Harmonic Records (a French company) and some recorded especially for the program. Response to previous binaural programs has been outstanding, according to the show's producer and host, John Sunier, but sadly, record companies don't show much support for the format.

"Audiophile Audition" began in San Francisco in 1980 and has been distributed throughout the country, predominantly on National Public Radio stations, since April 1985. It is digitally mastered and picked up live via satellite by the majority of its 180 outlets (covering 38 states) on Sundays at 2 p.m. Some stations record the program digitally through a PCM processor to preserve its fidelity for tape-delayed airing.

Readers who would like to receive the list of stations carrying "Audiophile Audition" and a program schedule should send \$1 and a stamped, self-addressed business-size envelope to Audiophile Audition, P.O. Box 1621S, Ross, Calif. 94957. ■



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- 346015. Handel: Royal Fireworks Music; other works—Malgorie, cond. (Digital—CBS Masterworks)
- 336396-396390. Billy Joel's Greatest Hits, Vol. 1 & 2. (Columbia)
- 328435. Prince and the Revolution—Purple Rain (Warner Bros.)
- 324822. Ravel: Bolero; La Valse; Rhapsodie Espagnole—Maazel, cond. (Digital—CBS Masterworks)
- 346643. Andrea: Vollenweider—Down To The Moon. (CBS)
- 257279. Bruce Springsteen—Born to Run (Columbia)
- 138586. Bob Dylan's Greatest Hits (Columbia)
- 339200. Stevie Wonder—In Square Circle (Tamla)
- 343715. Vivaldi—Four Seasons. Maazel, members Orch. National de France (Digital—CBS Masterworks)
- 340323. Sade—Promise. (Portrait)
- 342105. Bangles—Different Light. (Columbia)
- 350736. Rolling Stones—Rewind. (Rolling Stones Records)
- 346536. The Monkees—Then And Now...The Best Of The Monkees. (Arista)
- 321570. Beethoven: Symphony No. 5; Schubert: Symphony No. 8. (Unfinished)—Maazel, Vienna Philharm. (Digital—CBS Masterworks)
- 348706. Wynton Marsalis—J Mood. (Digital—Columbia)
- 347492. Glenn Miller Orchestra—In The Digital Mood. (Digital—GRP)
- 345785. Top Gun—Soundtrack. (Columbia)
- 346957. Steve Winwood—Back In The High Life. (Island)
- 344622. Anita Baker—Rapture. (Elektra)
- 319996-399998. Motown's 25 #1 Hits From 25 Years. (Motown)
- 291278. The Doobie Brothers—Best of the Doobies. (Warner Bros.)
- 339044. Mozart: Symphony No. 40 & 41 (Jupiter)—Kubelik, Bavarian Symphony Orch. (Digital—CBS Masterworks)
- 34777. Peter Gabriel—So. (Geffen)
- 246868. Jim Croce—Photographs And Memories—His Greatest Hits. (Saja)
- 334391. Whitney Houston. (Arista)
- 333286. Phil Collins—No Jacket Required. (Atlantic)
- 314443. Neil Diamond's 12 Greatest Hits, Vol. 2. (Columbia)
- 308049. Creedence Clearwater Revival Featuring John Fogerty/Chronicle. 20 greatest hits. (Fantasy)
- 343582. Van Halen—5150. (Warner Bros.)
- 345553. Branford Marsalis—Romances For Saxophone. (Digital—CBS Masterworks)
- 339226. Gershwin: Rhapsody In Blue; Second Rhapsody; etc.—M. Tilson Thomas, Los Angeles Phil. (Digital—CBS Masterworks)
- 326629. Bruce Springsteen—Born In The U.S.A. (Columbia)
- 342097. Barbra Streisand—The Broadway Album. (Columbia)
- 345827. Bob James and David Sanborn—Double Vision. (Warner Bros.)
- 273409. Horowitz Plays Favorite Beethoven Sonatas: Appassionata, Pathetique, Moonlight. (CBS Masterworks)
- 343095. Philip Glass—Songs From Liquid Days. (CBS)
- 347054. David Lee Roth—Eat 'Em and Smile. (Warner Bros.)
- 263293. Bolling: Suite For Flute & Jazz Piano. Rampal, Bolling. (CBS Masterworks)
- 219477. Simon & Garfunkel's Greatest Hits. (Columbia)
- 316604. Tchaikovsky: 1812 Overture; Marche Slave; Beethoven: Wellington's Victory—Maazel, Vienna Philharm. (Digital—CBS Masterworks)
- 343251. Bach: Goldberg Variations. Glenn Gould. (Digital—CBS Masterworks)
- 337519. Heart. (Capitol)
- 344812. Billy Ocean—Love Zone (Jive/Arista)
- 341305. Robert Palmer—Riptide (Island)
- 349985. Johnny Mathis/Henry Mancini—The Hollywood Musicals (Columbia)
- 348979. Tina Turner—Break Every Rule (Capitol)
- 336222. Dire Straits—Brothers In Arms. (Warner Bros.)
- 348649. The Pachelbel Canon And Other Digital Delights. The Toronto Chamber Orchestra. (Digital—Fantare)
- 341073. Steely Dan—A Decade of Steely Dan. (MCA)
- 349373. Beethoven: Symphony No. 9 (Choral)—Bernstein, NY Phil. (CBS Masterworks)
- 348110. Buddy Holly—From The Original Master Tapes. (Digitally Remastered—MCA)



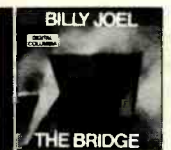
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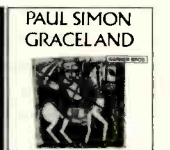
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COMPACT DISC
DIGITAL AUDIO

We've built-in a wide range of choices. You can select from a wide variety of current hits and classical favorites. Our great introductory offer lets you choose any 3 CDs listed in this ad for just \$1.00. Fill in and mail the application—we'll send your CDs and bill you for \$1. You simply agree to buy 2 more CDs (at regular Club prices) in the next year—and you may then cancel your membership anytime after doing so.

How the Club works. About every four weeks (13 times a year) you'll receive the Club's music magazine, which describes the Selection of the Month for your musical interest...plus many exciting alternates. In addition, up to six times a year, you may receive offers of Special Selections, usually at a discount off regular Club prices, for a total of up to 19 buying opportunities.

If you wish to receive the Selection of the Month, you need do nothing—it will be shipped automatically. If you prefer an alternate selection, or none at all, fill in the response card always provided and mail it by the date specified. You will always have at least 10 days in which to make your decision. If you ever receive any Selection

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The CDs you order during your membership will be billed at regular Club prices, which currently are \$14.98 to \$15.98—plus shipping and handling, and sales tax where applicable. (Multiple-unit sets may be higher.) There will be special sales throughout your membership. After completing your enrollment agreement you may cancel membership at any time.

Special Bonus Plan: After you buy 2 CDs at regular Club prices, you can build your collection quickly with our money-saving bonus plan. It lets you buy one CD at half price for each CD you buy at regular Club prices.

10-Day Free Trial: We'll send details of the Club's operation with your introductory shipment. If you are not satisfied for any reason whatsoever, just return everything within 10 days and you will have no further obligation. So why not choose 3 CDs for \$1 right now?

ADVANCE BONUS OFFER: As a special offer to new members, take one additional Compact Disc right now and pay only \$6.95. It's a chance to get a fourth selection at a super low price!

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SEND ME THESE 3 CDS:

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My main musical interest is (check one): (But I may always choose from any category)

ROCK/POP CLASSICAL

Mr. _____
 Mrs. _____
 Miss _____
Print First Name Initial Last Name

Address _____ Apt. _____

City _____

State _____ Zip _____

Do you have a VCR? (Check one.) Yes No 243/S87

Do you have a credit card? (Check one.) Yes No

ADVANCE BONUS OFFER: Also send me a fourth CD right now at the super low price of just \$6.95, which will be billed to me.

This offer is not available in APO, FPO, Alaska, Hawaii, Puerto Rico; Please write for details of alternative offer.

Note: We reserve the right to request additional information or reject any application. X5X/C2 X5Y/C3



B Y

L A R R Y

K L E I N

EQ BOOSTS

I'VE NOTICED THAT FRIENDS OF MINE WHO OWN SINGLE-brand rack systems have a tendency to set their equalizers with the levels boosted in all bands. It seems to me that this is simply the equivalent of turning up the volume and is not how an equalizer should be used. I've always felt it makes sense to operate an equalizer with the settings averaging out to zero or flat.

Glen Nadler
Duluth, Minn.

As you imply, a "flat" boost is best supplied by a volume control. But setting all the sliders full-up on a conventional graphic equalizer produces a bumpy—not flat—frequency response and a boosted overall level. A similar effect, but with much smaller boosts and dips, can be obtained by moving all the sliders up only a little bit.

At one time, most equalizer instruction manuals suggested operating the units as close to "unity gain" as possible, meaning that the signal input and output voltages should be at approximately the same level. The improved headroom of today's equalizer designs has obviated input/output matching. It still represents good practice, however, because it minimizes the possibility of amplifier and speaker overload at strongly boosted frequencies.

I've always preferred equalizers that have separate gain controls for each channel. This facilitates A/B evaluation of the sometimes subtle audible effect of injecting a decibel or so of cut or boost at certain frequencies. On the other hand, the equivalent alterations on both channels facilitated by single-control units help preserve precise imaging.

A properly used equalizer can be an excellent ear-training device that can help dispel much of the mystique surrounding certain audio products. For example, I'm convinced that the openness, airiness, transparency, inner detail, and so on that are the hallmarks of the sound of some very expensive components can easily be duplicated on less costly systems by a slight manipulation of the upper two frequency controls on a ten-band equalizer.

PRE/POST EQ

I'M PLANNING TO BUY AN EQUALIZER AND AM PUZZLED as to how I can get the most flexibility out of it. I want to equalize all my program sources and also my tape dubs. I intend to connect the equalizer between preamp and power amp rather than use up the tape in/out jacks on my preamp. What sort of switching will I need to also equalize my tape recordings?

Harvey A. Bryant
Anniston, Ala.

Things would be enormously simplified if you did connect your equalizer into your preamp's tape loop (there is no good reason not to). With such a connection, you could use the "pre/post" switch found under a variety of names on all of today's best equalizers. Whatever its label, the switch is designed to allow EQ to be applied to the playback of any program source or to the signal going from the equalizer's tape output jacks to the recorder's inputs. A three-head tape deck would enable you to check that any equalization ap-

plied during recording does not introduce excessive noise or overload the tape.

RECORD VS. TAPE WEAR

I HOPE YOU CAN SETTLE A BET FOR ME. I MAINTAIN THAT cassettes, unlike records, don't wear out. My friends insist that both records and tapes wear out with use. Who's right?

Jim Stoller
Evanston, Ill.

You lose, Jim. Wear appears differently in tapes and records. When vinyl discs begin to wear, noise and distortion are added to the signal. Worn tapes, on the other hand, show their wear by losses of signal. There are momentary dropouts that reflect damage to the tape's oxide coating caused by friction against the player's heads, capstan, and guides, and partial erasure of the high frequencies may be brought about by an accumulation of residual magnetism in those metal parts. (Periodic cleaning and demagnetizing help minimize the damage.) And high frequencies may be slightly lost through magnetostrictive (induced by mechanical stress) effects caused by repeated flexure of the tape.

After many hours of play, there may be a marked increase in a cassette's wow and flutter because the tape has become warped and stretched. With newer cassettes, the symptom may indicate an overly tight winding inside the cassette (assuming that the player is okay and that the cassette-shell mechanism or the tape has not been damaged through overheating on a car's dashboard). A degree of looseness can be restored to the tape pack by repeatedly, but gently, slapping the cassette face-down against a semi-hard surface, such as a magazine or book.

MISTUNED FM

MANY OF THE ROCK STATIONS IN MY AREA ADVERTISE that they're located at, say, "100 on the FM dial." But my digital tuner won't tune to even numbers—it sets itself for 99.9 or 100.1. The stations come in clearly, but does something need adjustment?

Ray Pierce
San Diego, Calif.

Yes, the thinking of those who like to reduce all communication to the short, punchy, and simple-minded (this includes the FCC, which lets stations get away with such nonsense). Before digital tuning displays came about, such a practice could be more easily forgiven because of the inaccuracy of an analog tuner's pointer.

In the U.S., all broadcast-band FM stations are assigned odd-numbered operating frequencies, spaced 0.2 MHz (200 kHz) apart. Only those lucky stations whose true frequencies end in 0.9 or 0.1 are allowed to abbreviate their frequency in on-the-air announcements. Tuning to precisely 100.0 MHz would give you a lot of noise and distortion. But, come to think of it, that may be a valid representation of what some of the stations really are broadcasting!

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

THE GREATEST OFFER IN RECORDED HISTORY.



GET A FREE COMPACT DISC.

If you haven't listened to the Memorex CDX II,[™] you ain't heard nothing yet. And now's the time to try it. 'Cause we're making it part of an offer you can't refuse.

Buy one CDX-II tape and if you don't like it for any reason, send it back to us. We'll refund the purchase price

and postage. No questions asked.

But we're so confident you'll love the CDX II, if you buy nine more tapes, we'll buy you a copy of your favorite compact disc or L.P.—a savings of up to 16 bucks.

It's that simple.
Just see the in-store display

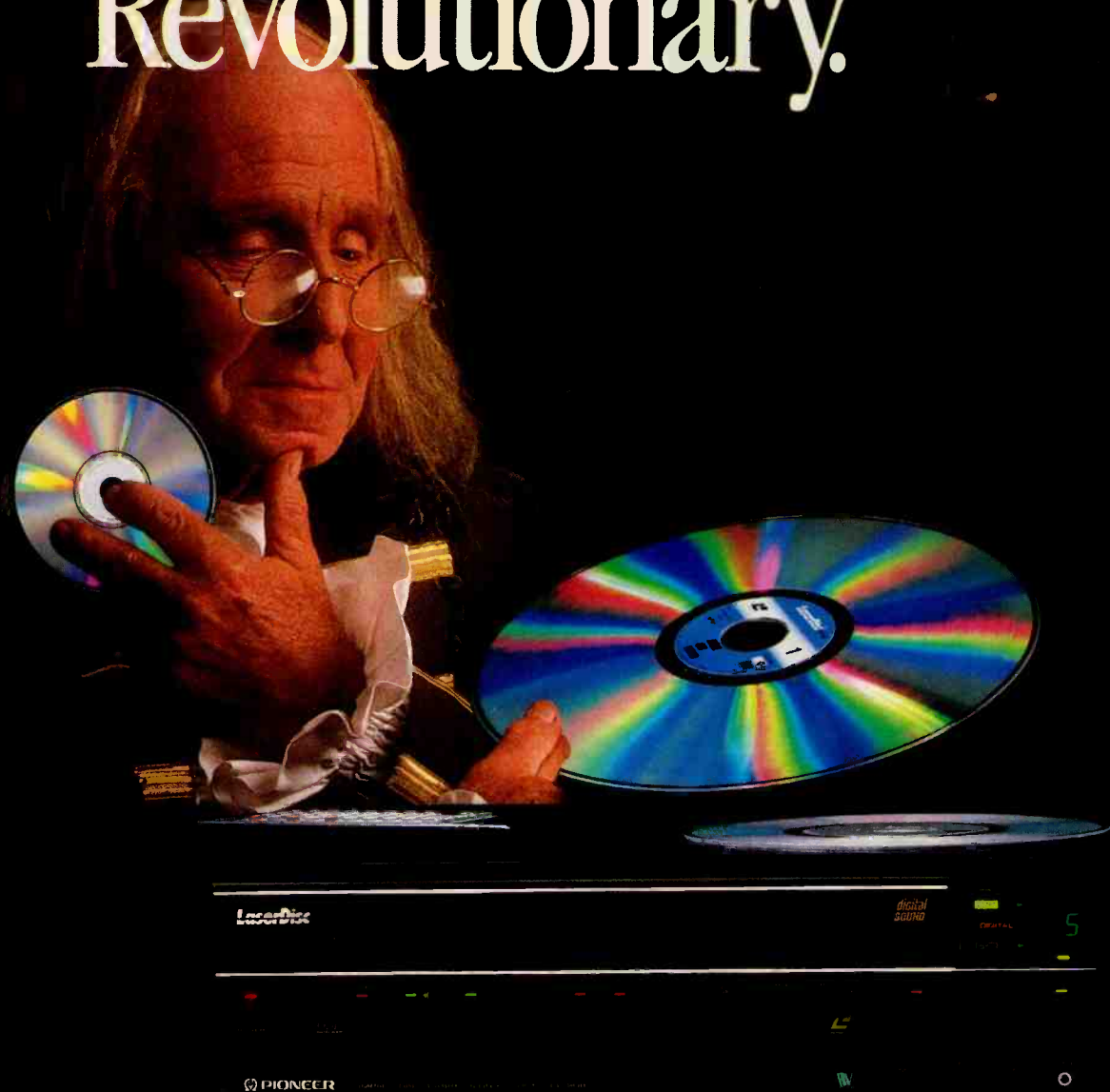
at your participating Memorex dealer for further details. But hurry. The deal expires July 31st, 1987. And you wouldn't want to miss out on such a great sounding offer.

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Not Evolutionary, Revolutionary.



Pioneer's Revolutionary CD/LaserVision Player

If there was ever a machine ahead of its time, it's Pioneer's new CLD-909. The most remarkable machine ever invented to play compact discs, music video discs and LaserVision discs.

Its engineering is incredibly sophisticated. Its superior benefits are really quite simple. As a video source, it produces a 60% sharper picture than any VHS machine in existence. As an audio source,

it's one of the best-sounding CD players you can buy. It's also fully programmable, so you can play any audio or video track in any order.

One viewing of Pioneer's CLD-909, and you'll not only be a believer, you'll soon be a possessor of the finest sight and sound machine modern man has ever witnessed. For more information, call 1-800-421-1404.

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SUPER VHS, FINALLY!

IN TOKYO ON SEPTEMBER 9, 1976, NO DOUBT TO THE great astonishment of Sony, JVC announced the first VHS (Video Home System) videocassette recorder. Adopting many of the important technical innovations that made possible Sony's older (1975) Beta format (such as cyclical phase inversion to reduce chrominance crosstalk and guard-band-less, slanted-azimuth luminance recording), the original VHS system had a 2-hour maximum recording time, twice that of contemporary Beta machines. This, together with the licensing of the system by industrial giants Matsushita and Hitachi and RCA's widespread distribution of it in this country, conspired to make VHS the early leader in the Great Format War. Home-video perfectionists, however, have always viewed the Beta system affectionately, even if they own a VHS VCR. They could point to Beta's superior picture quality and to a series of technical advances (Beta Hi-Fi, Super Beta) that have continually kept Beta's overall quality ahead of VHS's—until now.

On January 8 of this year, while the Winter Consumer Electronics Show was in full swing—and again probably to the absolute consternation of Sony—JVC announced in Tokyo the development of what it calls Super VHS (S-VHS). The news flashed across the Pacific to fall on the eager ears of the journalists covering CES. Our attention was drawn to one claim for S-VHS given in the JVC press release: “[The system] has high resolution and high picture quality comparable to that of one-inch broadcast-use VTRs [videotape recorders].” Equally tantalizing was the fact that S-VHS decks will be able to record in both conventional VHS and the enhanced S-VHS mode.

Apparently, the system is “upward compatible,” as they say in the computer business. Standard VHS recordings will be playable on the new S-VHS machines; standard VHS tapes made on S-VHS decks will play back on any VHS machine; but S-VHS tapes will *not* be playable on standard VHS decks. S-VHS cassettes, which will be usable in standard VHS decks, will have a tape length and overall dimensions equivalent to that of conventional T-120 VHS cassettes, for a maximum recording/playback time of 2 hours in SP and 6 hours in EP. In one of the few technical details announced by JVC, it is admitted that the new tape formulation required for S-VHS recording is an “improved oxide magnetic material.” This automatically rules out metal-particle and barium-ferrite formulations and implies that the new tape can be manufactured by comparatively simple alterations to typical high-grade cobalt-doped ferric-oxide videocassette production processes.

As of this writing, the patent applications on the system have not been completed, so further technical details have not been released. The most salable specification, however, is known: “S-VHS has more than 400 lines of horizontal resolution, allowing current television broadcasting (330 lines horizontal resolution) to be recorded with almost no degradation.” Until the system is more completely described,

how this is achieved remains a matter of speculation. Compared to standard VHS, the new system would likely involve a widening of the recorded luminance bandwidth and a wholesale upward shift in frequency of that band. The first would account for the stated resolution, the second for the required new tape formulation. New tape heads are probably also used.

Unfortunately, no mention is made of a less commercial but visually paramount specification: A poor video signal-to-noise ratio (especially for color) is one of the most apparent shortcomings of present-day home video recording. On the other hand, JVC has claimed that one of the four significant improvements accomplished by S-VHS is “reducing noise in the picture.” (The other three advances are the higher resolution, the new tape, and an elimination of interference between luminance and chrominance signals.) We can only hope that its signal-to-noise ratio is also equivalent to that of professional 1-inch recorders (which, for the industry-standard 1-inch machine—the Sony BVH-2000—is greater than 48 dB). At the very least, S-VHS will provide a welcome overlapping of professional and consumer video quality, since it will probably be better than the 3/4-inch U-Matic professional format. “By using S-VHS,” says JVC, “it is possible that the quality of home video will surpass that of broadcasting in the near future.”

Even if S-VHS falls short of 1-inch performance, its influence on the home video market will probably be immense. If nothing else, sales of both Beta and 8mm home decks and camcorders will be adversely affected by the presence in the market of a superior home video recording system, one that will undoubtedly be adopted by all the original VHS licensees (Hitachi, Matsushita/Panasonic, Mitsubishi, and Sharp) and many other manufacturers as well. If the new system does not change certain geometric parameters (such as video track length and tilt angle), a compact S-VHS system will be possible using VHS-C-size cassettes, thus leading to small camcorders whose picture quality will be limited only by the quality of the image pickup device. And if S-VHS picture quality is good enough and prerecorded S-VHS software becomes widely and inexpensively produced, the new format could displace the laser videodisc as the preferred medium for high-quality playback and might even discernibly change moviegoing habits.

All this speculation should be tempered with the realization that one of JVC's first engineering papers in English describing the original VHS system stated that one of the engineers' design goals was “picture quality equivalent to TV broadcast programs,” something that has yet to be achieved with a standard VHS machine. Furthermore, there is the question of how many of these claimed improvements are accomplished by straightforward, “natural” means, without signal “enhancement” that may produce visual side effects. I'm hoping for the best. For now, we can only wait and watch . . . and wonder how Sony will respond. ■



B Y
D A V I D
R A N A D A

CAR AUDIO TODAY

BULLETIN NO. 1

HOW ALPINE RE-ENGINEERED THE CD PLAYER AND TUNER SECTION TO SHARE THE SAME IN-DASH CHASSIS.

It began with the goal of a car audio system able to do justice to the most artfully recorded music. It led to the development of a Compact Disc player smaller and more advanced than any before. And an FM-AM tuner of astounding capability. It resulted in Alpine's new Model 7902. The first true single-chassis all-in-one design available in a standard DIN-size unit.

Throughout the 7902, Alpine has blended the digital engineering of CD with state-of-the-art analog circuitry to precisely control the musical signal at all stages of its journey. A double-oversampling linear-phase digital filter eliminates the distortion you hear when digital signals are converted into analog form. The filter suppresses ultra-high frequency signals before their conversion to analog, while the double-oversampling process improves the upper-band frequency response. The result? Dramatically reduced harmonic distortion in your music.

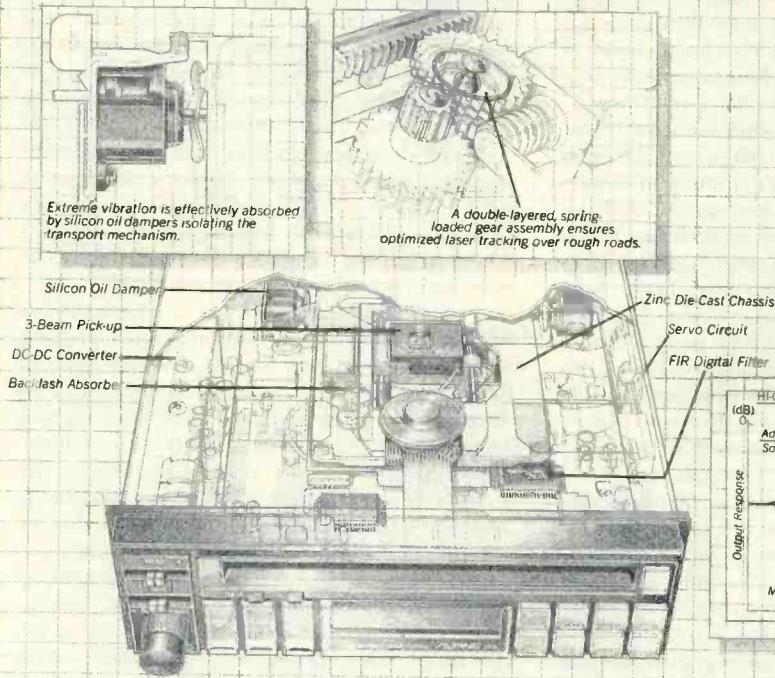
Once the music is converted to analog form, the signal continues to pass through a Butterworth analog filter. This rejects the ultrasonic noise that is characteristic of CDs.

ABSORBING THE SHOCKS OF THE ROAD WITHOUT LEAVING THE TRACK.

The mechanics of the 7902's CD section are no less innovative than its electronics. Alpine has combined its

own 3-beam laser pick-up with a series of other advances. Together they deliver exceptional sonic accuracy while compensating on the road for the bumps and jars that can

also protect the CD mechanism from vibrations and outside shocks. And the entire CD assembly is mounted on a rugged zinc die-cast



A CLOSER LOOK AT THE ALPINE 7902 CD PLAYER/FM-AM TUNER

cause a lesser CD player to mistrack.

A specially designed gear system for the laser drive prevents backlash—the looseness that degrades tracking accuracy. The 7902 uses unusual two-layered gears, with a spring placed between them to maintain tension. So the drive operates with absolute precision.

chassis that's able to absorb shock and vibration better than a common pressed steel or aluminum die-cast chassis.

Alpine's 3-beam laser pick-up uses a diffraction grating to split the laser light into a main beam and two "sub-beams." Constant comparison of the two sub-beams instantly corrects the main beam's alignment, keeping it right on track. Remarkably, Alpine engineering

has packaged all these advances into the first CD pick-up small enough to share an in-dash DIN-sized head unit with an equally advanced FM-AM tuner.

GIVING THE MOST DISTANT STATIONS A POWERFUL RECEPTION.

The Model 7902 incorporates a tuner section that's already legendary for its performance: Alpine's remarkable T-10 II Tuner.™ Three Alpine innovations contribute to the T-10 II Tuner's ability to

control circuit reduces the intermodulation distortion that can degrade your musical reception.

Throughout the entire 7902, a unique circuit topology called STAR (Signal Transit for Accurate Response) keeps critical circuits separated to avoid interference. Moreover, STAR takes advantage of computer-aided design to engineer the shortest routes for signals to travel. The result is exceptionally clear reproduction with greater dynamic range and a truly linear musical output.

Making the 7902 all the more unique is a shielded, pulse-width-modulated power supply designed with dual circuitry—two discrete power blocks that eliminate high-frequency signal interference. This rethinking and redesign of every aspect of circuitry results in improved clarity and definition, and contributes to the exceptional musicality of the 7902.

High cut, blend and soft-mute circuits work together to maximize reception of weak FM stations, and minimize static noise.

It all adds up to a tuner with superb clarity and definition. In an incredibly small package that, combined with Alpine's equally compact new CD section, makes the model 7902 a first for Alpine. And a first for the mobile audio industry.

To see and hear Alpine's new 7902 CD Player/FM-AM Tuner, visit your local Alpine autosound specialist.



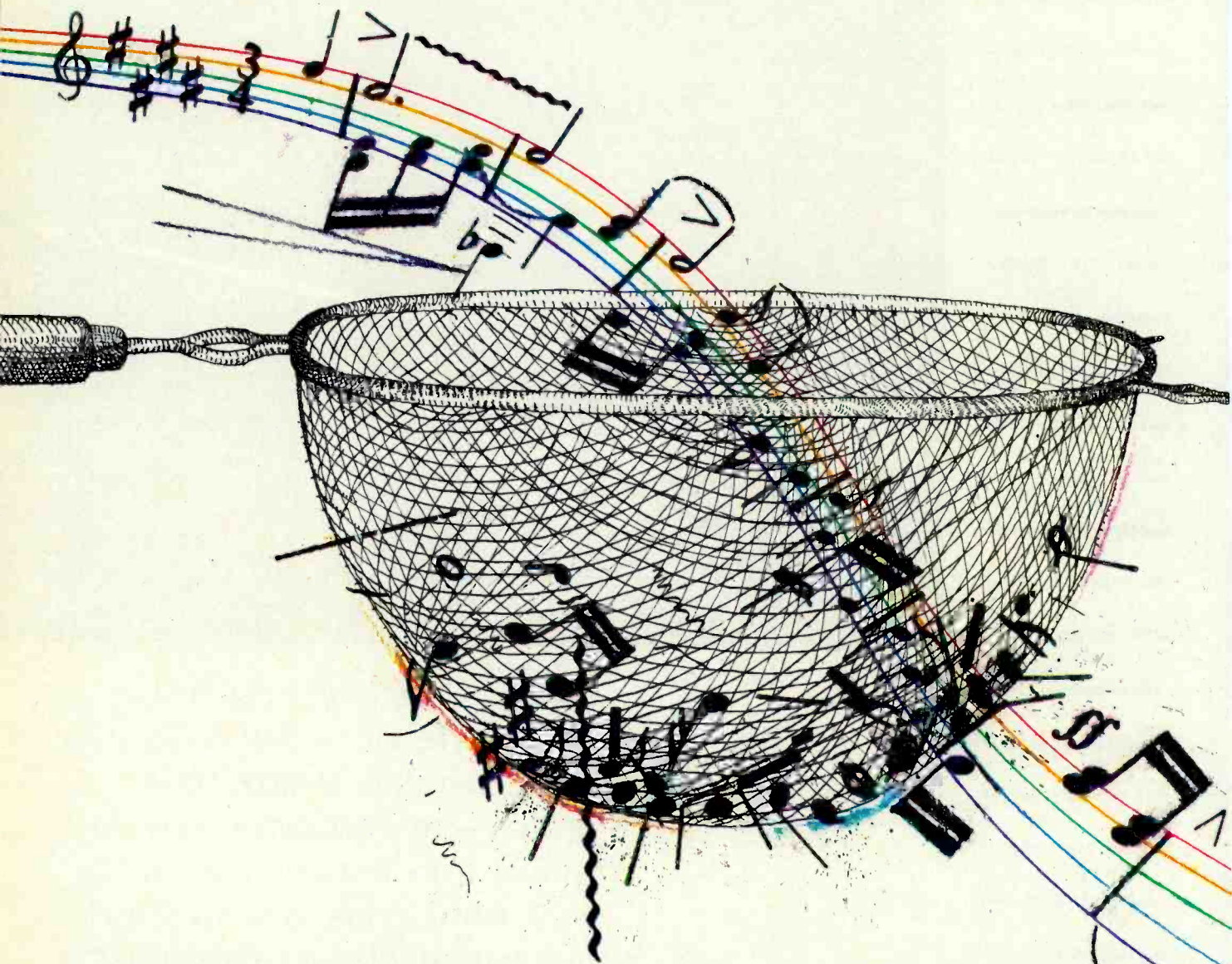
T E S T R E P O R T S

Despite what's pictured, technology is not on the rocks. The Magnavox CDB-650 Compact Disc player (top) is full of Philips's latest advances in error correction; the Hafler XL-280 power amplifier (bottom) permits a unique distortion-reducing adjustment; and NEC's DX-2000U is the first VCR to use digital processing to actually improve picture quality. Also tested is Nakamichi's finest preamp, the well-appointed CA-7A. And an old name is back, this time as a consumer brand: Altec Lansing, whose 301 loudspeaker system is put through its paces. Reports follow. ▶



NICK BASILION

REPORT PREPARATION SUPERVISED BY MICHAEL RIGGS, DAVID RANADA, CHRISTOPHER J. ESSE, ROBERT LONG, AND EDWARD J. FOSTER. LABORATORY DATA (UNLESS OTHERWISE INDICATED) IS SUPPLIED BY DIVERSIFIED SCIENCE LABORATORIES.



EVEN THE FINEST LOUDSPEAKERS
SIFT OUT SOME OF
THE MID-RANGE DETAIL.WHY?

Many of today's more expensive loudspeakers have impressive specifications that may look great on paper, but do not necessarily sound great in your home. For instance, they boast frequency ranges that extend well beyond the limits of human hearing. But while these loudspeakers may be sensitive to the musical extremes of the spectrum they are often insensitive to the subtle details in between. Details that create the finer musical nuances within the mid-range.

At Altec Lansing® on the other hand, we've designed our new line of loudspeakers to recreate every subtlety of recorded music. To give not only the highs and lows but everything in between.

The secret of Altec Lansing's extraordinary timbre, texture and detail? A polyimide mid-range that produces an expansive stereo image to give you pure uncolored sound. In fact, Altec Lansing loudspeakers are so uncompromising, so revealing, they prompted J. Gordon Holt of *Stereophile* magazine to write, "I have been hearing more going on in (the mid-range of) old, familiar recordings than I have ever heard before... instrumental sections are suddenly resolved into many individual instruments rather than a mass of instruments," and they compelled him to add that Altec Lansing's speakers have "high end sweetness and openness... with astounding inner detail."

What's more, our woofers provide unparalleled low frequency definition that beautifully complements the flawless performance of our mid and high frequency drivers. How? With woven carbon fiber cones that are rigid yet lighter than paper or

polypropylene to virtually eliminate breakup, flexing and distortion.

The unique features like these, that make our home loudspeakers so impressive, also extend into our automotive loudspeakers. In addition, our automotive loudspeakers have features like Thermoisolate™ construction and high temperature resistant materials to assure lasting performance even in the extremes of a demanding auto environment. As a result, you'll capture the same details in your car as you do at home.

Listen to Altec Lansing loudspeakers for yourself and hear how much detail you've been missing. Call 1-800-ALTEC88 for information and the Altec dealer nearest you (in Pennsylvania 717-296-HIFI). In Canada call 416-496-0587 or write 265 Hood Road, Markham, Ontario L3R 4N3, Canada.



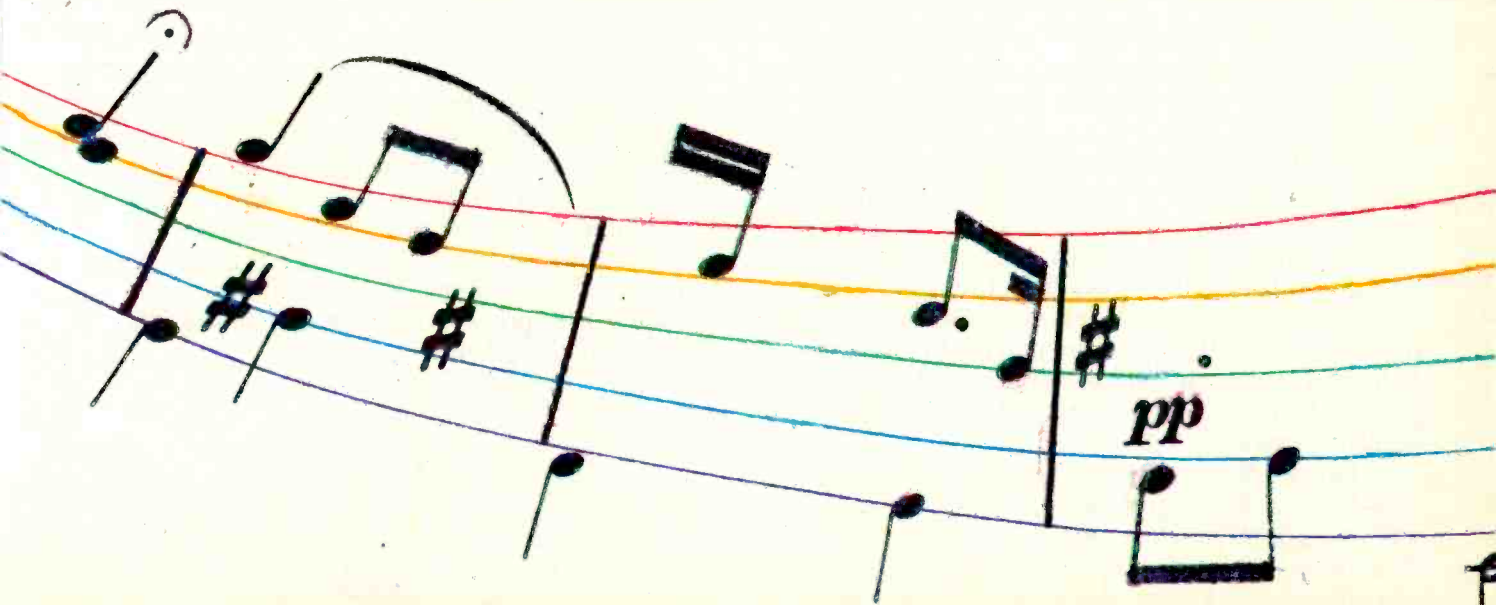
Carbon Fibers in Woofer Cone



Polyimide/Titanium
Mid-range



**ALTEC LANSING.
LOUDSPEAKERS FOR
THE WELL-TRAINED EAR.**



A precision-engineered automobile deserves nothing less than Yamaha.



World class automobiles are engineered to a set of uncompromising standards, criteria which also distinguish our new DIN-chassis car audio series.

Each is built from a commitment to musical excellence made 100 years ago. The same commitment that has made Yamaha the world's largest manufacturer of musical instruments—from concert grand pianos to FM digital synthesizers.

We've also drawn on our extensive experience in professional audio equipment used in concert halls and recording studios worldwide. And incorporated features from our state-of-the-art home audio components.

One such feature is our unique Variable Loudness Control. First developed for home receivers and amplifiers, it ensures that low, mid and high frequencies maintain proper tonal proportion at any volume. So the sound is always well balanced.

Every unit has our new rotary head design for superb bi-azimuth control, creating greater dynamic range and full-frequency response in either tape direction. Our improved MR II tuner circuitry automatically controls FM noise to optimize reception of even the weakest signal. And our top models offer an optional theft-proof removable chassis.

Visit any authorized Yamaha Car Audio dealer today and listen to our full line of DIN-chassis products. Your precision-engineered automobile deserves nothing less.

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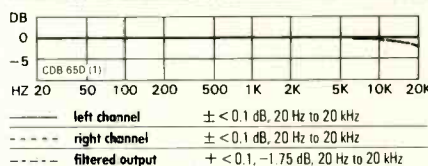
YAMAHA

Magnavox CDB-650 Compact Disc Player

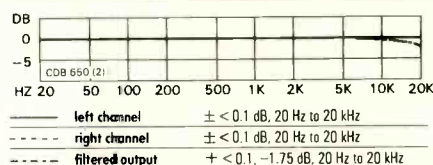


All data were obtained using the Sony YEDS-7, Technics SH-C0001, Philips 410 055-2, and Philips 470 056-2 test discs. Except where noted otherwise, data is for the "unfiltered" output (see text).

FREQUENCY RESPONSE WITHOUT DE-EMPHASIS



FREQUENCY RESPONSE WITH DE-EMPHASIS



CHANNEL SEPARATION (at 1 kHz) 106 3/4 dB

CHANNEL BALANCE (at 1 kHz) ± < 0.1 dB

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

	filtered	unfiltered
without de-emphasis	109 1/4 dB	109 dB
with de-emphasis	112 dB	112 3/4 dB

HARMONIC DISTORTION (THD + N; 40 Hz to 20 kHz)

	filtered	unfiltered
at 0 dB	< 0.010%	< 0.010%
at -24 dB	≤ 0.019%	≤ 0.050%

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

	filtered	unfiltered
0 to -10 dB	< 0.010%	< 0.010%
at -20 dB	0.014%	0.017%
at -30 dB	0.047%	0.059%

DIMENSIONS: 16 1/2 BY 3 1/2 INCHES (FRONT), 11 1/4 INCHES DEEP PLUS CLEARANCE FOR CONNECTIONS. PRICE: \$430. WARRANTY: "LIMITED," ONE YEAR PARTS AND LABOR. MANUFACTURER: MADE IN BELGIUM BY PHILIPS FOR N.A.P. CONSUMER ELECTRONICS CORP., I-40 AND STRAW PLAINS PIKE, KNOXVILLE, TENN. 37914.

ALTHOUGH, OR PERHAPS BECAUSE, IT IS manufactured by a codeveloper of the Compact Disc system (Holland-based Philips), the Magnavox CDB-650 is distinctly different from the mass of Asian CD players available today. But this is by no means a criticism. Indeed, many aspects of its uniqueness make the CDB-650 superior in operation to more run-of-the-mill players, a category that includes many models costing several times as much.

Even the CDB-650's "standard" controls have a unique personality. The play control (labeled PLAY/REPLAY) works as usual, but restarting a track while playing requires another press of PLAY/REPLAY—not an illogical press of the "previous track" button as on almost every other player. The CDB-650's previous-track button is indeed just that: press it while playing any track and it will take you to the start of the track before (if any). PAUSE is not released by pressing PLAY/REPLAY but only by pressing PAUSE again (most players release pause with a press of either the play or pause button). The forward and reverse scan controls, here sensibly called SEARCH, each have three speeds, not the standard two, depending on how long you hold the buttons down. At the two slowest speeds the music remains audible, but after ten seconds of scanning, the player switches into high gear and the sound is muted. If you "scan off" the end of the disc and then release the forward search but-

ton, the CDB-650 will jump back to the last few seconds of recorded material, making it somewhat easier than usual to cue up the last moments of a disc. Even the control symbols painted on each transport-control key are slightly different from the norm, notably the circle-and-triangle STOP and PAUSE symbols.

What Magnavox has chosen to call SCAN is a function operating identically to similarly named features on cassette decks. After you press SCAN, the first ten seconds of each track are played in turn. At any time during this process you can shift into normal playback by pressing PLAY/REPLAY.

The CDB-650 has more "standard extras" than most players in its price range. For example, three cueing modes are available: track number, index point within a track, and starting time within a track (a mode that until now has appeared only on first-generation and professional players). The same three modes are available in making selections for programmed playback. In an unusual twist, the maximum capacity for a programmed sequence is not given as a number of selections but as 20 "memory blocks." Making a programmed selection by track number takes up one block, by index number takes up two, and by start/stop times takes up five. The SCAN allows the programming of tracks by selective omission as each track is auditioned, which is useful if you want to store track numbers in the same order as they appear on the disc.

A numerical keypad for cueing or programming is contained on a flip-down panel at the right front of the machine, just above the headphone output and its dedicated volume control. Nearly all the other controls are duplicated on the remote handset, which

LINEARITY (at 1 kHz)

0 to -60 dB	no measurable error
at -70 dB	-0.4 dB
at -80 dB	-0.9 dB
at -90 dB	-5.8 dB

TRACKING & ERROR CORRECTION

maximum signal-layer gap	> 900 μm
maximum surface obstruction	> 800 μm
simulated-fingerprint test	pass

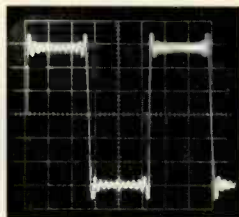
MAXIMUM OUTPUT LEVEL

line output	2.07 volts
headphone output	5.71 volts

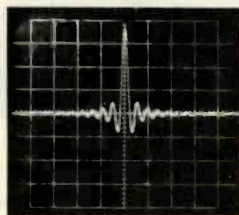
OUTPUT IMPEDANCE

line output	200 ohms
headphone output	155 ohms

SQUARE-WAVE RESPONSE (1 kHz)



IMPULSE RESPONSE



uses four AAA cells (supplied). The exceptions are the headphone volume control, the disc-drawer open/close button, and the slide switch for the four basic operating modes: normal play, single play (which stops the player after the current track is finished unless it is also in the repeat mode, in which case the current track is repeated indefinitely), copy pause (which adds a four-second pause after each track), and auto pause (which puts the player into pause at the end of each track until released by pressing PAUSE).

The last front-panel button left off the handset controls a feature unique to Magnavox CD players. Favorite Track Selection (FTS) makes a programmed sequence of tracks, index points, or start/stop times "permanent, so that you can use it each time you play a particular disc," as the well written and organized manual puts it. Encoded among the digital information on every CD is its label (brand) and number, and these are automatically entered into the FTS memory along with your programmed sequence so that the player remembers which sequence goes with which disc. Enough memory is provided to store a single selection for 227 different discs, but the programming rules here are similar to those for manual programming procedure. Selections delimited by index or start/stop points take up more memory space than track numbers only, and a maximum of 20 memory blocks is allowed per memorized disc. Other maximal combinations include 113 discs with five index-point cues each and 88 discs with five time-segment sequences apiece. Track number, index point, and time-segment cueing can be freely intermixed in a disc's program, provided the maximum of 20 memory blocks per program is not exceeded. Of course, the system permits editing or deletion of memorized programs.

Storing an FTS sequence is simple: After setting up a programmed sequence as described above, press FTS and then STORE on the flip-down panel. Playing a memorized FTS sequence is also easy: Put the disc in the player, press FTS and then PLAY, and a sequence memorized even years before will come flooding back, for the player retains FTS information in a nonvolatile memory even after being switched off or unplugged. Supplied with the CDB-650 is a set of stick-on FTS program-number labels that fit neatly on CD jewel-box spines.

What FTS is truly useful for is, for the moment, beyond us. Maybe music teachers and amateur disc jockeys will take advantage of the system for easy storage and recall of programmed segments. And it is the rare person who has such stable tastes that he will find the permanence of the FTS memory useful. But it's there, it's unique, and it doesn't seem to have added appreciably, if at all, to the very reasonable price of the CDB-650, nor does it seem to detract from the other performance characteristics—so why not?

The unconventionality of the CDB-650's internal design does not stop with the special chips retaining the FTS settings. There are two fixed-level line outputs, both with gold-plated pin jacks. The first of these (the "unfiltered" output mentioned in the data column) carries a lightly analog-filtered signal originating from the four-times oversampling digital-filtered 16-bit digital-to-analog converters. The second output is labeled "Additional Filtered" and passes the same signal, but only after it has undergone a further stage of analog filtration, this time a bit more severe than that applied to the first output. There is also an AES/EBU standard digital output (a pin jack carrying the audio information in digital form) "for future CD applications such as CD-ROM or digital signal processing," and a socket for connection of an optional remote control receiver for when the front panel is hidden from the remote handset.

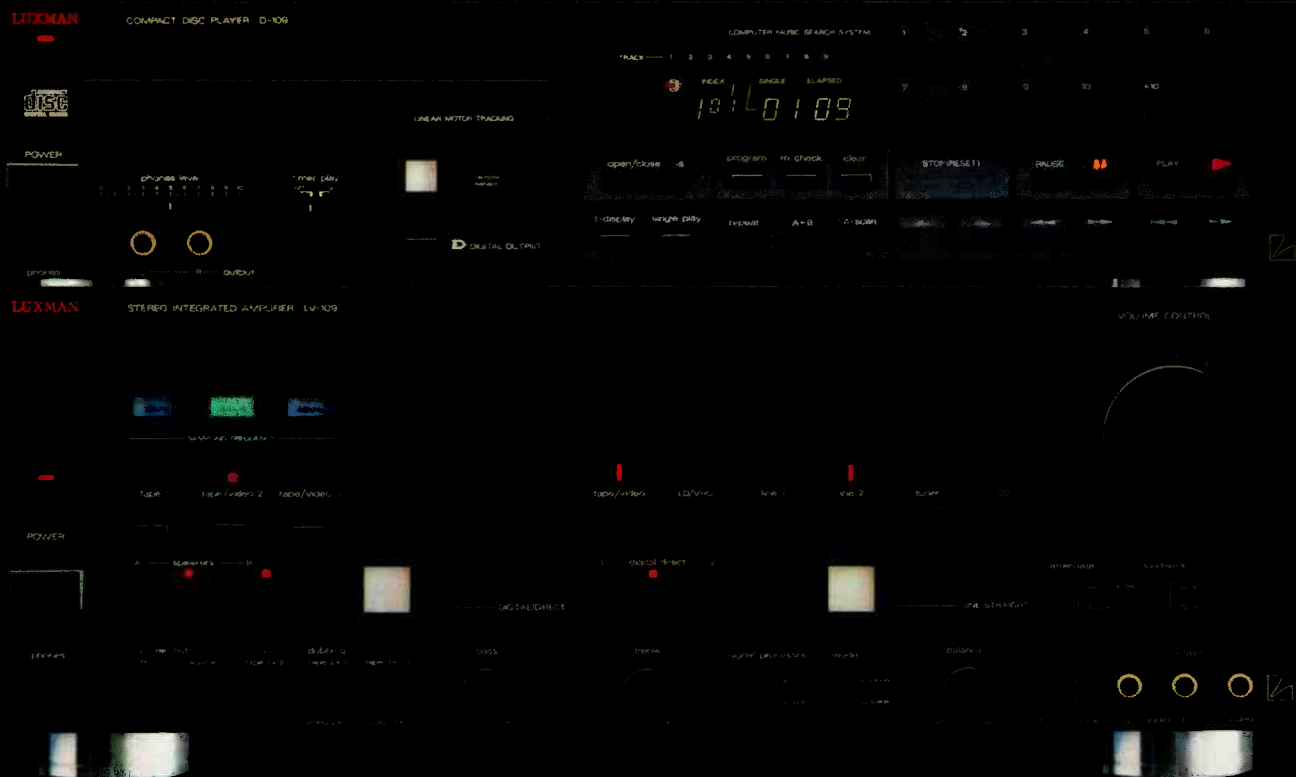
Mechanically, a refined (and fairly fast-cueing) version of Philips's already elegantly simple swinging-arm pickup mechanism is employed, as well as the latest version of that company's single-beam laser pickup. The system has achieved the deserved reputation of being quite reliable even when playing badly damaged or defective discs.

Beyond this, the digital decoding ICs used in the CDB-650 have, as far as we know, the most advanced digital error-correction system of any home CD player. The CDB-650's error correction is "adaptive": It chooses the optimum error-correction scheme for the type and distribution of errors that it is encountering at any moment, staving off error concealment until the last possible moment. If error concealment is ultimately required, the CDB-650's chips can interpolate over eight successive bad samples, in contrast to most other error-correction ICs, which can interpolate only one bad sample at a time.

Diversified Science Laboratories measurements, unfortunately, do not show how effective these chips are. The present standard test disc for tracking and error correction (issued by Philips several years ago) is neither a complete nor an accurate simulation of the range of possible disc damage and bad pressings. Most—but not all—modern players pass the tests on the disc with no audible problems, and that goes for the CDB-650. We can say, however, that the CDB-650 is the only player of dozens we have tried that can successfully play a certain bad pressing we have had in our library for the past two years. We feel that it would be a rare disc indeed that would play on another Compact Disc player and not on the CDB-650.

The lab's testing did uncover one (and only one) interesting but not too significant performance anomaly: At the -90 dB level in the linearity test, the output level is about 6 dB too low, and the corresponding distortion at that level is higher than normal. This happened with both channels and with two

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converter in the LV-109. There is no analog conversion prior to the transfer.

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samples of the player. Usually in this test, the player output level is too high, reading -85 dB when it should be -90 , for example, because distortion products and noise add to the -90 -dB 1-kHz test tone and thus raise the overall output level. We believe one of the least significant bits in the CDB-650's digital-to-analog converters (which use a conversion method different from most others) is "non-monotonic": As the numbers being fed to the converters increase step by step, the voltage output from them does not continuously increase but stays the same or even decreases for one or more steps. This would account for the peculiar linearity measurement as well as the unusually distorted sound of the -90 dB test sine wave when it is subjected to very high amplification.

This, however, should also clue you in to

just how significant the non-monotonicity is when playing a typical music disc: We could not hear it per se, nor could we hear any sonic faults attributable to what amounts to a loss of about 1 bit of resolution (so that the converters are essentially providing 15—rather than 16-bit performance). The CDB-650's other test results—the very flat frequency response both with and without de-emphasis switched in, the outstanding channel separation and balance, the good signal-to-noise ratios, and the generally fine distortion measurements—serve only to confirm the very good sonic impression the player makes when playing music. Ironically, the "additionally filtered" response of the second output rolls off the very top end (by $\frac{1}{2}$ dB at 10 kHz, 1 dB at 15 kHz, and $1\frac{3}{4}$ dB at 20 kHz) in a way that mimics the response

of the very first CD player issued by the other CD-system codeveloper (no points for guessing which company that is). Otherwise, it offers virtually identical performance to that of the main output.

The direct digital output socket does indeed carry the audio signal in standard AES/EBU form, as we confirmed by hooking it up to a device with a corresponding AES/EBU digital input. It offers a way to work around the low-level non-monotonicity of the CDB-650's internal digital-to-analog conversion system: Simply feed the digital output into a component with its own, hopefully monotonic, digital-to-analog converters. The money and trouble you expend, however, probably will not provide any audible improvement to the sound of the CDB-650, for that would be difficult by any means. ■

T E S T R E P O R T S

Nakamichi CA-7A Preamplifier



The moving-coil phono section offers three gain options: 24, 30, and 36 dB. Where the setting of the gain switch affects the measurements, all three values are given in that order. All measurements except for impedance of the fixed-coil phono section were made at the minimum capacitance setting.

OUTPUT AT CLIPPING (at 1 kHz) 7.2 volts

HARMONIC DISTORTION (THD; 20 Hz to 20 kHz)

aux input < 0.01%

fixed-coil phono input < 0.01%

FREQUENCY RESPONSE

+0, $-1/4$ dB, < 10 Hz to 30.7 kHz

+0, -3 dB, < 10 Hz to 117 kHz

DIMENSIONS: $17\frac{1}{4}$ BY $3\frac{3}{4}$ INCHES (FRONT), $12\frac{1}{2}$ INCHES DEEP PLUS CLEARANCE FOR CONTROLS AND CONNECTIONS. AC CONVENIENCE OUTLETS: NONE. PRICE: \$2,195. WARRANTY: "LIMITED," THREE YEARS PARTS AND LABOR. MANUFACTURER: NAKAMICHI CORP., JAPAN; U.S. DISTRIBUTOR: NAKAMICHI U.S.A. CORP., 19701 S. VERMONT AVE., TORRANCE, CALIF. 90502.

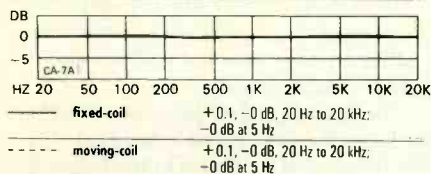
WE CALL IT A PREAMP. NAKAMICHI—NOT a company to accept the obvious, which accounts for its remarkable record of innovation—calls it a control amplifier, an appellation that could incorrectly suggest an integrated amp. But whatever it's called, you've got to marvel at the CA-7A. With it, Nakamichi again breaks new ground in both engineering and performance.

Dominating the design is the CA-7A's adaptability to centralized remote control of other Nakamichi components, including some of Nakamichi's own early cassette

decks that had wired, dedicated remotes of their own. To this end, Nakamichi packs the RM-7CA wireless remote with the CA-7A, which is fitted with a series of DIN-style multipin jacks on its back panel for interconnection to the mating remote-control jacks on other Nakamichi components, old or new.

The remote includes controls for power, source selection, volume, and "mute" (20-dB output attenuation) for the CA-7A; band (AM/FM) and preset selector (to 16 stations, in two 8-station banks) for a tuner; play, pause, stop, cueing, and scan controls for a CD player; and similar transport controls plus recording, azimuth, and deck (Tape-1/Tape-2) for tape decks. This means that some controls, even on the CA-7A itself (the recording output selector, for example), are inaccessible from the remote, but all those to

RIAA PHONO EQUALIZATION



SENSITIVITY & NOISE (re 0.5 volt; A-weighting)

	sensitivity	S/N ratio
aux input	40.3 mV	93 dB
fixed-coil phono	0.66 mV	79 1/2 dB
moving-coil phono	42/21/10.5 μ V	82/83 1/4/ 83 3/4 dB

PHONO OVERLOAD (1-kHz clipping)

fixed-coil phono	325 mV
moving-coil phono	20.5/10.3/5.2 mV

INPUT IMPEDANCE

aux input	15k ohms
fixed-coil phono	51k ohms; 110/210/310 pF
moving-coil phono	100 ohms

OUTPUT IMPEDANCE

main output	990 ohms
tape output	195 ohms

CHANNEL SEPARATION (at 1 kHz)

	113 1/2 dB
--	------------

which you might have recourse during a passive listening session (as opposed to, say, recording) are right there in your hand.

To give the CA-7A's wireless remote access to other Nakamichi components, the back panel of the preamp has control ports for two Nakamichi tape decks, tuner, CD player, remote infrared sensor (in addition to the one built into the front panel), and remote power on/off. Multiple remote sensors can be "daisy-chained," as Nakamichi puts it. So the inveterate Nakamichi-phile has an enviable array of choices at his (remote) disposal. With non-Nakamichi components, however, the lack of any back-panel AC convenience outlets may pose hookup problems because other parts of the system can't be turned on and off automatically without the remote interconnects.

To achieve both superior performance and the intended control options, Nakamichi isolates the switching-logic circuits from those carrying the audio. The logic has its own toroidal power transformer, and its signals are transmitted within the CA-7A by optical coupling to prevent audio interference. Adding to this isolation are multiple shields: between logic and audio elements, between power supplies and other circuitry, and even between audio channels. The switching itself is handled by relays, rather than the usual transistor switches, for minimum noise and signal degradation.

The back-panel signal connections and switching seem a little odd at first glance because of the separate circuit boards used for each channel. All of the left-channel jacks run along the top of the panel, and those for the right channel run along the bottom at a somewhat greater distance than usual but not far enough away to exceed the spread of typical dual-channel cables.

There are two pairs of output jacks (to feed separate power amplifiers in different rooms, for instance), connections for two tape decks, and four high-level inputs: tuner, CD, aux 1, and aux 2. The phono section has two input pairs, which is where things really begin to look odd, because all the cartridge-matching switching for each is duplicated in the two channels. This isn't so you can make a different choice for each channel, but simply to keep leads to the separate circuit boards as short as possible. For the regular moving-magnet (MM) input, there's a choice of capacitive loading: nominally, 100/200/300 picofarads. For moving-coil (MC) inputs, the choice is in head-amp gain: 24/30/36 dB. In addition, you can change the moving-coil (MC) input impedance by adding (or, as Nakamichi advises, by having your dealer add) resistors on the circuit boards themselves. Appropriate resistors are supplied for changing the factory-set 100 ohms to 50, 30, 20, 10, or 3 ohms. Yet another pair of back-panel switches assigns either the MM or MC input to the front-panel phono selector button (or recording-selector switch).

The main (monitor) source selectors,

representing all of the back-panel signal inputs (including those for the tape decks), are arrayed along the bottom of the front panel and are flanked by smaller on/off buttons for "mute" and AFT (Acoustical Fine Tuning—referring to the three tone controls). The recording selector (the leftmost knob) repeats the input options, but it adds off and substitutes 1-to-2 and 2-to-1 dubbing for the tape-monitoring options of the main selector.

To the right, past the tone controls, are the balance knob (a 21-position switch selecting an array of precision metal-film resistors or, when it is centered, cutting itself out of the circuit altogether) and the motor-driven volume control. The latter is cleverly designed to have the "feel" of a manual potentiometer; an illuminated index line on the knob is visible at a distance as an aid in adjusting the volume by the remote.

The tone controls are unlike any we've tested before. They are narrower (that is, higher-Q) in control action than we're used to and, at ± 5 dB, much gentler in available boost/cut range. The bass control is designed for maximum action at 25 Hz and has almost no effect above 300 Hz. The mid-range centers on 250 Hz (squarely in the musical midrange, though electrical midrange often is conceived of as centered at least two octaves higher) and has little effect above 3 kHz. The treble control is a shelf filter with a turnover frequency above 20 kHz, so that its audible effects are finely graduated.

These controls make possible relatively subtle, precisely repeatable "sweetening" of already good signals. The BASS can tame boominess due to poor miking or to a phono pickup poorly matched to the arm in use, or add a little kick below woofer resonance if your speakers need it. The MIDRANGE touches up the balance between the all-important musical fundamentals and the rest of the frequency range. The TREBLE can bend the upper reaches to brighten dull sound or effectively soften harsh or hissy signals. With this control design, Nakamichi seems to expect that you will either stay with signals that are at least good to begin with or add an outboard equalizer if you're seeking to right severe sonic wrongs. And it declines to make gross exaggerations possible. The approach makes a lot of sense.

The astonishing thing about these controls (and, in fact, about the entire preamp) is the exactitude with which the design goals have been achieved, as measured at Diversified Science Laboratories. The boost/cut spread is within a fraction of a dB of nominal; center frequencies are observed with comparable precision; the discrete, calibrated settings progress in orderly, predictable, and very small steps. We can't recall ever testing tone controls that were better behaved and doubt that a careful examination of past reports could turn up the CA-7A's equal in this respect.

This precision is indicative of the care that is manifest elsewhere in the design. ▶

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
1.0	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
16.0	12	500	27
20.0	13	630	28
25.0	14	800	29

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300-watt • 3-way SPEAKER SYSTEM

- TWO 4" woofers per unit for resonating bass
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CD Adapter (not shown). For all radio, cassette or CD players with 9-volt requirement only. Regular \$19.95. 03-9935N—Each \$17.95

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Adjustable width—fits all cars, trucks, vans, RVs (even with sunroofs)

Low-profile design. Deluxe model in choice of 6 colors. Easy to install... no drilling required.

Deluxe Console: 140 watts RMS capacity. Two 5" bass reflex speakers and two 2" cone tweeters with matching cross-over. Active bass part assures thundering bass without additional amplification. Frequency response: 70-20,000 Hz. Lightweight steel and aluminum console, nylon velour covering. Installs easily with no altering interior. Dome light not included. Reg. \$179.95. 03-9841N—Black 03-9844R—Blue 03-9842T—Gray 03-9845W—Tan 03-9846U—Brown 03-9846U—Red

Standard Console (not shown). Similar to above. Two 5" bass reflex dual-cone speakers. Frequency response: 65-20,000Hz. Black only. 03-9958X—Reg. \$99.95—Each \$89.95

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60 watts of power (30 per channel). Seek & scan locks on next strongest station. 12-station push-button memory (6 AM, 6 FM). Electronic tuning locks to frequencies. Illuminated digital LCD clock/station readout. Local/distance, AM/FM switches. Loudness, 4-way fader controls. Auto-reverse plays both sides of tape continuously. Dolby® noise reduction. Cassette search finds beginning of a song and plays from there. Fast forward, rewind, eject. Built-in equalizer has 5 slide controls with ±12db range. Buttons, switches backlit. 2" high, 7" wide, 5-5/8" deep. With hardware, instructions. For all 12-volt neg. ground vehicles. 03-9831W—Reg. \$199.95—Each \$139.95

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Handle up to 200 watts! Increase bass response of any full-range system... decrease midrange distortion. 1-1/2" aluminum voice coil with vented double layer winding. Polypropylene cone. 4-ohm impedance. Note: Sub-woofer low frequencies are non-directional; mount anywhere.

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For radios w/right & left shafts. Without battery back-up. 03-9867Y—Each \$12.95

With battery back-up. 03-9987W—Each \$16.95

For shaftless radios. With battery back-up. 03-9988U—Each \$16.95

In-dash CAR TELEVISION AND SOUND SYSTEM

DIN snap-in installation—fits most American car, van, truck, RV and boat dashboards. Black & White TV: VCR Jack to record and play back TV programs on any video tape recorder. Zoom/magnifier enlarges TV picture to 2" size. Enlarges picture by 30%. All-channel VHF/UHF vernier tuner. Contrast/brightness/vertical hold controls. Sound plays through stereo speakers (not included). Picture tube disarms when ignition is "on"... sound can still be played. With antenna adapter. AM/FM/MPX Radio: Precision electronic tuning. LED digital frequency display can be switched to time display (hours/minutes) w/ flick of a switch. Antenna trimmer on front panel. Auto-Rewind Stereo Cassette Player: Locking fast forward, rewind. Tape eject. Program reversing switch. LED tape direction indicators. Other features: Separate amplifier for easy installation. 50 watts peak power output (25 per channel). Full-range bass/treble control. Stereo control. Radio/TV, FM/AM, UHF/VHF, balance/mono switches. LED tape/radio/TV indicators. Speaker impedance: 4-8 ohm. Chassis: 2" high, 7" wide, 6" deep. Amplifier dimensions: 7" wide, 2" high, 2-3/4" deep. With hardware, instructions. Some dash filing may be required for installation. For all 12-volt neg. ground vehicles. 03-6843U—Reg. \$299.95—Each \$249.95

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Built-in FM antenna booster. Built-in security alarm hooks up to your alarm. 140 watts per channel. 7 sliding frequency controls adjust ±12db. Ignition cutoff prevents theft. 10-LED power output display (5 per channel). Front-to-rear balancing. Illuminated power and antenna booster switches. 60-20,000 Hz frequency response. Compatible with 4 or 8-ohm speakers. 1-3/8" high, 5-7/8" wide, 4-3/4" deep. With hardware, instructions. For all 12-volt neg. ground vehicles. 03-9914P—Reg. \$39.95—Each \$29.95

High-power CAR AUDIO COMPONENTS

A Equalizer/Pre-amplifier. Enhances quality, shapes sound. Use alone with your stereo (compatible with all radios and tape players) or with amplifiers below. 7 slide-bar frequency controls: 60Hz, 150Hz, 400Hz, 1KHz, 2.4KHz, 5KHz, 15KHz. Adjustable ±2db. Ten power output lights (5 per channel). Power and defeat switches. Fader/volume control. High or low impedance RCA inputs. High-impedance RCA output jacks. Illuminated 1-1/8" H x 4-7/8" W x 4" D. With hardware, instructions. For all 12-volt neg. ground vehicles. Reg. \$59.95. 03-9509Y—Each \$39.95

B-E 2-channel Power Amplifiers. Increase volume without distortion, improve response. Automatic on/off with radio or tape player. Gain control adjustment. In-line fuse. High-impedance RCA jacks. With hardware, instructions. For all 12-volt neg. ground vehicles. Compatible with common or floating ground systems.

1000-watt Amplifier. Built-in 500 watts per channel. Built-in variable active crossover; variable hi/low input; built-in cooling fan; sub-woofer/full-range switch; stereo/mono switch; automatic

2-PC. DESIGN

Take radio with you when you leave your car! Case (A) mounts on radio... slides in/out of permanent in-dash-mount rust-resistant metal case (B). Antenna and radio connections hook up automatically when radio is inserted into case. 14 bronze contacts for easy hook up of equalizer, speakers, etc. Requires 7-1/2" W x 2-3/8" H x 6-7/8" D opening... handles radio chassis up to 7" W x 2" H x 6-1/2" D. Available with built-in battery back-up for electronically controlled or clock radios. Uses 9-volt Ni-Cad battery (not included) which recharges as you drive. With hardware, instructions. Reg. \$14.95-\$19.95.

For radios w/right & left shafts. Without battery back-up. 03-9867Y—Each \$12.95

With battery back-up. 03-9987W—Each \$16.95

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100-watt • 10-band EQUALIZER/BOOSTER with IMX® Enhancer

IMX® Dimensional Enhancement System recreates live-performance sound! Enhances AM/FM, tape or compact-disc stereo. 100-watt output (50 watts per channel). 10 multi-detent slide controls adjust ±12db. green LED on each shows equalization curve selected. Front-to-rear fader for 4-speaker systems. High and low-level inputs (with adjustable sensitivity) accept stereo output of any radio or tape player. Boost/Bypass switch to bypass equalizer/amplifier. Fully illuminated. Frequency response: 20Hz-20KHz. With hardware, instructions. For all 12-volt vehicles. 03-9932B—Reg. \$69.95—Each \$69.95

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Polypropylene cones outperform, last longer than paper cones... assure more natural response, better clarity with virtually no distortion. Withstand humidity, moisture, road vibration. Stand up in ANY auto environment, ANY weather/temperature extreme! Bridgless for un-

obstructed sound dispersion; long-throw, foamed-rubber air-suspension woofer; powerful magnets; aluminum voice coils; acoustically transparent stand grilles. With wiring, hardware. 4-ohm impedance. N/A = Not Applicable. wd = wide dispersion. Regular \$19.95 to \$49.95.

Watts (per inch)	Type & Size (inches)	Mid-range	Tweeter(s)	Magnet	Frequency Response	Sk. No.	1-Pair
150	4-way 6 x 9	2 1/2"	Two 1 3/4" (high-flux)	25/2 oz. ⚡	40-21,000Hz	03-9966P	\$39.95
110	3-way 6 x 9	2 1/2"	2" ultra-hi-frequency	22 oz. ⚡	30-22,000Hz	03-9967Y	34.95
100	3-way 4 x 10	1 3/4"	1" super tweeter	14 oz. ⚡	55-20,000Hz	03-9971P	37.95
100	3-way 6 1/2 x 9	1 3/4"	1" super tweeter	14 oz. ⚡	65-20,000Hz	03-9969U	35.95
100	Coaxial 4 x 9	N/A	2" wide-dispersion	20 oz. ⚡	70-18,000Hz	03-9968W	32.95
100	Coaxial 5 1/4 x 9	N/A	1" super-tweeter	20 oz. ⚡	90-18,000Hz	03-9973W	27.95
100	Coaxial 6 1/2 x 9	N/A	2" poly mid-tweeter	12 oz. ⚡	40-22,000Hz	03-9970B	24.95
60	Coaxial 4 x 10	N/A	2" wide-dispersion	10 oz. ⚡	80-18,000Hz	03-9972Y	32.95
60	Coaxial 4 x 6	N/A	1" super tweeter	5.2 oz. ⚡	65-20,000Hz	03-9971B	24.95
60	Coaxial 4 x 6	N/A	1" super tweeter	5.2 oz. ⚡	70-20,000Hz	03-9975A	19.95
60	Dual-cone 3 1/2 x 6	N/A	1" wizzer cone	4.2 oz. ⚡	80-18,000Hz	03-9976R	14.95

Magnet types: ⚡ = Strontium cobalt, ferrofluid treated for maximum heat dispersion; † = Barium ferrite; ■ = Ceramic; ▲ = Titanium, ferrofluid treated for maximum heat dispersion; ● = Strontium.

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4" sq. woofer has honeycomb design (see above) for powerful bass with low distortion. 200-watt capacity (100 watts per channel). Wedge-design installs easily... no cutting. Large 10-oz. magnet. Aluminum voice coil handles high power. 2" mid-range, 1-3/4" tweeter and 1" super piezo tweeter. Frequency response: 40Hz-22KHz. Heavy-duty molded cabinet. With hardware, instructions. Reg. \$69.95. 03-9983N—1-Pair \$49.95

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Phono response is exceptionally flat, even down into the infrasonic range. (If the output from your phono cartridge needs filtering to alleviate a warp response problem, you'll have to add it outboard or, preferably, choose a cartridge that's better matched to its arm.) Even the so-called muting is spot-on its nominal 20-dB attenuation. While the phono loads don't measure equally close to nominal values, they're still as close as we're used to seeing in even the most carefully executed designs.

It almost goes without saying that distortion is universally below our 0.01-percent reporting threshold. Signal-to-noise ratios are very good as well (especially for the moving-coil phono input), although, in general, they appear to have been achieved by keeping headroom for peaks a little less generous than average. For this test, we don't document anything beyond 10 volts, which most top models pass without clipping. The CA-7A passes peaks up to 7.2 volts, however, which should be plenty for normal signal

sources, including CD players.

In a nutshell, we're very impressed once again with what Nakamichi has achieved. As engineering or as fresh-thinking design, the CA-7A has few peers among today's preamps. Concealed behind its unassuming, traditional-Nakamichi appearance lies a preamp that throws away the rulebook to accomplish its ends (especially the remote-control interconnection) and that realizes its goals with exceptional technical virtuosity and superb sound quality. ■

T E S T R E P O R T S

Altec Lansing 301 Loudspeaker



DIMENSIONS: 14½ BY 27 INCHES (FRONT), 13¼ INCHES DEEP. **PRICE:** \$750 PER PAIR. **WARRANTY:** "LIMITED," FIVE YEARS PARTS AND LABOR. **MANUFACTURER:** ALTEC LANSING CONSUMER PRODUCTS, MILFORD, PA. 18337.

ALTEC LANSING IS ONE OF THE OLDEST names in the loudspeaker business, but it's a new company as far as home speakers go. The brand began as a supplier of horn-loaded movie-theater speakers during the talkie era and was appropriately located in Anaheim, California, near Hollywood. There it produced generations of Voice of the Theater speakers. Now a new company has bought the Altec name for home and automotive products (for the latter, it uses the slogan Voice of the Highway) and is developing radically different technology in its Pennsylvania headquarters.

The driver diaphragms of the home speakers, in particular, are made of materials quite different from those of traditional designs. The woofer cones are all formed from epoxy-impregnated carbon-fiber fabrics, rather than paper, for increased stiffness and, therefore, less uncontrolled cone flexing and less distortion. The higher frequencies are handled by polyimide diaphragms with interior surfaces covered by vacuum-deposited titanium. The purpose is, again, greater stiffness and, particularly in the reproduction of transients, lower distortion.

Five acoustic suspension systems make up the present Altec home line. The largest (the 501) is a dual-woofer tower. The two smallest (the 201 and 101) are two-way systems that will fit on bookshelves. In between are two three-way systems described as floor-standing, although Altec recommends that they be placed on stands. Neither speaker is much larger than traditional 2-cubic-foot "bookshelf" models. For our first test

of the new Altecs, we chose the smaller of these two, the 301, which differs from the other (the 401) primarily in having a 10-inch instead of a 12-inch woofer.

All of the 301's drivers are aligned on the long central axis of the front baffle, which contributes to good imaging provided the speakers are placed vertically. (The company logo on the grille further confirms that they are meant to be positioned this way.) The 1-inch tweeter and 2-inch midrange driver are both domes set into flush mounting panels. The woofer flange is likewise set flush into the baffle. The removable grille is supported by a rigid plastic frame that surprisingly (considering the care that evidently has been taken with driver mounting) has no conspicuous design treatment to minimize diffraction.

All six surfaces of the enclosure are finished in oiled walnut veneer and thus present an elegant appearance no matter where you place the speakers or whether you leave the grille on or take it off. Heavy-duty, color-coded binding posts stand vertically in a back-panel recess and have large, outward-facing holes to accept bared wires, which, together with appropriately sized spade lugs, can thus be attached with exceptional ease. According to the generally well-prepared owner's manual (which covers all models in the line), banana plugs also can be used, though there isn't enough clearance at the top of the connectors to accommodate ours.

The frequency response, measured at Diversified Science Laboratories with the speaker on a 12-inch stand and 3 inches out from the wall, is exceptionally flat. As the graph shows, it is within about +3¼, -2 dB of our reference level on-axis and about +2¼, -3½ dB off-axis, both from a little above 50 Hz to a little below 20 kHz. Even

Digital Discrimination.

BECAUSE ALL CD'S ARE NOT CREATED EQUAL, THE NEW CARVER DTL-200 COMPACT DISC PLAYER IS INTRIGUINGLY DIFFERENT.

The Carver DTL-200 answers the audiophile's demand for a CD Player which provides not only the greater dynamic range and richer bass expected from compact disc technology, but also the musicality, spectral balance and spatial qualities of well executed analog high fidelity recordings.

The new remote control Carver DTL-200 represents the next logical evolutionary step towards marrying the awesome technology of digital playback with Bob Carver's commitment to the re-creation of the live performance. It embodies the latest digital/analog conversion circuitry with oversampling, sophisticated laser system and a wealth of operating features. And it possesses unique Carver circuitry that solves real-world sonic problems associated with commercial CDs.

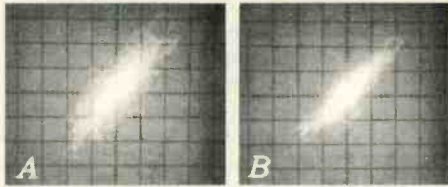
TIME DOMAIN CORRECTION. The Carver DTL-200 incorporates an important new computer logic innovation that monitors the incoming digital signal for imperfections and "glitches" caused in recording and production. Such errors are immune to conventional error-correction processes because they are actually data anomalies. Yet they can add overall harmonic distortion and cause audible changes in sound quality.

The DTL-200's Time Domain Correction circuit constantly performs a complex, 25-bit digital calculation on passing data. This high-speed error correction algorithm, in conjunction with a 121-pole digital filter, terminates distortion-causing high harmonics as they occur in the bit stream. The result is frequency response within 1/1000 of a dB of the original, with significant reduction of distortion to less than 0.007%.

PLUS THE DIGITAL TIME LENS. On top of this unerring ability to produce natural, real-sounding music from the CDs' digital bits, the Carver DTL-200 has the remarkable Digital Time Lens circuit to insure your listening enjoyment.

When Bob Carver obtained his first compact disc player, he was surprised at the sound derived from most of the compact discs he purchased. The three-dimensional musical perspective which his analog system provided in lush abundance on phono discs evaporated into a flat, brittle wasteland. After exten-

sive testing, Bob uncovered two fundamental flaws in almost all compact discs: 1) An unpleasant, harsh spectral energy balance. The overall octave-to-octave energy balance was shifted on the CD towards more midrange above 400 Hz; 2) The amount of L-R signal (which carries the spacial detail of the music) on the CD was inexplicably, but substantially, reduced when compared with the amount of L-R signal found on the corresponding analog disc. The difference is obvious in these two oscilloscope photos.



A. Lissajous pattern showing spatial detail (L-R) (L+R) ratio from an LP record.
B. The same instant of music but taken from the CD version. Note the decreased (L-R) content, as shown by the narrowed trace.

Carver's circuitry corrects the ratio of L-R to L+R by performing one extra, but important mathematical operation on the signal stream that all other CD players fail to perform. This final operation makes all the difference.

The result is a natural sound with more of the three-dimensional information that places us in the same space with performers. You won't need the Digital Time Lens on all CDs. But it is there when you need it.

In the beginning, Carver hoped, indeed he expected, that once recording artists and engineers became more experienced with CD technology

fewer and fewer CDs would require the Digital Time Lens. But both laboratory and listening tests reveal that the majority of even the most recently released CDs benefit significantly from the Digital Time Lens.

PACKED WITH USEFUL FEATURES. The Carver DTL-200 makes enjoying Compact Discs a simple exercise in button pushing from your favorite listening chair. You can program any combination of up to twelve tracks from a single CD, repeat a specific track or a whole Compact Disc for uninterrupted enjoyment.

Along with the ability to skip forward or backwards song-by-song, a touch of a key allows you to audibly review a disc backwards or forwards at many times normal speed. An A-B Specific Phrase Repeat lets you carefully analyze one section of a performance or simply provide a point of reference in a long, un-indexed symphonic movement.

All functions are displayed on an easy-to-read but subtle LCD display including programming sequence, current selection number, individual and total playing times plus indexing cues.

HEAR THE CARVER DIGITAL DIFFERENCE. Just as all CDs are not created equal, neither are Compact Disc Players. Of all the models currently available, only the new DTL-200 (and DTL-50) have the innovative and exacting Bob Carver touches that can substantially enhance your enjoyment of the digital medium.

Audition the new DTL-200 today at your Carver dealer, using a variety of discs. You will be surprised at how audibly it can improve on what is already the best playback medium ever offered.

SPECIFICATIONS. Frequency Response, 5Hz-20kHz @ 0dB, ±0.2dB. Total Harmonic Distortion, 0.007%, S/N, 100db. Channel Separation, 90dB - 1kHz. Dynamic Range, 96dB. Wow & Flutter, unmeasurable. Programming, 12-track remote and manual.



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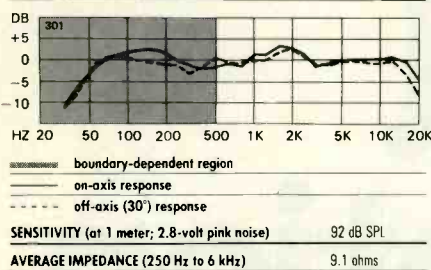
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ROOM RESPONSE CHARACTERISTICS



the floor-reflection dip that we regularly find at around 400 Hz (depending on speaker dimensions and placement) is no more than a vestige.

The impedance curve is fairly typical of three-way acoustic suspension systems, with separate maxima for each driver. The highest is that for the woofer, which measures 42 ohms at a little below 50 Hz. There also are minima within the operating range of each driver, the lowest being 5.2 ohms in the midrange (a little below 2 kHz). The other two drivers' minima aren't much higher. Although the impedance curve isn't particularly flat, it is high enough to represent an easy load (in the sense of incurring no severe current drain) for typical amplifiers.

Distortion is quite low, even allowing for the fairly large size of the system and the potential for reduced distortion in its use of three drivers instead of two. At the lowest sound pressure test level (85 dB SPL), harmonic distortion averages about 1/4 percent over most of the frequency range; at the highest (100 dB SPL), it averages more than 1/2 percent, with some test frequencies measuring 2 percent or more. At a peak input of 63 volts, the lab discerned signs of overload, but this is so close to the limit of the test amplifier that we can't be sure which component was running out of steam. And since the speaker's output at that point was a withering 119 dB SPL, the point is entirely moot.

We also were pleased with what we heard. The 301's sound combines a wide frequency range with smoothness, relatively low coloration, and good imaging. The slight midrange prominence in our response graph—which coincides neatly with the lab's near-field measurement of the midrange driver, suggesting that still flatter response could be achieved by reducing the feed to this driver by 2 dB or so, perhaps via an equalizer—apparently accounts for some brightness or forwardness we noted at times during our listening tests. In any event, the coloration was minor at worst.

In addition to trying against-the-wall placement, we moved the speakers out into the room for some of our listening tests. This usually provides the best stereo imaging with this type of speaker, but at some expense in deep-bass response. The 301's bass output is robust enough to stand up well when the speaker is placed away from the wall, but imaging improved only marginally.

Naturally, we were more than a little curious about what sort of speakers this oldest and yet newest of loudspeaker houses might produce. The very use of acoustic suspension establishes that the new company is breaking with the old, despite the classic name. But both the listening tests and the lab data encourage us to look forward to more excellence from the Altec Lansing brand. ■

T E S T R E P O R T S

Hafler XL-280 Power Amplifier

RATED POWER

8-ohm load	21.6 dBW (145 watts)/channel
4-ohm load	23.0 dBW (200 watts)/channel

OUTPUT AT CLIPPING (at 1 kHz; both channels driven)

8-ohm load	22.7 dBW (185 watts)/channel
4-ohm load	24.4 dBW (275 watts)/channel
2-ohm load	25.0 dBW (315 watts)/channel

DYNAMIC POWER (at 1 kHz)

8-ohm load	23.1 dBW
4-ohm load	25.3 dBW
2-ohm load	26.1 dBW

DYNAMIC HEADROOM (re rated power)

8-ohm load	+1.5 dB
4-ohm load	+2.3 dB

HARMONIC DISTORTION (THD; 20 Hz to 20 kHz)

at 21.6 dBW (145 watts)	≤ 0.082%
at 0 dBW (1 watt)	≤ 0.010%

DIMENSIONS: 17 BY 5 1/4 INCHES (FRONT), 9 1/2 INCHES DEEP PLUS CLEARANCE FOR CONNECTIONS. PRICE: ASSEMBLED, \$595; KIT VERSION IS UNDER DEVELOPMENT. WARRANTY: "LIMITED," THREE YEARS PARTS, LABOR, AND RETURN SHIPPING COSTS. MANUFACTURER: THE DAVID HAFLER CO., 5910 CRESCENT BLVD., PENNSAUKEN, N.J. 08109.

SINCE THE START OF THE HIGH FIDELITY era, the paradigm of ideal amplifier performance has been a "straight wire with gain." But this utopian concept carries with it some unstated assumptions. The wire cannot be too long or else it would pick up electrical interference. To reduce interference pickup the wire should be shielded, but the shield itself should not generate high parasitic capacitance. To a loudspeaker, the wire should behave like a short circuit (no electrical resistance), while to a preamp output it should act like an open circuit (infinite, or very high, resistance). In other words, that minimalist straight wire should behave

more like the Hafler XL-280 power amp.

The XL-280, which is intended to replace the popular Hafler DH-220 (even though the latter will continue to be available), is the first amplifier we have encountered with an adjustment to maximize its linearity, or "straight-wire-ness," when driving a loudspeaker, as opposed to a test resistor. The adjustment, which is called the Excelinear procedure, is performed with the aid of a special accessory, the \$50 XL-10. Using one channel of the amplifier to test the other, the XL-10 enables a sensitive null-test comparison of the amplifier input with its output into a speaker. When the XL-10 is correctly hooked up to the XL-280, one amplifier channel provides a test signal at normal listening level to one loudspeaker. Any type of signal, even music, can be used for the test, but in most cases white or pink noise will probably be the most sensitive indicator. ▶

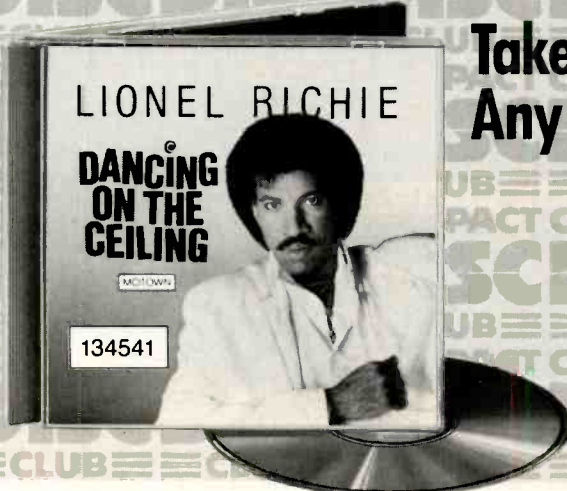
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Peter Gabriel SO 114764	BACH Organ Works CHORZEMPA 115193	WILLY MARTINI GREATEST HITS 120247	MOZART Requiem Pruden State Orch. SCHREIER 115039
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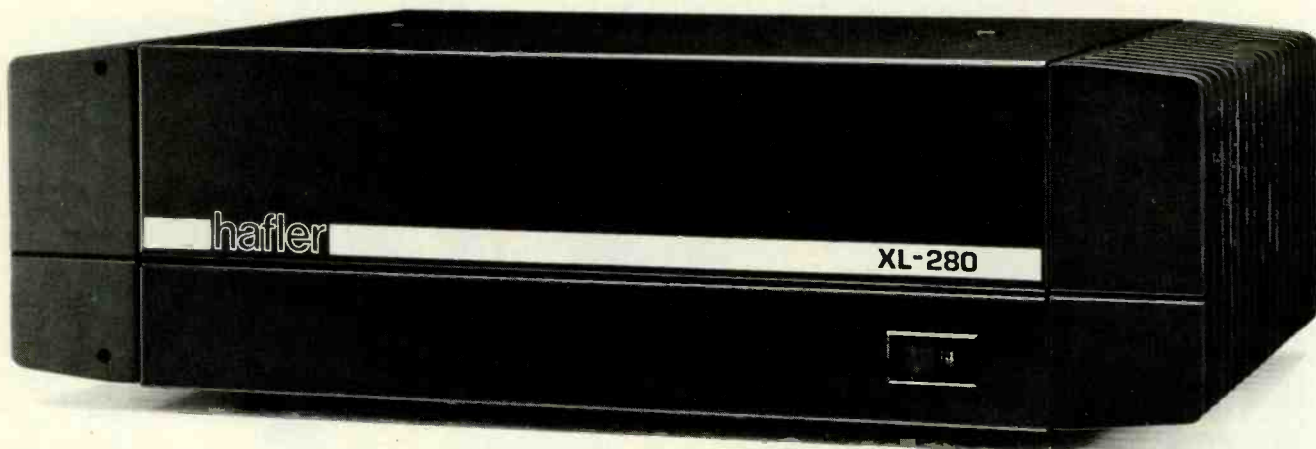
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WDT33 (BJ)



FREQUENCY RESPONSE

	±0 dB, <10 Hz to >20 kHz
	+3 3/4, -3 dB, <10 Hz to 723 kHz
S/N RATIO (re 0 dBW; A-weighted)	94 dB
SENSITIVITY (re 0 dBW)	140 mV
INPUT IMPEDANCE	48k ohms
DAMPING FACTOR (at 50 Hz; re 8 ohms)	80*
CHANNEL SEPARATION (at 1 kHz)	88 dB

*Measured with supplied speaker fuses.

The inherent linearity of the first channel's output is unimportant, since any distortion, phase shift, or response errors it creates simply becomes part of the test signal being fed into the other amplifier channel.

The input to the second channel is adjusted (with the XL-10) to match its output, and a loudspeaker is connected to monitor the difference between the two, which will be very small to begin with. By turning the XL-280's internal Excelinear adjustment (a variable capacitor) with the supplied insulated tool inserted through a hole in the top of the amplifier, a dip (null) in the monitor speaker output will be found at the point at which the output is canceling almost all of the input except for the residual distortion and phase shifts. The input level to the tested channel is readjusted to further reduce the monitor speaker level, and this nulling process is repeated until the best input/output cancellation has been achieved, at which point the adjusted XL-280 channel is operating most linearly (with least possible distortion and phase shift) into its loudspeaker. The process is then repeated for the other channel, using the newly aligned amp to drive it. When completed, the Excelinear process is claimed to reduce *all* residual distortion products to at least 60 dB below normal output level, whereas other amplifiers at best can manage only 40-dB figures.

Because the Excelinear adjustment is necessary only once (or when you change loudspeakers, if then), Hafler is recommending that its dealers simply lend XL-10 units to XL-280 purchasers. Actually, the process is not necessary at all, except for ultracritical listeners. As the preliminary version of the owners' manual says, "This 'fine tuning' or 'tweaking' may fairly be described as significant only to those persons often said to have 'golden ears' . . . The rest of us who simply wish to indulge ourselves with fine sound need not be concerned with the consummate pursuit of perfection." Indeed, while playing music we turned the Excelinear controls fully from side to side and heard no change in sound quality. This is because the effect of the control (adjusting a "shelving peak" at around 300 kHz) has only a very slight measurable effect in the audio band,

and to make such changes audible absolutely requires a test as sensitive as the Excelinear nulling process. In any case, the factory Excelinear setting should be close to the optimum for most conventional speakers.

Diversified Science Laboratories' measurements certainly show why the sound quality we heard from, in sequence, an unadjusted, adjusted, and deliberately misadjusted XL-280 was so neutral. Undoubtedly the unit's separate power supplies for driver and output stages, the MOS FET (metal-oxide semiconductor field-effect transistor) output devices (half again as many as used in the DH-220), and the direct-coupled cascode FET input circuit conspired to produce such fine performance. Especially noteworthy are the high dynamic power into two ohms, the very flat frequency response in the audible range, and the excellent distortion figures, both at 0 dBW and at rated power.

Various amenities include a built-in bridging/mono switch, gold-plated pin-jack input connectors, 2-amp speaker fuses, and 1/2-inch-spaced multiway speaker output binding posts. These, in combination with the measurements, the fine sound, the clearly written and sensible manual (which recommends various gauges of zip cord as speaker cable, depending on the cable run and the speaker impedance), and the simple and robust construction (which should offer no problem to builders of the upcoming kit version) all indicate that the XL-280 is more than a paradigm of contemporary amplifier design: It is a paragon of audio virtues. ■

REPORT POLICY

EQUIPMENT REPORTS ARE BASED ON LABORATORY MEASUREMENTS AND CONTROLLED LISTENING TESTS. UNLESS OTHERWISE NOTED, TEST DATA ARE PROVIDED 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.

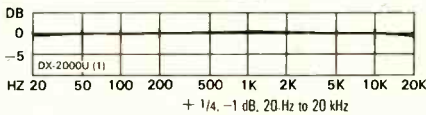
NEC DX-2000U VHS Hi-Fi VCR



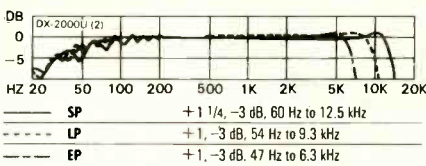
VCR SECTION

Except where otherwise indicated, the recording data shown here apply to all three speeds—SP, LP, and EP (SLP). All measurements were made at the direct audio and video outputs, with test signals injected through the direct audio and video inputs. The 0-dB reference input level is 10 dB above the voltage at which the automatic level control (ALC) produces 3 dB of compression at 315 Hz. The 0-dB reference output level is the output voltage from a 0-dB input.

VHS HI-FI RECORD/PLAY RESPONSE (-20 dB)



STANDARD RECORD/PLAY RESPONSE (-20 dB)



AUDIO S/N RATIO (re 0-dB output; R/P; A-weighted)

	standard	VHS Hi-Fi
SP	45 dB	76 dB
LP	43 1/2 dB	76 dB
EP	44 dB	75 3/4 dB

INDICATOR CALIBRATION (315 Hz; VHS Hi-Fi)

for 0-dB input	+2 dB
for -10-dB input	0 dB

DISTORTION (THD at -10-dB input; 50 Hz to 5 kHz)

	standard	VHS Hi-Fi
SP	≤ 2.9%	≤ 1.22%
LP	≤ 2.9%	≤ 1.22%
EP	≤ 3.0%	≤ 1.22%

CHANNEL SEPARATION (315 Hz; VHS Hi-Fi)

	60 1/2 dB
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FLUTTER (ANSI weighted peak; R/P; average)

	standard	VHS Hi-Fi
SP	± 0.17%	± < 0.01%
LP	± 0.21%	± < 0.01%
EP	± 0.34%	± < 0.01%

SENSITIVITY (for 0-dB output; 315 Hz)

	1,450 mV
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DIMENSIONS: 17 BY 4 1/4 INCHES (FRONT), 1 1/4 INCHES DEEP. **PRICE:** \$820. **WARRANTY:** "LIMITED," TWO YEARS PARTS (ONE YEAR ON VIDEO HEADS), 90 DAYS LABOR. **MANUFACTURER:** NEC CORP., JAPAN; **U.S. DISTRIBUTOR:** NEC HOME ELECTRONICS (U.S.A.), INC., 1255 MICHAEL DR., WOOD DALE, ILL. 60191.

NO QUESTION ABOUT IT, WE'RE ON THE threshold of a digital revolution in video technology, and perhaps no home VCR is a better harbinger of that future than the NEC DX-2000U. NEC is now the world's largest producer of semiconductors, so it's not surprising to find that it has made good use of extensive LSI (large-scale integrated-circuit) expertise in developing the DX-2000U.

The VCR does not receive digital TV broadcasts, nor does it record digitized video in the sense that a Compact Disc stores digital audio information. These niceties are for the (probably distant) future. But digital techniques can improve the picture quality of today's TV sets and VCRs, and this is precisely what the NEC DX-2000U sets out to do. To that end, the unit contains video analog-to-digital and digital-to-analog converters and a large digital memory. Together, these devices can digitize and "capture" a full video field in memory and then reconvert it to analog form for viewing.

This digital memory system has obvious uses in freeze-frame and slow-motion playback, which the DX-2000U capitalizes on very nicely. The system can also capture a still picture during a TV broadcast. For example, if you want to copy an address or recipe that's flashed on the screen too briefly for you to reach for your pad and pencil, you can store it in the digital frame memory (by

pressing DIGITAL MEMORY on the front panel or on the supplied infrared remote) until you've jotted down what you want. When pressed during recording or playback, the function freezes the picture while the tape continues to run. If it is pressed during still-frame playback, the picture and the tape advance frame by frame.

In a significant innovation, the DX-2000U also calls upon the digital memory to reduce luminance noise ("snow") when playing a tape, without affecting resolution to as great an extent as happens when you turn down a sharpness control. The technique relies upon the natural redundancy of video information and the random character of noise. In a normal picture, the video signal does not change much from one field to the next. Noise, on the other hand, can be expected to be nearly random and therefore will change considerably from field to field. By storing the video information of one field and adding it to the next, the "true" video information almost doubles, increasing in level by 6 dB, while the noise, since it is apt to cancel itself out, increases by only 3 dB. The difference results in a theoretical 3-dB improvement in video signal-to-noise (S/N) ratio, a magnitude of improvement that is quite visible.

In the DX-2000U, this signal "averaging" is an ongoing process a bit more complex than the one just described. Via the DX-2000U's noise reduction knob, you can change the relative proportion of "past" and "new" information that enters the averaging process. For the maximum setting, NEC claims a 9-dB improvement in luminance signal-to-noise ratio. A switch enables you to

Silent Running.

CARVER'S FAMOUS TUNING TECHNOLOGY TAKES TO THE ROAD WITH THE ONLY AM/FM TUNER CASSETTE DECKS CAPABLE OF CUTTING MULTIPATH INTERFERENCE UP TO 92.9%!

The new TX-Seven and TX-Nine audiophile autosound decks employ the same Asymmetrical Charge-Coupled FM Stereo Detector circuitry as Carver's revolutionary TX-11a home tuner. They also incorporate an ingenious automatic computer logic-controlled antenna switching system that further vanquishes multipath distortion.

In point of fact, no other autosound decks in the world — regardless of price — even begin to approach the TX-Seven and TX-Nine's ability to maintain a hiss-free, glitch-free FM listening environment in your car.

COMPUTER LOGIC-CONTROLLED DIVERSITY ANTENNA SWITCHING DRIVES AROUND MULTIPATH. One way to get temporary relief from interference at home is to move the antenna around slightly. Instead of physically moving your car antenna, the TX-Seven and TX-Nine use computerized circuitry to switch between two separate antennas, one out-of-phase, and one in-phase with incoming FM signals.

When multipath occurs, a special "smart" circuit automatically switches (at the speed of light) to the other antenna, automatically correcting phase and eliminating the multipath before you ever hear it. What little multipath distortion gets through this smart antenna system runs headlong into the remarkable tuner innovation *High Fidelity Magazine* described as "...distinguished (by) its ability to pull clean, noise-free sound out of weak or multipath-ridden signals."

Alone, without antenna diversity switching, the TX-Seven and TX-Nine's Asymmetrical Charge-Coupled FM Detector Circuitry delivers a net noise and distortion reduction of 93.5%! Together, they set a new standard for clear, clean FM autosound reproduction.

REAL WORLD CONFIRMATION. Both decks were tested on a torturous 6-mile course near the Carver factory which could regularly trigger at least 287 separate multipath occurrences in conventional autosound-FM tuners.

The TX-Seven and TX-Nine with Asymmetrical Charge Coupled FM Detection and diversity antenna system, reduced multipath occurrences to an average of two during the same course while listening to the same stations!

FACTORY—LOADED WITH EXTRAS. The fifteen random presets on the TX-Seven and TX-Nine are incredibly easy to set. Just press the button marked BEST and the logic circuitry automatically selects the fifteen strongest signals and locks them in on the presets. Plus you can select another fifteen on your own!



Naturally both decks are metal tape compatible with Dolby® noise reduction and have auto-reverse transports, separate bass, treble, balance and loudness and four-way fader controls. All tuning and transport functions are signalled with a gentle "beep" that keeps your eyes on the road, not on the compact, ergonomically-styled deck.

There's even a security code system that renders the TX-Seven or TX-Nine inoperable to anyone but you, and a quick removal system so you can slip out your TX-Seven or TX-Nine in seconds for storage in trunk or house.

THE BEGINNING OF THE PERFECT AUTO-SOUND LISTENING ENVIRONMENT. Visit your Carver dealer soon and experience the TX-Seven and TX-Nine. Out of hundreds of the only tuner/cassette models available, they are the only ones which can truly put you in the driver's seat of a unique, interference-free musical experience.

Dolby is a trademark of Dolby Licensing Corp.

CARVER

P.O. Box 1237, Lynnwood, WA 98046

POWERFUL

MUSICAL

ACCURATE

Distributed in Canada by: evolution technology

brightness) is correspondingly low. Chroma level (color saturation) is slightly high (most tuners tend to err in the opposite direction and by a much greater degree) and quite uniform over the color spectrum. Median chroma phase (tint or hue) error is somewhat greater than average, and the spread, or uncorrectable error, is just a trifle worse than we're accustomed to seeing. But none of these errors is sufficient to seriously lower our opinion of the tuner.

The tuner's audio response is very flat from 30 Hz to 14 kHz, above which frequency the horizontal-scan notch filter causes a rapid rolloff. Essentially, you're getting all that's being transmitted, and thanks to the filter, the horizontal-scan video component is extremely well suppressed, leading to an A-weighted audio S/N ratio that is much better than average. The output level and impedance seem well chosen to work with other equipment.

Because the DX-2000U's audio recording level is set automatically, both in the linear and VHS Hi-Fi modes, DSL adopted a reference level 10 dB above the point at which the automatic level control had compressed the signal by 3 dB. Midband distortion in both recording modes is safely under 3 percent (our other criterion for setting reference level), hence our choice of reference.

This reference, however, results in a rather low sensitivity figure in both modes. (Output level is virtually identical in both recording modes and very close to the output level when receiving a broadcast.) Suffice it to say that, since the "knee" of the compression curve occurs with a 460-mV input, sensitivity should be adequate for most purposes. Above the knee, the compression ratio is very "tight" (0.03 dB of increase of recorded level per dB increase of input), and it probably is wise to stay below that point anyway. This will be the case when recording a broadcast. A problem might occur, however, if you try to use the DX-2000U to copy from a CD player, since most players deliver a maximum level of about 2 volts.

Response in the VHS Hi-Fi mode is outstandingly flat at all speeds, and the tracking of its noise reduction system seems nearly perfect. The slight level compression detected in DSL's tests is probably due to the residual effects of the automatic level control system. Ignoring the low-frequency contour effect ("head bumps"), response in the linear recording mode also is better than average at all three speeds, although audio performance at EP is still poor by high fidelity standards.

Signal-to-noise ratio is about what we've come to expect in the linear modes, but it's a trifle less than we've seen in the VHS Hi-Fi mode. Presumably, the 76-dB figure for the latter would have been improved if there were some means to defeat the automatic level control and so raise the recording level to the 3-percent distortion point—the reference level we normally use. But 76-dB dynamic range is more than you can expect

from any other medium except the CD.

Flutter is below measurement limits at all speeds in the VHS Hi-Fi mode, but perhaps a little worse than on some decks in the linear recording modes. Midband channel separation in the VHS Hi-Fi mode was a more than adequate 60½ dB. Distortion is low for mid frequencies in both the linear and Hi-Fi recording modes, but as is typical, it increases at lower frequencies.

The deck's video frequency response is almost identical at all three speeds (with the exception of a measurable increase in output at the color burst frequency in the EP mode, a change that is too unstable to be really useful). Response is down just over 7 dB at 1.5 MHz, implying a resolution of between 100 and 120 lines.

But advancing the unit's front-panel sharpness control can improve apparent resolution to greater than 120 lines, and thanks to the Digital NR system, the improvement can be realized without greatly affecting luminance noise. In fact, with the repetitive "multiburst" pattern used for testing video bandwidth, DSL reports that advancing the noise reduction control produces no measurable degradation in resolution.

Record/playback luminance level is close to perfect at all speeds; chroma-level error is negligibly low. On average, the chroma phase (tint/hue) is perfect at all speeds, and the chroma differential gain is negligible as well. Chroma differential phase is low enough that it is masked by the recorder's chroma noise. Gray-scale nonlinearity can be as much as 22 percent—a bit more than average.

Thanks to its digital memory system, the NEC DX-2000U's still-frame and slow-motion features produce a rock-steady picture, free of noise bars, at any playback speed. The still-frame picture has a mosaic-like quality—somewhat like a pointillistic painting by Seurat—but its stability and the essential detail that is visible are above reproach.

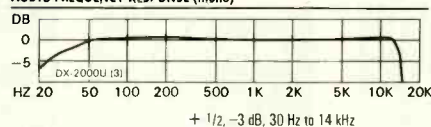
At the detented setting, the digital noise reduction system produces a noticeable reduction in luminance noise without greatly degrading definition. However, there does not appear to be a corresponding improvement in chrominance S/N ratio—which frequently is the more serious offender—so the picture is not as clean as you might expect. As with open-loop audio noise reduction systems (such as DNR), NEC's video scheme provides the best results with material that is fairly good to begin with. Nonetheless, we consider the system a useful adjunct in a VCR and hope to see more of it in the future.

Certainly, the NEC DX-2000U is the video harbinger of the ongoing digital takeover. Its video noise reduction system and its ability to freeze a picture indefinitely—during recording, playback, or a broadcast—bring exciting new possibilities to the world of video. For these features alone, the NEC DX-2000U will find a serious following. ■

TV TUNER SECTION

All measurements were taken at the direct audio and video outputs.

AUDIO FREQUENCY RESPONSE (mono)



AUDIO S/N RATIO (mono; A-weighted)

best case (no chrominance or luminance)	55 1/2 dB
worst case (crosshatch pattern)	38 1/2 dB

RESIDUAL HORIZONTAL-SCAN COMPONENT (15.7 kHz)

	-88 dB
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AUDIO OUTPUT LEVEL (100% modulation)

	0.51 volt
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AUDIO OUTPUT IMPEDANCE

	575 ohms
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VIDEO FREQUENCY RESPONSE

at 500 kHz	+ 1/2 dB
at 1.5 MHz	+ 2 1/2 dB
at 2.0 MHz	+ 3 1/4 dB
at 3.0 MHz	+ 1 1/2 dB
at 3.58 MHz	- 3/4 dB
at 4.2 MHz	- 18 3/4 dB

LUMINANCE LEVEL

	5% high
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GRAY-SCALE NONLINEARITY (worst case)

	≈ 5%
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CHROMA DIFFERENTIAL GAIN

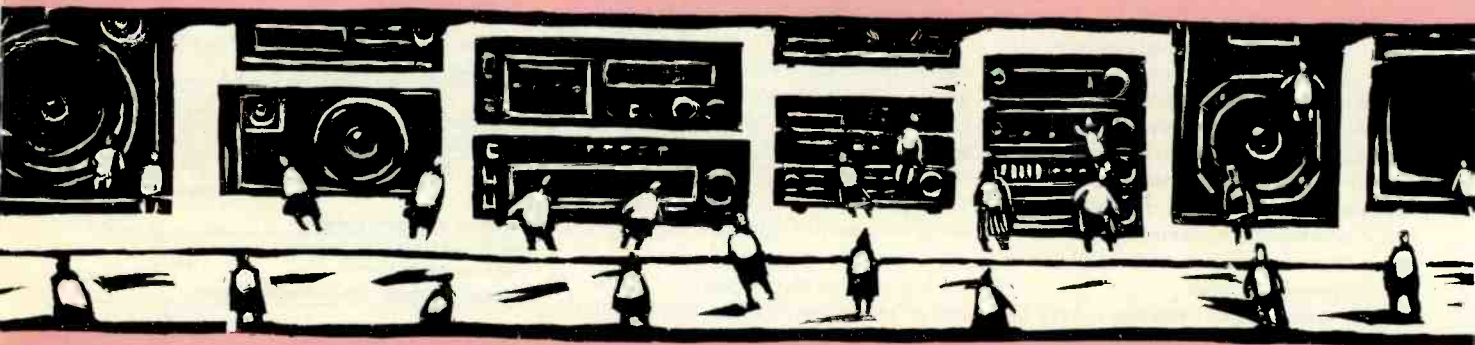
	≈ 45%
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CHROMA DIFFERENTIAL PHASE

	≈ ± 7°
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CHROMA ERROR

	level	phase
red	+ 1 1/4 dB	+ 2°
magenta	+ 1 1/2 dB	+ 4°
blue	+ 1 3/4 dB	+ 2°
cyan	+ 1 1/2 dB	+ 7°
green	+ 1 3/4 dB	+ 6°
yellow	+ 1 1/2 dB	+ 10°
median error	+ 1 1/4 dB	+ 6°
uncorrectable error	± 1/4 dB	± 4°



PRODUCTS AT AN EXHIBITION

A Gallery of the
Latest in Sight &

Sound from the Winter Consumer Electronics Show

IF IT'S JANUARY, IT MUST BE LAS Vegas; and if it's Las Vegas, it must be the Winter Consumer Electronics Show. And that's where our reporters, Robert Long and E. Brad Meyer, did some serious legwork to uncover the most interesting new products that should be filling retailers' shelves about now. The verdict is not yet in on DAT (digital audio tape) recorders: Only prototypes were shown, as they were at the Japan Audio Fair last October. But one thing is certain: Many audio manufacturers are back in a high-end mood, and we look forward to a renewed emphasis on technical innovation and meaningful features.

—Christopher J. Esse

BY ROBERT LONG AND E. BRAD MEYER

ILLUSTRATED BY MARK MATCHO



ADCOM GTP-500 (TOP) AND GFA-535

Tuner/preamp with matching power amp

fect transistor) power amp that is said to be capable of operating at full power into a 1-ohm load! That should tame even the most vicious speaker impedance curve. At the other extreme, as pure muscle goes, is Denon's most affordable integrated amp to date, the PMA-250 (\$200). Designed to mate with the TU-450 tuner (\$200), the 25-watt (14-dBW) unit includes such high-end features as a CD-Direct input mode and five-way speaker binding-posts.

The biggest news among the small companies that specialize in high-quality separates is the reappearance of Saul Marantz—who, with David Hafler, Henry Kloss, and Roy Allison, is one of the few pioneers of high fidelity remaining in the business. His new company is called Lineage; its vice-president of engineering is John Curl, who has designed for several prestigious companies. Initial products are scheduled to be the CP-100 FET control preamp and PA-200 100-watt (20-dBW) power amp, which is designed around FETs and MOS FETs.



PERREAUX PMF-5550

Power amplifier

Neither model is expected before early summer; look for prices around \$1,550 for the power amp and somewhere under \$2,000 for the preamp.

Among a clutch of intriguing separates from Perreaux, the New Zealand company whose handcrafted wares are sold here through Signet, is a 500-watt (27-dBW) power amp, the PMF-5550, that runs pure Class A to 50 watts (17 dBW). Price will be announced shortly before the model is ready for delivery, sometime this spring. Also new is a relatively inexpensive (for Perreaux) group known as Series 1 and consisting of the SX-1 preamp (\$795), TU-1 FM tuner (\$650), and PMF-1050 power amp (\$1,050; 100 watts, or 20 dBW), which runs Class A to 10 watts (10 dBW) and Class AB above that.

Exceptionally eye-catching is the Adcom GTP-500 tuner/preamp (\$500), which is available with a black-anodized front panel or, on special order (and at a slightly higher price), white enamel or clear anodizing with black knobs. I find this last option exceptionally handsome, but perhaps that's because I'm so tired of squinting at black panels in poor light. And in some environments, the white enamel—which is less bold graphically but more daring conceptually—should look smashing. (The matching Adcom power amp is the GFA-535: 60 watts, or 17.8 dBW.)

Electronically, the news here is the return to the tuner/preamp format, which several companies have tried over the years, all the way back to a Radio Craftsmen classic of 1950 or so. It makes excel-

lent sense because it keeps all the low-level circuitry together and away from the power amplification, with its necessarily hefty power supply. It thus can combine most of the advantages of separates with most of those associated with receivers. Why it has never become a way of high fidelity life is beyond me.

By coincidence, Hitachi also chose this show to introduce a tuner/preamp among several additions to its component line. The HTP-120AVSW (\$450) is designed specifically for use with the matching HMA-120AVSW power amp (\$300; 120 watts, or 20.8 dBW) to create a two-chassis receiver that includes a five-band equalizer and video enhancer, as well as audio-video source switching.

NEC's AVR-1000E (\$870) and AVR-700E (\$650) receivers (100 and 70 watts, or 20.0 and 12.3 dBW, respectively) have built-in Dolby Surround processors, with additional dual back-channel amplification rated at half the power of the main stereo channels. These receivers, which are designed for use as the central elements in-



NEC AVR-1000E

Receiver with surround sound

mote-control audio-video systems, are the first from the company and mark its emergence as a full-line supplier of audio electronics.

Dual—well known here for its turntables and, more recently, cassette decks—has offered electronics as well in Germany for many years. Ortofon, its current importer, is bringing in some of the electronics (last year's announced models were delayed) and plans to make Dual a full-line supplier here, too. The first models to arrive will be the CT-5040 AM/FM tuner (\$250) and two integrated amps: the PA-5060 (\$380) and PA-5030 (\$280), rated at 60 and 30 watts, or 17.8 and 14.8 dBW, respectively.

Nikko, of those brands that have estab-



lished a reputation for delivering solid performance at modest prices, appears to be re-emerging. Among its latest products: the AVR-65 audio-video receiver (\$750; 65 watts, or 18.1 dBW) with a built-in 139-channel TV tuner, the NA-1050 audio-video integrated amp (\$400; 105 watts, or 20.2 dBW) with four-band equalizer and seven-channel audio-video mixer, and the NT-950 AM/FM tuner (\$220).

Many of these models include remote controls or can be used (in combination with other models from the same companies) in remote-controllable systems. Yamaha, for instance, has added two AM/FM tuners—the TX-500U (\$270) and TX-400U (\$220)—that can be controlled via the company's Remote Series (RS) components, such as the AVC-50 amp. But I noticed less emphasis on remotes and more on audio-video capabilities than in recent shows. Even Nakamichi's latest Stasis receiver, the SR-4A (\$800; 60 watts, or 17.8 dBW), has switching for video inputs, which would have been almost unthinkable only months ago in such an ultra-tech model from what is generally regarded as strictly an audio company. (By the way, the SR-4A also has a remote control.)

R.L.

Cassette Equipment

TO BE QUITE BLUNT ABOUT IT, there are few surprises in this area. One major player has changed: Akai America has been closed and distribution (and servicing) of Akai



BANG & OLUFSEN BEOCORD 3300

Cassette deck

products taken over by a newly constituted arm of Mitsubishi Electric Sales. This isn't as surprising as it sounds, because Mitsubishi already owned a chunk of Akai in Japan. Outside of revamped styling and a greater concentration on Akai's original calling—tape equipment, as opposed to general componentry—the distribution change doesn't appear to imply any particular alteration in the product line. And the brand name is still Akai.

There is one notable item on the equipment front, however: licensing by NAD of Tandberg's Dyneq circuit, which dynamically varies recording EQ for improved high-frequency headroom. NAD's new flagship deck, the 6300 (whose price had not been set at the show), also includes Dolby HX Pro and the Play Trim circuit jointly developed by Dolby Laboratories and

NAD, for a three-prong attack on the problem of squashed highs. The three-head design, the company's first, includes Dolby B and C noise reduction.

So do most of the decks now available at higher-than-entry-level prices. A few (including all three recent additions to the Akai line) also offer DBX noise reduction, though not as many as I would have expected by now. Dolby HX Pro headroom extension is alive and well, not only at B&O (which developed it in conjunction with Dolby Labs), but at Denon and other companies as well.

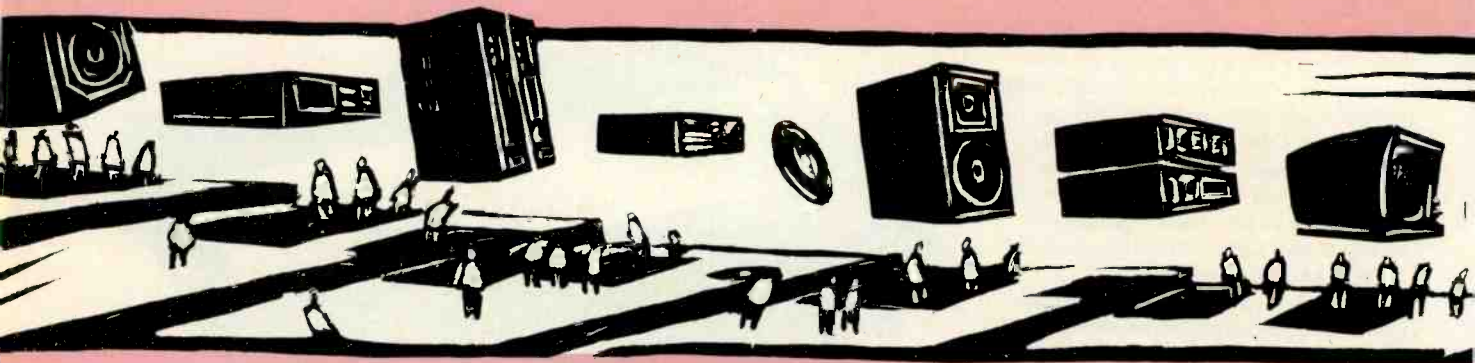
B&O has added to its systems that permit remote control of the cassette deck along with the other components. The Beocord 3300 (\$500) is part of the Beo-system 3300. Denon's latest HX Pro offering is the remote-controlled DR-M14HX (\$375), which incorporates the company's Non-Slip Reel Drive in place of a traditional friction/clutch mechanism to help maintain consistent tape tension. Yamaha has three KX-Series cassette decks (\$210 to \$390) that can be remotely controlled via the company's RS components or the new RS-KW5 remote control; one is a dual-well deck. Onkyo's TA-W460 (\$350) is also dual-well and can be remotely controlled when connected to certain Onkyo receivers and preamplifiers. Most of the other dubbing decks belong to rack systems and, as such, seem distinctly less impressive. R.L. ▶



NAD 6300

Cassette deck





Tabletop CD Players

IN A SHOW THAT IMPRESSED journalists as a quiet one for audio generally, there were a goodly number of new CD players. Besides the usual mid-price and high-end separates, players showed up in \$350 boom boxes and even in a small AM/FM clock/radio. Many new models use faster 16-bit converters with fourfold "oversampling"—a term that is now firmly established even though the technique involves no additional samples. New 16-by-4 decoder chips are available from Philips, Burr-Brown, and Sony; most high-end audiophile players from American and British companies use the Philips version, while the American and Japanese LSIs (large-scale integration chips) appear in the top players from the Far East.

The new decoders theoretically offer somewhat better linearity at very low levels, though in some early production samples this hasn't been the case. The fourfold oversampling does allow effective digital filtering of high-frequency noise in conjunction with relatively gradual analog filters that have less phase shift and more consistent frequency response. Companies that formerly used a single D/A converter

for both channels are going to dual converters to eliminate the usual 11-microsecond interchannel delay—equivalent to moving one of your speakers one-seventh of an inch forward or back from the other!

More players appeared with multiple power supplies (or one supply with multiple voltage regulators) to keep digital noise and transport servo signals from contaminating the analog signals. To the same end, more and more players now use optical coupling to carry the signal from the digital to analog sections.

Many new high-end players—the ones with the fanciest decoders—have separate digital outputs that enable you to bypass those decoders and substitute an outboard D/A converter or directly feed one of the

new integrated amplifiers that include digital decoding. (These outboard decoders can also handle 48- or 32-kHz digital data from RDAT recorders.) Some players even transmit the digital data to the outboard unit over fiber-optic cables. So far, though, you cannot economize by buying a player with *no* built-in decoder.

Laser assemblies continue to get smaller and lighter for faster track selection and more stable portable or automotive use. In many new players, the disc transport and laser pickup are mounted on a separately sprung subchassis similar to that found in some analog turntables.

To get down to specifics: Sony introduced 16 new CD players, all with multiple power supplies and the company's unilinear single-clock design and envelope error detection, a tracking circuit that helps prevent skipping by freezing the position of the laser carriage when the player detects massive errors. The simplest of the new models is the \$260 CDP-110; the new flagship is the CDP-705ESD (\$1,500), sporting optical signal transfer, 16-by-4 decoding, digital and phase-corrected analog filters, dual D/A converters, digital data output, and a remote-control digital output fader.

Mission's new CD players both have the Philips 16-by-4 chip set. The PCM-4000 costs \$700, while for \$1,000 the PCM-7000 provides remote control of all functions, including an electronic volume control that works in 63 1-dB steps. The PCM-7000 also uses four separate regulated DC supplies (for digital audio, analog audio, trans-



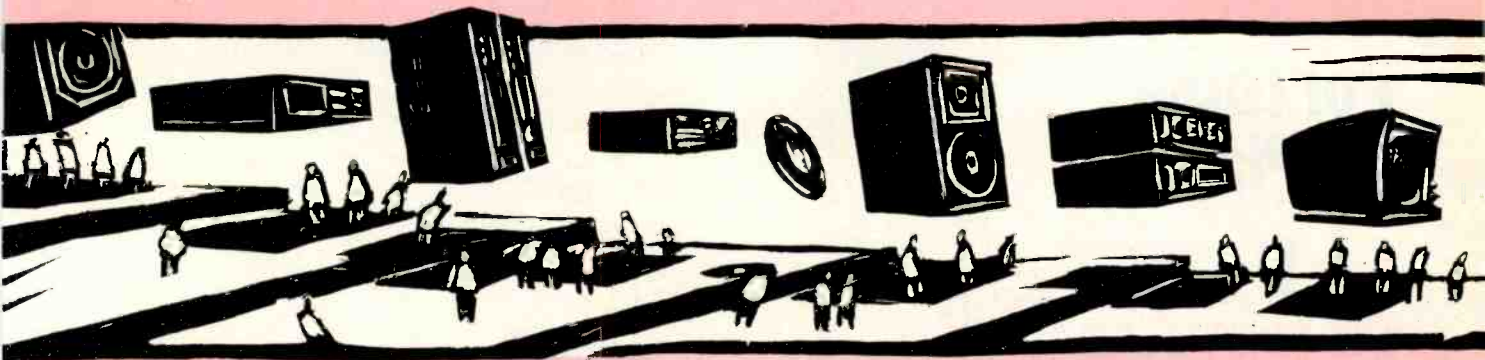
KENWOOD DP-3300

Compact Disc player



ONKYO DX-330

Compact Disc player



port, and display). The Magnavox CDB-465 (\$260) lacks the Mission's electronic sophistication but uses the same decoder chips. It features the company's FTS programming that keeps track of your favorite selections on each disc.

Other players with optical coupling include the Onkyo DX-330 (\$480 with remote control); the Kenwood DP-3300D (\$850), which has 16-by-4 decoding and both electrical and optical digital outputs (the latter to feed the decoder-equipped KA-3300D integrated amplifier); and the \$1,300 Sansui CD-X901, part of the company's new Vintage Series of components, which comes equipped with separate balanced Cannon-connector outputs for feeding professional audio gear or certain of the company's own Vintage Series amps.

The ADS CD-4 (\$900) has multiple power supplies and a unique laser-intensity servo that raises the control voltage on hard-to-track discs, as well as single-clock design, a separate digital output, and variable-window error correction. The \$700 DBX DX-5 combines 16-by-4 decoding, dual converters, and dual power supplies; its remote control will vary the output level and separately switch the company's unique impact recovery, dynamic compression, and ambience enhancement analog processing circuits. *E. B. M.*

High-End CD Players

HIGH-END ENTHUSIASTS ARE slowly beginning to accept the CD now that they can buy players of satisfying complexity, quality of parts, and cost. California Audio Labs has added digital signal-conditioning circuitry to its Tempest hybrid tube/transistor unit, raising the price from \$1,895 to \$2,095; previous owners can upgrade for \$200 by adding the new PC board. The company's new \$1,495 Aria uses the Philips 16-by-4 chips and has a wave-shaping circuit to correct timing errors in the digital bit stream, a process said to improve imaging and low-level resolution.



D E N O N D C D - 3 3 0 0

Compact Disc player

Another vacuum-tube model comes from Analogic Design Group of North Carolina: It contains the Philips 16-by-4 chips and makes extensive use of audiophile-grade resistors, capacitors, and internal wiring. The price is \$1,400 with remote.

Some of the most expensive new CD players from manufacturers like Stax and Accuphase were not at the show, but the new Denon DCD-3300, at \$1,700, at least reaches the lower portion of the stratosphere. The DCD-3300 has two power transformers and five independent voltage regulators, separate digital and analog boards with optical coupling, a copper-plated chassis, a floating subchassis carrying transport and pickup, vibration-isolating feet, 16-by-4 decoding with dual converters, a high-torque motor, both electrical and optical digital outputs, three sets of analog outputs including one with high-level balanced 600-ohm Cannon connectors, a time-search function, 20-selection programming, auto-space for cassette dubbing, index search, and timer playback. A remote control is included in the price. But can it play those old black vinyl discs? *E. B. M.*

CD Changers

THE NOTION THAT CDs MIGHT be sold in some kind of standard multidisc magazine for use in CD changers is dead, a victim of lack of standardization. On the positive side, however, this leaves more room for innovation. Sony's alternative is the CDP-C5F (\$450), which has a nonremovable five-disc carousel with drop-in compartments like a regular CD tray. The arrangement also provides faster disc switching: Claimed maximum transfer time from disc to disc is five seconds. (The demonstrator model took about eight seconds, which is still faster than the old-style LP changers.) Meanwhile, Technics showed the SL-P800C (\$600), with both a six-disc magazine and a single-disc tray. The player can be programmed before loading, while you can still see the CD labels, and you can add a selection from a new disc to your programmed sequence with a "reserve" key. *E. B. M.* ▶



S O N Y C D P - C 5 F

Compact Disc changer

Portable CD Players

PORTABLE PLAYERS CAN'T GET much smaller, but thanks to new transports and more compact D/A converters, they are becoming more efficient, which means that the batteries can be lighter for equivalent playing times. The new models are also the first portables with oversampling and digital filtering. Accessories like remote control for home use and mounting hardware and cassette-style adapters for cars represent official acknowledgment that few portables actually spend much time hanging from their carrying straps. Unfortunately, despite their smaller laser pickups, the newest portables do not seem any more resistant to shock than their predecessors, and all will mistrack if rotated in the plane of the disc.

Sony announced its latest and smallest portable, the D-10, before the show ("Currents," January); at the show, the company revealed the DT-10 with a built-in tuner (\$430). It also unveiled the larger, nonprogrammable D-3 (\$250, including AC power pack and rechargeable battery), which also can play for five hours on four alkaline AA cells. The tuner-equipped DT-3 is \$400. All these models use a pulse-width-modulation power supply circuit requiring only 1.8 watts.

Technics and sister company Panasonic also introduced their tiniest portables to date—the Technics SL-XP5 and the equivalent Panasonic SL-NP10—each with digital



TECHNICS SL-XP5

Portable Compact Disc player



YAMAHA TT-500U

Direct-drive turntable

filtering and each priced at \$300. The new Fisher PCD-100, also \$300, includes rechargeable battery pack, AC adapter, and a pair of headphones.

E. B. M.

more heavily on its high-tech production testing equipment; and almost everyone is selling audio and video accessories.

Ortofon and Dual are now distributed by a single American company. In addition to its new electronic components and CD players, Dual has a \$220 manual belt-drive turntable, the CS-1000, a simpler version of the well-received CS-5000 (test report, December 1986). The automatic CS-2215, which also sells for \$220, includes a pitch control with a numeric LED speed readout.

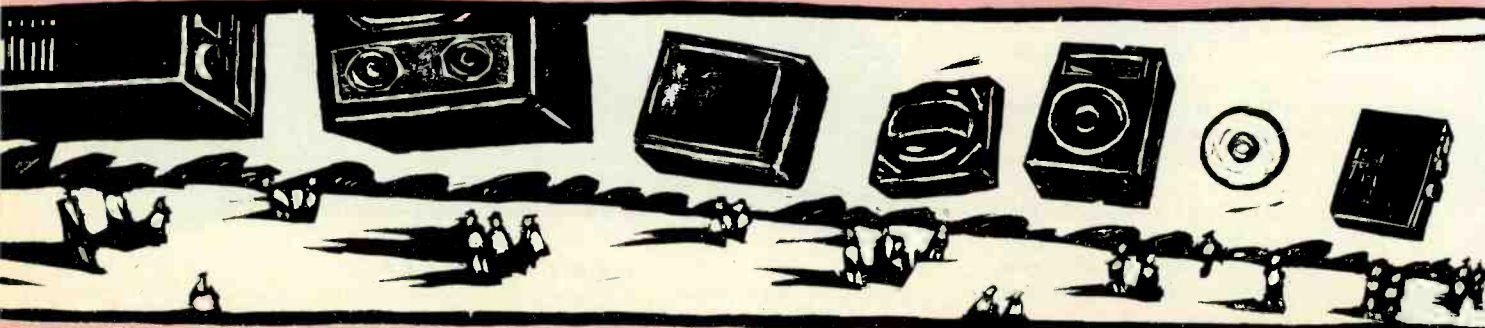
Ortofon's MC-30 moving-coil cartridge (\$450) has a stylus with a new shape. Called the Fritz Gyger I after its inventor, the new stylus has a contact patch that is taller and narrower than that of any previous consumer model, maximizing the amount of information that can be picked up off the groove walls. This shape makes alignment very critical, so the MC-30 will be sold only by dealers who have demonstrated their ability to set it up correctly in customer tonearms.

In addition, Ortofon showed two new lines of moving-magnet cartridges, its first in that category. The 300 Series is available

Turntables & Cartridges

IT IS BECOMING TRADITIONAL to open this section by saying that reports of analog's demise have been greatly exaggerated, but from the emaciated look of the packet of literature I brought back, it appears that the analog turntable is finally entering its twilight years.

Cartridge manufacturers everywhere are diversifying into other fields. Signet is distributing the Perreux line of high-end electronics; Shure Brothers is marketing CD players and surround-sound systems for home theater setups; Ortofon is relying



in conventional and P-Mount models. The 500 Series has three models with nude-mounted styli—one elliptical, one fine-line, and one that is a slightly less radical version of the new stylus, called the Fritz Gyger II—ranging in price from \$75 to \$300. Also on display was a prototype of the new MC-3000, an improved version of the company's top-of-the-line MC-2000 that features higher output (for use with normal moving-coil phono inputs), lower mass, and lower price (around \$800).

Yamaha introduced three new turntables, two belt-drive and one direct-drive, at prices from \$150 to \$230. Two of these, the fully automatic TT-500U and TT-400U, are compatible with the RS line of integrated remote-control components and come with a combination disc clamp and 45-rpm adapter.

The British Revolver turntable has a new injection-molded plastic platter, an improved motor mount, and a new arm carrying the company's own name. It comes ready to play with a basic-model Audio Technica cartridge (the AT-70) for \$400.

The well-made but very expensive SME Series V tonearm has a new and less elaborate brother, the Series IV. Tracking force is adjusted by moving a weight rather than turning a dial, and vertical position is not adjustable during play. The Series V's arm tube and its very rugged bearing are retained in the new model, which sells for \$1,050.

In an echo of the medium's ultimate fate, Sota put out a press release headlined "Sota Finishes Analog." This didn't mean that the company had delivered the *coup de grâce* to a moribund technology; on the contrary, its designers feel that with their latest top-end model, the Star Sapphire Series III, they have solved all the major problems of LP playback to a satisfactory degree and are ready to call it "the world's first complete turntable." For it to be complete, you must buy both the new vacuum-clamping turntable, with its acrylic Supermat and the Reflex record clamp, and the companion Electronic Flywheel power-line conditioner. The total price of \$1,900 may seem high, but when you realize you could spend over seven times as much for a competing turntable, you feel that you're getting a bargain. But can it play those newfangled silver discs?
E. B. M.

Audio Signal Processors

UNQUESTIONABLY, THE hottest topic in signal processing today is Dolby Surround. Promoted hesitantly at first because of the similarity to the disastrous quadriphonic marketing thrust of a decade ago, the multichannel approach established itself first in the movie theater and has ridden into home audio on the coattails of stereo-sound Laserdiscs and videocassettes made from theatrical films.

Peter Scheiber, the guru of matrixed quadriphonics and holder of several basic patents in the field, has licensed Dolby Laboratories to apply Scheiber "logic" optimization (originally developed for SQ matrixing) to Dolby Surround. In essence, this logic circuitry looks at the relationships between input signals and emphasizes those on which the subjective perception of spatial values depend, effectively increasing separation in matrixed multichannel systems. Shure Brothers, with whom Scheiber worked directly during development of the HTS-5000 home processor (see test report, September 1986), has formed a separate Shure Home Theater Sound division to develop and market products in this field.

NEC's processors include an inexpensive Dolby Surround unit, the AV-250E (\$300), with two channels of amplification (30 watts, 14.8 dBW). For more ambitious systems, the AV-350E (\$580) and AVD-700E (\$730) add digital delay, flexible system switching, and—in the AV-350E—two

additional amplification channels. Luxman combines Dolby Surround with extensive audio and video switching in its remote-controlled F-105 (\$550). A similar model, the U-100 (\$350), offers the same control and switching features without the surround-sound amenities.

Sansui's VX-99 (\$600) is a video processor with fade, mix, wipe, and color controls to delight the home videographer. Recoton has added to its line of MTS decoders for stereo TV audio: FRED III, which includes a 12-watt (10.8-dBW) stereo amplifier, became available at the beginning of the year; FRED IV, with a remote control, will appear (and be priced) later in the year. Recoton also has added some switching boxes for videophiles. Geneva has added one—plus a videocassette splicing/repair kit (PF-120, \$6).

Astonishing by its absence this year is the almost endless lineup of new graphic equalizers we've grown accustomed to seeing at every show. There are some fairly routine models filling holes in existing lines, but the only real grabber I noticed is the DBX 14/10 (\$1,300), a revised version of its computerized analyzer/equalizer—a format for which DBX has been the standard-bearer.
R.L.

Loudspeakers

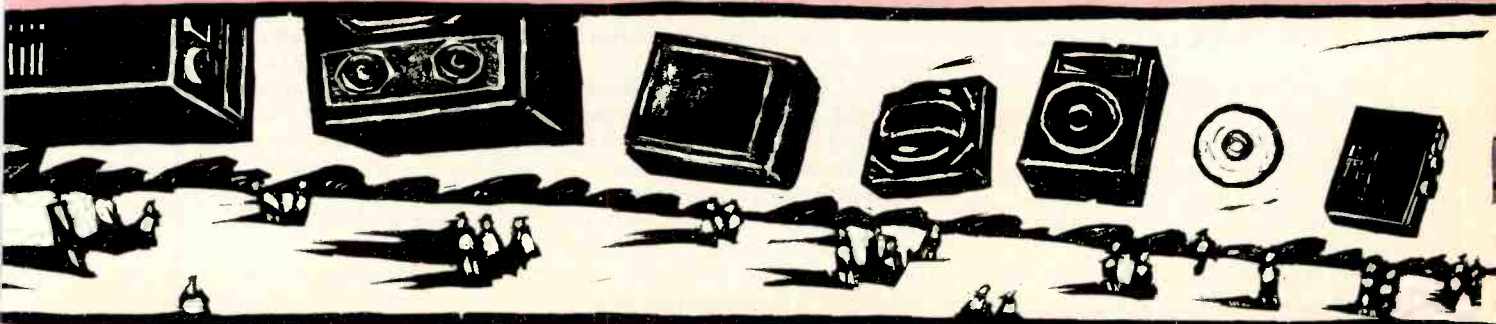
NO MATTER HOW QUIET THE rest of a CES may be—and this one was less frantic than most in recent memory—speaker designers just keep on turning out new products.

In the middle price range—from \$400 to \$1,500 (all speaker prices given here are



LUXMAN F-105

Surround sound and remote-control center





per pair)—many companies are opting for basic two- and three-way designs housed in tall, narrow cabinets that can stand directly on the floor. This raises the tweeters nearer to seated ear level for optimal frequency balance and imaging, while the added cabinet volume can extend the bass reach or increase the sensitivity of the system. NAD has two new speakers in this category, Models 200 and 300, for \$500 and \$750, respectively. ADS added the two-way L-690 (\$550) and the three-way L-990 (\$900) to its Tower Series. And Boston Acoustics added a three-way tower speaker, the \$500 T-830, to its line, and updated two earlier models: The A-70II (\$300) has a new woofer, crossover, and cabinet, while the A-150II (\$550) has all new drivers.

Ohm Acoustics put together a multicolored display using many pairs of its new Sound Cylinder Walsh-driver systems. A pair costs \$550 in the standard walnut-



BOSTON ACOUSTICS T-830

Three-way tower loudspeaker

grain vinyl, but can be ordered in one of seven other finishes for \$76 more or in a fabric supplied by the customer—whence came the rainbow of speakers—for \$48 extra. The company also introduced a more efficient version of the Walsh 3, now called the Ohm 3XO (\$1,495), with 91-dB sensi-

tivity.

Snell Acoustics showed its new Type Q (\$750), a small, elegant two-way design with an 8-inch woofer in a compact but very heavy wood cabinet. B&W has four new 100 Improved Series speakers clad in a rather realistic wood-grain vinyl for prices ranging from \$258 for the DM-100i to \$738 for the DM-330i.

Polk Audio has again updated its original SDA-1 image-enhancing speaker. The SDA-1B (\$1,400) has a smaller auxiliary bass radiator and a new phase-coherent driver alignment. Yamaha, trying to gain ground in the U.S. speaker market, has produced a series designed with American assistance and using European drivers. The FFT Series includes four models, the NS-A-7.2, -8.2, -10.2, and -10.3, selling for \$218 to \$518.

Canadian speaker designers continue to bring interesting offerings to the show. Clements Audio couples its own ribbon midrange/tweeters with cone woofers in two new models, the RB-6.5 (\$1,100) and RB-8 (\$1,300); the model numbers are the diameters in inches of the bass drivers. Designer Paul Barton of PSB showed a promising prototype of a two-way speaker (its model number isn't fixed, but the price is expected to be \$1,100) whose woofer was mounted above the tweeter, an arrangement intended to achieve proper response at the seated listening position.

Canada's largest speaker manufacturer, Audio Products International (API), can boast of probably the broadest line of speakers (and brands) in the world. Its flagship Mirage brand is topped by the M-1, a 59-inch-high three-way bidirectional design. API also displayed working prototypes of two two-way ported models in its new Image (rhymes with *mirage*) line, the floor-standing 200 (\$900) and stand-mount 100 (\$600). Both use the company's ¾-inch hyperbolic dome tweeter and a heavily braced enclosure.

The new AR TSW Series (for *titanium* tweeters and *solid wood* cabinet tops and bottoms) includes models from \$213 to \$850. The tweeters are mounted on an unusually shaped diffraction-reducing metal plate called the Tetra-Helical Constant Intensity Radiator (even though it is designed *not* to radiate).

Infinity has two new polypropylene

dome midranges it calls Kappa drivers. A 2-inch version is featured in the top RS Series model, the dual-woofer three-way RS-6000 (\$850). Using a similar 3-inch midrange are three Reference Standard Kappa Series speakers: the three-way 7-k (\$1,200), the four-way 8-k (\$1,800), and the five-way 9-k (\$2,400) with a SEMIT supertweeter.

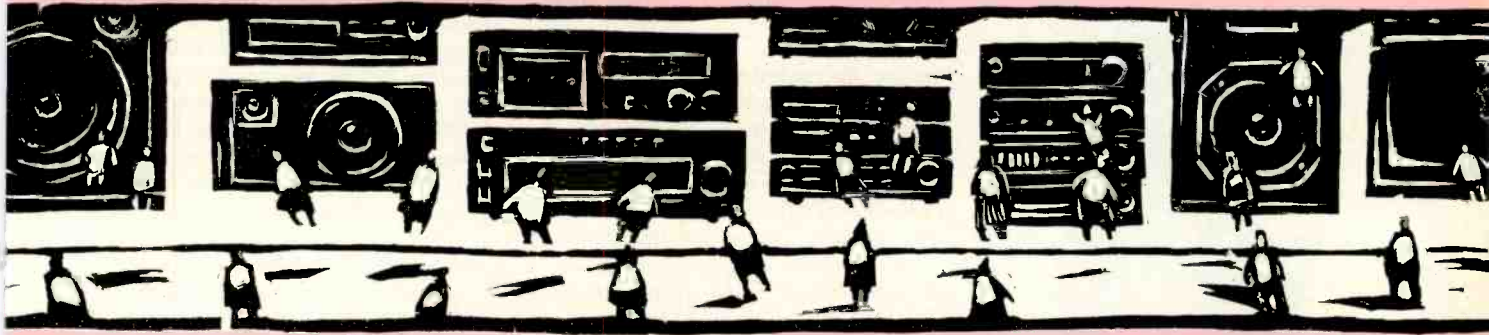
Small speakers continue to appear in a wide range of prices. Koss's magnetically shielded M-100 Plus (\$250) combines two 4½-inch woofers and a 1-inch tweeter with a pair of built-in 20-watt (13-dBW) amplifiers that can be fed by the headphone output of a portable CD or cassette player as well as by that from a video monitor. Reco-ton has two self-powered speakers designed to go with its two nonamplified F.R.E.D. MTS stereo decoders. The SPI/V632 is \$170, and the SPII/V633, with front-panel volume and tone controls, costs \$200.

E.B.M.

High-End & Specialty Speakers

THE SUBWOOFER MARKET IS alive and well, a fact we could verify with an organ recording containing generous pedal fundamentals between 19 and 25 Hz. Though some makers' frequency response claims failed to stand up to this test, one speaker that did well was the separate woofer sold with the Nelson-Reed Pro system. Each cabinet (the setup we heard contained two) sells for \$1,200; a 62-Hz, 48-dB per octave electronic crossover is \$570. Also acquitting itself well was the Larger VMPS Subwoofer, which contains two active woofers (12 and 15 inches) plus a 15-inch passive radiator. Available either with a 100-Hz passive crossover or with the \$450 Vendetta Research TPC-1 variable electronic crossover, the VMPS sells for \$550 (\$440 in kit form).

American Acoustics' PSW-200 (\$700) powered subwoofer is the latest addition to



INFINITY RS-6000

Dual-woofer loudspeaker

its Generation III loudspeaker series. The glass-topped rectangular unit contains a 15-inch woofer with 2-inch voice coil driven by a built-in 200-watt (23-dBW) amplifier. An unusual feature is the parametric equalizer that can contour the unit's response curve to complement the bottom-end performance of the satellite speakers used with it.

Mission Electronics introduced two new two-way loudspeakers. The first is a redesign of the company's 770, called the 770 Freedom or 770-F (\$1,800). It has a new ferrofluid-cooled tweeter firing into a shallow horn of super-elliptical cross section. The 780-A (also called the Argonaut) is Mission's new flagship. At \$3,000, it has the same drivers as the 770-F, but with two woofers in a larger cabinet, and boasts higher sensitivity, rated at 95 dB (for 1 watt at 1 meter), and improved power handling.

Tennessee Sound Company has added a matching woofer, called the Symphony 2, for its unusual Symphony 1 loudspeakers (see "Currents," November 1986). The woofers, which cost \$1,200, bolt to the main cabinet to provide extended bass response.

Allison Acoustics showed the production version of the variable-image speaker it unveiled last June. The new system, once called the Model 10, is now officially called

the IC-20 (IC stands for *image control*), and has a revised price of \$4,900 (see "Currents," October 1986).

Acoustat says its new Spectra 3 is its first planar electrostatic to have effectively narrower radiating areas with increasing frequency. The technique, which electrically drives progressively fewer of an array of narrow vertical elements (rather than using curved panels), is designed to improve horizontal dispersion and widen the area of acceptable stereo imaging while retaining high-frequency time alignment. Each speaker's broad base contains a switchable cone woofer that doesn't change the low-frequency cutoff but is said to expand the available dynamic range. The Spectra 3 is 65 inches tall and 32 inches wide and sells for \$2,750; an upcoming narrower version with fewer panels is expected to sell for \$2,000.

An unusually large and elaborate system from JBL is Project Everest, originally designed for and previously available in the Japanese market. It's a three-way model with a ported 15-inch woofer crossed over at 850 Hz to a complex biradial horn; the horn is aimed to fire across the room in front of the listener, so that as the listener moves to one side, the increasing distance from the far speaker is offset (psychoacoustically) by a closer approach to its main axis. The tweeter, a ring radiator, takes over at 7.5 kHz. The Everest has a rated sensitivity of 100 dB and sells for just under \$10,000.

The German firm Canton makes three powered loudspeakers, each with motion feedback on all drivers. The largest of these is the 67-inch-high four-way CA-30 (\$15,000), which has four woofers, a lower-midrange cone driver, and a dome upper-midrange/high-frequency driver. Each driver has its own power amplifier; the total available output is 780 watts (28.9 dBW)! The same technology is available in two smaller versions, the \$10,000 four-way CA-20 with two woofers and the \$5,000 three-way CA-10.

One of the most talked-about speakers at the show was from Duntech. The company did not bring its larger Sovereign system to the show, making do instead with the somewhat smaller Crown Prince. The listening room was optimized by lining the walls with Tube Trap sound absorbers.

The Prince has more or less conventional cone drivers—two 10-inch woofers, two 4-inch midranges, and a 1-inch tweeter—in a narrow, 6-foot-tall cabinet designed for low diffraction. Each system weighs 121 pounds and a pair sells for \$5,975. The Sovereign can be had, depending on cabinet finish, for \$12,950 to \$14,500, delivered.

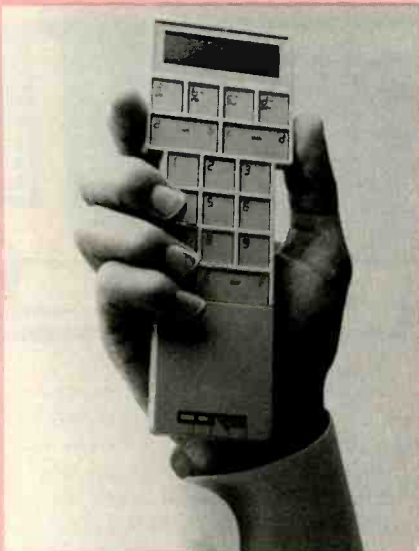
E.B.M.

Miscellaneous Accessories

KOSS HAS ADDED A SECOND, lightweight model to its line of "Kordless" infrared wireless headphones, introduced last summer with a medium-weight model. The JCK/100 "remote listening station" (\$120) consists of the headphone (similar in style to the popular Koss Porta Pro), the receiver that drives it, an infrared transmitter that plugs into a stereo-system headphone jack, and an AC adapter to power the transmitter. Controls on the receiver include volume, mono/stereo mode, and response shaping similar to the feature built into some portable CD players. The receiver can connect to other headphones, as well. Other Koss additions include an upgraded "hear through" model (the company's designation for low-isolation designs), the HV-1A Plus (\$50), and a series of lightweight models.

Nady Systems, a company that has offered infrared wireless mike systems for some time, also has a wireless headphone. A complete system including transmitter costs \$100; additional IRH-210 headphone/receivers cost \$60. Berkey, which already had a wireless mono headphone, has added a stereo-headset and microphone line, offering various system configurations.

The Yamaha MVS-1 (\$150) is a passive master volume control intended primarily for use with the Yamaha DSP-1 Digital Sound Field Processor (test report, September 1986), which garnered HIGH FIDELITY's first Product of the Year Award in December. The MVS-1 can uniformly control



CL-9 CORE

Programmable remote control

the volume from as many as three connected stereo amplifiers.

Moving on to bigger things (literally), I was impressed all over again by the display of Barzilay's home-entertainment furniture. It's still one of the classiest acts going, and has been for forty years. Recently acquired by WoodTek, it continues to come up with new designs that are both solid and stylish. The Model 708, in walnut, sells in the \$500 range; prices of the more elaborate designs depend on the particular combination of modules employed. I was particularly taken by a new black lacquer finish: mostly matte, but with glossy accents.

Acoustic traps to solve problems of standing waves are a fairly recent addition to the audio arsenal. Newer still are the various models from Acoustic Sciences Corp.—Corner Trap, Wall Trap, Tube Trap, and Super Trap. All the sound absorbers stand vertically, varying primarily in cross-section profile. The heavy fabric coverings contribute to both the acoustic deadness of the forms and to the ease with which they can be assimilated into the surrounding decor.

Once you've got your audio-video equipment housed and the room tuned, the next step is to see what can be done to simplify the clutter of remote controls that

these components tend to come with these days. General Electric was the first to bring out a programmable remote that can be "taught" the control codes of other remotes. Its latest model is the Control Central 3, described in the November 1986 "Currents." Now a new company, CL-9, has drawn on the same principle: CORE (Controller of Remote Electronics) is a \$200 microcomputer of sorts that adds the ability to program complex sequences of remote commands so that multistep functions can be achieved simply. For example, turning on a pay-cable system to a certain channel and powering up a connected sound system all with the push of one button. In addition to a built-in timer, CORE contains spare computer memory for possible upgrading of its capabilities in the future. Inventor Steve Wozniak is best known as a cofounder of Apple Computers; this is the first project to bring him directly into home entertainment. R.L.

Blank Tape

THE BIGGEST DIFFERENCE you're likely to notice in shopping for tape over the next few months is the growing availability of formulations from Korea. Brands such as Goldstar and Sunkyong (SKC) are working hard to demonstrate that they are the technological peers of the Japanese producers, to whom they have had to take a back seat in the past. (Much the same thing is happening in electronics, by the way.) It will be somewhat of an uphill struggle, frankly, because inferior Korean products of the past have tended to jaundice international opinion, but there's no inherent reason why these products can't merit the esteem they're seeking.

With few exceptions, the news among the familiar brands centers on repackaging more than on reformulation. Memtek (like SKC, as a matter of fact) is going for a splashy "now" outer wrap. Clear shells are even more in evidence than last year. Multi-cassette packaging and special premium or rebate deals abound. So what else is new?

Well, Memtek does have one new formulation, Memorex DBS ferric, and has

improved both the MRX-I ferric and the HB-II high-bias formulations. At the top of the cassette-formulation spectrum, TDK has added MA-XG metal, with a special three-layer shell construction intended to eliminate mechanical resonances that can impinge on reproduction quality.

TDK also has gone multilayer in the construction of the tape backing for its new premium videocassette, HD-X Pro. Don't confuse this with multilayer *coatings*: There actually are six layers in addition to the coating here, to promote mechanical stability through back-coating and special binder layers. TDK is also one of the companies that has revamped or fine-tuned its 8mm videotape line this year.

Why so little tape news? One reason, certainly, is that everybody has been too absorbed with lab work—and guesswork—on the future of digital audio tape to make up new analog products. R.L.



JVC GR-C9

VHS-C camcorder

Camcorders

THE MOST INTERESTING VIDEO news concerns a product that does not yet exist. At a press conference in Tokyo, JVC announced a new video format called Super VHS, said to offer performance comparable to that of the current one-inch professional "C" format. Super VHS machines will be able to play normal VHS tapes, and the two for-



mats will share the same cassette shell, but that's about the extent of their compatibility. (For a more complete account, see "Scan Lines" in this issue.)

One of the clearest trends at the show was the success of the VHS-C camcorder, which as of last June looked like a long shot in its race with the newer 8mm camcorders. The importance to the consumer of compatibility with home VHS VCRs is evidenced by the appearance of VHS-C camcorders with such brand names as RCA, GE, Magnavox, and Quasar. Panasonic introduced the PV-100 VHS-C model (\$1,800), which has two "shutter" speeds: the usual $\frac{1}{60}$ second plus $\frac{1}{1000}$ second for blur-free slow-motion playback and still-frame analysis of fast-action scenes. The $\frac{1}{2}$ -inch CCD sensor can record scenes as dark as 7 lux at the normal shutter speed, but the $\frac{1}{1000}$ speed requires considerably more light and will therefore be suitable mostly for daylight shoots.

The \$1,700 GE 9-9710 VHS-C camcorder has a fairly typical complement of features: CCD imaging, autofocus, automatic exposure setting and white balance, power zoom, and in-camera playback. Its weight is 3.7 pounds, including the one-hour rechargeable battery. A similar model with HQ circuitry (9-9712) costs \$1,800. RCA's \$1,400 CPR-100 has a $\frac{2}{3}$ -inch CCD imager; the company also supplies a line of optional accessories, including a belt-worn two-hour battery pack (\$14 for the holder, \$87 for the battery), a chest brace to steady the camcorder (\$50), and a shoe-bracket adapter (\$40) for mounting a light, an external microphone, or a character generator.

JVC, the inventor of VHS-C, revealed the smallest camcorder yet in that format, the GR-C9U (\$1,150), which weighs less than 2.2 pounds with tape and battery. It offers one-touch, fixed-focus recording (but no playback), HQ circuitry, two recording speeds (20 or 60 minutes, maximum, with a TC-20 cassette), 10-lux light sensitivity, and automatic white balance, and it comes with battery, charger/AC adapter, full-size VHS cassette adapter, and a shoulder strap.

There were also a few new camcorders in the other formats: 8mm, Beta, and full-size VHS. Of note in the second category is the Sony BMC-1000K Betamovie Pro, a re-

cord-only unit that works in the Beta-Is mode (high-speed Super Beta) for the best picture quality currently available in a consumer camcorder of any format.

For those of you who think that we need another video format, Korean giant Samsung showed a prototype 4mm camcorder. The company has adapted the RDAT cassette for video use, envisioning a future in which an RDAT transport (about the size of a present-day analog cassette deck's) will handle all of our audio and video recordings. Availability in the U.S. is questionable, although Samsung says it will begin selling the SVC-41 in Korea sometime this summer. The projected price here would be \$1,300. *E.B.M.*

Digital VCRs

THE LONG-PROMISED improvement in picture quality through digital processing has yet to be demonstrated convincingly. So far, the technology continues to be used mostly to generate picture-in-picture displays and better slow-motion and still-frame effects for videocassette recorders. An exception is NEC's digital video noise reduction circuit, introduced earlier this year in the DX-1000U and DX-2000U VCRs (the latter is reviewed in this issue).

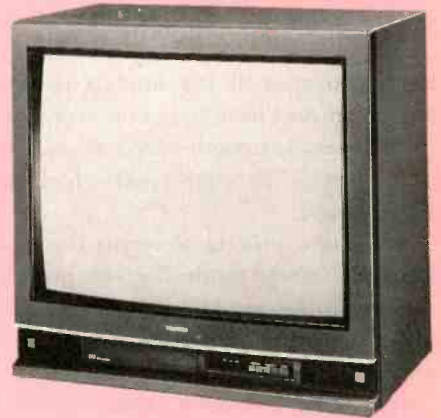
A new appearance of digital circuits in a VCR is audio-related: Toshiba's DX-900 contains a built-in PCM processor for recording digital audio. The digital signal occupies the video portion of the tape, so simultaneous recording of digital audio and picture is not possible (as it is not when using an outboard PCM device in conjunction with a VCR).

Videodisc fans have reason to rejoice at the inclusion of digital frame-storage circuits in a Laserdisc player. The Pioneer LD-S1 (\$1,600) is the first videodisc player that provides the special-effects capabilities of the CAV format for long-playing discs. The unit is said to provide the highest horizontal resolution (420 lines) of any videodisc player and can play back the digital audio soundtrack included on many recent videodisc releases. Another company, Im-

age Entertainment, announced plans to import later this year a machine of similar capabilities manufactured by Sony. *E.B.M.*

Large-Screen Televisions

REAR-PROJECTION TV IS A booming category, with new sets from Kloss, Mitsubishi, and Panasonic, among others. Despite having previously sworn off rear-projection design, Kloss nevertheless introduced its Model Ten (\$4,295), which has an unusually large 60-inch screen (measured diagonally), built-in surround-sound decoding with four power amplifiers, an RGB input, an MTS stereo tuner, and Faroudja detail-enhancement circuitry. (The Faroudja Image Processing System was described in the July 1986 test report on the Kloss Nova-



TOSHIBA CX-3077

Direct-view monitor/receiver

beam 100 front-projection monitor.)

Fisher and Sanyo both showed 35-inch direct-view sets based on the Mitsubishi picture tube. Between these and the more common 26-inch sets are the 31-inch Panasonic CTJ-3170R (reportedly to be available this summer for less than \$2,000) and the 30-inch Toshiba CX-3077 (\$2,500). *E.B.M.*





COPING WITH CD

IN 1970 I BELIEVED I WAS SET FOR life: I bought my Acoustic Research turntable, my McIntosh electronics setup, and two pairs of Bose loudspeakers. Those pieces are all still in my system, and even though they no longer sound as wonderful as they once did, I hope they last forever. But they've since been joined by two cassette decks and, now, a Compact Disc player.

I still buy records, but I don't play them. Instead, I cut a tape and then file the LP. No, I won't borrow your records, and no, I won't tape mine for you: Musicians have

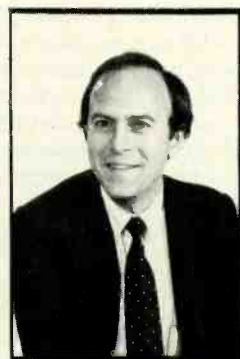
to eat, too, after all. It's simply a question of convenience: No longer do I have to get up every 20 minutes to turn a record over. So cassettes serve as well as the radio for background music. Through a perfectly elegant antique system. What a waste.

For now comes the Compact Disc. Some of the jazz selections I wanted to buy last year proved to be "available" only on CD. Because I'm a toy lover at heart, I bought a CD player six weeks ago—and once again, the way I listen to music has been drastically changed. The manufacturers' "hype" wasn't overdone. Dynamic range is incredible, even on 40-year-old Thelonious Monk recordings; overall reproduction is accurate and lifelike; silences are truly empty.

That CDs cost twice what LPs cost isn't a problem: CDs sound better. And often they contain more music. The LP of *Lost in the Stars: The Music of Kurt Weill* doesn't contain nearly the same 67-plus minutes the CD does. And it's reassuring to know that CDs allegedly retain full fidelity for 10,000 or so plays rather than the 100 that a cautious (and lucky) listener might get from LPs. But when I try to buy CDs, so is everyone else, and there's the rub: Getting software is nearly impossible. I ordered ten discs the same day I ordered my player; the player came in three days, but I still don't have the discs. I've been forced to join the throngs of people in the music stores fighting to buy *whatever* is there. Surely, the big labels can do better by us. *Hugh Foster*

This is the first "Medley" written by one of our readers. Mr. Foster is from Manitowoc, Wisconsin.

Readers are reminded that this portion of "Medley" is now open to contributions. Send your 425-word article to Ken Richardson, Popular Music Editor, HIGH FIDELITY, 825 Seventh Ave., 8th floor, New York, N.Y. 10019. Keep a copy; original manuscripts will not be returned. We pay \$100 for each published article.



RECORD ROYALTY

FIVE YEARS AGO, THE RPO WAS FLAT on its back. We had borrowed all we could borrow, and our prospects were getting rather bleak. Then came *Hooked on Classics* and André Previn's appointment as music director. It was quite a smashing turnaround." Ian MacLay, the Royal Philharmonic Orchestra's managing director, relishes the opportunity to talk about the way things were *before* the royalties started coming into the Royal's coffers—before *Hooked on Classics* erased the orchestra's deficit and gave it the financial clout to start its

own record label. Now, in addition to recording for Telarc, Philips, CBS, and EMI, the RPO puts out six records a year on its own, working with artists who have established a close relationship with the ensemble over the years and occasionally tackling repertory the commercial labels are unwilling to risk. The rewards are not merely artistic but financial as well. While the members of the orchestra, in keeping with the cooperative spirit of the undertaking, have agreed to waive their usual session fees, they get to share in the royalties along with the featured artists. Since May, when the first two RPO releases hit the stalls, sales in the U.K. have been brisk, and there are growing indications that the series has caught on with collectors. One of these issues offers Previn conducting Walton's *Belshazzar's Feast* and music from the film *Henry V*; the other has Sir Yehudi Menuhin leading Handel's *Music for the Royal Fireworks* and 11 movements from his *Water Music*, along with Thomas Beecham's ballet suite *Amaryllis*, based on music by Handel. (It was Sir Thomas who founded the RPO in 1946.) Recently, three more releases have appeared, including a long-overdue new recording of Sir Michael Tippett's oratorio *A Child of Our Time*, conducted by Previn.

"The Tippett is a good example of what we're trying to accomplish," MacLay notes. "None of the big labels wanted to do it, but André felt very strongly about it. After all, there are enough recordings of the *New World Symphony* out there." The orchestra has given its product a distinctive look to go with the content—album covers are black, with the RPO logo (blue R, yellow P, green O) featured prominently in the upper-right-hand corner—and the technical standard is formidably high. Marketing and distribution in the United States have been taken on by MCA, under the watchful eye of Thomas Z. Shepard, formerly president of RCA's Red Seal division. *Ted Libbey*

EDITED

BY

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LIBBEY



BY THOR ECKERT, JR.

CARNEGIE HALL:

A FACELIFT AND A NEW SOUND



STEVE J. SHERMAN

IT WAS A WELL-KNOWN FACT THAT NEW YORK CITY'S CARNEGIE HALL WAS IN desperate need of a face-lift. Yet from the moment plans for the renovation were announced in 1982, there was worry that the famed acoustics would be altered. The worriers were correct: The sound *is* different. In fact, today Carnegie Hall sounds almost like Boston's Symphony Hall—for me, the highest compliment an acoustic can be paid.

Every effort was made to ensure the acoustical integrity of the hall. Sound ab-

BEFORE AND AFTER: THE OLD FLOOR WITH THE SEATS RIPPED OUT (ABOVE) AND THE NEW STAGE WITH THE DOME REINSTATED (BELOW)

sorption—or the lack of it—was the principal target, and everything was tested to be sure nothing would change. This meant, for instance, that the first set of seats was returned to the manufacturer because they were more sound-absorbent than the ones already in place. The various stage and auditorium floors and subfloors were replaced with the same types of wood. What was left of the original William Burnet Tuthill architectural drawings of the hall was consulted in the process of restoring the stage to its original appearance.

The concomitant redecoration of the auditorium was a bonus. For as long as I can remember (which is going on 20 years), the hall has looked drab. The monotonous white walls did nothing to suggest that one was sitting in one of the great concert halls of the world, with superb acoustics and generally fine sightlines, at least for the patrons of the orchestra level and the first two tiers of boxes. Now, those walls are a gentle cream color, and all the considerable relief work and architectural detailing has been glazed and, in some instances, gold-leafed to bring out the textures and the decorative motifs. The aisle seats are now sided with cast-iron frames that suggest an 1890s look. In every way, the attention to detail has been uncommonly thorough, done with understatement and great taste. Finally, Carnegie has a regal look to match its august reputation as one of the finest concert halls in the world.

The price tag on this phase of the project—including the creation of a new, expanded lobby and backstage facilities—is somewhere around \$50 million. It is a large sum by any standard, but imagine what could have been done had Isaac Stern had access to such monies when Carnegie was threatened with destruction in the late '50s. In those days, it was all Stern could do to raise sufficient funds to remove the specter of the wrecker's ball and give the interior a makeshift coat of paint (that dull antiseptic white overall, with cheap gold paint to suggest gold-leafing).

Carnegie was saved . . . and the rest, as we are so fond of saying, is history. But what was saved? A compromised Carnegie at best, and certainly not the hall Andrew Carnegie built and his contemporaries rated the finest in the world. Nor was it the hall we can hear hints of on the late '30s Toscanini performances with the New York Philharmonic or on RCA's celebrated (and inexcusably out-of-print) Mengelberg reading of Strauss's *Ein Heldenleben*. Why? Because in the mid '40s, Hollywood decided to make a movie, *Carnegie Hall Tonight*, and it needed to turn the celebrated stage into an elaborate sound studio. To make room for the lights and some of the cameras, the half-dome over the stage was opened up—and never resealed. Curtains went up around the majestic proscenium pillars, and suddenly, several acres of brocade were altering an acoustic that had been justly acclaimed. And yet, no hue and cry went up from the watchdogs of the press

or from anyone else. For a '50s patch job, vinyl tiles were laid down over the deteriorating auditorium floor. In the early '70s, a ghastly electronic organ was installed, with the speakers over the stage, hidden by ugly suspended acoustical baffles.

But on the night of May 18, 1986, following a "farewell" performance of Beethoven's Violin Concerto by Stern and the Cleveland Orchestra, the work crews moved in . . . and all those additions are now gone. The stage stands in stark grandeur, with only a peculiar "halo" hung near the top of the dome—looking like a hieroglyphic eye from the orchestra seats—to house the stage lights. One could argue that now we really have a chance to assess the Carnegie acoustics as Tuthill conceived them—the sound that Gustav Mahler and Richard Strauss

one had to make an ever-so-slight effort to really hear the music, whereas in Symphony Hall, the sound seemed to be projected by the proscenium itself into the expanse of the auditorium.

The first concert I heard in the new Carnegie Hall was Itzhak Perlman's *ad hoc* recital the afternoon following the gala opening night. (I had decided to forgo that preliminary circus in favor of a more serious, less self-consciously ostentatious event. As it turned out, my colleagues told me, the program was tiresome and ran until nearly midnight, the hall was chilly to compensate for the TV lights, and certain celebrities who had performed earlier in the evening carried on a box-to-box conversation throughout the Mahler finale that closed the program.) Perlman came in on four hours notice to re-

It was clear from the first notes that something new was going on.

heard when leading orchestras on the stage, that Liszt's disciple Arthur Friedheim experienced when concertizing there, the sound that allowed listeners to revel in the unique gifts of a Fritz Kreisler or a Pablo Casals. The only problem remaining is that the stage floor and both the auditorium's main floor and subfloor are new. Acoustically, this means that the wood is neither dry enough nor seasoned enough for the sound to resonate as it did in the old hall. With time, this problem should vanish.

On the basis of a few concerts, most critics have determined the acoustic to be essentially unchanged or somewhat improved. I spent nearly a decade covering all sorts of musical events in Boston's Symphony Hall, and its acoustic has remained in my inner ear the ideal one for any concert hall. Of the venues I know here and abroad—and the list does not include the Concertgebouw in Amsterdam and the Musikvereinsaal in Vienna—only the old (and now the "new") Carnegie and the Berlin Philharmonie come close, albeit in different ways.

Carnegie used to be slightly dry to my taste, though hardly on the order of Philadelphia's Academy of Music (which eats up sound before it can reflect off a wall) or Chicago's Orchestra Hall in the mid '70s (so dry one longed for a drink). When a climax came in an orchestral piece, one felt the Carnegie Hall floor rumbling resonantly, but one did not sense the sort of reverberation that would allow for a tangible decay of the sound. When a solo violinist was on stage,

place an ailing Daniel Barenboim, so one could forgive his casual way with both the music and the programming. It was clear from the first notes that something new was going on, that the sound projected effortlessly, hall-fillingly, as it does in Symphony Hall. At last, one did not sense that the hall was too large for so intimate an instrument. Later that day, Michael Tilson Thomas led the Orchestra of St. Luke's in a rousing program that included a festive, majestic Mozart *Paris* Symphony and a deeply felt Beethoven *Eroica*. One felt the floorboards rumble, one heard a true decay to the forte concluding chords of movements, and one sensed a glow to the sound that gave it almost a tactile presence in the hall.

And yet there are problems. In all the orchestral concerts I have heard at Carnegie to date, I have had the feeling that the musicians did not hear themselves as well as they used to before the overhaul, which means that they will now have to rely on the conductor far more than they did in the past. When the orchestra is pushed back toward the rear wall of the stage, there seems to be greater clarity in the ensemble than when the players are seated in the more traditional forward position.

Because the stage is bare and free of baffles, sound tends to whip around the back wall and ricochet sharply into the hall, creating something of a retort, if it is coming from the percussion, or an echo, if it is from the horns. Clearly, a conductor will have to be very precise in his shaping of dynamics; oth-

erwise—particularly if the orchestra is not seated on a rather precise hot spot—there will likely be a muddying of textures.

Perhaps this is why all those '30s pictures of the New York Philharmonic show the orchestra seated in an acoustical shell: to eliminate all the minor acoustical burrs that only a music director who lived in the hall season after season could fully understand and work around. If this was really the case, such a shell would simplify life for a hall that showcases an endless stream of visiting orchestras.

In the four weeks since the hall reopened, I have sat in several locations on the main floor, and I find the sound consistently marvelous. Loud passages sound louder than ever, and soft moments retain a lus-

trous presence. Well-projected voices soar with far less effort than in the past. The acoustic won't help a scrappy, dull cello tone, as Lynn Harrell found out when playing Strauss's *Don Quixote*; but if the real goods are there, the changes that have been wrought at Carnegie will help project the sound into the space.

What has not been improved is the lobby. Despite the removal of all the front staircases and the creation of more than double the original lobby space, the circulation problems are more acute than ever. And just try to get to the restrooms in the basement during the intermission! Happily, these aspects have nothing to do with the auditorium itself, which must be deemed better than ever in its new and handsome guise. ■

Will There Be Recordings?

ALTHOUGH ITS ACOUSTICS—BOTH BEFORE and after the alterations to the stage in 1946—made Carnegie Hall one of the most celebrated concert auditoriums in the world, surprisingly few commercial recordings have been attempted there, other than for live recordings of concert performances. With the newly completed renovation of the main hall, some of the logistical and acoustical problems that had plagued past attempts at recording have been eliminated, and a number of improvements have been made that should facilitate audio and video broadcast operations. Discussions are already underway between record producers and Carnegie Hall executives on the use of the hall for studio-type recordings, and there is speculation that one or more major American labels are interested.

Judith Arron, Carnegie Hall's general manager, recently acknowledged that recording is "certainly something we want to think about, although we don't have any immediate plans to do records here." She indicated that attention is focused for the moment on the hall's new broadcast potential, which results from the installation of a fully equipped radio studio on the premises and the creation of backstage niches and viewing ports for cameras, and which gives Carnegie "the capability of doing things in-house at a very high level." There is, she said, "lots of interest in doing television here," and there have been several inquiries from European orchestras "interested in hooking up" a broadcast to their home countries.

Part of the reason Carnegie Hall was

deemed unsuited to commercial recording was the amount of ambient noise that filtered into the hall from the street, from the subways that run under the property, and from activities elsewhere in the building, where there is much coming and going among studios and offices. With the installation of high-tech soundproof doors on the Seventh Avenue side of the hall and the painstaking finishing work on the corridors adjoining the auditorium (including the laying of new carpet and the application of acoustic treatment to the ceilings), much of the noise is gone. The telltale subway rumble has also been reduced, although it can never be eliminated completely because it is transmitted directly into the hall by the building's foundation. "But," said Arron, "I've talked to a couple of record producers who say you can get around it simply by doing additional takes."

The foremost problem that now confronts, and may ultimately confound, anyone who would like to make recordings in Carnegie is one of cost. As Arron pointed out, it is "frankly very expensive from a labor standpoint" to undertake recording sessions in the hall. "The question is whether it's worth it. . . ." That has not kept the hall's management from having what Arron characterized as "conversations" with executives of at least one major American label noted for its philosophy of recording in good halls with a minimum of technical intervention. With Carnegie Hall sounding better than ever, there's every reason to hope that those conversations continue.

Theodore W. Libbey, Jr.

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BARTÓK ORCHESTRAL MUSIC: CHICAGO SYMPHONY, REINER

FRITZ REINER'S EARLY STEREO RECORDINGS OF Bartók's *Concerto for Orchestra* and *Music for Strings, Percussion, and Celesta* have now been recoupled on an hour-long RCA Compact Disc. The analog originals date from 1955 and 1958, and the very hissy sound they have retained does not make them logical candidates for digital remastering; the quality of the performances, however, places such technical considerations in the shade. Despite occasional patches of rhythmic untidiness, Reiner and the Chicago Symphony play these works with virile, idiomatic authority. This is by far the best Bartók to appear on CD to date. Robert C. Marsh's notes tell quite a bit about Reiner and Bartók, but next to nothing about the works performed. Playing time: 65:05. (RCA Red Seal 5604-2.)

T.T.

SCHUBERT STRING QUARTETS: HAGEN QUARTET

THE MEMBERS OF THE HAGEN QUARTET—siblings Lukas, Veronika, and Clemens Hagen, and second violinist Annette Bik—range in age from 20 to 24. In one sense, they are already seasoned professionals, having concertized together for some five years. But they have preserved the wide-eyed innocence of youth in their playing and have refused to succumb to the sort of jaded, routine interpretations all too frequent on the chamber music circuit.

That said, the foursome's recording of Schubert's String Quartets in E flat and A minor and of the *Quartettsatz* in C minor is bound to raise hackles in some quarters. To judge from these accounts, the Hagens have rethought the standard repertory in an exceedingly personal way. Their youthful enthusiasm allows them to maintain an inner intensity that prevents even the most lyrical sections from turning flaccid. Not only is their dynamic range broad, but their tonal palette is surprisingly varied, partly as a result of their careful, often sparing application of vibrato. Occasionally, the Hagens reach for extremes, turning tempo gradations and dynamic juxtapositions into mannered exaggerations. Far more frequently, it is true interpretive individuality that shines

through in their playing. Even when I don't agree with the Hagens, I am grateful for their stimulating, thought-provoking performances. Playing time: 66:53. (Deutsche Grammophon 419 171-2.) K.R.S.

VIVALDI CONCERTOS: ENGLISH CONCERT, PINNOCK

WITH NO FEWER THAN FOUR RECORDINGS OF *The Four Seasons* under their belts, it's about time Trevor Pinnock and his English Concert lent their virtuosity and flair to some of the several hundred other concertos Vivaldi wrote for various solo instruments and orchestra. This is possibly the most spectacular recording the ensemble has issued to date, simply because it adds to the group's reliably glorious string sound such a brilliant splash of contrasting sonorities. The group's concertmaster, Simon Standage, is joined by Elizabeth Wilcock in the Concerto for Two Violins, RV 516, and by David Reichenberg in the Concerto for Oboe and Violin, RV 548. James Tyler and Robin Jeffrey handle the gut-strung mandolins in the Concerto for Two Mandolins, RV 532 (in contrast to the standard modern practice, they pluck not with plectrums but with their fingertips). The diverse instruments of RV 558 include pairs of theorbos, recorders, chalumeaux, and violins played "in the manner of" the *tromba marina*. It's quite a panoply of sound color, and all of it is delivered with Pinnock's usual full measure of scholarly insight, winning panache, and impeccable good taste. The recorded sound is every bit as zesty as are the performances. Playing time: 52:37. (Archiv 415 674-2.) J.W.

BEETHOVEN VIOLIN SONATAS: YEHUDI AND JEREMY MENUHIN

TO THOSE WHO HAVE LONG REVERED YEHUDI Menuhin's peerless artistry, the present CD is likely to come as a disappointment. During the past decade, Sir Yehudi's technique—particularly his bow stroke—has become increasingly insecure, yet something of his old interpretive powers has always shown through, ennobling even the roughest passages. Now, however, one is conscious not so much of the music as of the technical setbacks: the rough attacks, the erratic rhythms, the questionable intonation, the bowing that

will no longer allow sustained phrases. To be sure, there are still some wonderful moments in these accounts of the *Spring* and *Kreutzer* sonatas, particularly in the slow cantabile themes, but they do not compensate for the technical problems.

At the piano, Jeremy Menuhin tends toward overpedaled textures that rob the music of much of its clarity, and the violin is so closely recorded as to create a painfully steely sonority. I, for one, would rather enjoy the memory of Sir Yehudi's past glories than be faced with this reminder of his present debilities. Playing time: 62:43. (Angel EMI CDC 4735-3.) K.R.S.

MUSSORGSKY "PICTURES": VIENNA PHILHARMONIC, PREVIN

ANDRÉ PREVIN CAN BE HEARD CONDUCTING the Vienna Philharmonic in live concert recordings, made in April 1985, of Mussorgsky's *Pictures at an Exhibition* (in the Ravel orchestration) and Ravel's *La Valse*. It is a disappointing release. Previn's interpretations of both works are dull and unimaginative. *Pictures* never gets off the ground, and *La Valse* lacks the kind of energy that would make sense of the piece. The Vienna Philharmonic is a superb ensemble and easily could do anything asked of it, but under Previn's prosaic direction, it fails to sound like one of the finest orchestras of the world. The performances are not helped by the sound, which is veiled, lacking in presence, and of decidedly limited dynamic range. Considering how ineffective these recordings are, one wonders why the label bothers to state that they are the first of both of these works ever made by the Vienna Philharmonic. Fritz Reiner's Chicago Symphony recording of *Pictures* for RCA, made in 1957, is sonically far superior, as is the Telarc version with Lorin Maazel and the Cleveland Orchestra. Playing time: 46:54. (Philips 416 296-2.) R.E.B.

VERDI "OTELLO" DOMINGO; LEVINE

DESPITE THE STAR BILLING PLACIDO DOMINGO gets on the cover, this 1978 *Otello* is James Levine's show all the way. Levine leads the National Philharmonic Orchestra in a sweepingly dramatic performance that mer-

its comparison with Toscanini's astonishing 1947 NBC Symphony broadcast version. The singing is solid and confident but, Renata Scotto's memorable Desdemona excepted, rarely dramatically illuminating. (Domingo's *Otello* and Sherrill Milnes's lingo reflect more of a Tucker/Merrill conception of *Otello* than, say, a Vickers/Gobbi conception.) Though the singers are occasionally buried in the tumult of the louder scenes, Richard Mohr's analog sound is appealingly bright and realistic. The single side break comes between Acts II and III, and each number is banded separately. Generally considered one of the most satisfactory modern recordings of *Otello*, this is a welcome addition to the CD catalog. Playing time: 134:14. (RCA Red Seal RCD2-2951.)

T.T.

DEBUSSY ORCHESTRAL MUSIC: NEW PHILHARMONIA, BOULEZ

THERE HAS NEVER BEEN A BETTER DEBUSSY conductor in our time than Pierre Boulez, and these 1968 performances of *La Mer*, *Jeu*, and the *Prélude à l'après-midi d'un faune* with the New Philharmonia, unsurpassed in clarity and tensile strength after nearly two decades, remain the best Debussy on record since Toscanini. Thomas Z. Shepard's analog sound is clean and realistic. This digitally remastered CD is absolutely worthy of inclusion in CBS's Great Performances series—or anybody else's, for that matter. Playing time: 50:37. (CBS Masterworks MYK 37261.)

T.T.

WYNTON MARSALIS: TRUMPET CONCERTOS

THE SKIMPY REPERTORY OF QUALITY TRUMPET concertos finally seems to have caught up with one of today's unquestioned virtuosos on that instrument: Wynton Marsalis. On a new CBS CD, he is heard (accompanied by the Philharmonia Orchestra under Esa-Pekka Salonen) attempting to do what he can with two negligible French examples of the genre: Henri Tomasi's Concerto for Trumpet and Orchestra (1949) and André Jolivet's Concerto No. 2 for Trumpet and Strings (1954). Despite the fact that each work calls for a different accompaniment, they sound alike: a lot of surface glitter posing as wit, grateful though unimaginative solo writing, and thematic material that might pass for Sauguet-*manqué*. It's all eminently pleasant and eminently forgettable. This disc is strictly for Marsalis's most devoted fans, but even they will probably object to the chintzy playing time, which mirrors the musical quality all too well. The CD sonics are up to snuff, though. Playing time: 34:11. (CBS Masterworks MK 42096.)

B.Z.

RACHMANINOFF SECOND: LONDON SYMPHONY, PREVIN

ANDRÉ PREVIN'S ANALOG RECORDING OF Rachmaninoff's Symphony No. 2, in E minor, Op. 27, made with the London Symphony Orchestra in 1973, has just been re-

leased by Angel. This has long been considered one of the finest recordings of the score, with sonics so outstanding that it was briefly available on two LPs in Angel's 45-rpm series. On CD, it sounds better than ever, with more definition and impact than before. There is no code on the CD to indicate whether this analog recording has been digitally remastered; I suspect that it has. Previn's recent Telarc digital recording of this symphony is richer in string tone, but some listeners may prefer the sonic approach of the older recording, which is in no way inferior. Both of Previn's recordings are preferable to Simon Rattle's erratic Los Angeles Philharmonic version on Angel. I also prefer them to the London recording with Vladimir Ashkenazy conducting the Concertgebouw Orchestra, which is bass-heavy and lacks clarity. Playing time: 58:51. (Angel EMI CDC 47159.)

R.E.B.

MOZART SYMPHONIES 31, 34: ENGLISH CHAMBER, McRAE

THE ENGLISH CHAMBER ORCHESTRA SOUNDS more boisterous under the direction of Paul Anthony McRae than it has under Daniel Barenboim, Jeffrey Tate, Alexander Schneider, and most of the other conductors in whose charge it has recorded Mozart over the years. These are nonetheless good performances, in which the vitality of the readings seems to demand a tonal quality a bit less refined than is the ECO's norm. I'm not familiar with anything McRae has previously done; to judge from the photo on the pamphlet cover, he's been around for a while, and perhaps a musically and sonically vibrant release like this one—even though it's on a low-profile new label—is just the thing to make listeners on this side of the Atlantic aware of his considerable talents. Playing time: 45:31. (Perpetua PR 7009. Distributed by Harmonia Mundi, U.S.A.)

J.W.

BAROQUE FAVORITES: ENGLISH CONCERT, PINNOCK

ORIGINAL INSTRUMENTS SUCCUMB TO MODERN technology in this grab bag of Baroque hits and later, lesser-known concertos. In live performances, Trevor Pinnock and his English Concert are rarely bashful about the spirited, at times headlong manner in which they make music. That much is faithfully captured, minus the natural warmth of the strings and winds. Overly bright sonics bring an oppressive steeliness to the shorter pieces, unfortunately misrepresenting the keyboardist and his company. Seekers of the definitive Pachelbel *Canon and Gigue*, Albinoni *Concerto a cinque*, Op. 9, No. 2, or Purcell *Chacony* in G minor are encouraged to look elsewhere. More successful is Charles Avison's tuneful Concerto Grosso No. 9, derived from Domenico Scarlatti. Pinnock is the soloist in Haydn's Piano Concerto in D, Hob. XVIII:11. His choice of harpsichord rather than pianoforte (either may be used) doesn't work with the breakneck tempos favored in the outer movements, and the per-

formance is flippant in a way unbecoming to "Papa." Playing time: 64:06. (Archiv 415 518-2.)

C.M.

COATES ORCHESTRAL SUITES: ROYAL LIVERPOOL, GROVES

LAST YEAR MARKED THE CENTENARY OF THE birth of Eric Coates (1886–1957), the English composer whose tuneful, highly listenable music enjoyed wide popularity during the last three decades of his life. He was rather like an English Leroy Anderson, writing mostly in small forms and producing many pops concert favorites. Some of Coates's best-known works can be heard on this new Arabesque CD, played by the Royal Liverpool Philharmonic Orchestra under the direction of Sir Charles Groves. Featured are the *London Suite* (Coates's most popular score), the *London Again Suite*, and two orchestral fantasies, *The Three Bears* and *Cinderella*. The performances are of exceptional merit, the transfers are excellent, and the overall sonic quality is more pleasing than that of many recent digital recordings. Let's hope that more of Coates's music will appear on CD. Suggested repertory: *The Four Centuries Suite*, *The Three Elizabeths*, *The Selfish Giant*, and more of the marches. Playing time: 54:13. (Arabesque Z 8036.)

R.E.B.

RIMSKY SYMPHONIES: U.S.S.R. NATIONAL, SVETLANOV

MUCH OF RIMSKY-KORSAKOV'S OUTPUT has been eclipsed by the popularity of *Scheherazade*, *Capriccio espagnol*, and the *Russian Easter Overture*. Fortunately, this new two-CD set issued by Le Chant du Monde offers his three symphonies in brilliant performances by the U.S.S.R. National Orchestra under the direction of Yevgeny Svetlanov. The recordings date from 1977 and 1983.

César Cui called Rimsky's Symphony No. 1 "the first Russian symphony"; Tchaikovsky called his Symphony No. 3 "astonishingly original, new, fantastic." But Symphony No. 2, Op. 9, which Rimsky later decided to call a symphonic suite, is the only one of the three to have achieved any degree of popularity. Written in 1868, it is based on the story of the legendary Arab warrior-poet Antar, a subject that gave the composer ample opportunity to write exotic music of oriental splendor. Debussy called it "a pure masterpiece . . . with dazzling orchestration and rhythm."

Under Svetlanov's imaginative baton, all three works receive performances of such drama and beauty that one might think Stokowski was at the helm. Sonically, the recordings are a bit coarse, but the massive string sound is well captured and the brass has plenty of bite. Liner notes also discuss the *Russian Easter Overture*, which, although it easily could have been accommodated, is not included in the set. Considering the quality of the performances, that is unfortunate. Playing time: 106:08. (Le Chant du Monde LDC 278.771/72. Distributed by Harmonia Mundi, U.S.A.)

R.E.B.

What Are the French Doing In Frisco?

ROBINA YOUNG, THE ENGLISH MUSICAL director of Harmonia Mundi U.S.A., the American branch of the company founded and based in France, says of her firm, "We're a bunch of mavericks." In France—a country so centralized that traveling by train from any point A to any point B almost forces you to go via Paris with a change of trains, and probably a change of stations—the parent Harmonia Mundi company has located not in the capital but in the Provençal town of St.-Michel, not least because of the subtropical climate and the more civilized tempo of life. When Young and René Goiffon, Harmonia Mundi U.S.A.'s president, came from there to open an American office in 1982, they shunned the East Coast in favor of Los Angeles—not least because its climate resembles that of Provence. Furthermore, they sought—and found—West Coast musicians, as well as Easterners, whom they found eminently worth recording. In April 1984, they recorded Handel's cantata *Apollo e Dafne* with soloists and the Philharmonia Baroque of San Francisco under its regular conductor, Nicholas McGegan. They subsequently recorded San Francisco's admirable male chorus Chanticleer in masses by William Byrd. And recently, they returned to San Francisco for more Handel sessions with the Philharmonia Baroque—sessions that bore out the ancient adage about the night's seeming darkest just before the dawn.

The recording will eventually bear the title *Arias for Senesino*, referring to Francesco Bernardi (called Senesino; c. 1680–c. 1750), one of the two sensational castrati Handel engaged for London. (Senesino left such an indelible impression that he still rates almost a full page in the *New Grove*.) The first session, on a Saturday afternoon, got off to the worst possible start, with the excellent European countertenor originally engaged falling ill and, in spite of a brave try, simply having to cancel. Young, Goiffon, and McGegan picked up a generous supply of California's finest wines and withdrew glumly to McGegan's apartment. There the host reminisced wistfully about some outstanding Handel singing he had heard by the young New York countertenor Drew Minter. After only the briefest of discussions, they called Minter's New York number—and had to leave a message on his answering machine, having no idea when he might get it. Some time later, to be safe, they left another message, praying he had not taken off for a long weekend.

Well after midnight in Manhattan, Minter finally heard the messages and took them



CONDUCTOR NICHOLAS MCGEGAN

for somebody's little joke, but he phoned back anyway. A few hours later, a galvanized Minter caught the first available connection out of New York and spent his flight time (plus a maddening layover in Denver) brushing up his familiarity with Senesino's florid arias from *Giulio Cesare*, *Orlando* (which had brought Minter rave reviews when he did the entire opera in St. Louis), *Rodelinda*, *Riccardo Primo*, *Flavio*, and *Tolomeo*. At 1:30 p.m., he landed in San Francisco, and an hour later, he began rehearsing in the Lone Mountain College's chapel. The next three days encompassed the eight recording sessions originally scheduled. In all that turmoil, Goiffon didn't think to phone me until it was time for the very last recording hour—and by the time I reached the chapel, things had gone so swimmingly that the musicians had already packed up and gone home. Soon after my introductions to Minter and McGegan, they also left to shop for the feast of celebration slated *chez* McGegan that night. Minter radiated the quiet self-satisfaction of a mezzo-soprano canary that had unexpectedly swallowed, with gusto, a sizable cat.

Since I had missed out on the music completely, Young gave permission to Peter McGrath, the engineer they had brought in from Florida, to make an exception to traditional recording security and let me listen to an original—unedited—tape. Supplied with gourmet cookies and killer coffee ("We are, after all, a French company"), I donned headphones to listen, with closed eyes, to the cruelly taxing coloratura aria "*Agitato da*

fiere tempeste" from *Riccardo Primo*. By the time that heavenly music ended, I realized that a broad smile of pleasure had spread over my entire face. ■

HANDEL:

Apollo e Dafne; Concerto for Oboe and Orchestra, in G minor.

● J. Nelson*, D. Thomas*, Haynes; Philharmonia Baroque Orchestra, McGegan. Harmonia Mundi HM 90.5157. © □

THE CLASSICAL GREEK MYTH OF DAPHNE'S transubstantiation from the biological realm into the botanical provided Jacopo Peri with the idea for the first opera in history (1597) and Heinrich Schütz with the story for the first German opera (1627). The music for both works, alas, has vanished, and so has the double-length opera *Der beglückte Florindo*; *Die verwandelte Daphne* that Handel composed during his Hamburg sojourn (1704–1706). The cantata offered here numbers among the hundred or so he tossed off for his ecclesiastical patrons during his Italian years.

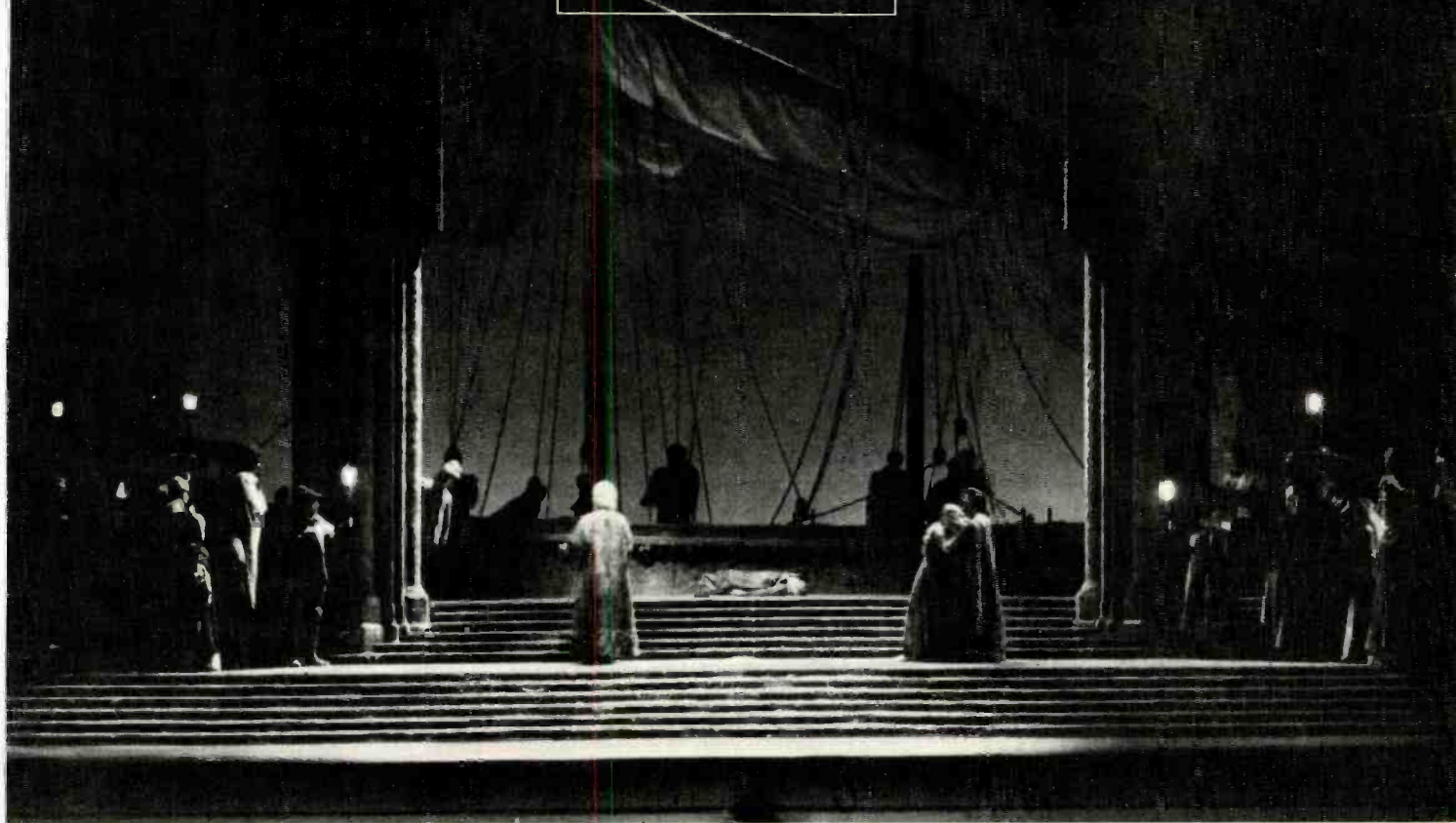
Harmonia Mundi's American branch has taken a commendable interest in our West Coast musical institutions, and in this case it has joined forces with an outstanding San Francisco ensemble of 20 instrumentalists devoted to making Baroque music sound the way it did when first performed. I could do with a bit more precision of rhythm and attack in some of the faster parts, but otherwise the group distinguishes itself.

The two vocal soloists handle their florid, taxing parts with ease, although they might have made more of their texts at the point where Apollo starts pawing the ground and Daphne tells him where to get off. The oboist Bruce Haynes, playing a copy of a 1720 instrument, attracts attention as early as the cantata's third movement with the rich beauty of his tone; his performance of the brief four-movement oboe concerto that completes this record proves an attractive bonus. The admirable recording brings the musicians right into the room with you.

Nicholas McGegan conducts both works with verve, and his program notes have left me in his debt for introducing me to Cardinal Ottoboni, one of Handel's Roman hosts, who "is supposed to have had his bedroom decorated with portraits of his mistresses disguised as saints," and to Margherita Durastanti, possibly the first soprano to sing Handel's *Dafne*: "a fine artist in concert and on the stage, in spite of a substantial physique which earned her the unflattering nickname of the Elephant." P.M.

HIGH FIDELITY ARCHIVES

ABBADO'S VERDI: NEWLY MINTED ON CD



HIGH FIDELITY ARCHIVES

**VERDI:
Macbeth.**

① Verrett, Domingo, Cappuccilli, Ghiaurov. Orchestra and Chorus of the Teatro alla Scala, Abbado. Rainer Brock, prod. Deutsche Grammophon 415 688-2 (3, A). © 2709-062 (3).

**VERDI:
Simon Boccanegra.**

① Freni, Carreras, Cappuccilli, Van Dam. Orchestra and Chorus of the Teatro alla Scala, Abbado. Rainer Brock, prod. Deutsche Grammophon 415 692-2 (2, A). © 2709-071 (3).

**VERDI:
Messa da Requiem.**

① Ricciarelli, Verrett, Domingo, Ghiaurov. Orchestra and Chorus of the Teatro alla Scala, Abbado. Rainer Brock, prod. Deutsche Grammophon 415 976-2 (2, A). © 2707-120 (2).

**VERDI:
Un ballo in maschera.**

① Ricciarelli, Gruberova, Obraztsova, Domingo, Bruson. Orchestra and Chorus of the Teatro alla Scala, Abbado. Rainer Brock, prod. Deutsche Grammophon 415 685-2 (2, A). © 2740-251 (3) □ 3378-111 (3).

**VERDI:
Aida.**

① Ricciarelli, Obraztsova, Domingo, Nucci, Ghiaurov, Raimondi. Orchestra and Chorus of the Teatro alla Scala, Abbado. Rainer Brock, prod. Deutsche Grammophon 410 092-2 (3, D). © 2741-014 (3).

WITH THE TRANSFER TO COMPACT DISC OF THE analog recordings of Verdi's *Macbeth*, *Simon Boccanegra*, *Messa da Requiem*, and *Un ballo in maschera* and the digital recording of *Aida*—following the simultaneous LP/cassette/CD release in 1985 of *Don Carlos*—Deutsche Grammophon has made the entire Claudio Abbado/Teatro alla Scala legacy available on CD. The recordings chronicle not only the progression of opera in Milan during Abbado's tenure as music director there, but also the artistic path he has chosen to take in the past decade. In that context, listening to these performances in chronological order is a most dispiriting affair.

Abbado began his affiliation with La Scala brilliantly. Under his aegis, some of the great stage directors and singers were unit-

CLASSICAL
REVIEWS

GIORGIO STREHLER'S PRODUCTION OF "SIMON BOCCANEGRA," SEEN ABOVE, WAS ONE OF THE HIGHLIGHTS OF LA SCALA'S 1976 VISIT TO THE UNITED STATES. ABBADO'S RECORDING OF THE SCORE FOLLOWED IN 1977.



HIGH FIDELITY ARCHIVES

RECORDING "BOCCANEGRA"—ABBADO (LEFT) CONFERS WITH FOIANI, VAN DAM, AND CAPPUCILLI

ed for performances that set new standards for the works undertaken. The Scala company brought four of its productions to Washington, D.C., and triumphed unreservedly with stunning accounts of *Boccanegra*, *Macbeth*, and Rossini's *La Cenerentola*, all led by Abbado, and Puccini's *La Bohème*, with Georges Prêtre at the helm. Clearly, Abbado was the star of the show. His conducting of the Verdi works, especially of *Boccanegra*, created a sensation. He was able to galvanize orchestra, chorus, and soloists into a hair-raising whole; anyone who heard his *Boccanegra* live will never forget the visceral and psychological impact of the Council Chamber scene, to cite just one memorable example.

Happily, the very elements that made that performance so memorable are to be heard on the recording as well. Abbado's particular genius, in the mid '70s, was not only in bringing works dramatically to life but in highlighting the structural and purely musical marvels of the scores. Since *Boccanegra* is still considered by many to be marginal Verdi, Abbado's recording was a revelation and proof positive that the work had finally to be recognized as something special in the Verdi canon.

The cast was vintage La Scala, starting with the eloquent, impassioned hero of Piero Cappuccilli, the resounding Fiesco of Nicolai Ghiaurov, and the brash, impetuous Adorno of José Carreras. There was even a bit of lavish casting in the crucial but usually miscast role of Paolo—José van Dam's account of the part brought the role forward in the dramatic perspective. And if Mirella Freni's beautifully sung Amelia did not illuminate the part in the way she managed on a live telecast of this very production, nevertheless the voice sounded so pretty on the recording that one could forgive a good deal.

On its release, I greeted this set as one of the most important Verdi performances of the day, and ten years later—made even

more intense for being on two handsomely transferred CDs—I still feel it ranks with the best of Toscanini, among the handful of landmark events in the Verdi discography. The excellent *Macbeth*, recorded a year earlier, did not rate quite as high in my reckoning, despite the presence of Cappuccilli in the title role, Ghiaurov as Banquo, and a fresh-voiced Plácido Domingo as Macduff. Abbado brought his accustomed magic to this performance as well. But the *Lady Macbeth* of Shirley Verrett, which could be viscerally exciting in person, lacked real dramatic profile on record. One couldn't help noticing that Verrett needed to distend her mezzo to make the voice fit the music; moreover, a certain generality of intensity under-

*We need the great Abbado
back. He is a major
presence in opera . . .*

mined her intentions at just about every crucial juncture. Also, the tubbiness of sound endemic to the Scala recordings under review was especially pronounced here.

The opera, of necessity, takes up three CDs, but the folks at DG placed a needless side break before the finale of the third act. Perhaps they felt that a 48-minute third CD would look more "generous" than a 40-minute side. But the whole point of CD is to create long, uninterrupted stretches whenever possible. Not keeping the third act intact sabotages the long arch of Abbado's performance—an arch that should have finally been restored on the CD. This is not the first time a really dumb break has been arbitrarily made, but it is an especially annoying instance of the practice. Recording companies should be thinking in terms of listener convenience, now that CD is the accepted

standard.

With the recording of the Requiem in 1980, the changes in Abbado's approach to music were becoming all too evident on record as well as in the concert hall. Gone was the passion; in its place was a cool, calculated restraint, one that focused on musical structure without ever seeming to get involved with the emotional content of the work at hand. Also, Abbado was beginning to rely on Katia Ricciarelli, a singer he clearly liked working with, regardless of whether she was right for the role. She was joined in the Requiem by Shirley Verrett, Plácido Domingo, and Nicolai Ghiaurov, all in poor form. This recording, it should be noted, was a by-product of the salvage operation on the failed Carlos Kleiber *La Bohème* sessions. While it is perhaps understandable why the reading never gels, it remains a singularly unsatisfactory listening experience.

In 1981, Abbado committed his views on *Ballo* to posterity. This is one of those performances in which even the participants one expected to do well are off form. Abbado is so emotionally detached as to sound virtually uninterested; Edita Gruberova makes an irritatingly shrill Oscar; Elena Obraztsova is an overbearingly booming Ulrica; Renato Bruson's Renato is stilted and congested; and as Riccardo, Plácido Domingo goes through the motions in what is usually one of his finest parts. Then there is Ricciarelli's Anelia. It never was her part, though she took it all over the opera world as if to prove her critics wrong. By this point, the incipient shakiness in the voice was becoming pronounced, and every ascent above the staff on this recording threatens disaster. But if Ricciarelli's contributions to this unhappy *Ballo* were shaky, worse was yet to come.

Ricciarelli began her career with no temperament and a gorgeous but unpolished lyric soprano. She was pushed vehemently before the public after winning the RCA/Italiana prize and never took the time to polish up the rough edges of her instrument. She also began accepting offers to perform or record repertory that her voice was not meant for. By the time she got to DG, in the hands of both Abbado and Herbert von Karajan, not only was she considerably beyond her voice type in repertory, but the instrument itself was coming apart. She recorded *Aida* for Abbado the same year she did *Turandot* for Karajan. On both recordings, the voice has a huge wobble in the upper range. Ricciarelli cannot hold on to the high notes without drooping in pitch, and she resorts all too often to a croony pianissimo that enervates the musical line. Her *Aida* is a disaster on every count. And so is the rest of this recording.

Domingo is in especially tired and sour voice as Radamès. Obraztsova, a legendary Amneris, is out of voice, as is Ghiaurov as Ramfis. Leo Nucci is overparted by Amonasro, and neither Ruggero Raimondi (The King) nor Lucia Valentini-Terrani (Priest-

ess) do well. Most distressing of all, however, is Abbado. That he would allow Ricciarelli to sing Aida at all is discouraging. (Looking down the pike to the *Don Carlos*, one realizes that Abbado was putting congeniality and comfort in the studio ahead of operatic common sense, and when a conductor of Abbado's gifts and power plays that game, the art form suffers.) That his conducting continued to be so detached, so devoid of emotion and passion, is disturbing. The only good thing I have to say for this all-digital set, now on CD, is that it is well laid-out, with an act apiece on the first two CDs and the last two acts on the third.

Happily, I heard a live Requiem in Chicago last November that showed generous signs of life and commitment, so there is every hope that this phase of Abbado's artistic progression is ending. We need the great Abbado back. He is a major presence in opera, as his earlier records prove with a vengeance. We also need an Abbado willing to put aside personal favoritism for the sake of the artistic integrity his performances used to manifest so brilliantly. Now that he is in Vienna, we can only hope that the DG opera recordings that are sure to emerge from that venue will recall the magic of the Scala *Bocca-negra* and *Macbeth*. Meanwhile, do pick up these two sets on CD. They sound even better than the digital *Aida* (which, for the record, is marred by what sounds like tape hiss—something that is not supposed to intrude on an all-digital recording). And they remind us of the greatness of Verdi and of the particular splendors of Abbado at his peak.

Thor Eckert, Jr.

BAX:

Spring Fire Symphony; Symphonic Scherzo; Northern Ballad No. 2.

Royal Philharmonic Orchestra, Handley. Brian Couzens, prod. Chandos CHAN 8464 (D). © ABRD 1180. □ ABTD 1180.

ANYONE WITH A HANG-UP ABOUT MUSICAL brevity had better approach the works of Sir Arnold Bax with caution. He often wrote too loosely and too long, without sufficient inner inspiration to sustain interest. However, the same can also be said of Darius Milhaud, Heitor Villa-Lobos, and Bohuslav Martinů, not to mention a number of 20th-century Germans! They all had another fault: None of them ever wrote a work that entered the standard repertory. At least Béla Bartók, for all his many, many faults (emotional sterility not the least among them), had the sense to write the *Concerto for Orchestra*.

One thing anyone curious enough to purchase this disc will not find wanting is emotional warmth and sonic luxuriance. Those are two qualities Bax possessed in the fullest and shared with the world in abundance. Chandos deserves tremendous credit for recording these (and other) Bax compositions, because few of them figure in the programs of major British orchestras, to say nothing of orchestras anywhere else. It is also time to congratulate Vernon Handley

Format Key

- ⊙ LP
- ⊞ Cassette
- Ⓛ Compact Disc
- Ⓜ Videocassette
- Ⓢ Videodisc
- Ⓡ Open reel

RECORDING INFORMATION

- (A) analog original
- (D) digital original

Large symbol beneath title indicates reviewed format. Small symbols following catalog number of reviewed format indicate other available formats (if any).

Catalog numbers of all formats of a particular recording usually are identical except for differing prefixes or suffixes. Catalog numbers of formats other than the reviewed format are printed only if their basic numbers differ substantially from that of the reviewed format.

Arabic numeral in parentheses indicates number of items in multi-item set. Unless otherwise indicated, all multi-LP sets are in manual sequence.

for quietly building up a discography of British orchestral music that is second to none these days and to commend his performances, which rival any from the past.

This is a release aimed at explorers with a strongly romantic spirit. So explore away; the music will repay over and again! Playing time: 54:10.

Thomas L. Dixon

DELIBES:

Coppélia (complete ballet).

National Philharmonic Orchestra, Bonyngé. London 414 502-2 (2, D). © (2). □ (2).

RICHARD BONYNGÉ IS TO BE COMMENDED FOR his efforts on behalf of little-known ballet scores, many of which, thanks to him, have been recorded for the first time. But he is less successful as a conductor of the standard repertory. His versions of Tchaikovsky's *Nutcracker*, *Sleeping Beauty*, and *Swan Lake* ballets are not particularly successful, and this new recording of *Coppélia* is little more than adequate. Bonyngé's approach is unimaginative and lacking in both magic and mystery, which surely are prerequisites for this toyshop ballet. The results are in no way as satisfying as the recordings of the complete ballet by David Zinman and Antal Doráti, which, unfortunately, are not yet available on Compact Disc.

Bonyngé and the National Philharmonic recorded this account late in 1984 in Walthamstow Assembly Hall; the sound is rather dry, but the production has, on the whole, been well-engineered. London's packaging of the ballet without filler, however, offers at best a limited value: The playing time for Act I is 35:57, while that for Act II is 54:30, bringing the total playing time of the two-CD set to slightly more than 90 minutes. The inclusion of additional material—or of extracts from Bonyngé's fine recordings of ballet music by Massenet and Meyerbeer—might have made this set more appealing.

Robert E. Benson

DENISOV:

La Vie en rouge*; "Colin and Chloé," from L'Écume des jours.

Hartman*, Leet, Terentievaf, Dumzevf, Ensemble Kaléido-collage*, Estonian Academic Chorusest; Orchestra of the Ministry of Culture of the U.S.S.R., Sinaiskyf. Chant du Monde LDX 78806 (A). (Distributed by Harmonia Mundi, U.S.A.)

WHEN I FIRST MET EDISON DENISOV AT THE Warsaw Autumn festival of contemporary music and he played me a tape of the 1964 Leningrad world premiere of his impressive solo cantata *The Sun of the Incas* (to four poems by Chile's Nobel laureate Gabriela Mistral), I realized at once that Soviet music had definitely not stood still since the cruelly repressive Stalinist edicts of 1948. Denisov, a shy, likable little burr-headed Siberian born in 1929, has never taken to the musical barricades or waved any dissident banners, but neither has he followed the easier path of least resistance. Instead, in his quiet way, he has continued to write *his own* music, which links him aesthetically to the dodecaphonists, even with the aleators, of the West. He has come to enjoy a greater reputation abroad than in Moscow, but even in his homeland he has attained a measure of sluggish, almost grudging recognition, as shown by the recording of the second of these works—in maverick Estonia—by Melodiya, the state-controlled Soviet recording enterprise.

Both works set texts by the interesting French writer Boris Vian; the second derives from Denisov's 1980 opera *The Spindrift of Days*—finally unveiled by Paris's Opéra Comique in 1986, an opera some enterprising American company ought to look into. Chant du Monde, incomprehensibly, infuriatingly, fails to provide either the original French for *La Vie en rouge* or the Russian translation sung in *Colin and Chloé*. Even so, this recording will fascinate anyone interested in the music that a few conscientious Soviet composers, some of them richly gifted, continue to write largely "for their desk drawers," as the saying in that part of the world goes. Bull's-eye intonation by these vocalists, in their lyrical but extremely demanding parts, and the complete security of the instrumentalists, in styles ranging from serial through jazz to French pop, characterize this LP—a genuine find for the connoisseur of contemporary music.

Paul Moor

HAYDN:

String Quartets: Op. 71, Hob. III: No. 69, in B flat; No. 70, in D; No. 71, in E flat; and Op. 74, Hob. III: No. 72, in C; No. 73, in F; No. 74, in G minor.

Tátrai Quartet. Zoltán Hézszer, prod. Hungaroton HCD 12246/47 (2, D). © SLPX 12246/8 (3). (Distributed by Qualiton Imports.)

HAYDN'S OPUSES 71 AND 74 WERE CONCEIVED as a single set of six quartets, but they were split into two groups of three upon publication. According to the superbly informative liner notes by musicologist László Somfai, the six were written in Vienna in 1792–93,

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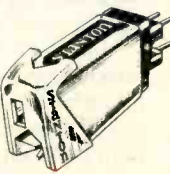


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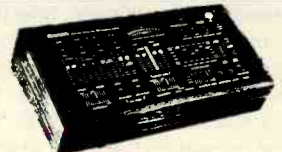
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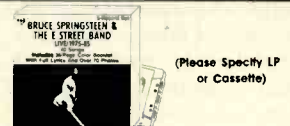
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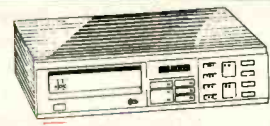
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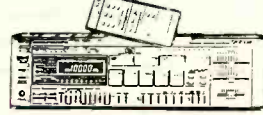
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during the respite between the composer's trips to London. But their style reflects the requirements of the London concert scene: Slashing forte openings, virtuoso passages, and daring harmonic and formal innovations lend these quartets a boldness ideally suited to public performance.

The quartets of Opuses 71 and 74 are among the jewels of the entire chamber literature, but—with the exception of Opus 74, No. 3 in G minor ("The Rider")—they remain surprisingly little known. Unfortunately, the Tátrai Quartet is unlikely to correct this neglect, because its performances can be recommended only with grave reservations. On the positive side, the recorded sound is warm and the Tátrai's tone pleasingly blended. The quartet offers stylish readings, full of the sorts of insights into phrasing and timbre that can be achieved only after decades of familiarity with the material. Although their playing is crisp, it is rarely robust, and in their attempt to avoid anachronistic excesses, they sometimes end up sacrificing strength.

What a pity it is that the players cannot translate their stylistic insights into technical achievement! Much of the blame for the problem falls on the first violinist, who seems to be struggling against his material rather than communicating its bold flair. Vilmos Tátrai is unsteady in intonation and unpredictable in articulation, and often his vibrato fails and his tone turns strident. He is most successful in those slow movements and minuets that lack exposed, rapid passages, such as the gorgeous Largo of Opus 74, No. 3.

Compact Disc buyers are hereby both warned and encouraged: These quartets deserve better, but no other reading is likely to materialize in the immediate future. For the sake of getting acquainted with six neglected masterpieces, buy the Tátrai; but for Haydn's sake, let us hope that a Tokyo, Juilliard, or Guarneri set is not too far away. Playing time: 136:25. *K. Robert Schwarz*

HILDEGARD OF BINGEN:
Symphonia armonie celestium
revelationum (selections).

● Kirkby; Gothic Voices, Page. Martin Compton, prod. Hyperion CDA 66039 (A). ⊕ ⊞
NOWADAYS, PEOPLE SUFFERING FROM VISUAL or auditory hallucinations get diagnosed as schizophrenic and treated accordingly. In more innocent times, such unfortunates were recognized as visionaries, saints, and prophets—and, in a few instances, even founded what by today have become major world religions. The Abbess Hildegard of Bingen (1098–1179) never made it to sainthood, although four popes went to bat for her, but this extraordinarily gifted woman did create for herself a completely unique niche in history as a visionary, naturalist, playwright, poet, composer, and, all in all, the most celebrated woman of her age: "the Sibyl of the Rhine."

Born in Bimersheim (today in West Ger-

many) in 1098, she had noble but less than loving parents who relegated her to the convent of Disibodenberg when she was eight. At fifteen, she took her vows, and by 1136, she had succeeded to the station of superior. Around 1148, Hildegard founded the convent of Rupertsberg above Bingen (25 miles southwest of Mainz), and by 1163, she was being referred to as abbess there. *Scivias*, her "book of visions," occupied her for ten years. In the words of Dr. Christopher Page, this recording's *spiritus mentor*, "She was also involved in politics and diplomacy; her friendship and advice were sought by popes, emperors, kings, archbishops, abbots, and abbesses with whom she corresponded voluminously." The eight selections of mostly unaccompanied plainchant recorded here come from her collection of music and poetry entitled *Symphonia armonie celestium revelationum*, including some of the finest songs produced during the Middle Ages.

This recording addresses a small, specialized audience, but that audience will find it cause for rejoicing. The notes include the original Latin with exemplary translations, and the true devotee can even obtain Hildegard's original manuscripts in facsimile. These performances and their recording come as close to perfection as makes no matter. *Paul Moor*

PAINE:
Sonata for Violin and Piano, Op. 24,
in B minor; Romanza and Scherzo for Cello
and Piano, Op. 30; Larghetto and Scherzo for
Piano, Violin, and Cello, Op. 32, in B flat.

● Silverstein, J. Eskin, V. Eskin. Steven Ledbetter, prod. Northeastern NR 219-CD (D).

IT'S NOT LIKELY THAT JOHN KNOWLES PAINE (1838–1906) is going to displace Brahms, Schumann, or Dvořák in the hearts of lovers of Romantic chamber music. But recordings such as this will doubtless do much to convince listeners that Paine was not only one of the few Americans producing serious compositions a hundred years ago but also—by any standard—quite a solid craftsman. Offered here are the 1905 revised version of the 1875 Violin Sonata, the 1876 *Romanza and Scherzo* for cello and piano, and the 1877 two-movement Piano Trio. Like the yet-to-be-recorded String Quartet in D from 1859, these are structurally and harmonically rather imitative of what was coming out of central Europe in the mid-19th century (Paine's first teacher, in America, was the Dresden-trained Hermann Kotschmar, and from 1858 to 1861 he studied at the Hochschule für Musik in Berlin). Nevertheless, there's a melodic freshness about these pieces—a projection of spaciousness, perhaps, coupled with feelings of passionate urgency and heroic derring-do—that might strike some chauvinistic listeners as uniquely American in spirit.

The performances by violinist Joseph Silverstein, cellist Jules Eskin, and pianist Virginia Eskin are brilliant, and the recorded sound is sparkingly clean, but the tone of

the entire disc makes it seem as though the players are hovering in the mezzo-forte to forte range almost all of the time. Playing time: 46:17. *James Wierzbicki*

STRAVINSKY:
Symphony No. 1, in E flat, Op. 1;
Scherzo fantastique, Op. 3.

● Detroit Symphony Orchestra, Doráti. London 414 456-2 (D). ⊕ ⊞

THESE WORKS OF STRAVINSKY'S YOUTH SOUND more like the lesser-known music of his teacher, Nicolai Rimsky-Korsakov, than products of the composer of *Le Sacre du printemps*. His first symphony is, in fact, dedicated to Rimsky; premiered in 1907 and revised several times in later years, it remains an inconsequential—if pleasant—work that is too long for its limited inspiration. The *Scherzo fantastique*, which received its premiere two years after the symphony, is a busy, gossamer-textured bit of fluff (14 minutes of it!) suggested by Maeterlinck's essay *La Vie des abeilles*. The bustling character of the music does indeed suggest the activities of buzzing bees, and Doráti's performance proves good enough to make this the highlight of the recording, even if it does not match the delicacy achieved by Boulez in his CBS recording with the New York Philharmonic, not yet on Compact Disc. I have not heard London's new CD of the *Scherzo* performed by Charles Dutoit and the Montreal Symphony, but I imagine that most listeners will prefer the coupling on that record (the complete *Firebird* ballet and *Fireworks*, Op. 4) to the Symphony No. 1. London's reproduction on this 1984 recording is typical of its work in Detroit: remarkably clean, vivid, and wide in dynamic range. Playing time: 55:52. *Robert E. Benson*

ZORN:
The Big Gundown.

● Zorn, Lindsay, Galas, Fier, others. Yale Evelev, prod. Nonesuch 79139-2 (A). ⊕ ⊞

The *Big Gundown*; *Peur sur la ville*; "Poverty" (Once Upon a Time in America); *Milano odea*; "Erotico" (The Burglars); *Battle of Algiers*; "Giù la testa" (Duck, You Sucker!); "Metamorfosi" (La Classe operaia va intardiso); *Tre nel 5000*; *Once Upon a Time in the West*.

JOHN ZORN HAS LONG BEEN A MOVING FORCE within the rock-oriented new-music scene of New York's East Village. Working together with a number of sympathetic performers, many of whom are themselves composers, Zorn has created a music that relies on improvisation within elaborate gamelike schemes that lend a remarkable sense of order to the seeming anarchy.

The Big Gundown finds Zorn reworking the music of Italian film composer Ennio Morricone. Morricone, who collaborated with director Sergio Leone on such immortal films as *Once Upon a Time in the West* and *The Good, the Bad, and the Ugly*, writes music that is a perfect vehicle for Zorn's arrangements. Both composers share a genuinely cinematic style, one that is infused with

quick cuts and abrupt juxtapositions of diametrically opposed materials.

Zorn's approach to Morricone is somewhat akin to Stravinsky's approach to Pergolesi: The original music is fractured and then recombined in cubistic fashion, resulting in a striking concoction of styles and genres. The effect is, rather than parody, more of an irreverent homage. Zorn has been influenced by the din of rock composers Glenn Branca and Elliott Sharp, by ethnic music ranging from Brazil to Japan, by the exuberance of jazz improvisation, by minimalist repetition, and by the discipline and dissonance of "classical" new music, but he succeeds in producing a collage as notable for its integration as for its diversity.

The list of participants on *The Big Gundown* reads like a veritable Who's Who of New York's downtown music scene. Zorn himself provides the raucous, wailing saxophone, while the shrieking guitars are the work of Arto Lindsay. Diamanda Galas offers some of her characteristically demonic vocal cries, and Anton Fier contributes the pounding drums.

Zorn turns the task of arrangement here into a brazenly creative, utterly personal statement. One can only anticipate with excitement the effect that *The Big Gundown* will have on Zorn's own musical language.

K. Robert Schwarz

THEATER AND FILM

RODGERS AND HAMMERSTEIN:

South Pacific.

Te Kanawa, Carreras, Vaughan, Patinkin, Ambrosian Singers, London Symphony Orchestra, Tunick. Jeremy Lubbock, prod. CBS Masterworks MK 42205 (D). © 83

ONE MAY REASONABLY ASSUME THAT THIS undertaking owes its provenance to the success (and sales) of Leonard Bernstein's Deutsche Grammophon recording of his *West Side Story* with a full-blown operatic cast. CBS here offers us the same great soprano heard in that recording, who is much beloved all over the world for her operatic roles. Curiously, she seems at pains *not* to sound the way we otherwise know and love her. In fact, the first time I heard her version of U.S. Navy Ensign Nellie Forbush's transvestite number, "Honey Bun," I seriously suspected CBS of having brought in another, anonymous pop singer—after the manner of Walter Legge, who once got his wife, Elisabeth Schwarzkopf, under tight security, to retouch a faltering high note or two in Kirsten Flagstad's late *Tristan und Isolde* recording. Almost never, throughout this recording, does Kiri Te Kanawa regale us with the glorious voice that made her famous.

José Carreras fares better—but then, Richard Rodgers tailored the role of Emile de Becque to the great operatic voice of Ezio Pinza. (Jonathan Tunick, the conductor here, has transposed both leading roles to accommodate these singers.) Sarah Vaughan reportedly "sat at . . . Tunick's feet

while feeling her way into the material, then moved to the microphone and began a series of remarkable approaches to Bloody Mary's songs. Each take was a different work unto itself—some free-wheeling, some more disciplined; all knowing." Knowing what? Her trademark style—brilliantly effective in her customary material—here turns Bloody Mary from a rapacious old Polynesian harridan into a super-cool, laid-back American black woman, a disconcerting development in light of Hammerstein's original plot. Mandy Patinkin sings Lt. Joe Cable, USMC, in an expert best-of-Broadway manner.

The 32 Ambrosian Singers sound authentically American, and the 55 members

of the London Symphony who play on this recording do full justice to Robert Russell Bennett's inspired original orchestrations. On the whole, though, the possibility of having the succession of the DG *West Side Story* and this CBS *South Pacific* develop into a trend makes me a little nervous. Mary Martin, beyond any doubt, sang certain passages of this endearing music more effectively than Dame Kiri does. God protect us from money-grubbing revivals of *Oklahoma!*, say, with Eva Martón as Laurey, Dietrich Fischer-Dieskau as Curly, and Tatiana Troyanos as Ado Annie, with Carlos Kleiber conducting the Berlin Philharmonic and the choir of St. Hedwig's Cathedral. *Paul Moor*



Photo: Massotti



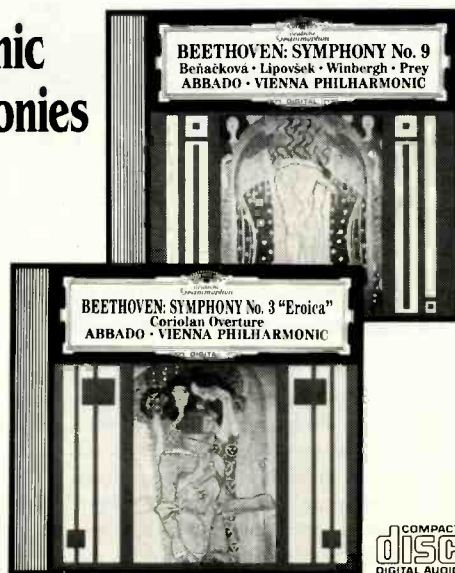
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SPECIAL REPORT



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THE CD SOFTWARE PARADE

THE ROLLING STONES

EVEN AT THIS LATE DATE IN A CAREER THAT seems to continue on by sheer inertia, the Rolling Stones still have the power to provoke. The simultaneous appearance of the band's London Records and Rolling Stones Records catalogs on Compact Disc is one of those corporate-induced events that nonetheless sparks aesthetic judgment. If the Stones' weighty myth deemed that this lion's share of their releases be archived on such a permanent and expensive medium, it's worth asking how the music that spawned

the myth is holding up and whether it benefits from that medium. Especially for an old fan faced with the prospect of shelling out \$15 for a CD of music he can remember paying \$4 for 20 years ago, two main questions arise: Which Stones albums are worth owning in archival form, and just how much better are these CDs than the LPs? In such a context, the CD is a luxurious enhancement of what has already been proven good art; at the same time, its powers of definition cannot make a dull performance anything more than a well-textured dull performance.

Over the long haul, the Stones have hardly had an infallible career (who has?),

and especially on their post-1972 records, the self-named greatest rock 'n' roll band in the world has often seemed only the world's laziest one, churning out thoughtless compilations and listless live recordings when it wasn't maintaining a bored professionalism in the studio. But what is startling as we look at the shape of the Stones' career is how they barely made a false move in the studio (excepting the botched psychedelic goof of 1967's *Their Satanic Majesties Request*) from their 1964 debut to the glorious slag-heap depths of 1972's *Exile on Main Street*. And the biggest jolt to the memory for old fans (and revelation to the uninitiated) is the solidity

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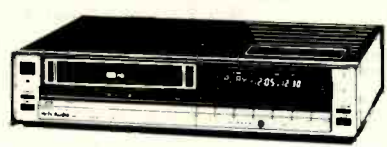
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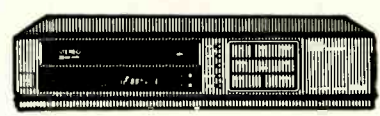
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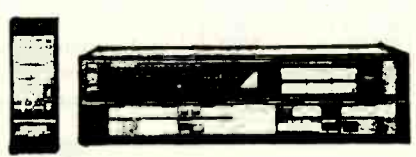
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SPECIAL REPORT

of their pre-*Aftermath* work, especially the relative obscurities lurking between the acknowledged hits.

Although it's easy to take for granted now, the band's first three albums—**The Rolling Stones** (Abkco 7375-2), **12 x 5** (7402-2), and **Now!** (7420-2)—defined white rock's relationship to r&b (and black culture in general) for an audience that barely knew the debt existed. The Stones took Chuck Berry's speed and doubled it, took Otis Redding's pain and twisted it. *12 x 5* (with "Time Is on My Side," the still astounding "Empty Heart," and "It's All Over Now") and *Now!* (with "Heart of Stone," "Everybody Needs Somebody to Love," and "Little Red Rooster") are slightly preferable to the debut. Yet all three gain power and clarity on CD because of the use of the original mono masters in place of the reprocessed stereo on most later issues of the albums. As usual, the digital format unlocks the expected little sonic surprises, like the metallic edge of Bill Wyman's bass on "I'm a King Bee," the backing vocals on "Heart of Stone," and the acoustic guitars that propel the performances from behind. But the biggest payoff—and this is the main attraction of hearing the Stones on CD—is the authority of the ensemble performances, listening to the band thinking on its feet. Just as Mick Jagger's voice on a simple blues like Jimmy Reed's "Honest I Do" reveals layers of tenderness and playfulness when you listen close, so the band's pliant guitars and rhythms give up new textures as they rub against one another.

Out of Our Heads (7429-2), released in 1965, was a breakthrough for original Stones material with "The Last Time," "Play with Fire," "The Spider and the Fly," and something called "Satisfaction." Surprisingly, and the same year's **December's Children (and Everybody's)** (7451-2), al-

though a grab bag of singles and extra tracks culled from British LPs, isn't far behind with the supersonic "She Said Yeah," the Beatific "The Singer Not the Song," and "Get Off of My Cloud." **Big Hits (High Tide and Green Grass)** (8001-2), the band's first and maybe best compilation, was a revelation when it came out, cementing the Stones' claim to hitmaking prowess when they were still thought of as anti-pop-chart slime. If you own the group's first five releases, *Big Hits* is remarkable only for the LP appearance of "19th Nervous Breakdown."

With 1966's **Aftermath** (7476-2), the Stones accede to the mid-Sixties auteurism of the album-as-canvas, filling the LP with all originals and giving Brian Jones free rein as exotic colorist. Though they always (if grudgingly) exploited the tricks of the studio despite their mistaken rep for spontaneous crudity, *Aftermath* dispelled their ragtag sonic myth for good and, as such, is among the Stones CDs with the greatest range and delicacy. The next year's **Between the Buttons** (7499-2) takes *Aftermath* into darker, sparser turf: fewer blues, colder atmospheres, emptier hearts. The one complaint about this CD is that the bass mastering on some songs (like "My Obsession") is way too high, often shrouding the other instruments. **Flowers** (7509-2), which shares that bass trouble especially on the fine "Ride On, Baby," is another grab bag in the manner of *December's Children*, almost as surprisingly solid and equally worthy of consideration once you get more important discs. **Their Satanic Majesties Request** (8002-2), the band's parody-of/answer-to *Sgt. Pepper's Lonely Hearts Club Band*, is neither funny, interesting, nor brazen enough to warrant its meandering—and in some ways, the CD compounds the sin, showing how much elaborate aural care went into the debacle.

With 1968's **Beggars Banquet** (7539-



THE STONES, c. 1971: "STICKY FINGERS" RANKS WITH THE BAND'S BEST RECORDINGS IN SOUND AND CONTENT.

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2), the first self-conscious roots record in the history of rock 'n' roll, pop prankster Andrew Loog Oldham was superseded by boozy rocker Jimmy Miller as producer, and that switch, along with the musical and psychological deterioration of Jones, ushered in the Stones' mature phase. Adding country blues to their mastery of urban styles, they got more expansive stylistically (taking in the voodoo rhythm of the previously unimaginable "Sympathy for the Devil") as well as socially (with the ironic class sympathy of "Salt of the Earth"). The following year's *Let It Bleed* (8004-2) may even top it, just by the hushed suspense of the opening guitar figure of "Gimme Shelter," not to mention how the rest of the song manages to live out the fear implicit in that intro. With the widescreen soundscapes of vigorous guitars and Jagger's passionately detailed vocals, these two albums arguably represent the Stones' summit and are the indisputable place to begin hearing them on CD.

A few trivial tidbits round out the Stones' career on London. **Through the Past, Darkly (Big Hits Vol. 2)** (8003-2) is a perfectly honorable compilation, committing "Jumping Jack Flash," "Honky Tonk Women," and "Dandelion" to album form. Again, the overlap makes it of relatively low priority. **Get Yer Ya-Ya's Out!** (8005-2) catches the band's 1969 tour before it turned bloody and apocalyptic at Altamont, yet this live recording has always been more of a historical document than proof of the Stones' vitality as a stage act (such proof has never reached official vinyl). Finally, **Hot Rocks 1964-1971** (6667-2), London's revenge against the band leaving the label, is the notorious token Stones album for people who own only one Stones album. Its se-

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lection is obvious, and its just-the-hits mania shortchanges the conceptual clout of the Stones' regular-release albums. That it is currently the most popular Stones CD is one of those depressing confluences of economic fact and received clichés about their work.

With the establishment of the group's own label, analysis of the Stones' recorded career becomes a little too easy for comfort. Surely, **Sticky Fingers** (Rolling Stones CK 40488) and **Exile on Main Street** (CGK 40489) rank with the band's greatest albums, completing the expansion of *Beggars Banquet* and *Let It Bleed*. On CD, *Sticky Fingers* uncovers a few new Keith Richards rhythm guitar strokes on "Brown Sugar" and "Sway" as well as laying bare the gorgeousness of the acoustic-guitar/drum/string interplay on the heroic "Moonlight Mile." *Exile*, that pinnacle of murk, is a wonder on CD not because you can finally hear the buried words (you still can't) but because it sharpens the guitar chordings and Jagger's breathtaking array of sighs, whispers, and brays. "You've got a cutthroat crew/I'm gonna sink under you," he sings on "Soul Survivor," and hearing him sink is the chilling, deadbeat thrill of this recording.

After *Exile's* weary admission of defeat, the rest of the band's career seems like a cover-up of it, a dull retreat into the security of established stardom. The second-hand demonism and automatic-pilot riffing of **Goat's Head Soup** (CK 40492) are salvaged only by "Winter," "Coming Down Again," and the lewd "Star Star." **It's Only Rock 'n' Roll** (CK 40493) is summed up too often by its title, except for "If You Can't Rock Me." **Made in the Shade** (CK 40494) is another useless compilation, taken from the previous four albums. **Black and Blue** (CK 40495) is too scattered for its own good, yet it has more honest work, jagged riffing, and loving takeoffs on the black music the Stones have always drawn from than anything since *Exile*. Though barely more than an audition for Mick Taylor's replacement, the LP is full of guitars that slam and lurch, and Jagger has two grand ballad moments, "Memory Motel" and "Fool to Cry." This CD is worth the high-focus attention that the digital medium gives to the chattering, interlocking rhythms. But the double-set **Love You Live** (C2K 40496), aside from two of the tracks recorded in a small club ("Crackin' Up" and Muddy Waters's "Mannish Boy"), is the biggest waste of the band's career, mired in unfocused riffing that even Charlie Watts can't direct, as well as the most irritatingly lazy vocals that Jagger has ever committed to tape.

The 1978 release **Some Girls** (CK 40449), the last time the Stones seized the pop moment, is their slightly overrated answer to punk, with still wondrous ensemble playing. The telepathic guitar conversations between Richards and Ron Wood, along with the spare, doomy crack of Watts's drums, are caught exquisitely on CD. **Emo-**

tional Rescue (CK 40500), from 1980, has a moment or two (like Richards's pained, acidic ballad "All About You") smothered by re-treads of the previous LP's studied outrage. **Sucking in the Seventies** (CK 40501) is a compilation that indicts itself from the title on down. The 1981 **Tattoo You** (CK 40502) backs a side of jittery rockers (topped by "Start Me Up") with a wonderful side of soul-stirring r&b ballads and acoustic plaints, and just to hear the CD unravel the vocal tics on "No Use in Crying" and "Tops" makes it a strong, minor pleasure. **Still Life (American Concert 1981)** (CK 40503)—where do they get these incriminating titles?—is another "live" (yeah, sure) document whose true purpose is to remind you that the supposedly road-hungry Stones have done their finest work in the studio.

A few minor quibbles with the CD format should be aired: the unavoidable tape hiss on the '60s and '70s recordings, packaging omissions like the writing credits on the band's debut and the players on *Black and Blue* (which was thick with sessioneers). But the finest CDs in this retrospective—the studio London work, *Sticky Fingers*, the single-disc *Exile*—are apt reminders that the technology can illuminate the nuances of rock 'n' roll performance with as much grace as it shows off the antiseptic luster of most modern pop productions. And because the Rolling Stones at their peak are the definitive measure of rock 'n' roll performance (as opposed to pop technocracy), such a revelation is no small thing indeed. *Mark Moses*

Editor's note: The following Rolling Stones recordings are also available on Compact Disc: Undercover (Rolling Stones CK 40504), Rewind (CK 40505), and Dirty Work (CK 40250).

MCA/IMPULSE! JAZZ

IN THE MID-SIXTIES, IMPULSE! WAS ONE OF THE most important and adventurous jazz labels, offering records by John Coltrane, Archie Shepp, and others who were in the forefront of the avant-garde. The label also recorded more traditional jazz, such as the small-group dates by Art Blakey, Count Basie, Ahmad Jamal, and Sonny Rollins; these dates are among 12 Compact Discs recently released by MCA under the newly reactivated Impulse! name.

Coltrane hasn't been forgotten: He is represented by two of his most lyrical albums. One, 1965's **A Love Supreme** (MCA/Impulse! MCAD 5660), was his best-selling record, a trend-setting work noted as much for its structural coherence as for its meditative spirituality. Impressively tuneful, the album has an almost impassive quality as a whole, and yet it contains a striking blues in the second part, "Resolution."

John Coltrane and Johnny Hartman (MCAD 5661), from 1963, received much less attention. Too bad, for it captures one of the most sensitive collaborations between singer and accompanist on record. Hartman

THE BEATLES ARE COMING!

IN FACT, BY THE TIME YOU READ THIS, they should be *here*. At press time, EMI announced it is issuing on CD the group's first four Parlophone LPs—*Please Please Me*, *With the Beatles*, *A Hard Day's Night*, and *Beatles for Sale*—which are better than their Capitol cousins. First, they are the true albums the Beatles recorded. Capitol took the same four LPs, shuffled the tracks, and created five shorter LPs: *Meet the Beatles*, *The Beatles' Second Album*, *Something New*, *Beatles '65*, and *The Early Beatles*. (That number increases to six if you count seven of the 11 tracks on *Beatles VI*.) Second, the U.K. LPs have the group's intended sound; Capitol altered the production on some tracks released here.

The remaining Beatle LPs will be issued on CD in chronological order during the coming months of 1987.

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had a rich baritone, which he used tastefully, and Coltrane was, as he proves here and on the LP he made with Duke Ellington, one of the greatest ballad players. On "They Say It's Wonderful," he picks up Hartman's last phrase and comments gracefully, moving to the top range of his tenor, where he sounds like a singer with a catch in his throat.

Coltrane was at his best in the mid-Sixties. Rollins, represented here by **Sonny Rollins on Impulse!** (MCAD 5655), seemed on edge during the same period, interested in the avant-garde happenings around him but unclear what to do with them. He appears willing to go outside the chord changes on "Everything Happens to Me," but the traditional rhythm section makes it impossible. Rollins is more at home on "Hold 'em Joe," one of his calypsos, but he is less fluent, less magisterial, than usual. He still shows himself to be a master at playing with time, however, and the rhythm section cooks: pianist Ray Bryant, bassist Walter Booker, and drummer Mickey Roker.

Count Basie and the Kansas City 7 (MCAD 5656) is an attempt to remake some of the great small-band sides of the Thirties. It begins with "Oh, Lady, Be Good," which Basie first recorded with Lester Young, and contains two other early Basie hits, "I Want a Little Girl" and "Shoe Shine Boy," both previously Young features. The new group doesn't have the balance and genius of the earlier sessions, but it does offer expressive soloing by Thad Jones, hard-hitting playing by Frank Foster, and the peerless, bluesy piano, recorded flawlessly, of Basie.

I find the Blakey disc perplexing. **A Jazz Message** (MCAD 5648) is an all-star date—with McCoy Tyner, Sonny Stitt, and Art Davis—but it doesn't take off. Stitt, never less than supremely competent, sounds out of sorts and even temporarily out of tune on "Just Knock on My Door." Tyner seems to be laying back, and as rhythm is his strength, he sounds uninvolved here. Not so Blakey and Davis (he may be the star of this album), yet they don't quite ignite the front line.

Jamal was known early in his career for his pearly touch and sophisticated coolness when playing such pieces as "But Not for Me." By 1970, however, when **The Awakening** (MCAD 5644) was recorded, he had become a more forceful and less interesting pianist, abandoning his fragile charm without picking up much to substitute for it. So despite a fine, inventive "Dolphin Dance," this set is less distinctive than his early work.

All of these discs have been remastered scrupulously, so they sound fresher, more precise, and airier than ever before—and with less distortion. They were recorded at a time when engineers liked exaggerated stereo effects, however, and those effects remain. The Coltrane is indispensable, the others less so.

Michael Ullman

THE FIRST 12 CDs FROM THE REINSTATED Impulse! remind us that the label was a lot more than just a forum for the explorations

of John Coltrane and his quartet. The six recordings under review here owe more to the organizing designs of their arrangers than to the searing vision of any unfettered soloist. And the sonic quality of each CD enhances the expanded size of the musical unit.

Two sessions are downright mainstream. **Duke Ellington Meets Coleman Hawkins** (MCA/Impulse! MCAD 5650) isn't the grand summit meeting it portends; it's more a scrappy, high-spirited get-together. Haw-



HAWKINS: FEATURED ON TWO IMPULSE! CDs

kins jabs, stomps, and coos, but the special pleasures lie in Duke's ingenious redressing of his positively minimal blues-based compositions. Aside from luscious readings of "Mood Indigo" and the ready-made homage "Self Portrait (of the Bean)," the tunes are little more than frames for Ellington to deftly manipulate the personal tonal palettes of his skeleton-crew septet. Using a microcosm of the orchestra—Johnny Hodges, Ray Nance, Lawrence Brown, and Harry Carney—Ellington tricks the ear into hearing the full band.

Benny Carter's **Further Definitions** (MCAD 5651) is also untouched by modernist leanings, although this masterpiece may have gotten its creative edge from the weird juxtaposition of older and younger players. Hawkins (again) is paired with Charlie Rouse, Carter alongside Phil Woods, Jimmy Garrison with Count Basie drummer Jo Jones. It all comes off with an organic beauty, owing to Carter's sumptuous and detailed writing. His homage to Hawkins, the tenorist's "Body and Soul" solo adapted for four saxes, tingles the spine; an updating of Carter's "Crazy Rhythm" and "Honeysuckle Rose" will give World Saxophone Quartet fans something to ponder for weeks.

Quincy Jones straddled the territory between the older swing arrangers and his adventurous contemporaries. **The Quintessence** (MCAD 5728) stands as one of his most solid big band efforts: Familiar soloists

(Freddie Hubbard, Woods) are exploited to the fullest, the band is as tight as it could get, and Jones's unfortunate trademark of cloying flute voicings is kept to a minimum. His charts, muscular and a bit obvious, lean to a Basie directness that helps put over standards like "Invitation" and Thelonious Monk's "Straight No Chaser" as well as some swinging originals.

Oliver Nelson's **Blues and the Abstract Truth** (MCAD 5659) features the original version of the stunning "Stolen Moments"—reason enough to own it. Nelson was a first-rate popularizer, and his compositions and arrangements took their cues from the prevailing hard-bop/modal notions of the early Sixties. The spark behind them is the exceptional choice of players, vanguardists Bill Evans, Eric Dolphy, and Hubbard next to rhythm aces Roy Haynes and Paul Chambers (Nelson himself keeps up more than nicely on tenor). Frugal solos and Nelson's controlling hand make this one of the great disciplined sessions of a too often ego-rampant musical era.

Charles Mingus's **The Black Saint and the Sinner Lady** (MCAD 5649) and the Gil Evans Orchestra's **Out of the Cool** (MCAD 5653) are both highpoints of postbop orchestral jazz, unmistakably original and utterly different from one another. *Black Saint* bristles with density, a thick brew of sounds and rhythm. Mingus's idol Ellington hovers about the corners, but that influence is offset by a slew of ever shifting stylistic tangents: Spanish strains, bebop horn solos, carnival airs, blues changes, symphonic dissonance. The multilayered writing presented a road-not-taken alternative to the free-form blowing route then in fashion; only recently have contemporary musicians like David Murray begun to follow its lead.

On *Out of the Cool*, Evans uses space as skillfully as Mingus employs solidity and mass. "La Nevada," the 15-minute centerpiece, is emblematic, expanding from a germ of a phrase to a rousing, all-out climax, with room for classic solos from Ray Crawford, Johnny Coles, and Budd Johnson. The eerily subtle manner in which the piece is built—you're never quite certain of where it's heading or how it's going to get there—is as much a credit to Evans's nerve as to his structural smarts. A match for any of his collaborations with Miles Davis, *Out of the Cool* still sounds radical 25 years after its initial release.

Steve Fullerman

FRANK ZAPPA

RYKODISC, A CD-ONLY OUTFIT, AND FRANK Zappa, the maestro of offense, have entered into a deal wherein the former will issue eight discs per year (including the occasional double set) drawn from the latter's vast catalog of recordings. This arrangement will continue for two or more years, contingent on options renewed.

Of all the releases in the first batch, **We're Only In It for the Money/Lumpy**

SPECIAL REPORT

Gravy (Rykodisc RCD 40024), originally two separate albums recorded in 1967 and now on one 70-minute disc, will likely be the most controversial in terms of what the transfer to CD has wrought. Most notably, new bass and drums have been digitally recorded for *Money*, though there are also less glaring alterations (e.g. a saxophone part now accompanies the closing monologue on "Who Needs the Peace Corps?"). Those listeners familiar with the cheesy ambience of the original *Money* may find this aural enrichment distressing—the phonographic equivalent of film colorization. I found that the new deeper-textured mix grows on you. It helps that this is peak early Zappa, a succinct tweaking of both hippies and the Establishment, certainly a novel concept during that period of *Us vs. Them*. As for *Lumpy Gravy*, Zappa's mixture of avant-garde orchestral music, amateur theatrics, and surreal sociology is an ambitious collage that is hopelessly fragmented. In any format.

Recorded in 1972, **The Grand Wazoo** (RCD 10026) is Zappa's one sustained jazz/rock effort. Trumpeter Sal Marquez, trombonist Bill Byers, and keyboardist George Duke offer solid if rather conventional solos, frolicking amid a variety of Zappa-esque compositions. The CD sound increases one's appreciation of how the composer keeps his arrangement a moving landscape.

The double-CD set **Shut Up 'n' Play Yer Guitar** (RCD 10028/29), recorded from 1977 to 1980 and originally released on three LPs, is one hour and 40 minutes of Zappa the prolific picker. Many of these cuts are from concert recordings, so the sound is a little rough and guitar-heavy at times; also, during what amounts to a string of climactic highlights, you may start to burn out. Taken in the proper doses, however, one can't help but agree with the consensus that Zappa is a superior rock guitarist—and that on this instrument, he achieves an eloquence and a depth of feeling found nowhere else in his music.

Apostrophe/Overnight Sensation (RCD 40025) is one disc combining the two albums (from '74 and '73, respectively) that represent Zappa's commercial peak until the early-Eighties fluke of "Valley Girl." Apparently, the happy vulgarity, pretentiousness, and aggressive guitar featured here fit perfectly into the early-Seventies AOR format. And there is much to enjoy, with special mention going to the "Yellow Snow" suite and "Montana"; the non-ax-grinding, whimsical Zappa is always less problematic and usually more fun than the social satirist one.

The London Symphony Orchestra (RCD 10022), from 1983, is gorgeously recorded and contains the 24-minute previously unreleased "Bogus Pomp." To call this the serious Zappa would be misleading: The ratio of funny to not-funny is about the same as always. Anyway, much of this sounds like film music to me—but then I've always gotten my Varèse and much of my Stravinsky

second-hand, by way of soundtracks.

The 1984 **Them or Us** (RCD 40027) is typical of the early-Eighties Zappa albums: a grab bag of authoritative and intelligent rock guitar solos, naughty sex, alienation, and yucks. All this and Dweezil, too, the little show-off. Less variegated is the same year's **Thing-Fish** (RCD 10020/21), a double-CD operetta that runs a very long 90 minutes. It's musically indifferent and lyrically heavy-handed, but how you respond to it may well depend on how you feel about the targets under attack. I found the jibes at Broadway shows and TV evangelists amusing and the "jokes" about gays and women business executives embarrassingly reactionary.

Finally, **Frank Zappa Meets the Mothers of Prevention** (RCD 10023), keeping a date he only fantasized about in 1967. The centerpiece of this '86 release, "Porn Wars," depicts the infamous Senate hearings on rock lyrics and obscenity as a babble of foolish voices; how much creativity this took on Zappa's part is debatable. For the rest, there are two not-on-the-LP cuts, plus a glimpse of the future via some synclavier-generated arrangements—sprightly, metallic pieces that leave this reviewer a little cold. More gratifying are the blasts from the past, in the form of a few grand-manner guitar solos and a clever satirical song about, believe it or not, hippies. Which is where we came in.

Richard C. Walls

Editor's note: For more about the CD-only label Rykodisc, see "Rykodisc Samplers" below.

FRANK SINATRA



FRANK SINATRA HAS FINALLY MADE HIS DEBUT on Compact Disc with titles drawn from the catalog of Reprise, the label he founded in 1961. The occasion is important by definition: Sinatra is the single most important performer in the postwar history of American popular song, and even his least satisfactory recordings are worthy of the closest

critical scrutiny. But only one of these albums, *September of My Years*, ranks with his best work. The rest, despite occasional moments of poise and confidence, merely serve to remind the listener of the bad artistic patch into which Sinatra was thrown by the growing popularity of rock.

By 1955, Sinatra had achieved a classic synthesis of American popular singing styles, turning out an unbroken string of flawless albums like *Songs for Swingin' Lovers* and *Only the Lonely* for Capitol. An artist can remain at the top of his form for just so long, though, and the rise of rock had the same destabilizing effect on Sinatra that it later had on Miles Davis. From 1960 to 1964, he recorded a series of attractive but rather aimless albums for Capitol and Reprise; **The Concert Sinatra** (Reprise 1009-2), a stodgy collection largely devoted to the lyrics of Oscar Hammerstein II, dates from this period. Then Sinatra began once more to try to crack the elusive code of mass popularity. His 1966 album **Strangers in the Night** (1017-2) bears the revealing subtitle "The Popular Sinatra Sings for Moderns." But he invariably sounds awkward singing soft rock ballads like "Didn't We" and "Yesterday," and in the worst of these albums, the 1966 **That's Life** (1020-2), he is placed in front of Ernie Freeman's tasteless, organ-dominated, pseudo-rock arrangements for a badly engineered program consisting of one throwaway after another.

Not surprisingly, Sinatra's best recording from this period is the 1965 **September of My Years** (1014-2), in which he reasserted his fading commitment to the formula of his former label, Capitol: arrangements by Gordon Jenkins, a new title song by Sammy Cahn and Jimmy Van Heusen, an uncompromisingly traditional approach to repertoire. **It Might as Well Be Swing** (1012-2), a 1964 collaboration with Quincy Jones and Count Basie, shows the same confidence of approach but suffers from a lackluster choice of material. **My Way** (1029-2) and **Ol' Blues Eyes Is Back** (2155-2), Sinatra's 1973 "comeback" album, are damaged in varying degrees by uneven material and stylistically unsure arrangements. And on **Sinatra at the Sands** (1019-2), a Las Vegas concert recording with Jones and Basie, Sinatra's coarsened remakes of Fifties classics like "One for My Baby (and One More for the Road)" and "I've Got You Under My Skin" suggest for the first time the crude self-caricature of "hipness" that came to dominate much of his later work.

All of these albums have been competently remastered, but the original analog sound was not very satisfying in the first place, particularly when compared with the high-quality early stereo that Capitol provided for Sinatra in the mid-to-late-Fifties. Sonny Burke's production style is easy to recognize: Sinatra's voice is placed dead-center and down front, swimming in excessive reverberation. And wide stereo separation is the rule—so wide that the rhythm

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SPECIAL REPORT

section is frequently split up and panned to opposite corners. The resulting sound is shallow, unblended, and harshly lit. Even though Sinatra consistently recorded "live" with a studio orchestra, the different audio environments applied to singer and instrumentalists make it seem as if he had been tracked in after the fact. Digital remastering brings out the inherent weaknesses of this production approach with disturbing clarity.

By contrast, the digitally remastered Sinatra albums that Capitol/EMI released in Great Britain a couple of years ago sound warmer and more natural than ever. These albums have not yet appeared on Compact Disc because of the same difficulties that are keeping the Beatles off the format. One can only hope that these difficulties are resolved as soon as possible. [At press time, Capitol announced it is releasing four of its Sinatra recordings on CD: *In the Wee Small Hours*, *Songs for Swingin' Lovers, Close to You and More*, and *Sinatra's Swingin' Session and More*. As for the Fab Four, see "The Beatles Are Coming!" elsewhere in this section.—Ed.] Sinatra's recordings for Capitol are essential documents of American popular song at its peak. His recordings for Reprise, with one or two notable exceptions, are simply not on that level.

Terry Teachout

Editor's note: Also available on Compact Disc from Reprise is Sinatra: A Man and His Music (1016-2), a two-disc compilation.

MOTOWN TWOFERS

MOTOWN SURPRISED MANY RECORD-INDUSTRY observers when it announced this past fall that its midline titles on vinyl would be completely phased out and replaced by a series of Compact Discs combining two full LPs on one CD. The company had already introduced a host of special CD lines, including the acclaimed "Compact Command Performances" slate featuring the best music of select artists on extended discs, and the new series of 42 twofers is further evidence of the label's wholesale adoption of and expansion into the digital format.

Motown is unashamedly targeting these twofers at the yuppie market, reasoning that the same people who took to heart the music of *The Big Chill* will jump at the chance to get a pair of classic albums for a bargain price and enjoy the enhanced fidelity ensured by digital remastering. Sadly, though, not all of these twofers deliver that "ensured" enhancement—if the six titles I sampled are indicative. Indeed, sound-level fluctuations and dropouts are the norm on at least two of them.

The most impressive sets are the ones devoted to groups. **Four Tops/Four Tops' Second Album** (Motown MOTD 8027) finally brings out the submerged harmonies and elaborate production that can't be heard adequately on the analog versions. The

piercing choruses and deft opening refrain of "Baby I Need Your Loving" have greater definition here, and the richness of Levi Stubbs's tone can be truly distinguished. Likewise, the incisive vocal exchanges of the Temptations on **Cloud Nine/Puzzle People** (Gordy GORD 8016) are overwhelming on CD. The argument that "Cloud Nine" isn't a drug song is more convincing when you focus on the overlaid voices and the clashing of tinny guitar and rumbling bass, now fully clear in the mix. *Puzzle People* was a thoroughly underrated LP in its time; listen especially to the spirited nationalist anthem "Message from a Black Man." These Four Tops and Temptations sets alone will probably inspire sale of the others.

The big disappointment is Mary Wells's **Two Lovers/My Guy** (Motown MOTD 8024). The title track of the latter LP has a disturbing dropout at the peak of Wells's vocal, and there are several songs on *Two Lovers* that are muddy and lifeless. It's disquieting that allegedly superior sound-reproduction technology wasn't able to display the booming soprano that was such a part of Wells's charm. **Every Great Motown Song, The First 25 Years, Vol. 1: The 1960s/Vol. 2: The 1970s** (Motown MOTD 8034) also fails to convey anything beyond the expected, although here the problems may further derive from the song selection (no Stevie Wonder track at all strikes me as absurd). And the '70s material does show how Motown started slipping in compositional clout: Not one track holds up against the body of work from the '60s.

My favorite CD here—though not the peak in musical efficiency—is Marvin Gaye's **What's Going On/Let's Get It On** (Tamla TAMD 8013). Gaye's masterful ebullience, sultry flamboyance, and steamy eroticism are sizzling on *Let's Get It On*, while his sense of frustration and indignation, coupled with some epic lyric-writing and production, make *What's Going On* a landmark of pop protest. This CD doesn't have any glaring problems, and the sonorous, splendid Gaye tenor comes across magnificently in digital. You can hear him hitting the cliffs of "Save the Children," and the grunts and groans of "Let's Get It On" could be in your own bedroom. Similarly, the engaging innocence of Michael Jackson makes for unforgettable listening to **Diana Ross Presents the Jackson 5/ABC** (Motown MOTD 8019). That innocence, coupled with Michael's staggering vocal talent and the group cohesion that was too natural to be slick at the time, renders these recordings essential, and none of the electricity has been sacrificed on CD.

It was a master stroke of Motown to introduce these twofers. However, despite the fact that the original recordings are 20 years old, some of the twofers have such disappointing fidelity that it even sounds as if first-generation tapes weren't used for remastering. And if this disappointing sound

is the rule, the demanding expectations of CD consumers may eventually undermine the good will that the company has generated with the series.

Ron Wynn

RYKODISC SAMPLERS

THE JAPANESE WORD "RYKO" MEANS "SOUND from a flash of light," so it's fitting that Rykodisc, a CD-only label based in Salem, Massachusetts, borrowed the word in establishing its identity. According to the company, releases are geared specifically to the CD buyer, with acoustic and "atmospheric" music, jazz, and progressive rock being especially well cataloged. [That last category includes Frank Zappa, whose first Rykodisc CDs are reviewed above in this section.—Ed.] Additionally, Rykodisc claims to take special care in digitally remastering source tapes, reconfiguring LP jackets to jewel-box booklet dimensions, and adding extra tracks where appropriate.

The sound quality of the five Rykodisc compilations under review here is indeed high, except for that of *The Cruisin' Years*, which is a product of '50s and '60s recording technique. Unfortunately, though, the informative 28-page booklet provided with this disc, while offering far more than necessary for most releases, stands way out compared with the basic track listings that accompany the other discs. But at least there are references to the albums where the selected tracks originated: It's hard to think of one artist who is not worthy of a fuller hearing.

This is especially true of **Rounder Folk** (Rykodisc RCD 20018), which beautifully showcases the Rounder label's depth in contemporary as well as traditional folk music. Beginning with Mary McCaslin's wondrously unaffected version of the Beatles' "Blackbird," the vitality of current folk in all its variety is explored, with crystalline sound reproduction highlighting acoustic instrumentation and, more important, individual vocal attributes. Not meaning to slight any of the 20 other deserving artists, I must spotlight Hazel Dickens for her pure country-ballad twang in "Beyond the River Bend," Bob Brozman for his steel-guitar-driven "Twelfth Street Rag," and the Johnson Mountain Boys for their sweetly rendered youthful bluegrass of "Waves on the Sea." The compilation also includes stellar contributions from Nanci Griffith, John Fahey, Mimi Fariña, Christine Lavin, and Riders in the Sky and has a playing time of more than 60 minutes (as do the other four discs).

Two more Rounder packages, **Out of the Blue** (RCD 20003) and **New Acoustic Music** (RCD 20002), and the Heartbeat label's **Heartbeat Reggae** (RCD 20019) equal *Rounder Folk* in sound quality. *Out of the Blue* draws from Rounder's wide range of blues-related artists and includes offerings from the Buckwheat Zydeco Band, George Thorogood and the Destroyers, the Night-hawks, Marcia Ball, John Hammond, J.B. Hutto and the New Hawks, and Solomon

SPECIAL REPORT

Burke. *New Acoustic Music* offers top musicians of that genre—sort of an outgrowth of instrumental folk and bluegrass in the New Age direction, though banjoists Tony Trischka and Bela Fleck, mandolinists David Grisman and Sam Bush, dobro ace Jerry Douglas, and guitarists Tony Rice and Pierre Bensusan would undoubtedly object to such categorization. This disc may wear thin on the uninitiated—a problem also possible with *Heartbeat Reggae*, since even with such stars as Burning Spear, Mutabaruka, Black Uhuru, the Mighty Diamonds, and

Gregory Isaacs and with a progression to poppy, horn-charted material, the beat and the melody necessarily stay within genre confines. But fans will surely appreciate the sound of both CDs, especially that of the percussion on *Heartbeat Reggae*.

As mentioned before, only **The Cruisin' Years** (RCD 40032), a 15-song set of vintage rock 'n' roll plus period advertising and chatter by the era's top deejays, suffers in the sound department, but with warhorses like "Maybelline" and "Duke of Earl," that's to be expected. Besides, these are classics, so who cares if they don't sound any better than they originally did.

Jim Bessman

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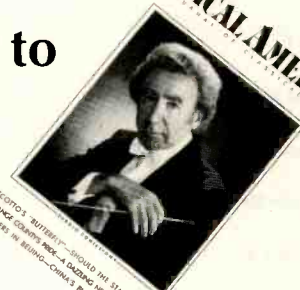
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